

Master of Science in Energy Management

EN310E 003

David and Goliath in the North

A study of how the local industries in Helgeland can become more competitive in the Norwegian Oilfield Service industry

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Bodø, May 2010

Acknowledgements

I will like to thank all who has helped me write this thesis which is my final assignment at Bodø Graduate School of Business. I would like to thank my supervisor Jan Oddvar Sørnes for all his contribution. Also I would like to thank Krister Salamonsen for his help on the research project and with interviews and transcription. I would also like to thank all the interview respondents both in BP, Mo i Rana and Sandnessjøen.

Finally I would like to thank Mariann for the support trough out the entire process.

Bodø, 18.05.2010

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Abstract

This study focuses on the following problem statement:

How can the Helgeland industries become more competitive in the Norwegian Oilfield Service industry?

In order to answer this question I have identified the advantages between the incumbent firms in the Oilfield Service industry called entry barriers. There are several large entry barriers in the Oilfield Service industry for that influences the Helgeland industries.

- The contractual structure makes it impossible for the Helgeland companies to become direct contractors to an E&P company. As a result they have to become sub-suppliers which often lead to lower profits and less competence building.
- Competence - about the industry and regarding jobs makes them less competitive
- Experience – the lack of experience makes the companies less competitive
- Brand identity – the lack of a know brand makes the companies less competitive
- Capital requirements – investments that has to be done in order to deliver which involves risk for the companies

These barriers can be reduced by:

- The E&P companies
- The Helgeland companies themselves
- The Government and local authorities
- Experienced OFS companies

My conclusion is that in order to make the Helgeland industries more competitive the government and local authorities has to influence the E&P companies to use build up the local industry and improve the infrastructure in Helgeland. The E&P companies then have to help the local industry become competitive by making conditions favourable for the companies and main contractors to do the same. The experienced OFS industries need to cooperate with the local industry which can gain both parties. At last the Helgeland companies them self need to cooperate, focus on niches if possible and cluster together in order to make it easier for E&P companies or main contractors to award them contracts.

Sammendrag

Dette studiet fokuserer på følgende problemstilling:

Hvordan kan Helgelands industrien bli mer konkurransedyktig i Norsk leverandørindustri til olje og gass?

For å besvare dette spørsmålet har jeg identifisert fordelene eksisterende firmaer i leverandørindustrien har over Helgelands bedriftene etableringshindringer (barriers to entry). Det er flere store etableringshindringer som påvirker Helgeland:

- Den kontraktmessige strukturen - gjør det umulig for Helgeland selskapene å bli direkte leverandører til et olje og gass selskap. Som et resultat må de bli underleverandør som ofte fører til lavere profitt og mindre kompetanseutvikling.
- Kompetanse - om næringen og om arbeidsplasser som gjør dem mindre konkurransedyktige
- Erfaring - mangel på erfaring gjør selskapene mindre konkurransedyktige
- Merkenavn - mangelen på et kjent Merkenavn gjør bedriftene mindre konkurransedyktige
- Kapital - investeringer som må gjøres for å levere noe som innebærer risiko for selskapene

Disse barrierene kan reduseres ved:

- Oljeselskapene
- Helgelands industrien selv
- Regjeringen og lokale myndigheter
- Erfarne leverandør selskaper

Min konklusjon er at for å gjøre den lokale industrien mer konkurransedyktig må staten og lokale myndigheter ha til å påvirke olje og gass selskapene til å bruke og bygge opp den lokale industrien og forbedre infrastrukturen på Helgeland. De olje og gass selskaper da må hjelpe den lokale industrien bli konkurransedyktig ved å gjøre forholdene gunstige for selskaper og hovedkontraktører må gjøre det samme. De erfarne OFS næringene må samarbeide med den lokale industrien til begge beste. Tilslutt må Helgeland selskapene selv sørge for å samarbeide, fokusere på nisjer hvis mulig og "cluster" seg sammen for å gjøre det lettere for E & P selskaper eller hovedkontraktører å tildele dem oppdrag.

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Abbreviations

CAQDAS	– Computer Aided Qualitative Data Analysis Software
EFI	– Engineering, Fabrication and Installation
E&P	– Exploration and Production
EPC	– Engineering, Procurement and Construction
FPSO	– Floating Production, Storage and Offloading vessel
HSE	– Health, Safety and Environment
ISO	– International Organization for Standardization
M&M	– Maintenance and Modification
NSC	– Norwegian Continental Shelf
OFS	– Oilfield Service
PDO	– Plan for Development and Operations
RBV	– Resource based view
R&D	– Research and development
VRIN	– Valuable, Rare Imperfectly imitable or Non Sustainable

Glossary

Barriers to entry – advantages that incumbent firms have over new entrants

Incumbents – firms located inside a industry

Cluster – “A cluster is a geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities”
(Porter 1980)

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1 Introduction

In 1969 the Norwegian oil adventure started when Phillips struck oil in what today is known as the Ekofisk field. (Gjerde n.d.) Since then Norway's economy has spurred from its oil income and has managed its income very good. Norway is often used as an example how a country should manage its income. Even though Norway is a small country world wide it is the fifth largest exporter of oil in the world and the third largest exporter of gas. (Norwegian Petroleum Directorate, 2008) The Norwegian Petroleum Sector plays a very important role in the Norwegian economy. It represents 24 percent of Norway's GDP and 48 percent of total exports. In 2008 the industry was the largest in Norway and had created an excess value of 6000 billion NOK in current terms. (Norwegian Petroleum Directorate, 2008)

Trough the 70s and 80s the Norwegian oil and gas cluster was coined trough the government's politics. The government demanded that the operating companies should use Norwegian suppliers and that the companies them self should be located in the country. (Reve & Jakobsen, 2001) This policy has made the Norwegian Oilfield Service (OFS) industry what it is today. Dåbakk in Molab states: *"The way I see it competence and networks is something that the industry has obtained together with the oil companies on and the oil companies and the states has taken the bill"*. As a result of this the Norwegian OFS industry has grown into an advanced industry with leading technology. It has in later years also gone international with great success.(Konkraft & INTSOK, 2008)

But there is one part of Norway that has not been able to take part in this industrial adventure namely the North of Norway. This is a result of that the production on the Norwegian Continental Shelf (NCS) has since the beginning been dominated by a small number of large fields. These were discovered the first years after Phillips found Ekofisk because the most prosperous areas was licensed out in the beginning. These fields is still playing an important role but is today on decline. Norway's oil production has also peaked but the gas production has continued to rise. (Norwegian Petroleum Directorate, 2008) And now the industry has started to look north for new resources.

According to a reason report from Ernst and Young (2009) the supply cluster in Northern Norway only gets approximately 0.36 % of the total revenues. So now that the industries are looking towards Northern-Norwegian it may only be fair that they also get the same opportunity. But you still have the dilemma of reducing the competitiveness of the existing industry by doing so.

As a result of having a long history in the industry the experienced industries have a huge advantage compared with the ones in Northern-Norway. In Helgeland the petroleum adventure has been going on since 1997 when Statoil started producing from the Norne field with a supply base in Sandnessjøen and Helicopter base in Brønnøysund. But at that time the local industry was not included to a great extent. (Henriksen et.al. 2009)

In 2007 the Plan for Development of Operations was approved for BPs Skarv field outside Helgeland. The base structure would come to be the same as for the Norne field. But their PDO BP stated that they were going to make conditions favourable for local industry of Helgeland (Henriksen et.al. 2009). Salamonsen (2009) concluded that the BP had done a good job in identifying stakeholders and informing the local industries and that some companies had been subcontractors.

But what can be done in order to make these companies more competitive in the industry.

With this as a basis I came up with the following problem statement:

How can the Helgeland industries become more competitive in the Norwegian Oilfield Service industry?

But as the companies are so new in this industry there needs to be advantages that existing firms have over them. The advantages companies in a industry have over new entrants is called barriers to entry so In order to help me answer my problem statement I have created two research questions:

Which entry barriers exist for the Helgeland industries in the Norwegian Oilfield Service industry?

What could be done in order to reduce entry barriers and become competitive?

2 Theoretical framework

I will now address the different theories which I have found to be important for this context. First I will define what Barriers to entry is and secondly discuss how strategic management theory explains this subject. Last I will present theories regarding cooperation and at last theories about clusters.

2.1 Barriers to entry

According to Blees et al. (2003) barriers to entry can be understood as advantages that incumbent firms of a market have over new entrants. These can both be viewed from the perspective of entrants as well as from incumbents. The entrant will try to analyse the market structure and the possible retaliations from incumbent firms which may try to prevent entry from new entrants. There are two different literature approaches to barriers to entry. The first is industrial organisation theory which focuses either on the advantage the incumbents have over entrants regarding the ability to raise their price above the competitive level (Bain, 1956) or the extra cost that only affect new entrants and not incumbent (Stigler, 1968). In the second approach called Strategic management theory, barriers to entry is seen as a result of company's strategic choices. (Blees et al. 2003)

Industrial organisation theory mainly focuses on financial disadvantages that face entering companies. While Strategic management theory try to explain the behaviour of companies while trying to archive maximal value creation, and also how to create barriers for entering companies. (Blees et. al. 2003) As a result of my problem statement and my methodological approach I find Strategic management theory to be the most suiting. The resound for this is that I do not want to just analyse the financial aspect of barriers to entry but also how companies interact in order to create or reduce barriers to entry. Industrial theory also functions as a basis for much of Strategic management theory as Porters (1980) industrial analysis "the five forces" which now will be presented later. But first I will present the main goal of Strategic management theory gaining a competitive advantage and sustaining it.

2.2 Competitive advantage

According to Bruce Henderson the founder of the famous consulting firm Boston Consulting Group the difference between your firm and another firm is your competitive advantage. If a firm is operating in a market they already have a competitive advantage without regards to its size. This question of why some businesses are more successful than others has been the main focus of economical strategy theory since the 1980's. Generally there are three theoretical directions on how to answer this question: the industry perspective, the resource based perspective and the evolution perspective (Roos et al. 2005).

Roos et al. (2005) explains the different perspectives:

- Industry perspective –competitive advantage depends on the industry environment that companies operate in.
- Resource based perspective – competitive advantage is a result of company's internal resources and capabilities.
- Evolution perspective has two direction -
 1. The companies are victims of natural selection and can't adapt to their surroundings parallels to Darwin's "survival of the fittest".
 2. The evolution in an industry is driven by ability to exploit an innovation before other companies are able to imitate it.

I will focus on the industry perspective and the resource based perspective since these are the most commonly used and they are possible to apply to my selected context. The first direction of evolution perspective has been criticized for been naive as integrated companies protect smaller entities and result in "survival of the week" (Barnett et al. 1994 from Roos et al. 2005). The second one on the other hand, often known as evolutionary is important regarding innovation. Here companies can gain advantages by being the first to implement a special product or service. This will last until the competitors manage to fill this gap.(Hill & Jones, 2007) I will now present the Industry perspective with regards to entry barriers.

2.2.1 The industry perspective

In his well known framework Michael Porter (1980) focuses on five forces that influence the competitive situation in an industry. The framework is used to identify the structure of competition in an industry and thereby the industries attractiveness.

Porter (2008) also explains that a common mistake when defining industries is either to define them too broad or too narrow. If defined too broad one overlooks the differences in products, customers and also geographical regions which are important for the competition in an industry. On the other hand if an industry is defined too narrow one overlooks linkages and commonalities that related products and geographical markets may have. The boundaries of an industry consist of two dimensions according to Porter the scope of products and services and the geographical scope. The first deals with if the products and services can be defined as part of the same industry like if motor oil for cars is part of the same industry as motor oil for trucks. The second one deals with where the competition is contained if it is national or regional or even global. The five forces is then a tool that also can be used to define industries. Porter explains that if two products or services have the same or very similar structures which are the sources for the five forces like buyers and suppliers, they should be defined as a common industry. But if these structures differ markedly they should be defined as different industries. The five forces should then be used to define the boundaries of an industry.

The five forces are shown below and the relationship between them is shown in figure 2-1:

1. Intensity of the rivalry within the industry
2. Bargaining power of suppliers
3. Bargaining power of buyers
4. Threat of substitutes
5. Threat of new entrants

Five Forces of Competition Model (Expanded)

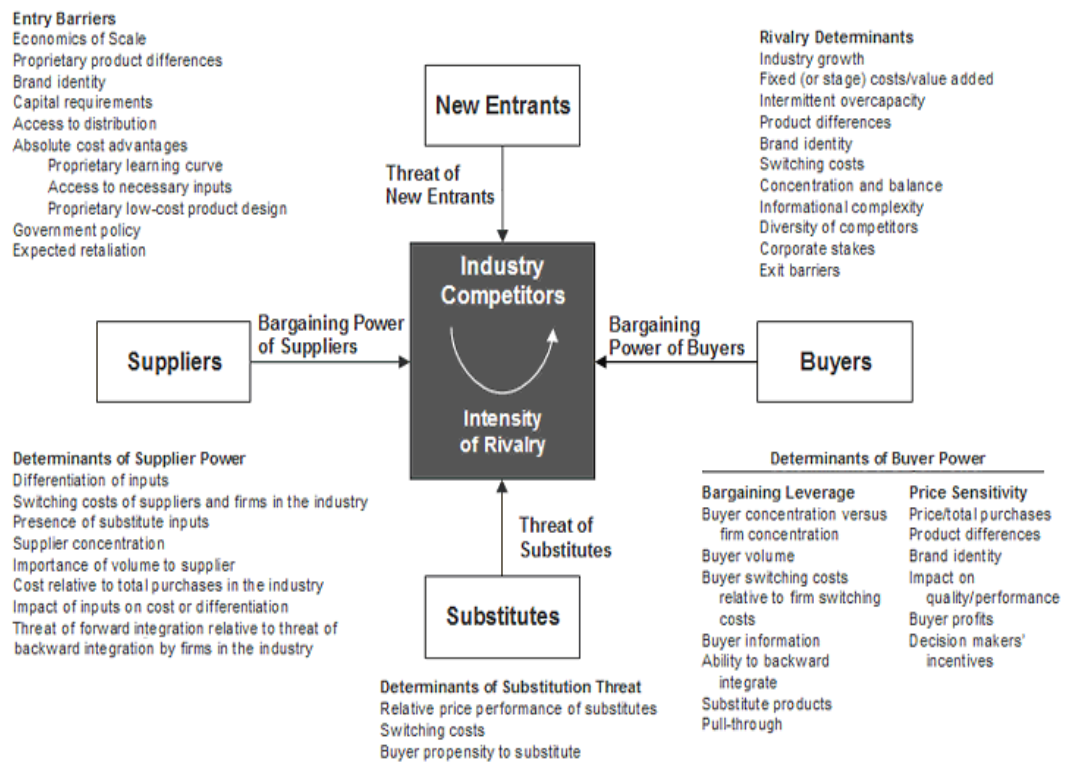


Figure 2-1 5 forces (Source: Porter 1980)

Porter (1980) explains that companies can influence these forces through their strategies and change the attractiveness of the industry. This suggests that companies have the ability to reduce the threat of new entrant's through their strategies. As the companies in the industry are affected by the other forces these also will have an influence of the threat of new entrants.

He further explains barriers to entry: "The threat of entry into an industry depends on the barriers to entry that are present, coupled with the reaction from existing competitors that the entrant can expect" (Porter, 1980, p. 7)

Porter defines seven major barriers to entry.

- Economies of Scale – the decline in unit cost of a product or service that comes operating in a larger scale
- Product differentiation – the differentiation of the incumbents products that they have over new entrants e.g. customer loyalties
- Capital requirements - investments that needs to be made in order to compete in a industry
- Switching costs – the cost that faces a customer if they wish to switch suppliers
- Access to distribution channels – the access to distribution can be blocked by incumbents
- Cost disadvantages independent of scale – cost that affect entrants independent of their size e.g. patents.
- Government Policies – governments can create barriers to entry trough e.g. licensing.

When Porter (1980) talks about product here he talks about both product and services in order to avoid repetition, which I also will do from now.

But there is a problem with Porters framework regarding my problem statement. Since it is based on the incumbents view and not the entrants, entry is seen as something negative. Also the framework does not consider the linkages between industries as two products that are not part of the same industry according to Porter can still of barriers to entry. This can be a result of them being linked together in something Porter (1985) calls the value system though they may have different buyers and sellers they could have the same barriers to entry.

Porters (1980) also presented 4 generic strategies that can be used in order to gain a competitive advantage in this environment (table 2-1). These are Cost leadership, Diversification, Cost focus and Differentiation Focus. He also explains that a strategy that in the long run generates above-average performance is a sustainable competitive advantage.

Table 2-1 Porters generic strategies

		Competitive Advantage	
		Lower Cost	Differentiation
Competitive Scope	Broad Target	1. Cost Leadership	2. Differentiation
	Narrow Target	3a. Cost Focus	3b. Differentiation Focus

Choosing the cost leadership strategy the company provides the same products in an industry but focuses on having the lowest cost. To be able to gain a cost leadership the company needs to focus on minimizing operation and production costs. This in order to be able to provide the lower price but at the same time be able to have the same or higher rate of return as the other companies in the industry. (Roos et. al. 2005)

Differentiation implies that a company provides a product that stands out compared to other industry companies. Which also leads to that the company can demand a higher price for it. This is a result of the companies brand, product properties, customer service etc. As a result the company can demand a higher price for its products. According to Porter (1980) a successful differentiation often leads to a smaller market share. Mercedes is an example of a company using the differentiation strategy. (Roos et. al. 2005)

There are two focus strategies namely cost focus and differentiation focus called a scope. These strategies focus tries to please certain costumer groups, a part of the product supplement or a geographical area. While the cost focus strides to gain a cost leadership in this scope the d focus strides to provide unit products. (Roos et. al. 2005)

Porter (1980) sees cost leadership and differentiation as two mutual exclusive strategies. Trying to focus on both will not lead to a special product and be outdistanced by companies only focusing on one. This he call “stuck in the middle”, his view has been criticized because companies’ rarely focus on only one strategy. IKEA is an example of company combining both strategies with both a cost leadership with lower price than competitors, and a differentiated potation with a strong brand. (Roos et. al. 2005)

Also Porter's five forces has been criticized to have several limitations when explanation of the competition in an industry and thereby also his view of barriers to entry. The most significant are:

- The model only focuses on the industry (meso) level and not on the macro level
- The framework presents an inside-out view of an industry (The resource based view)
- The model does not focus on linkages between industries
- There should be a sixth force called complements

2.2.2 The Macro levels affect on barriers to entry

There are also other things one has to consider when analysing an industry. The first aspect is the macro level which deals with the external factors that affect an industry. Porter (1990) himself has addressed this fact in his "The competitive advantage of nations" where he presented what is known as his diamond model which included external factors in the government and chance which can influence the diamond. This model will be further discussed later but generally focuses on an industry's competitive advantage not only the industry's competitive situation. (Reve & Jakobsen, 2001)

Porter (2008) also addressed this and stated that external factors are not forces as they are neither good nor bad for the overall profitability of the industry. The best way according to Porter is to analyse their effect on the five forces. He also mentions that the forces can for instance raise the barriers to entry for an industry.

A framework that groups different the Macro environment that can influence the competitive situation in an industry is the PESTEL analysis (Roos et al. 2005). All these can affect the barriers for entry in an industry:

The framework consists of:

- Political – e.g. tax policies, privatisation
- Economical – e.g. inflation, interest rates
- Social – e.g. education level, work ethics
- Technical – e.g. new technology, focus on technology
- Environmental – e.g., emission quotas, influence on nature
- Legal – e.g. w, environmental laws, health and safety at work acts

2.2.3 The resource based view

The second level that is not taken into consideration in the five forces model is the micro environment or the company level. This is a fact that has been stressed by the resource based view (RBV) which explain the competitive advantage of a company as a result its resources and their capabilities which refers to their ability to coordinate these resources and put them to productive use. (Hill & Jones, 2007) Barney (1991) argues that a sustained competitive advantage can only be based on resources that are valuable, rare, imperfectly imitable or non sustainable (VRIN). These resources can be understood as the basis for the incumbent company's ability to create barriers to entry for newcomers. Grant (2008) classifies resources in three groups:

- Tangible resources – financial, physical
- Intangible resources – Technology, reputation, culture
- Human resources – Skills, capacity and communication and collaboration

Grant (2008) explains that these resources must work together in order to form organisational capabilities. The organisational capabilities can also be a basis for the incumbent ability to create barriers to entry from the resource based view. Also there incumbents can create barriers to entry by controlling important resources

Porter himself also provided a micro analysis of a company called the value chain. Here he also addresses the second limitation of his model the linkages between industries.

2.2.4 The Value Chain

The value chain was first introduced as a tool for financial statement analysis. At that time the goal was to find out where in the production process the company could save money and where the value creation could improve. Then in 1985 Michael Porter introduced his value chain analysis which separated the company's primary activates like logistics and marketing from its support activates like human resource management and procurement. The main point of this is to be able to identify the building blocks and the value creation of each of these in order to analyse the company's competitive advantage. (Roos, Krogh, Roos, & Fernststöm, 2005) His presentation of the Value Chain looked like this:

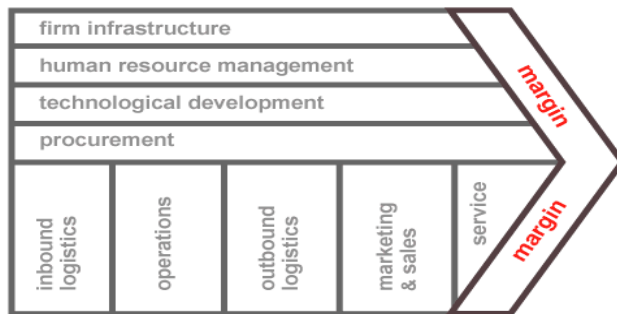


Figure 2-2 Porter's Value chain (Source: Porter 1985)

Porter (1985) further explains that the firm is part of a larger value chain which he calls the value system. He points out that the suppliers also have a value chain that has upstream value for the firm chain. Also he mentions channel value chains that some products pass through which he calls channel value. This value chain also has activities which affect the buyer's value chain as well as the company's value chain.



Figure 2-3 Value system (Source: Porter 1985)

The importance in these linkages between companies is to realize that some industries are closely linked to each other and the OFS industry is such an industry. Barriers to entry may differ for each part of the chain as they have different five forces. But some barriers to entry may be the same because the buyer at the end of the chain is the same.

Further I will discuss the third limitation in Porter's model complementary products and their impact on barriers to entry.

2.2.5 Complements and Competition affect on barriers to entry

Porter has included threat of substitutes in his “5 forces” which identifies the threat of suppliers of substitute products. Grant (2008) explains that economic theory has identified another relationship between products and services namely complements. He explains that the difference between substitutes and complements is the value for products. Substitutes decrease the value for products while complements increase it. A complement can for instance be software for computers; the availability of software will increase the value of computers. This is also supported by Nalebuff and Bardenburger (1997) “every strategy a company aims toward a competitor should be applied in exactly the opposite way toward a complementor”. Their main point is that your costumers will have other suppliers than your company that either is good for you in terms of a complementary or bad for you in terms of a competitor. Also your suppliers will have other costumers both complementors and competitors. This is shown in their value net that is shown in figure 2-4.

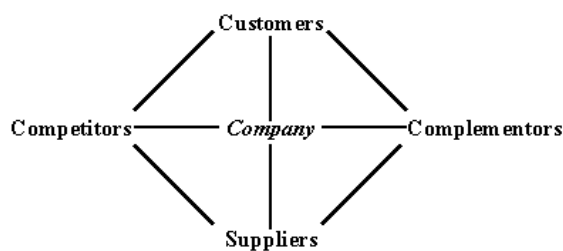


Figure 2-4 The value net (Source: Nalebuff and Bardenburger 1997)

The basic idea of all this is that cooperation has the basis in complementarities and competition in substitutes. Together they form Coopetition where companies need to both cooperate and compete at the same time.

Porter (2008) also recognises the importance of complements but he argues that they also should be viewed as the external factors are. The reason for this is that even though they can be important for the overall demand of an industry, there is no clear linkage that they would be neither good nor bad for its profitability and thereby not a force. Porter explains that

Complements may have an effect on barriers to entry as they can both lower and raise them which will be my focus.

Now that I have clarified the criticism against Porters view of barriers to entry I will discuss two factors that can influence these barriers from the companies view cooperation and clustering.

2.3 Cooperation

Companies can through cooperation share costs throughout the value chain like production, sales, distribution etc. They can also gain from cooperating by sharing costs of gaining access to new markets and technology. Strategic alliance is a term used for two or more companies that are cooperating but does not say how this is done. A partnership on the other hand implies cooperation where companies cooperate on equal terms. But if one is talking about a network this implies a network of companies cooperating on different levels of the value chain. (Roos et al. 2005)

The strategically motives for alliances are according to Contractor (1986):

- Reduced risk
- Economies of scale
- Complementarities in technology, knowledge et.
- Competitive advantage and barriers to entry
- Overcoming government regulations and trade barriers
- Utilizing local resources
- Access to resources.

Reducing risk is an important factor as more than one company can share the risk. Economies of scale is in fact one of Porters (1980) categories of barriers to entry. If one has a larger organisation the unit cost can go down as costs are shared. Complementarities are also important as companies can gain from complementing each other. One example is that companies do not need to build up double capacity Jacobsen (2008). The companies can also gain a competitive advantage from cooperating and lower entry barriers. The lowering of barriers to entry is the most important part for this research and all Contractors points can lower barriers to entry for the companies. Trade barriers and government regulations can be overcome by having a larger organisation if one has a local partner. Also by combining resources one can strengthen each other and gain resources and competence the company did

not have. By cooperating a company sometimes have to let go of some of its independence. (Riis et al. 2005)

Porter (1990) also provides theory that in order to explain why some regions are more successful than others which he calls clusters.

2.4 Clusters

In the book form “The Competitive Advantage of Nations” (1990) Michael Porter introduced a model which later has been known as Porter's Diamond. This was a summary of an international research project that Porter led in the 80s that focused on explaining how some industries are successful in some countries and not in others, even though they have the same resource base. The conclusion was that the most successful industries had the characteristics. They had growth that was self-enforced and driven by cooperation, competition, pressure of innovation and knowledge development within businesses in small geographical areas. In other words one can see a pattern that industry development tends to be at its most effective in small geographical clusters of businesses. (Jacobsen and Reve 2001)

One of the clearest examples of oil and gas industry clusters would be the oil and gas community of Houston. But we also have several in Norway the most dominating of them being the Stavanger area but also smaller areas like Sunnhordaland and Kongsberg. (Jacobsen et al, 2001)

2.4.1 What defines an industry cluster?

The interest for the clusters are huge and the literature extensive. But what defines a cluster varies; it's used for national industries, a congregation of businesses in the same industry and businesses in the same region but different industries. Also several other definitions are used for clusters like Agglomeration. (Jakobsen, 2008)

”Agglomeration – the clustering of economic activity, created and sustained by some sort of circular logic – occurs at many levels, from the local shopping districts that serve surrounding residential areas within cities to specialized economic regions like Silicon Valley (or the City of London) that serve the world market as a whole.” (Fujita, Krugman et al.1999)

But the most famous definition is Porters; “A cluster is a geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities”(1998, p.78).

Commonality is according to Jacobsen (2008) here referring to similarities in needs and complementarities strengthening of each other trough supplementation.

2.4.2 Porters diamond

Porter’s diamond (figure 2-5) focuses on the cluster environment and factors that is important for a good one. The four factors are; factor conditions, Context for firm strategy and rivalry, remand conditions and related supporting industries.

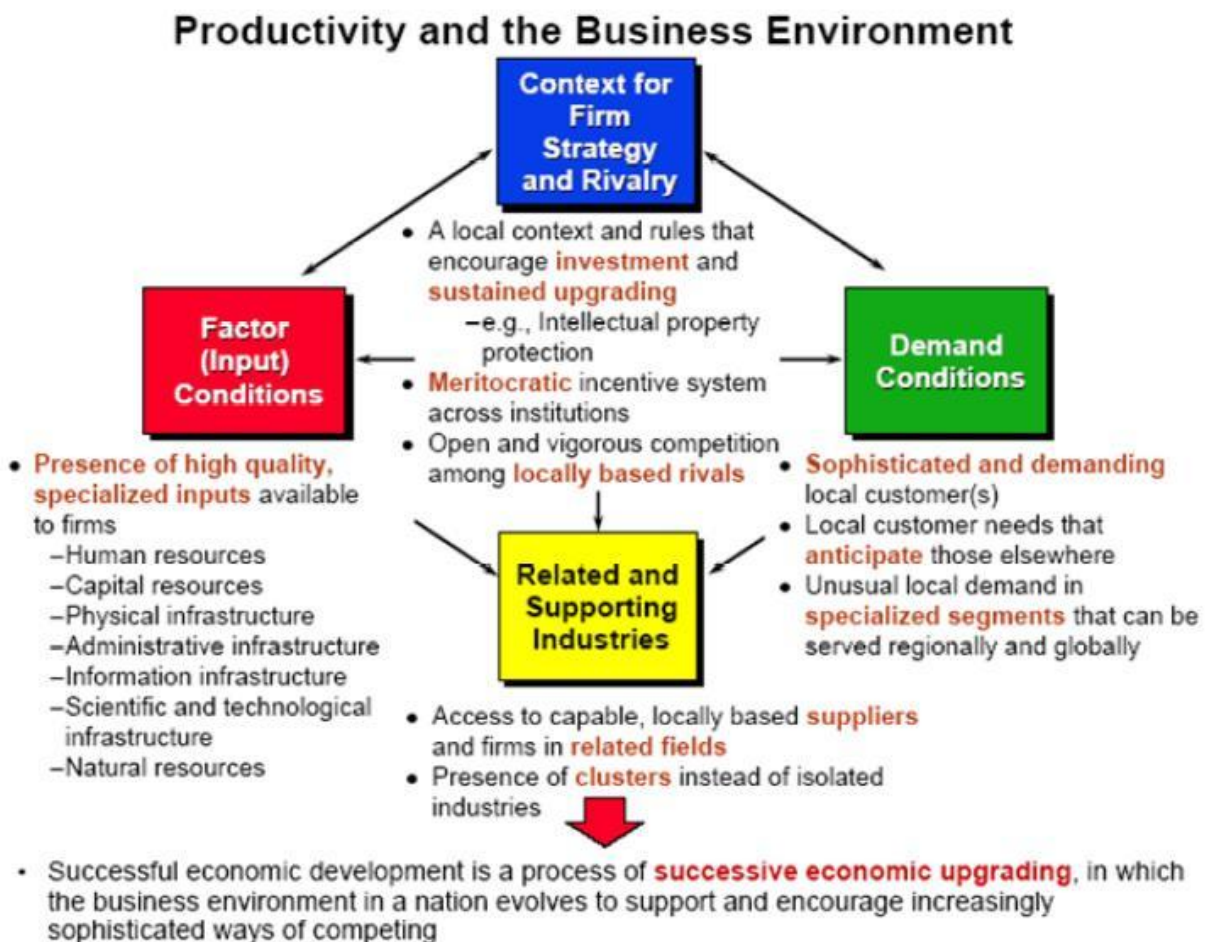


Figure 2-5 Porters diamond (source: Jakobsen 2008)

2.4.2.1 Demand conditions

Demand conditions are an important part of the growth possibilities of the clusters growth possibilities. Demand is also a central part of any business. Jacobsen (2008) stresses the importance in volume to carry out economies of scale. He gives an example that the technological breakthroughs of the Norwegian offshore supply industry would probably not be here had it not been for the high demand on the NCS. The size of the market also plays an important role in the development of specialized business. An example of this would be that in large market businesses can go for narrow niches, that would not be profitable in a small market. A result of globalisation is that market size plays a smaller role as markets melt together.

Another factor that plays an important role according to Jacobsen & Reve (2001) is the access to customers that is advanced, sophisticated and innovative. These types of customers will set high standards for their suppliers that again will contribute to innovations in both products and processes. One thing that is important to intercept the needs and requirements of the customers are rich and frequent communication, which is easier done through co-localisation. (Jacobsen & Reve 2001)

2.4.2.2 Context for firm strategy and rivalry

If the rivalry amongst competitors is high it will develop a culture of profit. Managers and employees will have a constant focus on the market and to find ways of improving themselves in order to succeed. To have this culture internally in the ever increasing globalisation and dynamic markets is crucial in the long run. (Jacobsen & Reve 2001)

Even though intense competition doesn't gain individual businesses the industry will grow fast with high productivity and innovation rate. There is no reason for the income to be higher in a cluster because intense competition is one of its characteristics. It means that even if they don't earn the big bucks inside the cluster they will probably earn them in other markets. The reason for this is that businesses inside effective clusters will be competitive in all markets. (Jacobsen & Reve 2001)

Industries with an intense rivalry also have the tendency to contain a lot of cooperation. Substitution is the main reason for competition, the danger of being substituted by somebody thought to be better. On the other side cooperation has complementarity as their main reason,

the potential of cooperating to commonly gain from it. Unused complementarity is something you can find a lot of and the point here is cooperate in order to become stronger. When industries get exposed to intense competition, the businesses become pressured to cooperate in order to become competitive. This is done to e.g. carry out economies of scale or develop new products. (Jacobsen & Reve 2001)

2.4.2.3 Factor conditions

Factor conditions can be described as access to production factors including everything from human capital to infrastructure. Mobility is an issue here as the businesses depend on them being offered where they are if they have little mobility. Natural resources are one example of this and as a result many industries are built up around natural resources. But a growing trend here is that this is becoming less important than earlier. The oil and gas sector is a good example here as you can divide the activity that requires high competence with the actual production. (Jacobsen & Reve 2001) You can see this growing trend in the company's focus on integrated operations moving offshore personnel onshore in order to increase effectively. As a result clusters like Aberdeen and Houston still continue to be the strongest clusters in the business even though the production has moved in to other markets.

2.4.2.4 Relating and supporting industry

This part deals with all connections between companies, individuals and governments. Jacobsen and Reve (2001) talks about the importance of knowledge transfer in clusters. The idea is that the more connections that exists between the actors, the bigger variety of these and the bigger number of actors the better the knowledge transfer. They have made an overview of the different kinds of connections in the following way.

- Vertical connections (in product markets) – vertical integration from buyer to seller.
 - Horizontal connections (in product markets) – these can be both through cooperation or competition, they are:
 - Co-production - eg. joint ventures and alliances
 - Complements – a product becomes more valuable for one company if another company's product is sold in the same market eg. Software for a computer.
- (Grant, 2008)

- Rivals - the companies are fighting for the same customers.
- Factor markets connections
 - Technology and R&D results
 - Human resources – this can be competence through movement of:
 - Employees – these can take their competence from one workplace to another
 - Consultants – can take their competence from one project in a company to another
 - Board members – competence from one board of directors to another
 - Infrastructure
 - Communication - through broadband or satellite
 - Transportation – like roads, railway or air transport
 - Capital
 - Ownership
 - Credit

Jacobsen and Reve (2001) also talks about a complete cluster as one who has access to all necessary input factors inside the cluster. They define these as competence, capital, intermediate goods and services.

2.4.3 Upgrade mechanisms:

In the book “Et konkurransedyktig Norge” (2001) Reve and Jacobsen presented the following framework to show how value is created in industry clusters (see figure 2-6). They present the following three upgrading mechanisms:

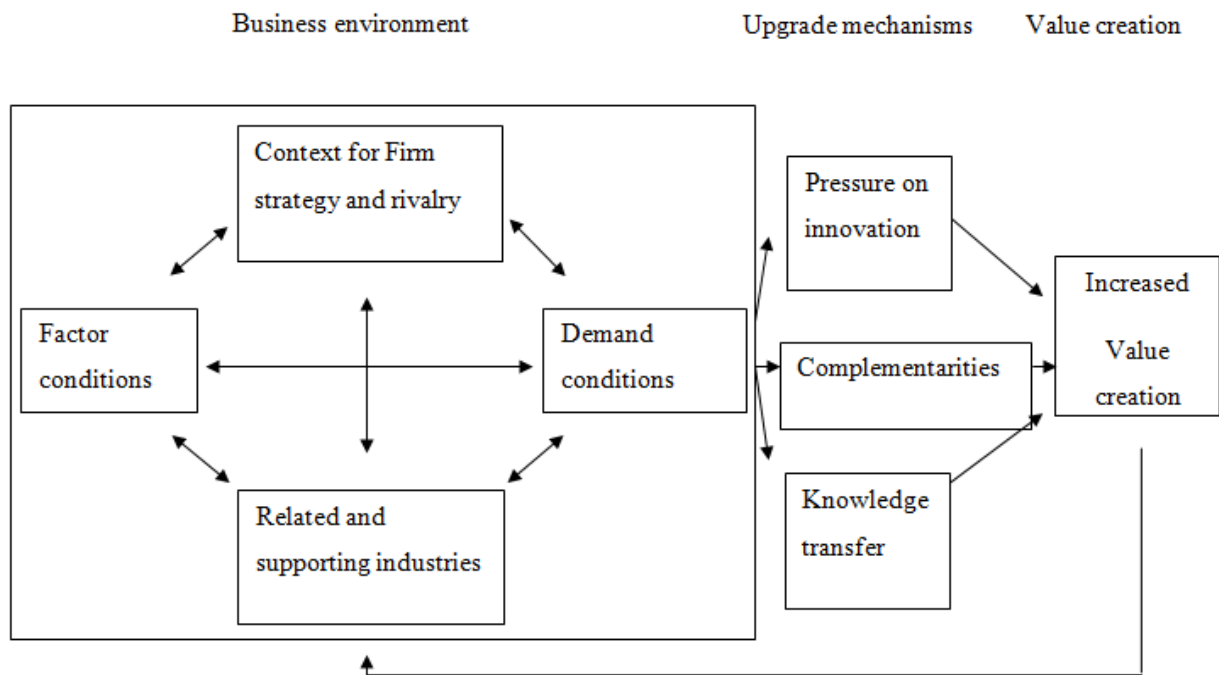


Figure 2-6 Clusters and value creation (Source: Reve & Jakobsen 2001)

2.4.3.1 Pressure on innovation

There are three things that pressure innovation in a cluster according to Jacobsen and Reve (2001), they are:

- Advanced costumers that demands innovative products and solutions
- Rich and open communication between customers and suppliers
- The customers can choose between the suppliers

According to Reve & Jacobsen (2001) these factors will give the suppliers impulses to improve them self and incentives to respond to impulses. This all adds up in something they call pressure of innovation that leads to value creation. They also call it a self-reinforcing mechanism that is the pressure of innovation that was caused by the factors will transmit throughout the whole value chain. The way this is done is that the competitors who are fighting for the challenging costumers will again challenge their suppliers; this again will transmit to the factor markets. The pressure on the factor markets like the labour market may again give people incentives to increase their own competence.

Customers are probably the most effective way of innovation pressure according to Jacobsen and Reve (2001). But managers can also cause this by implementing through strategic management and demanding increased profitability.

2.4.3.2 Complementarities

This upgrading mechanism deals with increased efficiency for the companies operating a cluster. The companies consist of a lot of resources and capabilities and some of these are similar. The existence of companies with the same resources like infrastructure can result in fewer costs for each company as they can share the costs (Reve & Jakobsen 2001). Reve & Jakobsen (2001) identifies three criteria's for resources which will lead to self-reinforcing growth:

- Resources has to be complementarities in the market or as infrastructure for companies
- Resources hast to have a falling unit cost when in use, the demand for the resource then has to be of a given size (critical mass) in order to be supplied.
- There has to be substantial mobility barriers regarding the resources, in order to prevent the companies from bring it in form elsewhere.

When all the criteria are met the resource will be of a certain size which will give advantages. Examples would be airports, harbours and roads. (Reve & Jakobsen, 2001)

2.4.3.3 Knowledge Transfer

The last mechanism Reve and Jakobsen (2001) is knowledge transfer. This is concerned with the development and transfer of knowledge. They explain that knowledge transfer is an essential part of an endogen growth theory which is focused on knowledge as a source of economic growth. In their book "Et Konkurransedyktig Norge" they focus on connections between actors and industries and the most important sources of knowledge. Their idea is that the more connections that exist between actors in and outside industries and the more varied these are, the greater the knowledge transfer.

Research done by Riis (2000, from Reve & Jakobsen) has discovered that knowledge is transferred faster when companies are located in close proximity of each other. Reve &

Jakobsen (2001) explains this as a result of a greater amount of methods of communicating when located together. If companies are located far from each other the only way for a rapid communicating is trough the telephone or the internet while companies located together can visit each other.

3 Methodological reflections

In this chapter I will describe the different methodological approaches that I have done in this thesis. I will explain the different choices I have made when it comes to choice of research methods, samples, data collection and analysis. I will also discuss the validity and reliability of the thesis and if it has been conducted in an ethical fashion. I will start with which type of paradigm I associate myself with.

3.1 Epistemology

Easterby Smith et al.(2008, p.60) defines an epistemology as “General set of assumptions about the best ways of inquiring into the nature of the world”. There are also presented two epistemological extremities, the positivism paradigm and the Social Constructivism paradigm. The main differences in the two paradigms can be seen in table 3-1.

Table 3-1 Research Paradigms - (Source: Easterby Smith et al. 2002)

	Positivism	Social Constructivism
The observer	must be independent	is part of what is being observed
Human interest	should be irrelevant	are the main drivers of science
Explanations	must demonstrate causality	aim to increase general understanding of the situation
Research progress through	hypotheses and deductions	gathering rich data from which ideas are included
Concepts	need to be operationalized so that they can be measured	should incorporate stakeholder perspectives
Units of analysis	should be reduced to simplest terms	may include the complexity of ‘whole situations
Generalization through	statistical probability	theoretical abstraction
Sampling requires	large numbers selected randomly	small numbers of cases chosen for specific reasons

I place myself in the Social Constructivism paradigm, at least when talking about this kind of problem statement. My philosophy is that one would miss important knowledge about the situation if one would choose a positivistic approach. Easterby-Smith et al. (2008) points out

that the strengths of the social constructivism paradigm are that it is good for understanding processes and meanings. As a result choosing this approach one can gain in-depth knowledge about the situation the industries faces. Also the social constructivism paradigm gives less and less artificial data collection and is more flexible. This would not be gained in the same way by doing a positivistic approach as the researcher must be independent.

The social constructivism paradigm is often criticised for not being possible to generalize and to take a great deal of time (Easterby-Smith et al. 2008). Both these will be further discussed in the following parts of the chapter.

3.2 Research Design

According to Johannesen et. al. (2004) research designs are everything that relates to a research. It is basically how the researcher chooses to design the research process. These processes consist of four steps:

1. Preparation
2. Data gathering
3. Data analysis
4. Wright up

When preparing the researcher the researcher prepares for the data gathering in my case I was part of a contractual research group sponsored by BP. So the idea was formed in collaboration with the company and other researchers on the project. I also reviewed literature, but since this is an empirically driven study i did not form a problem statement just focused on the difficult situation for the Helgeland companies. For the data gathering we chose qualitative semi-structured interviews and sampling was both snowballing form previous years and convenience. These where fully transcribed and was then the analysis we used coding in a computer assisted program called NVivo to reduce data and analyse it and eventually it was written down.

Further I will present the choices and the process in greater detail.

3.3 Methodology and Methods

Methodology is defined by Easterby Smith (2008, p. 60) as “combination of techniques used to enquire into a specific situation”. Methods as a term come from the Greek word *methods* that means to follow a specific way towards a goal (Johannesen et al 2005) and can be defined as individual techniques that is used to do data collection, analysis etc. (Easterby-Smith et al. 2008)

When choosing methods there are two different directions one can go the qualitative or the quantitative. My epistemological choice social constructivism can be linked to the qualitative approach and the positivistic to quantitative. Quantity refers to an amount or a number while quality refers to the characteristics of a phenomenon (Grønhuag & Kleppe 1989, from Johannesen et al. 2005). According to Jacobsen (2000) the problem statement should guide you in your choice of qualitative or quantitative methods. The problem statement should be evaluated according to what we know about it. Qualitative methods ought to be used for a phenomena we know little about while the quantitative for a phenomena which we know a lot about.

Qualitative methods weakness is their external validity like overview and distance and its strength in internal validity like closeness and understanding and for quantitative it is the opposite. So the methods should not be seen as competitive but as supplements of each other (Jacobsen 2000).

Since there is done little research on my problem statement and the fact that it focuses on a small selection of businesses in a specific area the qualitative approach seems best suited. It also will give a more in-depth knowledge about the companies' challenges and solutions to these. A more quantitative approach was done by Kunnskapsparken in Bodø in their report “Levert!” where surveys were used. The strengths of this type of design would be the cost level, larger samples that lead to a result that is easier to generalize. This led to some interesting knowledge but not to the degree of depth I feel is needed for a sufficient answer to my problem statement. Also my focus will not be to generalize to a larger area but to the selected one.

3.4 Samples – the units of analysis

Selecting witch units to analyse is very important for the outcome of the research. An important factor here will be that one selects the right units according to the problem statement.

The samples for my thesis have been chosen in close collaboration with researchers at Bodø Graduate School of Business. As I have been a part of a larger research project it has been important for me that the samples would be valid for my research as well. This has been a main focus for me when I participated in the selection of samples. My research question also focuses on the same theme as this year's report of the research project as it also focuses on the industry of Helgeland. The selection of samples has been done in two ways; trough snowballing previous experiences from last year's research in the same region, and selection of relevant samples for the research. As a result one have benefitted from previous research in the region and also gained a representative selection of samples. The validity and reliability of the selection of samples for my research is clearly strengthened by the experience from researchers at the University and my focus on my research question. This will be further discussed later in this chapter. The sample that has been selected comes from the two largest supplying regions Mo i Rana, Sandnessjøen and from the oil company BP. The reason for the selection of Mo i Rana and Sandnessjøen is their industry concentration and size. Two other regional canters that could have been chosen are Brønnøysund and Mosjøen. But according to both the experience of the other researchers, BP and reports there are small deliveries and few potential suppliers in these areas.

The data I have used in this thesis could be categorized into two different categories primary and secondary data. The difference here is the way one obtains the data. The primary data is obtained directly from the source while secondary is obtained from others that have collected it. (Jacobsen, 2000)

The Primary data in this thesis has all been collected trough in-depth interviews. The method has been chosen to gain.

3.4.1 Primary Data

The data collection method that the research project and I have chosen for primary sources is interviews. This because it's the method best suited for this type of research. An alternative would be observation but this would probably be very difficult because sensitive information is discussed, especially the BPs meetings. It would also be very time consuming which is not one thing of luxury during a master thesis.

The Interview technique will also answer the questions I want answered clearly without the other thing in the organisation one observes during an observation. When interviewing I will interview managers in supply companies, BP, Politicians and other affected actors. When choosing this type of interviews you really have two choices unstructured or semi structured. If you have a completely structured interview you would miss a lot of important knowledge about the problem and is more used in marked research. (Easterby-Smith, Thorpe, & Jackson, Management Research, 2008)

The interviews with all informants will be semi-structured in order to get the right kind of information. But the interview guide has to be differentiated according to the kind of involvement the actors have.

The interviews also demand several things from the interviewer such as general people and interviewing skills. It's not always an easy thing to get people started, they may have had some rough days at work or at home and are reluctant to answering. So the thing is to get the person being interviewed interested in your research. Not all people have this ability but I but this will be strengthened form me having the assistance of experienced researchers. There is also important to know that one should avoid bias which is to influence the person being interview with your own perceptions. One should also know how to ladder questions which is building on answers which is important for the research with good follow up questions.

Secondary Sources

Secondary sources would be sources not obtained by the researcher. This includes internet articles, news papers, journals etc, and it's the cheapest way of finding quality information. I will also use a lot of articles and reports that can help me solve my problem statement.

3.5 Analysis

After the interview process had been completed, the group were left with 15 recorded interviews from 18 respondents. They were then transcribed into text in order to prepare them for the analysis. When transcribing the researcher can either transcribe the entire interview literally or select parts of the interview that he finds important or delete the other parts. (Johannessen et al. 2005) We chose the first approach as we did not want to miss any important information, but it is a very time consuming process. Johannessen et al. (2005) estimates that a researcher in average needs four times the length of the interview to transcribe it. Apart from this the validity and reliability of the research will be strengthened by transcribing the entire interview.

To analyse the data the group used a Computer Aided Qualitative Data Analysis Software (CAQDAS) called NVivo. The amounts of data gathered in this research project is substantial and using this type of program will help the researchers to make sense of it and make it more manageable (Easterby-Smith et al. 2008). Seal (2000, from Easterby-Smith et. al. 2008) outlines that there are several advantages by using CAQDAS like speed and team research. Speed here refers to the amount of time used to sort and search through data during the analysis. During team research like this research is a part of CAQDAS can enable easier sharing of data. (Easterby-Smith et al. 2008)

For the first part of the analysis we used something called an open coding strategy (Easterby-Smith, 2008). Johannessen et. al. defines this as: “..breaking down, investigate, compare, conceptualize and categorize phenomena's through analysis of data”. Here the group started identifying parts of the data which varied from sentences to entire paragraphs which again were combined into categories which is called free nodes in NVivo. As a result we ended up with the following 28 categories:

Table 3-2 Categories (free nodes) after open coding

Free Nodes

	Name
🔍	Basic requirements
🔍	BP contact
🔍	Capacity
🔍	Challenges - barrier to entry
🔍	Cluster cooperation
🔍	Cluster effects
🔍	Company facts
🔍	Competence
🔍	Conflicts
🔍	Contracts
🔍	Cooperation
🔍	Demand
🔍	Expectations
🔍	Firm cooperation
🔍	Infrastructure
🔍	Knowledge transfer
🔍	Leverandørhierarki
🔍	Local action
🔍	Local advantage
🔍	Market adaptation-adjustment
🔍	Nuggets
🔍	Ownership
🔍	Politics
🔍	Ripple effects
🔍	Risk
🔍	Success factors
🔍	Sulten nok
🔍	Synliggjøring

After this I individually implemented an axial coding strategy (Easterby-Smith 2008) where I reduced the initial 28 categories on the basis of my problem statement and my theoretical definitions and ended up with 6 categories:

Barriers to entry – factors directly related to barriers to entry

- BP contact – where BP has been in contact with the Helgeland industries
- Clustering, Cooperation and Conflicts – includes data regarding clustering and cooperation between companies and also conflicts preventing this.
- Company facts – a collection of information about the companies
- Local action – action taken by local politicians and the companies them self in order to reduce barriers to entry
- Nuggets – a collection of exceptionally good statements

The type of method used by me and the research group derives from the ground theory methodology. According to Johannessen et al. (2008) this is a method that can be conceived as very simple but very demanding to carry out. As a result training of coders is recommended “To fully understand Grounded Theory, training in Grounded Theory followed by practical use of the methods in social science research is suggested” (Huges & Jones, 2002, p. 7) During the initial open coding there was several researchers present with experience regarding this type of analysis which trained me in grounded theory. This and the fact that they took part in the initial open coding will strengthen the validity and reliability of my analysis.

According to Mason (2002) a researcher also needs to consider what should be recognized as data. This relates to how data are read which can be done: literally, interpretative or reflexive. I want to read the data literally because this will strengthen the validity and reliability. Also the ethical obligations I have to our informants will be kept in the sense that what they have stated is not interpreted in the wrong way.

3.6 Ethical considerations

When talking about ethical aspects I am talking about if the research has been conducted in an ethical fashion. Here I will use 10 principles identified by Bell and Bryman (2007) to ensure ethical practice these are:

1. Ensuring that no harm comes to participants
2. Respecting the dignity of research participants
3. Ensuring a fully informed consent of the research participants
4. Protecting the privacy of the research data is maintained
5. Ensuring the confidentiality of research data is maintained
6. Protecting the anonymity of individuals or organisations
7. Avoiding deception about the nature or aims of the research
8. Declaring affiliations., funding sources and conflicts of interest
9. Maintaining honesty and transparency when communicating about the research
10. Avoidance of any misleading, or false reporting of the research *findings*

Easterby-Smith et. al. (2008) divides these principals into two groups. The first one is consists of the first seven principles, and deals with protecting the interests that informants or research subjects. The second group consist of the rest and it deals with the importance for the lack of bias in the research result and that it's accurate.

When looking at my research the ethical aspects are many, and off course both these groups are important. The first group is very important for the not harming research participants, here it is important to not publish information without the consensus of the participant. When one uses a recording device like in this research it's important to ask the subjects being interviewed if this is ok, and also make an agreement on how the data can be used.

Agreements has been made with all informants that when the transcription of the data they would receive a copy of the transcribed interview. This so they could comment on things they don't wanted to be published, and also correct any misunderstandings that the researcher may have done during the transcription process. This again strengthens both the validity and reliability of the research. All informants have read trough the interviews and approved the usage of the data.

The second group of Bell and Bryman (2007) principles importance is also important for the validity and reliability of the research, but also for protecting the informant's or subjects interests. Nobody wants their statements to be interpreted wrong and nobody wants to be

judged because of the researchers pre-conception. To insure that this part is being for filled I will have a general focus on using the informants statements as they are. Also in this part the informant's approval of the transcribed interviews will help me correct any misunderstandings.

Both these groups are very important to insure that no harm comes both to the informants and the companies. I find this especially important in a business setting because if something is interpreted wrong or the informant doesn't want it published it can be things that could be seriously damage the company or the employee.

3.7 Validity and Reliability

Throughout this chapter I have clarified different aspects that may strengthen the validity and reliability of my research and I will now discuss what the terms validity and reliability mean. Further I will summarize the different aspects which will strengthen validity and reliability or the research.

Reliability is concerned with if the study replicable. This means that the research is able to reproduce by a different researcher, and not get a different result because the previous research was influenced by the researcher or somebody. This generally deals with if there is a open and detailed presentation of the way I have conducted my research according to Johannesen et.al. (2004). I have throughout my research tried to clarify the way the research has been conducted in order in order to satisfy the reliability criteria. Easterby-Smith et.al (2008) defines reliability in a social constructivist design as: "is there transparency about how sense is made from the raw data?". Since all interviews where sent back to the interviews for confirmation that thing where interpreted in the right way I will meet the requirements of validity according to this definition. This will also strengthen the validity.

According to Johannessen et. al. (2004) Validity can be divided into concept validity, and external validity for qualitative research. Concept validity deals with if the data represents the phenomena which are studied. This is really a measure if the researcher really researches what he is supposing to. In the Social constructionist design Easterby-Smith et. al. (2008) defines validity as: "does the study clearly gain access to the experiences of those in the research setting?" This is to insure that I get access to the right kind of actors in order to see the whole picture will be the main objective regarding the validity of this research. The

selection of samples has been done in close collaboration with BP which knows the industry and experienced researchers which know the industry.

External validity deals with if the research can be generalized to other contexts. This will not be the goal of this research since it focuses on a small amount of companies in a special setting.

3.8 Strengths and weaknesses of the chosen design

Now that I have presented the design in greater detail I will dwell on some of the strengths and weaknesses of the design.

3.8.1 Strengths

The advantages of choosing such limited focus area are that it will minimize travel and easy access easier and reduce the costs of the study (O'Leary, 2004). This study also gives a deeper understanding than a survey research. Even though this study may not be able to generalize to similar regions it still produces important knowledge about a not heavily studied subject in the oil and gas sector. It can also help further research in this field by helping to find new subjects to research on.

The design also gives more in-depth knowledge than a design that is easier to generalize especially when it comes to details. It would also during the time of a master thesis be difficult to sample from a required amount of units to make it generalize able not be possible without survey research. But with survey research you lose the in-depth knowledge gained from this type of design. The design also gives more flexibility in the data collection than a survey. (Johannesen et. al. 2004)

3.8.2 Weaknesses

The trade off of focusing on a few areas that can minimize travel and easy access easier and reduce the costs of the study is according to O'Leary (2004), generally "in-depth immersion and prolonged engagement". She also points to that the level of access can sometimes be difficult as a result, and because one has to samples form only a few set of respondents the demands for quality have to be high. Since the study is hard to generalize it can also be an obstacle for getting participants since some participants may not be willing to give you time for a study that cannot be generalized. The same applies for some readers that don't consider none generalize able studies worth reading. This problem draws on the researcher's ability to

argue for the contribution this type of study can have even though it can hardly be generalized.

The analysis of such a design can also be very time consuming and it's easy to be influenced by informants. This is also an aspect that would be criticised by the positivistic paradigm. The flexibility of data collection can also lead to the study not being finished in time and therefore demands more from the researcher.(Johannesen, Kristoffersen, & Tufte, 2004)

4 The Norwegian Oifield Service industry

In this chapter I will give a swift overview of the strongest supply clusters in Norway. This in order to shed some light on what the Helgeland cluster is up against when trying to establish them self in this industry. This part will be based on an Ernst and Young report The Norwegian oil service report (2009) and an INTSOK and Konkraft report “Internasjonalisering” (2008). The way you divide the businesses into cluster formations varies from the report but I have chosen the Ernst and Young way as it focuses on all regions of Norway.

The different cluster formations are:

- Rogaland
- Møre
- Eastern Norway
- Agder
- Hordaland
- The Kongsberg region
- Trøndelag
- Northern Norway

They also defined an oil field service (OFS) company as a company that has:

- At least 50% of the turnover is generated in the oil & gas sector
- Revenues exceed 20 MNOK (in 2008)
- The legal entity has its business address in Norway

The differences between the different regional cluster formations in number of companies, employees and revenue are illustrated in table 4-1. As earlier discussed one can see how small the Northern Norway cluster is in revenues compared to the others with only 1 BNOK in 2008. The Rogaland cluster with the oil capital of Norway Stavanger is by far the largest cluster in all categories and represented 32% of all revenues in 2008.

Table 4-1 The regional clusters number of companies, revenue in 2008 and number of employees

(Source: Ernst & Young 2008)

Regions	Number of companies	% of total	Revenues (BNOK)	% of total	Employees (thousand)	% of total
Rogaland	231	38 %	90	32 %	31	40 %
Møre	76	12 %	45	16 %	10	13 %
Eastern Norway	55	9 %	44	15 %	6	8 %
Agder	40	6 %	36	13 %	5	6 %
Hordaland	103	17 %	32	12 %	12	16 %
The Kongsberg Region	31	5 %	18	6 %	6	8 %
Trøndelag	59	10 %	13	5 %	6	8 %
Northern Norway	16	3 %	1	0 %	1	1 %
Norway Total	~600	100 %	~280	100 %	~80	100 %

4.1.1 The value chain

The value chain of the OFS industry has been made by Ernst & Young in order to show where the OFS companies are situated. Also they have shown the amount of employees, margins and revenues in each part of the value chain.

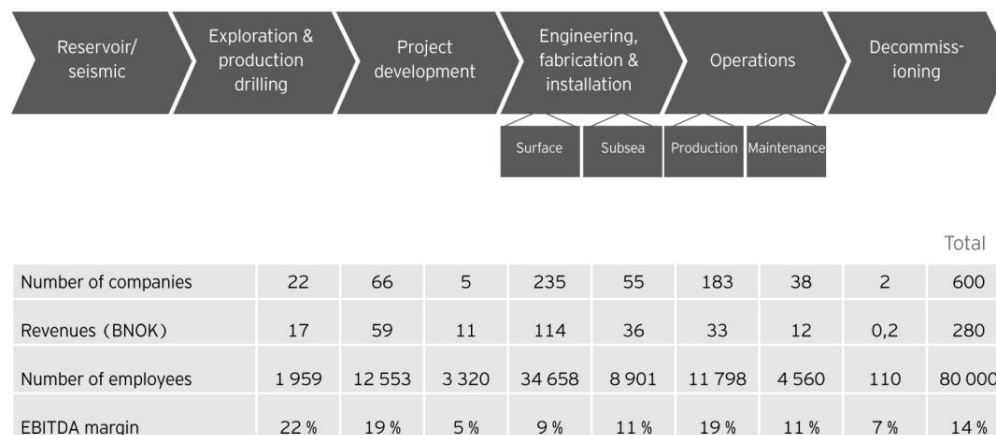


Figure 4-1 Value chain OFS companies (Source: Ernst & Young 2008)

According to Ernst & Young (2008) the Norwegian OFS companies have positioned them well in the whole value chain (figure 4-1). Also one can see that the largest cluster is the surface part of engineering fabrication & installation in employees, revenues and companies.

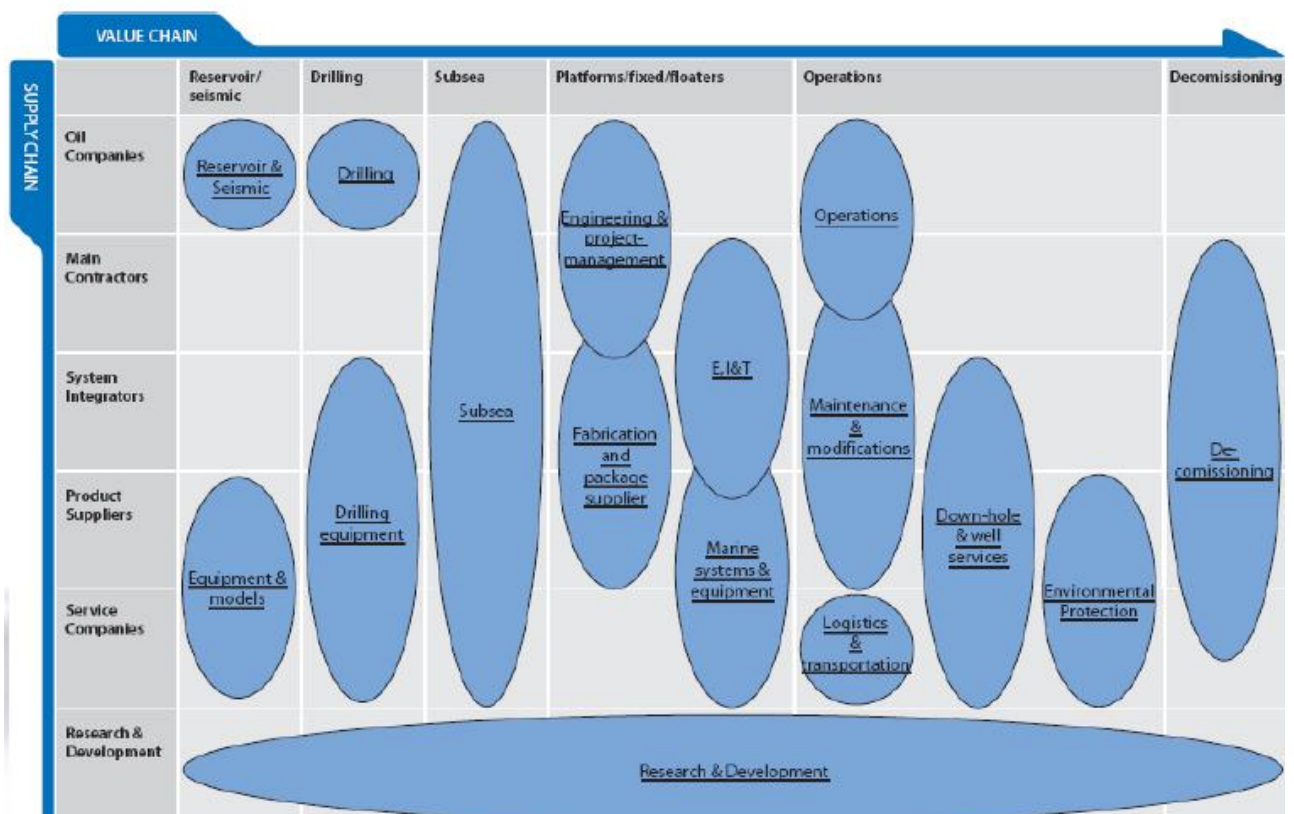
By this one could say that the most significant part of is the activities linked to the production on units or vessels.

I also want to show table 4-2 by INTSOK which shows the value chain in relation to the supply chain which shows the different contractors and suppliers that exists. This is important to understand the hierarchy that exist between contractors and suppliers.

Her production support and Modification and Maintenance part

I will further present the focus of the different regional clusters.

Table 4-2 The Value Chain and Supply Chain (Source: INTSOK 2010)



4.1.2 Rogaland

The Rogaland cluster is as I previously mentioned by far the biggest cluster as a result of Stavanger being chosen as the oil capital of Norway. A majority of the oil and gas companies operating in Norway are located in the Stavanger area and as a result the area has attracted several of the world's leading OFS like Halliburton, Baker Hughes, Schlumberger and Transocean. Also one of the largest Norway OFS companies is represented and located here. Rogaland is the only cluster who is represented in all parts of the value chain but there are three parts that are significantly larger than the rest. These are the Engineering, fabrication and installation part (EFI), exploration and production (E&P) drilling part and the operations part. (Ernst & Young, 2009)

EFI is the largest part in both in revenues, employees and number of companies, and both subsea and surface is large. The type of companies operating here is Aker, Subsea 7, Acergy and Fabricom. E&P drilling companies is represented with both service providers and rig owners. INTSOK! The Operations part is both represented by the production support and Modification and Maintenance part and the revenues and number of employees plays an important role for Rogaland. (Ernst & Young, 2009)

4.1.3 The Møre cluster

When talking about the Møre regional cluster we are talking about the counties Møre og Romsdal and Sogn og Fjordane. This region is highly driven by ship building and ship owners. As a result the largest OFS segment in this region is the EFI linked to the vessels. The other significant part here is the operations part as it has a dominant position when it comes to maritime support on the NCS. The largest companies are Rolls-Royce Marine and STX Norway offshore which together account for almost half of the clusters revenues. (Ernst & Young, 2009)

4.1.4 Eastern Norway

The Eastern Norway cluster is located in the south eastern part of Norway and cover the five counties of Oslo, Akershus, Oppland, Hedmark and Østfold. This cluster plays an important role for the Norwegian OFS sector as it is the base for a lot of parent companies. As a result

the cluster generates a lot of revenues pr. employee with 15 percent of the total revenues while it only has 8 percent of the employees of the sector.

The cluster is represented in every part of the value chain except Decommissioning. The main focus of the cluster is the EFI part of the value chain with the most important companies being Aker Subsea, Technip Norge and Aker Solution Contracting. Also operating in the cluster are two very large companies in the Project development part of the chain; Det Norske Veritas and Aker Engineering & Technology. They represent two out of five Norwegian OFS companies operating in this part and over 90 percent of the revenues from this part. These two companies also employ approximately 45% of the employees in the Eastern Norway cluster. (Ernst & Young, 2009)

4.1.5 The Agder cluster

With its long shipping and industry traditions has attracted a lot of OFS companies. The cluster is highly focused on the EFI part and operations. But the largest company National Oilwell is represented in the E&P drilling part of the value chain and account for 50 percent of total revenues and approximately 30 percent of the employees. (Ernst & Young, 2009)

The NODE (Norwegian Offshore & Drilling Equipment) is a collaboration project between the clusters businesses. The project functions as a facilitator for the businesses in the cluster and also works as a connection between businesses and research institutions at Høgskolen i Agder. (Konkraft & INTSOK, 2008)

4.1.6 Hordaland

The Hordaland region is located in the south-western part of Norway just above Rogaland. The regional cluster is represented in almost all parts of the value chain but is not represented in the Decommissioning part like Oslo. The cluster comes second after Rogaland when it comes to number of employees and has the main focus on EFI and Operations. The companies are Aker Stord, Wartsila Norway and Aker Elektro is the most important companies in EFI and accounts for 30 percent of the cluster employees. The surface part of EFI is the one with the largest companies while subsea holds a range of smaller companies. In addition the E&P drilling part is important for the Hordaland region as several large companies has their home base in the region. Examples of these large companies are KCA

Deutag Drilling Norge and Odfjell Drilling Management which ranks fourth and fifth after the mentioned EFI companies when talking about revenues in the cluster. (Ernst & Young, 2009)

4.1.7 The Kongsberg region

When talking about The Kongsberg region we are talking about the counties of Vestfold, Buskerud and Telemark. The most important OFS districts in the region are Kongsberg and Grenland which hosts companies like FMC Kongsberg Subsea, Kongsberg Maritime, Grenland Group Technology and Grenland Offshore. While the region only accounts for six percent of the revenues it plays a very important role. The region is mainly represented in the EFI part which all the large companies of the cluster which were mentioned earlier are represented. To illustrate the EFI companies dominance they accounts for approximately 80 percent of all employees and revenues. But operations also represented, with only 4 percent of the revenue of the cluster but still as much as all revenues of Northern Norway. Some important players in this part are Ross Offshore, Nova Subsea and IKM Instrutek. (Ernst & Young, 2009)

4.1.8 Trøndelag

Trøndelag is a joint designation of the counties Nord- and Sør-Trøndelag. The regional cluster functions as the home base of 10 percent of the Norwegian OFS companies but still plays a small part when it comes to revenues with only 5 percent of total revenues. A significant advantage of the region is that it's geographically well located for deliveries to the Norwegian Sea. As a result Operations and EFI is the parts of the value chain playing the most important role for the cluster. The three companies are Aker Verdal, Reinertsen and Autronica Fire And Security AS together account for 40 percent of the clusters employees and are all operating in the EFI part. (Ernst & Young, 2009)

4.1.9 Northern Norway

Northern Norway consists of Nordland, Troms and Finnmark County. The regional cluster has historically played an insignificant OFS role. But as the large southern fields are maturing the tables are turning. There are large unexplored areas but also closed areas outside Lofoten and Vesterålen. The current operating fields are the Norne field in the Norwegian

Sea and the Snøhvit field in the Barents Sea. There are also two fields being developed in with Skarv near Norne and the Goliath field near Snøhvit. (Ernst & Young, 2009)

The Northern Norway OFS sector is as a result small only in a total accounting for 1 BNOK out of the Norwegian total of the 2008 of 280. The only parts of the value chain represented in Ernst and Young's report is EFI and Operations. EFI is playing the most significant part both in revenues and number of employees. (Ernst & Young, 2009)

5 The Helgeland industries

The region Helgeland with its 17 936 square kilometres, lies in Nordland County in the North of Norway. It is the most southerly region in North Norway, and borders with the counties Nord-Trøndelag in the south and Salten in the North. Helgeland has 18 municipalities, 77.200 inhabitants and the four cities Mo i Rana, Mosjøen, Brønnøysund and Sandnessjøen. (Helgeland.no)

The first focus area Mo i Rana has a long historical background and today host a large industrial park called Mo industripark. In January 2010 the park employed 2200 people and consisted of about 115 companies. The two largest companies focusing on the OFS industry are MOMEK and Miras.

Miras Groupe is the second largest company in the park with 300 employee's largest company in the park and is the largest OFS Company in Northern-Norway according to Earnst & Young (2009). They deliver in a range of engineering-, production- and conservation to the oil industry among others. Miras has several different special MOMEK Groupe operates in similar areras as Miras and have productions in Kirkenes, Glomfjord, Mosjøen og Sweden and had 150 employees in 1998. Molab is a (Mo Industripark AS) Anther OFS company is Nordmiljø wich focuses on waste management, mud handling and cleaning of supply vessels. (Nordmiljø)

In Sandnessjøen is a small municipality with about 7200 inhabitants in 2009. Helgeland it the host for a supply base serving Statoils the Norne field and a supply base for the BP Skarv field. ASCO Norge was awarded the contracts for the supply base operations for Skarv while Helgelandsbase operates the supplybase for the Norne field. Some of the OFS companies located in the region are Aquarock delivering a special type of stone to the Oil and Gass industry and Helgeland V&M a stock company formed by 8 smaller companies that together want to enter the Maintenance and Modification part of the value chain.(Henriksen et. al 2009).

6 Findings and discussion

6.1 The barriers to entry

I will first refresh upon my first research question:

Which entry barriers exist for the Helgeland industries in the Oilfield Service industry?

I will describe the barriers to entry I have found that applies for the Helgeland companies when trying to enter the industry. In order to do this they first need to be awarded contracts which are the first thing I will discuss.

6.1.1 Contractual structure barrier

According to Porter (1980) and his five forces framework the E&P companies like BP have bargaining Power affecting the rivalry in an industry. If a customer buys large volume it increases their buyer power (Roos et al., 2005). The companies influence the service industry with their contract structure, and can also influence the choices of the main contractors by choosing the ones who buy locally. Even though the main contractors mainly outsource procurement of products they can influence this as they always have to approve the tender list and tender processes. I will start to discuss some of the

The two parts of the OFS value chain that is currently relevant for the Helgeland industries is the development and the operational face. The others demand either enormous capital investments or extensive technical expertise. According to Madsen in BP the oil companies issue large direct contracts in the development face of new fields on the NCS. He further states: *“In periods the industry has been focused on increasing efficiency, smaller organisations and to outsource this part”*. *The companies outsource many activities to main contractors like procurement”*. When doing so the main contracts will demand a large organisation for contractors and impossible for Helgeland companies.

Having a direct contract with an oil company other advantages according to Stein Tore Rein fjell in Nordmiljø. In 1997 they got a direct contract with Statoil regarding the Norne field. With this direct contract they were able to build up competence and capital about the

industry. After the five year contract where enlarged and the company awarded the contract had to serve all of Statoil's bases in Norway. Nordmiljø was then forced to become a sub-contractor. Reinfjell explains "*we is able to build up our competence based on that we then know what the customer needs*". He explains that as a sub-supplier this connection gets cut and the company is not able to learn from the oil company. This is also supported by Dåbakk in Molab: "*..we can probably build more and different competence by delivering directly to an oil company*". There is also another important factor of direct connection according to Reinfjell: "*..we don't get the opportunity to build up capital, one is pressured to deliver at a lower price, because the main contractor often plays the sub-suppliers against each in order to lower the price*". This is also supported by Brandser in Miras "*Sub-supplier often gets squeezed.. the further up in the food chain you're located the better you have it.*"

The contract structure creates barriers to entry regarding size requirements for main contractors and reduces the total attractiveness for the Helgeland industries as they are forced into a sub-supplier role. This role hinders entrants in building capital and also competence. I will further discuss how competence also functions as a barrier to entry for the Helgeland industries.

6.1.2 Competence, Experience and Brand identity

According to Skottnes in BP there is no reason that the Helgeland industries should not be competitive if they get in position and starts delivering to the industry. An oilrig or a FPSO consists of a lot of traditional things that the engineering industry has much in common with. The oil industry has their own demands and requirements that one has to learn but the basics consist of the same mechanical things.

This means that the Helgeland industries has an advantage from their long industry tradition but the oil and gas industry still requires some competences that do not have. Acquiring this kind of competence is costly and there is no guarantee that they get deliveries. Mastermo in Momek explains: "*Take the M&M¹ sector for instance, it demands some essential competence. We cannot hire 10 engineers with this competence based on speculations, and then you find yourself bankrupt in a short time*".

¹Modification and Maintenance

So to be able to gain competence the companies has to take great risk up front while there is no guarantee of getting contracts. And competing with companies like Aker Solutions that have large organisations with a broad spectre of competence seem unrealistic for the Helgeland industries at least in the short term. Mastermo states: *“There is a lot that has to be in place if one should be able to outdistance Aker Solutions when it comes to competence. I don’t believe that this will ever happen”*.

The existing southern OFS industry has not only gained general competence over the years they have also gained experience. Mastermo explains that competence is not only limiting factor for the industries *“We have skilled engineers in many areas, but experience with maintenance and operations on a FPSO is something we do not possess”*.

Companies without experience will often be judged not competitive when competing with companies with many years of experience. Madsen in BP mentions that Rukkie was not chosen concerning a delivering of an expansion spool as they could not provide documentation of having done this type of job. According to Madsen BP found it too great a risk letting them deliver this spool without experience. If an accident should accrue the consequences could be catastrophically in this industry. Mastermo in MOMEK thinks that even a 20 percent higher price is a low cost compared to if something would go wrong.

By delivering for many years the existing industry has set a name for them self in the industry. They have a track record for delivering and have shown both their competence. All this results in a know Brand in the industry that the companies in Helgeland does not have as a result of not having a track-record. Dåbakk states: *“..in a way there is a security by choosing the familiar companies.” This is also something we struggle with, and this is a factor that you cannot find in the tender specifications or the tender foundation*”. As the experiences companies have demonstrated that they are able to deliver for many years, he understands why they are chosen.

6.1.3 Capital requirements

One of the major barriers to entry identified by Porter (1980) is capital requirements. Almost in every industry the entrant company has to invest some capital in order to become competitive the ones I have identified are:

6.1.3.1 Certification

To be able to make deliveries to the petroleum industry one has to for fill standards in Norsok according to Madsen. Standards Norway is responsible for the Norsok standards. The basis for these standards is international standards (ISO) and European standards (EN) but in addition there are standards developed by the Norwegian petroleum industry suiting Norwegian conditions which together form Norsok. (www.standard.no)

In addition BP has their own company specific demands that go beyond Norsok in some cases according to Madsen. He further states that *“There are very straight requirements regarding what is going out on an oil rig or a FPSO”*. Also companies have to register them self in Achilles which Bærheim in BP states is the primary tool used by the industry when finding suppliers. To be registered one has to be certified on a fundamental level for deliveries to the industry. This includes safety, knowledge about the organisation and the way jobs are done.

Both these requirements may be demanding for the Helgeland industries as Madsen explains *“This can be a cultural shock for the Helgeland industries as it’s a lot of documents often in English”*. Bærheim also mentions that this will both require time and capital from the companies.

Bærheim also states that when he visited the Helgeland industries some companies lacked certification regarding some jobs but still had employees that were certified for this. The road is then shorter for the companies to become certified to do this kind of job.

The Helgeland companies them self see this as a challenge especially regarding HSE as this differ from the heavy industry that they are used to. Tom Olsen in Mo Shipping states: *“We have been under the illusion that we knew what HSE was, but we had to realize that we were wrong. We had to learn a lot of new things. It is a totally different focus which is miles away from what where used to”*. Kjell Magne Madsen in BP is also under the impression that the oil industry has a higher focus on OSH than other industries in Norway. Dåbakk at Molab

also supports this: “*The safety requirements are much higher in this industry than others we operate in*”. Also Mastermo in Momek explains that they are used to working in many types of industries but even comes close to the oil and gas industry.

According to Bærheim the petroleum industry has HSE requirements for safety management. The companies operating in the industry has to have a plan for how they carry out jobs with work permits, certifications, processes and check points. The evaluation of contractors in regards to HSE is explained in NOROK S-006. Here there are models so one can see where the company is in the process. Bærheim also stresses the question about the degree of criticalness regarding the job one is set to do. Here the company has to score a sufficient score on the NOROK scale in order to ensure that HSE is secured. A summary of the NOROK S-006 is found in table 6-1.

The table provides a description of requirements that the contractor must satisfy. They are measured in using the following terms:

- A - Unacceptable
- B - Poor
- C - Acceptable
- D – Excellent

Table 6-1 Principal elements in the HSE management system (Source: Standards Norway 2003)

HSE management system elements	Addressing
1. Leadership and commitment	Top-down commitment and company culture, essential to the success of the system
2. Policy and strategic objectives	Corporate intentions, principles of action and HSE aspirations
3. Organisation, resources and documentation	Organisation of people, resources and documentation for sound HSE performance
4. Evaluation and risk management	Identification and evaluation of HSE risks relating to operations, products and services, and development of risk-reducing measures
5. Planning and procedures	Planning the conduct of work operations, including planning for change and emergency response
6. Implementation and monitoring	Execution and monitoring of operations, and how corrective action should be taken when necessary
7. Auditing and reviewing	Periodic assessment of system performance, effectiveness and fundamental suitability

For filling these HSE requirements can be quite challenging for the companies according to Mastermo *“We have used a lot of resources in order to strengthen our HSE organisation. We have increased it to a level that the offshore industry demands, but this is not something other costumers are willing to pay for”*. This implies that the industry has to invest in competence that is only useful for the oil industry.

The certification requirements can be defined as capital requirements barriers to entry. They also demand free resources.

6.1.3.2 Capacity

The industry companies focusing on M&M see the need to invest in new resources in order to enhance their capacity. There is a problem getting the right kind of human resources with competence to Helgeland. But this seems to be a problem related to capital as Mastermo state: *“..they ship out form Brønnøysund and the whole country, so i do not think that it is a problem getting a hold of”*. He also explains that this is hard if you are not in position and that you need cash at the opposite side. An example he mentions is an Engineering contract where they need to hire 30-40 engineers in order to be awarded the contract. This shows the magnitude of investments needed and some of the capital requirement barriers for the Helgeland industries. Since the wages are high in the petroleum industry there is great risk employing people with this kind of knowledge.

The total situation the Helgeland finds them self in is often called a Catch 22²situation illustrated in figure 6-1. They want to acquire competence, experience and a known brand as in order to do this they need these types of jobs and capital. Jobs and capital can only be acquired by having competence and experience. There is no escape from this situation as you need one factor in order to acquire the other and the other way around. The companies them self cannot affect this situation and thus need help to break out of this situation.

²Catch 22 situation -“a difficult situation from which there is no escape because you need to do one thing before doing a second, and you cannot do the second thing before doing the first.: I can’t get a job because I haven’t got anywhere to live but I can’t afford a place to live until I get a job – it’s a catch 22 situation” (Oxford University Press, 2005, p. 232)

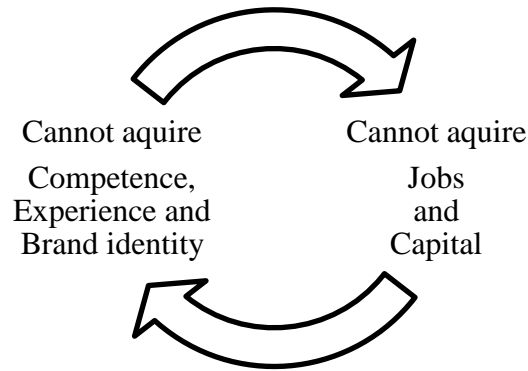


Figure 6-1 The Catch 22 for the Helgeland industries

The Entry barriers that the industry is facing can be summarized as:

1. The contract structure – hinders to companies in becoming main contractors
2. Competence - about the industry and regarding jobs makes them less competitive
3. Experience – the lack of experience makes the companies less competitive
4. Brand identity – the lack of a know brad makes the companies less competitive
5. Capital requirements – investments that has to be done in order to deliver which involves risk for the companies
 - certification,
 - capacity – new resources and capabilities with competence and experience
 - marketing

6.2 Reducing the barriers to entry

Now that I have identified the main barriers to entry for the Helgeland industries I will concentrate on my second research question:

How can different actors reduce entry barriers for the Helgeland industries in order to make them more competitive?

There are several actors that can help reduce the barriers to entry for the Helgeland companies. The ones I will focus on are: the E&P companies (represented by BP), the Norwegian government, local politicians, the main contractors, and at last the industries themselves.

6.2.1 How E&P companies can reduce the barriers

To be able to identify how E&P companies can reduce barriers to entry for the Helgeland companies. I will then present the case of the BP Skarv development and operations as BP is trying to reduce barriers for local companies in Helgeland.

BP has expressed that they want to use the local industry regarding the Skarv field *“We have been very clear on when it comes to Skrav we are entering a new area and we want to build up and use the local industry”* Madsen states. Bærheim explains that this is something BP included in their Plan for development and operations (PDO) *“This is something we have clarified in the PDO that we are going to make the conditions favourable so that local industry can be competitive.”* As a result BP has special focus on the local industries which is confirmed by Sanved in BP *“Skarv is treated as a separate case because it is adequate. There are separate obligations up north and a brand new asset, so we have to make special arrangements for Skarv”*. Madsen further explains that this will be an advantage for BP as they would have short distances to personnel, equipment and other things if the Helgeland companies become competitive.

6.2.1.1 Reducing the contract structure barrier

There are several ways that BP can reduce entry barriers; one is the contractual structure i previously discussed. This is a common contract structure for the OFS industry according to Madsen. BP has implemented large main contracts during the development face which result in large Engineering Procurement Construction (EPC). The local industries are left with competing for subcontracts and even further down in the value chain. Here the margins are much lower are?? often lower as discussed earlier because subcontractors are often “squeezed” regarding price. As a result no companies from Helegeland has been a direct supplier to BP during the Skarv development. Madsen explains that *“With the capacity and the size they have I feel that they to a less extent are suited to handle direct contracts to an operating company in the development face”*. Here the E&P companies have to consider the risk and cost on one side and developing the industry on the other. *“It’s an interesting discussion, we could have said to Technip that they could do the design of the riser anchors, so could we handle the procurement”*. Madsen states but points out that this is not very likely in the operational face as: *“A large development like this one would demand a very large organisation and a lot of interface between the contractors”*. This would introduce a risk aspect regarding the information sharing process as the operating company has to function as connection between the designer and the producer. Madsen also explain that this will demand more capital and resources for the oil and gas companies. This neither something that seems to be a growing trend amongst the E&P companies *“In reality we only see a tendency in the other direction, for instance the Goliath development where it’s only two large subsea contracts”* Madsen states.

In order to successfully include the local industries of Helgeland BP has accepted that they have to do something about this *“I think we have to accept now that in order to have a successful cooperation with local industry in Helgeland one has to take a look on this practice and maybe split up contracts if possible”* Madsen states. But then he is talking about the operational face of Skrav because then the situation changes for the local companies. Madesen explains that the jobs then become smaller and the Helgeland industries like *“when talking about M&M the situation is reversed and I think that smaller, fluctuate companies can have a competitive advantage”*. The only problem here is that the larger volume contracts and most of the investments are done in the development face. Bærheim explains that when it comes to the operational face there is not that much left *“..at that time we have built the boat and what you need then is what is required to keep up production”*. But still

these contracts are too big for individual companies in Helgelands as a result Bærheim explains that BP will split up contracts in a way that will suite the local companies, this in order to help them become competitive or in a position to tender. This is a result of BPs announcement through their PDO that they are going to make conditions favourable for the local industries. BP's choice of changing their operational contract structure may also have affects on other E&P companies operating on the NCS. Madsen states: *"We had a meeting with Statoil with ties to this, and I got the impression that the also is going to do something similar"*.

Splitting up contracts can be an advantage for E&P companies in order to achieve the desired competitive force in the OFS industry. Madsen states: *"We have understood that one has to be more flexible and split up the jobs in smaller portions in order to reach a greater mass. If this is not done one only get large companies and you don't get the competitive force that you want in the market"*. This is supported by Stein Tore Reinfjell in Nordmijø. He explains that they gave a price directly to BP in a tender process, but was also approached by a large actor in the OFS sector: *"This Company asks us for a price and we raise the price 15 percent compared to the price we gave BP. This company then raises the price 20 percent of that price and you are left with a price that is 35 percent higher than the price we gave BP"*.

Despite this BP gave the contract to the large supplier. In Porters (1980) five forces framework the OFS sector represents suppliers bargaining power to the E&P industry. According to Porter (1980) few suppliers can use their power to reduce the profitability of the E&P companies.

If the contract structure is not changed BP also has power they can use to influence the main contractors. According to Bærheim BP has tried to influence the main contractors to use the Helgeland industries during the Skarv development. He also stresses the fact that they cannot tell the main contractors which companies to use but they can choose the ones who say they will. BP also approves the tender process and tender lists which also is a way they can influence the companies. Regardless Madsen explains that they listen to the main contractors if there is too much risk involved in using a local company. And in they need to be competitive *"we are not going to award contracts up north because they are in the north they also have to be competitive"* Bærheim states.

6.2.1.2 Reducing the capital requirement barriers

BP has also reduced some of the risk for the local industry regarding the certification that is required to be able to tender. Botn in Helgeland V&M states: *”BP have made it easier for the supply industry of Helgeland. They do not demand a finalized and developed quality system neither to be registered in Achilles”* But if the company comes in position this has to be in place and fast. Bærheim in BP confirms this and explains that certification do not have to be in place at the time the companies bids but has to be in place at the start-up time. He states that: *“A possibility can be that a job is awarded company A given that they can meet the requirements”*. The requirements then have to be specified in a measurable plan with milestones along the way and have to be in place at the time the company’s tenders. Bærheim also states: *“The plan must be plausible; it must be possible that they can reach it in time”*.

BP has also stressed that this process takes time and money and that they want to come in contact with the companies that needs certification. The reason for this is that they can embed this in the tender process and call for tenders at a much earlier point in time, and the industry can then become qualified at the time the offer wishes to be made according. This is something that Henriksen et al. (2009) highlighted as a problem in the first ripple effects report. The time limits were criticized by local business representatives as being too short, which again resulted in the industry not being able to meet the requirements in time for delivery. Now it seems like BP has taken this into consideration in their tender process.

Bærheim further explains that BP has offered to help the companies regarding this process according which also is supported by Madsen which motions that Øystein Jonsrud responsible for HSE has visited the industries several times.

To summarize the E&P companies can reduce the contractual structure so the industry can be able to become main contractors. They can also influence main contractors to buy locally and reduce capital investment risk by not demanding certification at the time of tendering. Also they can provide general knowledge about the industry to companies that need it.

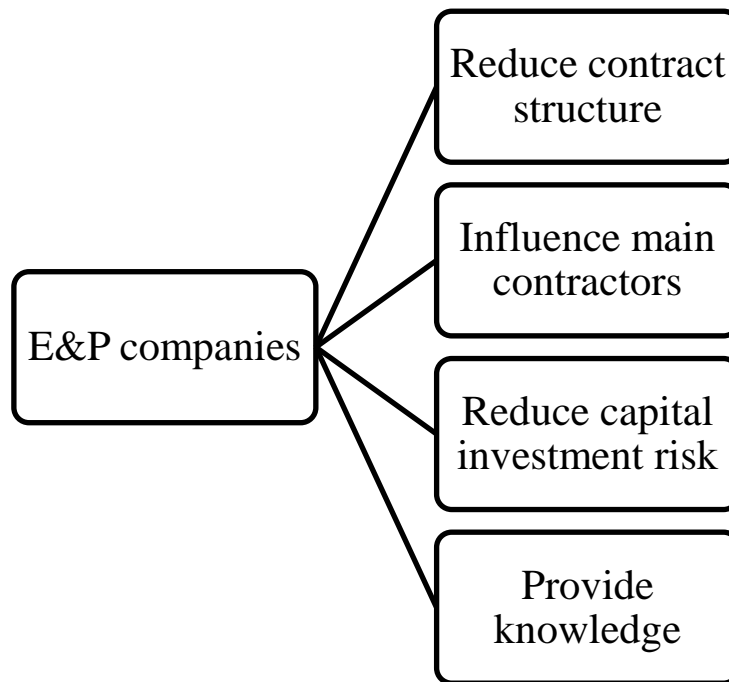


Figure 6-2 How E&P companies can reduce barriers to entry for the Helgeland companies

6.2.2 How the industry can reduce the barriers to entry

The industries can also reduce the barriers to entry them self. I have found two ways they can do this namely trough niche products or by cooperation with others. The OFS has characteristics of a mature market as there is a high focus on cost, standardized products and on the learning curve cost advantages. (Roos et. al 2005) The cost aspect has been thoroughly discussed earlier, the focus on standardized product can be found in the quality certifications in NOR-SOK. The learning curve advantages are classified by Porter (2008) as economic barriers independent of scale which focuses on profiting from proprietary know-how which incumbent firms in the OFS industry have. Roos et al. (2005) explains that the barriers to entry can be larger in mature markets than in growing ones. Mature markets give room for companies to enter trough niches or business cooperation. (Roos et al. 2005)

Since the companies are small compared to the other actors in this industry this seems as the only options they may have. Blees et al. (2003) has studied the differences in barriers to entry regarding size. Their conclusion is that there are more and greater barriers to entry are for

smaller companies than larger ones. I will now list my findings in how the companies cooperate and discuss how these reduce the barriers to entry.

6.2.2.1 Focused strategy (Niche)

The strategy focuses on special market segments and satisfying them better than competitors, which can be done by differentiation or through cost leadership (Roos et.al.2005). Two companies in Nordland County that have applied a focus strategy are Bomek and Nexans. Both have been awarded contracts as sub-suppliers of the operational face of Skarv. Bomek for Bodø focuses on fire-proof doors and Nexans from Saltdal on fibre optics. According to a represents in BP both are world class suppliers of their niche. They have gained a differentiated niche where they can demand a higher price. But in order to gain enough volume they seem to focus on the international market. A represent for BP states that it is very difficult to enter the international market without a track-record from the home market. Also to find such a niche is not an easy task according to Madsen, but it is possible.

There are none of the interviewed companies that are focusing on such a niche towards petroleum on the international market. However there are several that have niches like Miras which according to Brandser can laser cut 1.6 meter thick special steal. Also Nordmiljø have their niche in cleaning of supply ships and mud-management.

If the Helgeland companies enter the market trough a niche they still face many of the entry barriers identified. The capital investments are often lower as they do not need the same capacity as a focus on a large scope. The competence requirements is reduced as they only need competence on a small segment. The contractual structure barrier is reduced, but still they face the competence (regarding market knowledge), experience supplying the market, not having a known brand and the need for capital investments. This seems like a difficult strategy but can be one that is implemented while focusing on other strategies. Mastermo also mentions a way of gaining niche competence namely by cooperating with a niche actor and becoming their local connection.

The second approach I have identified is cooperation which can be done in several ways both formal and informal. Cooperation has several benefits for companies and several incentives

to cooperate. The types of cooperation's I have identified are strategic alliances, network organisations and clustering. I will start with defining the strategic alliances for each firm.

6.2.2.2 Strategic alliances

According to Roos et. al. (2005) a strategic alliance is cooperation between two or more companies regardless how this is done. The basis for why companies cooperate varies but according to Nalebuff and Braderburger (1997) all cooperation has complementarities as a basis. They explain that competition is based on substitution where the companies can substitute each other while cooperation is based on complements where companies can gain from each other. Reve and Jacobsen (2001) explain that only creativity set the limits to gain from cooperating.

6.2.2.2.1 Molab

Dåbakk in Molab explains that they cooperate with both with Momek and Miras when it is natural but they do not have any competitors in the region. Which according to the Nalebuff & Brandenburger (1997) and their Coopetition will explain their willingness to cooperate. They have not made any strategic alliances locally to reduce barriers towards petroleum at the moment, as they do not see the need for it. But they have in some cases cooperated with Sintef one of the largest companies in this industry since they provide the same type of products. The contract structure is divided in a way that they do not see the need to cooperate with others e.g. M&M. The reason for this is the product they provide which is part of support functions and not a direct part of the value chain. (Kunnskapsparken, 2008)

6.2.2.2.2 MOMEK

Momek and Miras is the two largest companies in the Mo i Rana, they provide many of the same products but still cooperate in several areas according to Mastermo. One strategic alliance evolving equity is a temporary employment company they own together. Momek also buys hydraulic services from Miras and pay for the use of a surface finishing workshop. Brandser in Miras states *“To build-up double capacity is just damaging for both companies”*.

Momek also has a strategic alliance evolving equity with Grenland Group in Harstad called Grenland Arctic. This was bought by Momek from Grenland Group which still owns 30 percent of the company. Mastermo explains that advantages from this alliance is that they have connection with Grenland Group and that they can provide resources if needed.

When it comes to M&M Mastermo explain that Momek cooperate with Aible and

Hålogaland Olje & Energi towards Statoils Norne field. Aible is one of the largest oil field service companies in the world. In this cooperation Aible will be the company in front and the other two companies will participate. The idea is that MOMEK will be responsible for half of the contract. In order to do so they need a larger organisation of engineers and if they do not succeed in this Aible will provide and then functions as a safety mechanism for Statoil. According to Mastermo it is hard to define if this is a strategic alliance or if they will be a sub-supplier but all the income will go through Aible.

6.2.2.2.3 Miras

Miras has already been mentioned to be cooperating with both MOMEK and Molab. They see they also see the importance of cooperation. Brandser in Miras states the following about MOMEK *“We should know where we compete but we should also make sure that we cooperate as well and develop together, because the market is big enough for the both of us”*. MIRAS previously had a letter of intent with BergenGroup and Helgeland V&M for the Norne field but this was not acceptable for AkerSolutions. Then Helgeland V&M had to back out of this agreement. There are also problems to cooperate with Helageland V&M since they compete in the same areas. When it comes to Skarv they have concrete cooperation's with other companies that can fill in the blanks where special competence is needed. This focuses on the smaller contracts for the M&M contracts for Skarv.

6.2.2.2.4 Helgeland V&M

Helgeland V&M is a stock company created by 8 companies located on Helgeland. According to Botn in Helgeland V&M the company is a result of BPs communication with local industry on Helgeland. The 8 companies then realized that they would be too small on their own and decided to cooperate and created the company. The founding companies and others will function as sub-suppliers to Helgeland V&M according to Botn in Helgeland V&M. In other words Helgeland V&M will function as an umbrella for the founding companies in order serve larger contracts.

So far this seems to be a successful strategy as Helgeland V&M signed an intentional agreement with AkerSolutions. Botn explains one of the reasons to cooperate with Aker *“they have some competence that is very special and which one does not need a lot of”*.

Competence is thereby one condition and another will off course be the share size of the total offer for contracts.

6.2.2.2.5 Aquarock

Heyerdahl explain that they have a great cooperation with the industrial park in Mo i Rana where they can borrow electrical motors and equipment. Also they have cooperation with Coastbase where Heyerdahl is commercial manager. Coastbase owns the facilities where Aquarock operates.

6.2.2.2.6 Nordmiljø

Another way of entering into a strategic alliance with another company is to let it buy shares in your company. This is a strategy that Nordmiljø has used.

According to Reinfjell, Nordmiljø first started serving the petroleum industry in 1997. Statoil awarded those contracts concerning waste handling, supply ship tank cleaning and mud handling to the Norne field with a supply base in Sandnessjøen. This resulted in that they could build competence towards the industry and capital. At this time they were in a direct contract with Statoil but this changed after the 5 years when Statoil called for tender's concerning all Statoil's activities in Norway. The company then had to re-think their strategy and become a subcontractor in the same contracts.

According to Reinfjell Normiljø first made a strategic alliance with one of the largest companies on waste management in the industry SAR from Stavanger. This company first bought 35 percent of the company which led to a 15 million NOK increase in revenues for Nordmiljø. Regarding the future he states *"..Either the companies has to split up the contracts, if not one has to cooperate with some large nationwide companies with market connections and experience from the offshore industry"*.

ASCO Sandnessjøen is also fully owned by ASCO Norge regardless of that fact they are free to choose suppliers if they want. HSE is neither a problem for them as they are a sub unit of the Stavanger base. They can also draw in competence from other parts of the country.

Mastermo in MOMEK sees local ownership as strength but also as a drawback because the access to capital is lower. But as he states *"what is local is local, it does not leave for Bergen"*.

In table 6-1 have summarized the different Strategic alliances that the companies are involved and some of the benefits they have from these.

Table 6-2 Strategic alliances

Company	Strategic alliance or cooperation	Type of alliance	Benefits
MOMEK	<ul style="list-style-type: none"> • Aible and Hålogaland Olje & Energi • Miras 	Strategic alliance not involving equity SA involving both Equity and no Equity	Competitiveness, competence, experience and relations Complementariness
Miras	MOMEK Unknown companies	Strategic alliance not involving equity	Complementariness
Helgeland V&M	Aker	Strategic alliance not involving equity	Contracts
Nordmiljø	SAR	Fully owned	Equity, competence and contracts
Molab	MOMEK and MIRAS Sintef	unknown Strategic alliance without equity	Complementariness Competitive Advantage
Bring	Subsidiary of Bring Logistics Norway	Fully owned	Equity, competence and contracts
Asco	Subsidiary of ASCO Logistics Norway	Fully owned	Equity, competence and contracts
Aqua Rock	Coastbase Mo i Rana industrial park		Complementariness Complementariness

6.2.2.3 Network organisation

There are several network organisations for suppliers in Northern-Norway. LOG Nord focuses on the Helgeland region, Petro Arctic on the Barents region and LO-VE Petro on Lofoten Veterålen region. (Sparebank 1 Nord-Norge, 2007)

LOG Nord is a network organisation located in Sandnessjøen who works with to develop the local and regional industry towards Skarv. It was founded in the spring of 2006 and is partner of the national network LOG Molde with the responsibility of Northern-Norway. The organisation helps local businesses who wish to position them self towards as suppliers of services or goods in both the development and operating face of Skarv. They have entered in to a binding agreement with BP in where main suppliers are requested to use their network of suppliers. (Sparebank 1 Nord-Norge, 2007). Madsen in BP explain that they have arranged several meetings for BP when they visited the region. They have also done marketing and announcements of contracts that came up. During the Snøhvit development in Hammerfest these kinds of networks have played an important role. In that case Petro Arctic was the network organisation used and has worked to develop the local suppliers, information and marketing of them. (Sparebank 1 Nord-Norge, 2007)

Heyerdahl in Aquarock mentions that they have a membership in INTSOK which is a network organisation for the Norwegian OFS industry. He mentions that Coastbase have gotten contracts as a result of Aquarock being a member in INTSOK. This organisation also focus on helping the Norwegian OFS industry becomes international. (INTSOK, 2010) Several actors have said yes to a planned Network called Helgeland olje og gass nettverk. According to Mastermo is not a business case but a place where people can learn from each others. Edvardsen in ASCO explains why they have said yes to become a member “I think that it is natural because we want to think further than Sandnessjøen”.

6.2.2.4 Clustering

Now I will discuss another type of cooperation between companies called cluster which Porter defines as: “A cluster is a geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities” (1998, p.78)

For the Helgeland industries to cluster together can bring several advantages according to the cluster theorists. The reason for clustering is complementarities and similar needs (Jacobsen 2008). This implies that in order to gain advantages from each to focus on similar products and services or at least have the same need in e.g. infrastructure. I will first start with Porters Diamond in order to assess the positive and negative things with their clustering towards petroleum. I will look at the region of Mo i Rana and Sandnessjøen as one cluster as there is only 2 hours travelling time between the two locations.

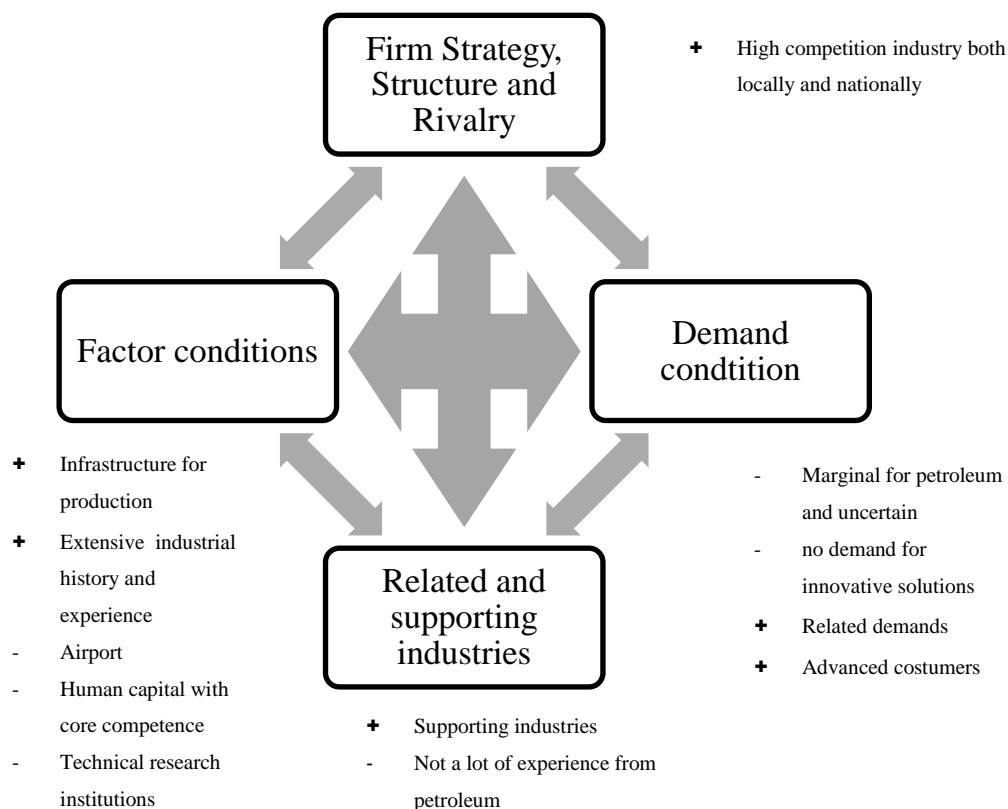


Figure 6-3 Porters diamond

6.2.2.4.1 Factor condition

In the regions of Mo i Rana and Sandnessjøen there are a lot of favourable conditions regarding infrastructure for industries. According to Brandser the cluster has good infrastructure with harbours. The industry park in Mo i Rana has connections straight to the ocean. But in order to reach new geographical areas and new market segments there is a challenge like the airport situation. Also in Sandnessjøen there are good facilities according to several actors regarding these services. But Heyerdahl explains that compared to other locations Sandnessjøen have a long way to go. Both deals with available storage space and capacity of Stevedore³ services.

The airport situation in Helgeland is something that was highlighted by several of the respondents. Dåbakk explains that for Molab this is the most imminent regarding infrastructure. When somebody is waiting for test result offshore time is of the essence and then air transport is used in this process. The flight time and route situation is also something hampers the industries. Dåbakk states *“we see that it is cheaper for our competitor in Oslo to travel to Troms and Finnmark then for us.”* Also travelling is very expensive for the industry and time consuming. There are two plans that could reduce this situation, one is a common larger airport in Mo i Rana the other is expanding the landing strip in Sandnessjøen. Barth-Heyerdal in Aquarock explains that expanding the landing strip in Sandnessjøen is curtail anyways because its hampering crew changes in Sandnessjøen because they cannot charter planes in order to get to Sandnessjøen.

Also between Mo i Rana and Sandnessjøen there is a challenge regarding transport time which is two hours but a new tunnel is planed called Toven which may reduce this situation. This will according to Botn reduce the travelling time to Mo i Rana with approximately half an hour. Brandser explains that road transport is much cheaper than road so a faster road transport will strengthen the cluster.

Another problem regarding factor condition mentioned by several respondents like Mastermo and Brandser is the availability of the right kind of human capital with competence from petroleum. As mentioned earlier this is something the industries lack because the lack experience with these types of jobs.

³ Services that help to load or offload cargo to a vessel e.g. cranes

Universities and research institutions can help strengthen clusters by supplying new knowledge. This can be done through having a close relation to the industry. Also knowledge can be transferred through newly graduates and post-qualifying education. (Reven & Jacobsen 2001) Bodø Graduate School of Business has a linkages to the industry and is also has a division in Mo i Rana. But there are no connections to technical research institutions according to several actors. These types of institution play an important role in technical clusters like the NODE cluster. (Konkraft & INTSOK, 2008)

6.2.2.4.2 Firm Strategy, Structure and Rivalry

This part of the diamond deal with having a competitive environment inside the cluster. This is important to spur innovation and becoming competitive in a larger market (Reve & Jakobsen 2001) inside this cluster the competition seems intense as there are several actors competing for the same contracts. For instance regarding the M&M contracts for Skarv Miras, Momek, Helgeland V&M are competing for contracts. Also the contracts are published on a national and even international basis which results in competition from these areas.

6.2.2.4.3 Demand conditions

Local demand for OFS services today is limited to the BP Skarv development and the Norne field which is operated by Statoil in Harstad but supplied by Helgelandsbase in Sandnessjøen. Apart from this there are also several discoveries that have been done outside Nordland. The most significant is The Luva field (Statoil), Victoria (Total) and Gro (Shell). Sale Marulk, and Stær are marginal fields that can be operated from Norne through subsea installations. Victoria is the largest and was found in 2000 and has an anticipated recoverable volume of 89 Sm³ gas but the estimate is uncertain. There is also several challenges with this field like partly dense rock formations, high CO₂ levels in the gas, high pressure and temperature in the reservoir and the fact that it is located at a depth of 5000 meters. (Norwegian Petroleum Directorate, 2009) According to Reve & Jakobsen (2001) these costumers should be advanced and demand innovative solutions in order to get a pressure of innovation. This does not seem to be the case as several in BP mention that they do not demand innovative solutions from the industry in Helgeland. On the other hand these costumers are advanced costumers.

But there are several related areas the companies can provide related services. Some examples are Dåbakk that states that they have ¼ of their total sales come from the local

market. Molab have several costumers in the Mo i Rana cluster like Fesil and Vale. Like I previously mentioned MOMEK buys hydraulic services from Miras. Aquarock also uses the industrial park in Mo i Rana.

6.2.2.4.4 Related and supporting industries

There are several related and supporting industries both in the industrial park in Mo i Rana and also in Sandnessjøen. Examples would be Tuv kran og maskin in Sandnessjøen who provide Stevedore services both for Aquarock and ASCO. But as previously mentioned not a lot of these have experience with the OFS industry. Reven and Jakobsen (2001) mentions that this is an important factor for knowledge transfer so also connections to other clusters or regions are important. I will discuss this later regarding knowledge transfer.

I will further discuss how these characteristics can lead to upgrading mechanisms which can reduce barriers to entry. The three upgrading mechanisms identified by Reve & Jakobsen (2001) where: pressure of innovation, complementarities and knowledge transfer.

6.2.2.5 *Pressure of innovation*

Reve & Jakobsen (2001) defined 3 characteristics of industries with pressure of innovation:

- Advanced costumers that demands innovative products and solutions
- Rich and open communication between customers and suppliers
- The customers can choose between the suppliers (high competition level)

None of the BP representatives says they demand innovative products or solutions form new suppliers like the Helgeland companies. Madsen mentioned that if you are a new supplier and try to provide innovative solutions may face difficulties of selling these because of the lack of a track record. This may explain why there is little evidence of extensive innovation in the cluster towards petroleum. Mastermo states that he cannot see any clear examples of innovation.

But as the competition level is high and the costumers advanced and also an open communication with BP there is some evidence of some innovation regarding new ways of doing things in the companies. An example would be the forming of Helgeland V&M which is a kind of first mover strategy and an innovative way of doing things. (Hill & Jones, 2007)

A clear result of this formation is also the intentional agreement with Aker Solutions which clearly will reduce barriers to entry.

6.2.2.6 Knowledge transfer

Knowledge is the second upgrading mechanism of clusters according. As I have shown earlier barriers facing the industries includes competence and a part here is know-how. Gaining this is then curtail in order to become competitive. I have found several evidences that knowledge transfer both exist between actors in the whole region and also the benefits of this.

The county administrative and Sandnessjøen municipality has established a forum with the Statoil, BP, ASCO, Helgelandsbase, Coastbase, harbour authorities and Tønnevold in Sandnessjøen. They have quarterly meetings where they discuss common problems and inform each other. According to Sørå mayor of Sandnessjøen, the mayors of Rana, Nesna, Vefsn, Alstadhaug, Brønnøy, Vevestad and a represent from the county administrative have a committee called Helgeland Olje- og Gass utvalg where they meet.

Mastermo highlights that a large actor in Stavanger has mentioned openness as strengths of the Norwegian industry. Mastermo sees this as a way of building competence and the whole competence level. Dåbakk in Molab clearly sees the knowledge transfer in the region that occurs when people switch workplace the knowledge and takes their knowledge with them. The fact that this type of knowledge transfer occur in this cluster is also verified by other actors we have talked to. Like Reinfjell in Nordmiljø that states that they have frequent conversations with Momek and Miras he is also a board-member in Momek. He also mentions an example that Momek wants to use his network in Stavanger. In this way knowledge is transferred between companies by board-members and by conversation. This correlates with Reve and Jacobsen. Dåbakk also mentions that companies also visit and learn from each other in the region. Molab and others also provide knowledge from their operation in other regions. This is an example the advantages of being located in close proximity as Jakobsen (2008) mentions is clear.

6.2.2.7 Complementarities

As defined by Reve & Jakobsen (2001) a resource has to fill the following three criteria in order to give self-reinforcing growth.

- Resources has to be complementarities in the market or as infrastructure for companies
- Resources has to have a falling unit cost when in use, the demand for the resource then has to be of a given size (critical mass) in order to be supplied.
- There has to be substantial mobility barriers regarding the resources, in order to prevent the companies from bring it in form elsewhere.

As mentioned in the factor condition part there is a lot of important resources and many of these for fill all of these criteria like harbours and roads. But as mentioned airport is a limiting factor but should a new airport be built it will increase growth in the cluster according to Reve & Jakobsen (2001). Jakobsen (2008) explains this as a result of being located in close proximity of each other which I now will discuss.

6.2.2.8 Location

An example that also shows the importance of being located in close proximity of each other is mentioned in the splitting of the operation base and the helicopter base. Ole Skottnes at BP Norge points out that by dividing the operation base and the helicopter base the regional ripple effects may have been weakened. The reason for this is that a lot of things need to be transported by helicopter. Last year's ripple effects report also supports this view and points out that you then need more activity in order to get growth. If all had been located in one place there would probably been more activity in that area.

This also has weakened the improvement of infrastructure to Sandnessjøen as they could have if both had been located there. An example here would be the direct flight route that Brønnøysund has got to Oslo as a result of the helicopter base. An example that was mentioned by Henriksen et. al. (2009) was that travelling expenses was an obstacle for doing business for Helgeland. If Sandnessjøen had gotten a direct flight to Oslo it would have reduced these expenses a travelling time a lot. Now you have to travel to Brønnøysund in

order to get to Oslo which takes some time and more money. It will probably also benefit Sandnessjøen but not in the same way as it would with a direct flight. An example that this affects the cluster regards the crewshifts from Sandnessjøen. Heyerdahl in Aquarock states “they use more time from here to Trondheim than to the Philippines” It takes 3 hours from Brønnøysund to Sandnessjøen and includes ferries the direct route should have been Sandnessjøen-Brønnøysund-Oslo according to him.

Another advantage of been located close to Sandnessjøen in order to be able to set up meeting and deliveries in short time. This is supported by Ole Skottnes in BP who also stresses that a lot of things are going to be bought on what he called PO.

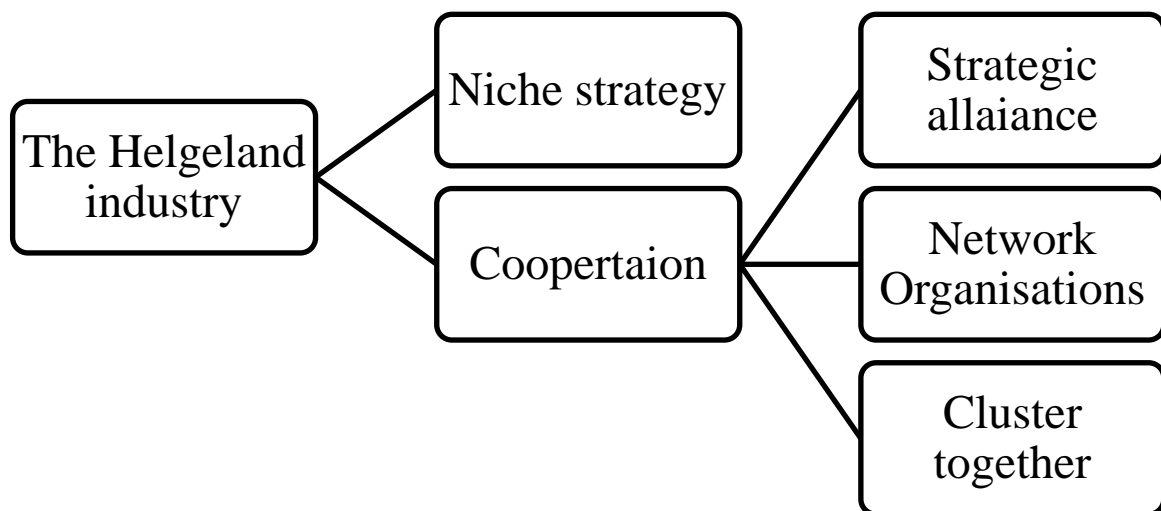


Figure 6-4 How the Helgeland industries can reduce barriers to entry

I will now briefly elaborate on the governments, local authorities and experienced OFS companies can reduce barriers to entry for companies.

6.2.3 The government and local authorities

The Government and local authorities' through their Macro influence of the OFS industry can influence the highest point on the chain namely the E&P companies, these companies can then as shown earlier influence their main contractors. This I clarified in my theoretical part where political is a part of the PESTEL analysis.

In order to reduce entry barriers for the industry have to demand ripple effects from petroleum activities in Helgeland and focus on that the E&P companies make conditions favourable for the local industry in the way which were discussed earlier. In order to produce maximal volume for the local companies they could also demand that future activities should be located together which according to Skottnes in BP would strengthen the cluster.

The government and local authorities can also reduce barriers by improving infrastructure in Helgeland especially regarding a new airport. This will among other reduce capital requirements for local companies as travel expenses would go down.

They can also contribute to knowledge transfer by sharing knowledge they have gained about the E&P and OFS industries with the Helgeland companies.

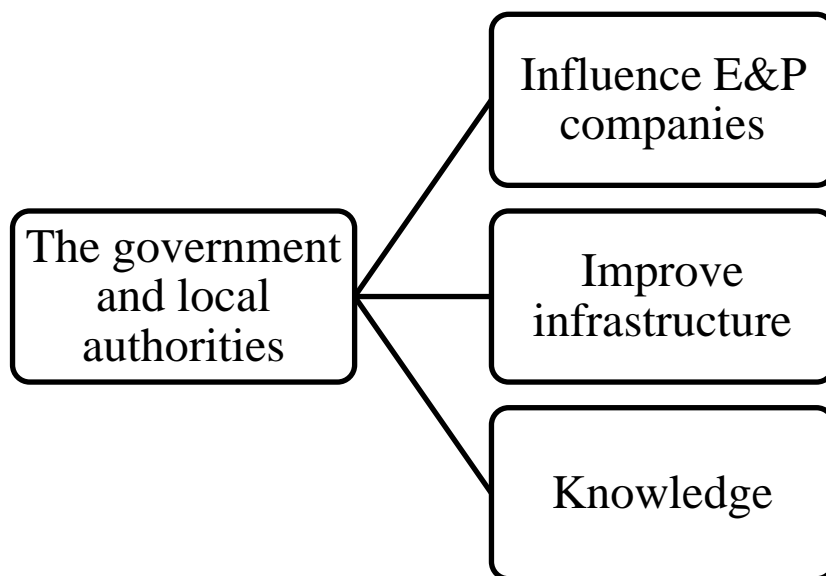


Figure 6-5 How the government and local authorities can reduce entry barriers

6.2.4 Experienced OFS companies

The experienced OFS industries which in some cases are main contractors can reduce barriers for the local industry of Helgeland. This could be done by to cooperate or use the local industry which would bring new resources and capabilities the local industry. This will contribute to an overall lowering of barriers and if they choose to form some kind of partnership they could reduce all the different barriers as these companies are competitive in the business. This can also give experienced OFS companies a competitive advantage over companies who do not wish to cooperate with local industry. This is a result of that E&P companies has obligations regarding ripple effects that has to be met. The local industry can function as their local connection regarding the operational face and can also provide local knowledge. This cooperation can be done in several ways from investment in the actual company to forming a joint company.

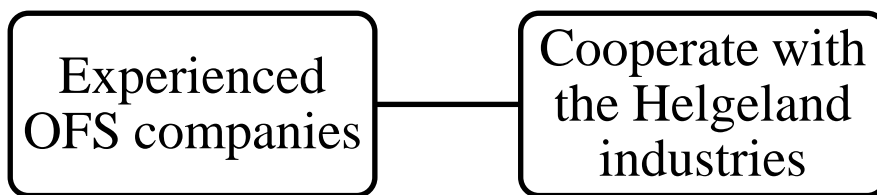


Figure 6-6 How experienced OFS companies can reduce entry barriers

7 Conclusion

The problem statement for this thesis was:

How can the Helgeland industries become more competitive in the Norwegian Oilfield service industry?

In order to answer this question I have identified the advantages between the incumbent firms in the oil field supply industry called entry barriers.

There are several large entry barriers in the oil field service industry for that influences the Helgeland industries.

- The contractual structure makes it impossible for the Helgeland companies to become direct contractors to an E&P company. As a result they have to become sub-suppliers which often lead to lower profits and less competence building.
- Other entry barriers for the industry are:
 - Competence - about the industry and regarding jobs makes them less competitive
 - Experience – the lack of experience makes the companies less competitive
 - Brand identity – the lack of a know brand makes the companies less competitive
 - Capital requirements – investments that has to be done in order to deliver which involves risk for the companies

These barriers can be reduced by:

The E&P companies:

- They can split up the contracts in order to include the companies but this demands larger resources, is more costly and creates risk regarding information sharing for the E&P company as they have to function as a interface between companies. This is more likely in the operation face than the development face because of the size the job that needs to be done. On the other hand most of the investments made are done in the operational face.
- They can also reduce the risk that the companies face regarding investing in certifications and registering in Achilles by not demanding that this has to be in place at the time of tendering. A solution presented by BP here is that the companies have

to provide a measurable plan how this could be done at the time of tendering. Also starting the call for tenders early so the companies have enough time to be able to provide this plan or certify them self is important.

- The E&P companies can also influence their main contractors to use the Helgeland companies when contracts cannot be spitted. They can influence their power trough choosing main contractors that want to buy locally and when they confirm tender lists and tender processes.
- E&P companies can also provide knowledge about the industry which will reduce the competence barrier for the companies.
- By locating future activities together in order to create more of volume for the industry

The Helgeland companies:

- Focusing on niche products or services which is hard but will reduce the contractual barrier. This may also reduce the capital requirements and competence as they do not need the same capacity as when focusing on a larger scope.
- Strategic alliances with companies form Helgeland can reduce the cost capital investments and some competence barriers but they still lack a Brand and experience.
- Strategic alliances with experienced OFS companies like Aker can reduce all barriers to entry.
- Letting the company be bought by another OFS company will also reduce all barriers but will not guarantee that the company is later moved out of Helgeland.
- Clustering together in close distance of supply bases leads to knowledge transfer, complementarities and innovation pressure. This leads to lowering of barriers of competence barriers trough pressure innovation and knowledge transfer. Capital requirements are also lowered as a result of complementary resources like common infrastructure.

The Government and local authorities

- The government and local authorities can influence the E&P companies by demanding local ripple effects.
- They can improve the infrastructure on Helgeland especially by a new airport
- Focusing on locating activities together in more volume for the industry

- Contribute to knowledge transfer

Experienced OFS companies

- Can choose to cooperate with the Helgeland companies and reduce barriers. This may also function as a competitive advantage for these companies.

My conclusion is that in order to make the Helgeland industries more competitive the government and local authorities has to influence the E&P companies to use build up the local industry and improve the infrastructure in Helgeland. The E&P companies then have to help the local industry become competitive by making conditions favourable for the companies and main contractors to do the same. The experienced OFS industries need to cooperate with the local industry which can gain both parties. At last the Helgeland companies them self need to cooperate, focus on niches if possible and cluster together in order to make it easier for E&P companies or main contractors to award them contracts.

8 Main contributions, limitations and further research

8.1 Main Contributions

8.1.1 Cluster theory

Theories regarding the cluster phenomena have been applied to the local setting of the Helgoland industries. I have confirmed that theories regarding clusters can be applied to analyse how companies benefit from being located together.

Secondly the use of these theories have provided a practical contribution some of the importance of locating future supply and helicopter bases in Helgeland together in order to generate enough volume to develop the local industry which may be important for future activities.

8.2 Strategic management theory and cooperation theory

Applying Strategic management theories have shown the different factors and forces that can create barriers to entry for the Helgeland industries. These theories have been applied to the OFS industry regarding Helgeland industries as entrants. My research also backs up previous research that Blees et. al. (2003) have conducted which concludes that entry barriers for smaller companies are greater and more numerous than for large enterprises.

The practical contribution of using these theories is that it identifies the entry barriers facing the local industries of Helgeland and also shows how different actors can reduce this. The research also provides different strategies that the Helgeland companies can choose in order to reduce these barriers.

I hope this research is interesting for others interested in the subject and for persons who want to study the Helgeland industries and that it can result in further research.

8.3 Limitations

The limitation of this research is that it focuses on a special area and a special industry. As a result it is not possible to generalize to other areas in Northern Norway which may face the same difficulties. But this is not all bad because the gains from choosing this approach are in-depth knowledge which is important for this context.

8.4 Further research

Further research could be done with the same approach as mine but in a larger context like the whole of Nordland. A Questionnaire with the identified barriers as a basis could also be used to research the barriers for companies in Northern-Norway in order to generalize.

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10 Appendix 1 Interviews

Name	Firm / organisation	Date	Conducted by
Mo i Rana			
Sten-Tore Reinjfjell	Nord Miljø AS	23/02/2010	Krister Salamonsen and Mats Reinsnes
Charles Lien	Bring Logistics	23/02/2010	Krister Salamonsen and Mats Reinsnes
Leif Sagen	Meyership AS	24/02/2010	Krister Salamonsen and Mats Reinsnes
Tom Olsen	Mo Shipping Agency AS	24/02/2010	Krister Salamonsen and Mats Reinsnes
Roger Brandser	Miras	01/03/2010	Krister Salamonsen
Hans Marius Mastermo	Momek	01/03/2010	Krister Salamonsen
Eigil Dåbakk	Molab	02/03/2010	Krister Salamonsen
Sandnessjøen			
Ståle Edvardsen	Asco Sandnessjøen	04/03/2010	Krister Salamonsen and Mats Reinsnes
Stig Sørra and Stig-Gøran Olsen	Mayor and Industry manager of Sandnessjøen	04/03/2010	Krister Salamonsen and Mats Reinsnes
Bård Anders Langøen	Rica Hotel Sandnessjøen	04/03/2010	Krister Salamonsen and Mats Reinsnes
Olav Botn	Helgeland V&M	05/03/2010	Krister Salamonsen and Mats Reinsnes
Øystein Barth Heyerdahl	Aqua Rock	05/03/2010	Krister Salamonsen and Mats Reinsnes
Stavanger			
Arnfinn Bærheim	BP Stavanger	26.03.10	Mats Reinsnes
Ole Skotnes	BP Stavanger	26.03.10	Mats Reinsnes
Olav Fjellså	BP Stavanger	26.03.10	Mats Reinsnes
Kjell M Madsen	By telephone from BP Stavanger	26.03.10	Mats Reinsnes

11 Appendix 2 Interview guide Mo i Rana and Sandnessjøen

- Hierarkiet i leverandørindustrien
- Kompetansearbeidsplasser;
 - Hva legger dere i betydningen ”kompetansearbeidsplass”?
 - Hvilke slike kompetansearbeidsplasser finnes i deres organisasjon?
 - Hvordan utvikler dere kompetanse i organisasjonen? (aktørsamarbeid lokalt/regionalt/nasjonalt?)
 - Har leveranser frem til nå ført til utfordringer i forhold til kapasitet på rett kompetanse, og er det problematisk å få fatt på personer med riktig kompetanse?
 - Har leveranser ført til nyansettelser med riktig kompetanse?
 - Hvordan står dere i forhold til å ha rett/tilstrekkelig kompetanse for fremtidige (nye) leveranser?
- Aktørsamarbeid;
 - Har dere fått, eller er dere på søken etter nye partnere for å styrke dere inn mot en eller flere spesifikke sektorer?
 - Hva er viktig for dere med tanke på samarbeid med andre? (hvis relevant, ala samarbeid med nye firma med spesifikk bransjekunnskap sp, bedriften ikke har selv, komplementerer eget produkt/tjenestespekter for å bli en mer fullstendig leverandør, risikoreduksjon ved å dele risiko på flere, få tilgang via andres sertifiseringer (Achilles, godkjenning – hvis fokus på olje/gass))
 - Har dere fått ett annet syn på samarbeid med andre som følge av samtaler med personer fra BP Norge?
 - Har personer fra BP bidratt til å få på plass samarbeid med andre (hvis relevant ift foregående to spørsmål)
 - Ser dere fordeler eller ulemper med å operere i et område med stor tetthet av konkurrenter så vel som potensielle samarbeidspartnere (i en såkalt industriklynge)?
 - Foruten formelle samarbeidsavtaler, foregår det kunnskapsoverføring mellom aktører lokalt og regionalt? Hva mener du om det?
 - Hvis ja; har dere ”tjent” på dette?
- Hvis ikke lokalt eid selskap; hvordan står dere i forhold til operasjoner og handlefrihet gitt fra sentralt hold?
- Hvordan har kommunikasjon og samhandling med BP vært? (direkte eller som underleverandør? (hierarkiet))
- I hvilken grad er petroleumsnæringen en del av deres produkt-/serviceområde?

- Har dere vært involvert i Skarvutbyggingen, eventuelt hvilke muligheter ser dere der?
 - Har kontrakter for BP/Skarv gjort dere konkurransedyktig for andre oppdrag i petroleumsnæringen?

- Gjør dere noen strategiske grep for å posisjonere dere mot potensiell fremtidig petroleumsaktivitet lokalt (Helgelandskysten), nasjonalt eller globalt?

- Hva gjør BP lokalt og regionalt for å skape ringvirkninger?

- Hva gjøres lokalt og regionalt for å skape ringvirkninger?
 - Omstillingsevne til ny næring
 - Lokal mobilisering
 - Samarbeidsavtaler for å få økte ringvirkninger

12 Appendix 3 Interview guide BP Stavanger 26.03.10

Kan du fortelle litt om deg selv og hva du gjør i BP?

I hvilken grad har du vært delaktig i Skarv utbyggingen (informasjonsrunder, leverandørseminar, anbud etc.)?

Hvor konkurransedyktig vil du si industrien i nordland er og hvor ligger kjernekompetansen?

Hva skal til for å komme på ”bidders list” (sertifiseringer, registreringer etc.) og hvor store tidsmarginer operer man med?

Hvordan er leverandørnettverket til BP bygd opp?

Kontraksstrukturen for Skrav hvordan er den bygd opp?

Hva gjør BP for å bygge opp Industriens kompetanse, skape kompetansearbeidsplasser og industrielt

samarbeid med og mellom industrien i Nordland?

Har BP en klar strategi hvordan dette skal gjøres og hvordan gjennomføres denne?

Ser du mulighetene for å bygge opp et industri cluster rettet mot petroleums sektoren på helgeland?

LOG Nord hva gjør de?

Hvor stor grad legger BP rettingslinjer for store underleverandører som (Baker, ASCO etc.) i forhold til lokale innkjøp?

Har du eller noen kommentarer til årets rapport som fokserer på kompetansearbeidsplasser og industrielle samarbeid?