



UNIVERSITY OF STAVANGER,

Stavanger, May 2016

MASTER THESIS

EXECUTIVE MBA

A Critical Assessment of Outsourcing in the Oil & Gas Industry

Vivien Helen Vestre

Supervisor: Terje Ingebrigt Vaaland

This thesis was written as a part of the Executive Master in Business Administration (EMBA). Neither the institution, the advisor, nor the sensors are - through the approval of this thesis - responsible for neither the theories and methods used, nor results and conclusions drawn in this work



Universitetet
i Stavanger

MASTEROPPGAVE

STUDIEPROGRAM:

EXECUTIVE MBA

OPPGAVEN ER SKREVET INNEN FØLGENDE
SPESIALISERINGSRETNING:

STRATEGI

ER OPPGAVEN KONFIDENSIELL?

Nei

TITTEL:

A Critical Assessment of Outsourcing in the Oil & Gas Industry

FORFATTER

Studentnummer:

892324

Navn:

Vivien Helen Vestre

VEILEDER:

Terje Ingebrigt Våland

OPPGAVEN ER MOTTATT I FIRE – 4 – INNBUNDNE EKSEMPLARER

Stavanger, / 2015

Underskrift UiS EVU:.....

From Statoil Magazine, 3 ed. 1997;

“ ... many believe there are several American companies who pay millions of dollars to outsource their energy supply. Outsourcing is a trend in the US. It means paying other companies to perform a service the company previously had in-house. The goal is to save money and focus on their own business.”

ACKNOWLEDGEMENTS

This thesis is written as part of the Executive MBA program at the University of Stavanger (UiS). The thesis addresses a debated subject "outsourcing", with an approach to the oil and gas industry. The objective of this task is to explore how outsourcing has affected the industry, and typical pitfalls companies should be aware of before implementing outsourcing as part of the company's strategy.

I hereby want to express my gratitude to my supervisor, Terje Ingebrigt Vaaland, the Faculty of Social Science, University in Stavanger. I would like to thank professional acquaintances in the industry sharing their experiences and for the worthy discussions around this topic. Last, but not least, Rune Schwebs, Principal Engineer and former Petroleum Safety Authority Employee, with all his support and comments in completing this master thesis.

Yours sincerely,

Vivien Helen Vestre

EXECUTIVE SUMMARY

Outsourcing is a well-debated phenomenon and it seems there is a quite common opinion for a company to be successful; it has to follow the trend of outsourcing. Outsourcing is something most industries practice, and certainly the petroleum industry. As the oil & gas industry established, it seems the frequency of outsourcing has matured along with it. This study has primarily been based on scientific articles concerning outsourcing in the petroleum industry. Experiences and findings from these articles have been presented and discussed, but also compared with similar approach in other industries. From the findings it is indicated that outsourcing in the oil and gas sector is well established, not just within core competencies (which activities are defined as core competences can also vary within the industry), but also within supportive activities. The oil companies are constantly searching for strategies for a sustainable business that is less vulnerable to external influencing parameters such as oil price and production. Outsourcing can be a smart way and a pronounced tool to achieve more stability in the long term. Outsourcing is used as a formidable strategy to exert efficiency in operations and stay ahead of competition. The report concluded by asserting the importance of outsourcing as a prelude to higher performing enterprises in this sector. It recommends that the practice should be done within the acceptable frameworks such as allowing competitive bidding, outsourcing from credible providers, auditing the business processes, and benchmarking with other firms in the industry and beyond.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	4
EXECUTIVE SUMMARY	5
TABLE OF CONTENTS	6
TABLE OF FIGURES	9
INTRODUCTION	10
1.1 BACKGROUND	10
1.2 PROBLEMATIZING	13
1.3 RESEARCH QUESTION	13
1.4 RELEVANCE	15
1.5 EMPIRIC	15
1.6 SCOPE AND STRUCTURE	15
THEORY	17
2.1 THE PHENOMENON OF OUTSOURCING	17
2.2 TYPES OF OUTSOURCING	18
2.2.1 OPERATIONAL OUTSOURCING	18
2.2.2 STRATEGIC OUTSOURCING	18
2.2.3 MULTISOURCING	19
2.2.4 BUSINESS PROCESS OUTSOURCING (BPO)	19
2.3 REASONS TO OUTSOURCE	20
2.4 THE CLAIMED EFFECT, BENEFITS AND DRAWBACKS	21
2.5 DECISION MODEL FOR OUTSOURCING	23
2.6 CAPABILITIES AND VALUE SYSTEMS	26
2.7 CORE COMPETENCE	27
2.8 INDUSTRIAL NETWORK	28
2.9 VALUE CHAIN AND SHIFTING ORGANISATIONAL BOUNDARIES	30
METHODOLOGY	32
3.1 PURPOSE AND PRINCIPLES	32
3.2 FIELD OF STUDY	32
3.3 RESEARCH DESIGN	33
3.4 DATA COLLECTION	35

3.4.1	QUALITATIVE AND QUANTITATIVE METHODS	35
3.4.2	POPULATION AND THE SELECTION FRAME	36
3.4.3	PRIMARY DATA	36
3.4.4	SECONDARY DATA	37
3.4.5	DATA GATHERING AND ANALYSIS	37
3.5	DATA ANALYSIS	40
3.6	EVALUATION OF QUALITY	43
3.7	VALIDITY	44
3.8	RELIABILITY	44
3.9	LIMITATIONS OF THE STUDY	45
EMPIRICS & ANALYSIS		46
4.1	DIVERSE EXPERIENCES WITH OUTSOURCING	46
4.2	THE STRUCTURE OF THE OIL INDUSTRY (NORWEGIAN MODEL)	48
4.2.1	FIELD OPERATORS	49
4.2.2	PRIMARY SUPPLIERS	49
4.2.3	NICHE SUB SUPPLIERS	50
4.2.4	CAPACITY SUB SUPPLIERS	50
4.3	AN OVERVIEW OF THE OIL AND GAS INDUSTRY	50
4.4	THE EMPIRICAL ARTICLES	56
4.4.1	OUTSOURCING OF CORE COMPETENCES	61
4.4.2	CAPABILITIES, RELATIONSHIP AND OUTSOURCING	61
4.4.3	CONTRACTS AND RELATIONSHIP	63
4.4.4	SUCCESS CRITERIA WHEN OUTSOURCING OF MRO AND PROCUREMENT	64
4.4.5	RISKS OF OUTSOURCING CORE COMPETENCES	65
4.5	OUTSOURCING CASES FROM SOME OIL COMPANIES	65
4.5.1	THE CASE OF ROYAL DUTCH SHELL	65
4.5.2	BRITISH PETROLEUM CASE OF OUTSOURCING	66
4.5.3	EXXONMOBIL OUTSOURCING EXPERIENCES	67
4.5.4	CHEVRON OUTSOURCING EXPERIENCES	68
4.5.5	STATOIL OUTSOURCING EXPERIENCES	69
4.6	OUTSOURCING IN THE OIL INDUSTRY	70
4.7	OUTSOURCING IN OTHER SECTORS	70
4.7.1	OUTSOURCING IN THE GENERAL MANUFACTURING SECTOR	70
4.7.2	OUTSOURCING IN THE AUTOMOBILE INDUSTRY	72
4.7.3	OUTSOURCING IN ELECTRONICS MANUFACTURING	72

4.8 ANALYSIS OF OTHER FINDINGS	73
<u>DISCUSSION</u>	<u>81</u>
5.1 CHOSEN RELEVANT EMPIRICAL ARTICLES	81
5.2 CASES OF OIL COMPANIES	86
5.2.1 LESSONS LEARNT FROM ROYAL DUTCH SHELL	86
5.2.2 LESSON LEARNT FROM THE BRITISH PETROLEUM CASE	87
5.2.3 LESSONS LEARNT FROM EXXONMOBIL CASE	88
5.2.4 LESSONS LEARNT FROM CHEVRON CASE	88
5.2.5 LESSONS LEARNT FROM STATOIL OUTSOURCING EXPERIENCES	89
5.3 CHALLENGES OF OUTSOURCING	89
5.3.1 PROFIT-ORIENTED OUTSOURCED FIRMS	89
5.3.2 CHANGE MANAGEMENT	90
5.3.3 LAYING OFF WORKERS	90
5.3.4 PERCEPTION FROM THE PUBLIC	90
5.4 CHAPTER CONCLUSION	90
<u>CONCLUSION</u>	<u>93</u>
<u>MY RECOMMENDATIONS</u>	<u>96</u>
CONSIDERATION TO OUTSOURCE FROM INTERNATIONAL SERVICE PROVIDERS	96
ALLOW COMPETITIVE BIDDING BEFORE SELECTING SERVICE PROVIDERS.	96
CONTINUAL BUSINESS PROCESS AUDITING.	96
BENCHMARKING WITH OTHER FIRMS AND PARALLEL INDUSTRIES.	96
ENGAGE IN SHORT CONTRACTS WITH OUTSOURCING COMPANIES.	97
<u>LIST OF REFERENCES</u>	<u>98</u>
<u>APPENDIX A</u>	<u>104</u>
<u>APPENDIX B</u>	<u>106</u>

TABLE OF FIGURES

FIGURE 1 DECISION MODEL FOR STRATEGIC OUTSOURCING	24
FIGURE 2 COMPOSITE OUTSOURCING DECISION FRAMEWORK; CODF (FILL & VISSER, 2000)	26
FIGURE 3 STRATEGIC CAPABILITY	27
FIGURE 4 NETWORK MODEL (VAALAND, 2001)	29
FIGURE 5 EXAMPLE OF VALUE CHAIN IN THE PETROLEUM INDUSTRY	30
FIGURE 6 OIL PRICE (WTI) FROM 1947 TO 2008	52
FIGURE 7 OIL PRICE (WTI) ASSOCIATED WITH WORLD EVENTS FROM 1970 TO 2014 (ENERGY.GOV, 2015)	53
FIGURE 8 ACTIVITY BOUNDARIES IN THE PETROLEUM INDUSTRY	55
TABLE 1 OVERVIEW OF PRIMARY AND SECONDARY DATA COLLECTED	41
TABLE 2 OVERVIEW OF RELEVANT ARTICLES USED IN THIS RESEARCH	57
TABLE 3 OVERVIEW OF THE DIFFERENT SEGMENTS IN THE VALUE CHAIN FOR THE PETROLEUM INDUSTRY	104
TABLE 4 OVERVIEW OF DIALOGUE AND COMMUNICATION PERFORMED WITH DIFFERENT ORGANIZATIONS AND COMPANIES IN THE PETROLEUM INDUSTRY	106

INTRODUCTION

One of the main objectives in strategy work is to create sustainable competitive advantages through the products or services offered. In addition to focus on the product and its features, businesses must periodically also consider their business model and activities of its own value chain. The value chain is an important construct for understanding the categories of activities within an organization. Further, it is also important for an organization that the performing activities supports the business strategy, and further evaluate whether changes should be made in the value chain. An ambition for change can be initiated by many conditions, for instance it may be due to internal cost conditions, or lack of resources of various kinds.

A central question related to the latter will be whether the enterprise has sufficient internal expertise to implement strategic changes, or the resource availability is sufficient enough to acquire it. If not, there is a possibility that these resources can be obtained by constricting the company's own activity area by putting away activities to external companies who can perform them cheaper or better. This is what is called "outsourcing". As for the oil & gas industry, which this thesis will be pointed towards, it seems that outsourcing is well established as part of the oil company's strategic work.

The oil companies are constantly searching for strategies to a sustainable business that is less vulnerable to external influencing parameters such as oil price and production. Outsourcing is something most oil companies practice in their strategy, and since this is such a common point of strategy, it is very interesting to investigate if the claimed benefits of outsourcing are proven to be correct. Further, how has outsourcing affected the industry and are there any critical success factors specific for the petroleum industry. This study will contribute to gain a better understanding of this phenomenon. Another motive for this research is to discover reasons for a possible outsourcing failure, and if any critical factors for a successful outsourcing exist, particular for the petroleum industry. For that reason, an historical approach and overview about the said industry is therefore presented in chapter 4.2. The first part of this thesis introduce the background of the selected task, further the relevance of the problem position's, and an introduction to empiricism, scope and structure of the study performed.

1.1 Background

The oil & gas industry have existed for many years, but the industry was a fact in Norway when Phillips Petroleum Company discovered the giant oil and gas field Ekofisk in 1969. In the

coming years, new fields were discovered and several new oil companies and service companies were established in Norway. The industry has had a continuous development, where it also has been changed and influenced by dynamic market forces. There has been a continual technology development, also to streamline operations and to achieve cost savings. After the oil and gas industry began to gain momentum in Norway, the oil companies changed their role in the market.

They have been through a process of moving away from a broad value chain. This meaning the oil companies where fully vertical integrated by owning and having all activities inside the organisation. The oil companies have moved to a smaller value chain, and have subjected many activities to external companies, furthermore known as outsourcing. Historically, and to begin with, the companies started off by outsourcing rig activities. Later on many oil companies continued outsourcing supporting activities such as Information Technology (IT) services, and also Human Resources (HR).

Outsourcing got a lot of attention in many industries, and the oil companies also started outsourcing primary functions, which also can be called core-competencies. What to define as core competence is also something that has changed over time, and there has been an on-going evaluation of which activities is beneficial to maintain in-house. The vertical business image has changed over time with increasing pressure on company profitability and new ways of working contradict forward.

Today, oil companies are settled in an established owner role and entrusted several of their previous activities to service companies who has obtained greater responsibilities, but also additional risks. Today service companies are the executing party in creating an oil well producer. Oil companies hire seismic vessels to find potential reservoirs, they are hiring rigs with drilling equipment and personnel from drilling companies, they rent and buy completion equipment and personnel to complete the wells, and when the need arises from the oil company's side, they rent intervention vessels with equipment and specialized intervention personnel from specialized competent service companies. This has been a process of emitting competences out of the company, which also have resulted to the definition of core competencies has changed during this process.

This process of transferring core-, and non-core, activities to service companies, also contains greater responsibility. This responsibility includes a continuous technology development and an on-going risk assessment. Due to the service companies own the equipment and executing

the different operations, a greater responsibility and handling of risks are transferred with it. However, this interest and having too much responsibility may not be as favourable for the service companies. This is because it can bring dire consequences for smaller companies in any unfortunate situation, which will be further shown in real cases in the Discussion chapter. There are many aspects around outsourcing that needs consideration, handling risks are just one of them. Other aspects are “a efficient operation and organization”, where oil companies discovered that outsourcing might be a smart way to achieve their objectives and financial perspective.

In the beginning of the oil and gas industry in Norway, when the oil companies owned both the equipment and was responsible for the activities in the operations, high maintenance cost followed. Today, the activities of a value chain of producing a hydrocarbon product are shared between the oil companies and service companies. The oil companies are responsible for the hydrocarbon reserves, and the service companies have taken an increasingly responsibility for the operational activities and consequently the technology development. As for technology development, there has been a technology race among the service companies the last decades and a competition on who can offer the newest and most efficient technology. The technology race has both been for advancement technology, but technology as a cost saving contributor. Service companies play now an innovative role in the market where they both execute operations and develop new technology for a more efficient and safe operation. Nevertheless, these boundaries between the activities have changed over time, and still can develop in new activity structures.

These boundaries between the activities may not be settled for all time. The network oil- and service companies have together may change as it has done before in the history. Today’s business and technology development, most business sectors are fully or partially driven by market mechanisms. Even though a few large companies dominate the business, there are many small technology companies trying to build their way with new technology and take part of the market. This technology race and constant competition between companies, regardless company size, have contributed to a more efficient operation.

The term outsourcing is about distribute specific business process to an external service company, which are often experts in those activities that are outsourced. Those are the processes of entrusting to an external company the selected business process, and then buy the same services from that external company. There are several reasons why companies choose this type of strategy, where cutting costs seems to be the most valued and expected effect. In the recent 20 years, many companies across the world have outsourced Information Technology (IT) services to India. When

companies outsource to other countries or foreign subsidiaries, this is frequently denoted as “offshoring”. Further this stream of offshoring has contributed an acceleration of the IT industry in India. Also many companies in the petroleum industry have offshored their IT services and there are a lot of literature on this phenomenon concerning the pros and cons. Oil companies opened embraced outsourcing because this was highlighted as an easy and considered as a straightforward road to cost savings.

A common best outsourcing practice for this complex industry may be challenging to resolve. Literature suggests some critical factors for outsourcing and suggestions of the correct way to implement. For the oil & gas industry, it doesn’t exist much literature on unsuccessful outsourcing, or literature that argues the effect of outsourcing of core competence. One of the purposes of this thesis is to discuss if the claimed benefits of outsourcing really are as true in practice as it appears on paper. In order to figure this out, a research for relevant literature and discussions with relevant employees in the industry have been performed. Further will there be debated if the claimed benefits obscure the downsides of outsourcing in the oil & gas industry.

1.2 Problematizing

Outsourcing has become a common term in a company's strategy, and it seems there is inadequate information with focus on unsuccessful outsourcing. Therefore, it is challenging to detect and point out where the boundary on successful or not-successful outsourcing is. In the oil and gas industry, where most oil companies outsource also core competencies and core activities, there is very little information available about how this process has unfolded over the years and how it has affected the industry. Even tough there are many different activities outsourced, both core-activities, and also supporting activities, there are no proven best practice supporting whether it actually has evolved into an efficient and cost-saving strategy.

1.3 Research question

The aim of this research is to explore how outsourcing as part of an oil companies’ strategy have affected the business of the oil & gas industry. In this industry, where most oil companies also outsource core competencies and core activities, this thesis focus on what has been successful and what has not been very successful regarding outsourcing processes. The issue and research question is:

“A critical assessment of outsourcing in the oil & gas industry”

To supplement the issue, the following “why” and “how” research questions will be investigated to contribute the objective of this assignment.

- 1. Are there any common critical success factors for an effective outsourcing for oil companies?*
- 2. How dependent are the oil companies of the service companies, and how does this affect the outsourcing agreement?*
- 3. Is there a difference in outsourcing processes in the oil & gas industry and other industries, and is there anything oil companies can learn from outsourcing processes in other industries?*

To investigate this issue, four steps are completed. First, relevant theory about outsourcing are characterized, capabilities, value chains and network boundaries are examined, and in the end some history of outsourcing in the oil & gas industry are embodied. The theory is intended to supplement and support the thesis. Theory about outsourcing is drawn out from academic articles and books. In the second part of this thesis, the method chapter will serve as the basis for the research for academic articles desired as a primary data source.

The articles that have been found and considered relevant refer to outsourcing as phenomenon and its impact on organizations. The search for academic papers concerning outsourcing in the oil & gas industry, information about failed attempts of outsourcing will be explored. This research will also be used to find examples where core competencies are outsourced and the challenges that follow.

Primarily, this thesis will concern the oil and gas industry, but failed outsourcing attempts from other industries and segments may also be considered. The results and findings based on the articles will help to designate relevant points that will be used in the discussion and analysis. The analysis of the relevant articles is the third main chapter to elaborate findings drawn from the articles. The fourth part the findings and results will be discussed in light of the problem statement on the basis of oil and gas industry. In the end, recommendations and conclusion will be presented.

1.4 Relevance

Outsourcing has in recent decades been processed and implemented strategy to oil companies. It is very interesting and highly relevant to the industry to learn and gain experiences from different outsourcing processes. Experiences that provide information of successful outsourcing and potentially failed outsourcing attempts are of high interest for the oil companies, and also for the society. Outsourcing, and offshoring, affects the society whether companies maintain business locally, urbanely, and also to foreign countries. Outsourcing is currently a controversial topic that is still debatable whether, alleged by many, the cost savings are so pronounced. Not only on the economic aspect, but also the human aspect. Outsourcing is a term that has been applicable many years and still something companies progressively implement as part of their strategy and organizational restructuring. In the oil and gas industry, the rate of implementing outsourcing is something that has varied with time and oil prices. To find business strategies that is less affected by the fluctuating oil price, is also a good reason to examine experiences around this phenomenon.

1.5 Empiric

The method used in this thesis to investigate possible answers to the problem is in essence based on the available literature. First choice of literature is in scientific articles available via enclosed websites. Outsourcing in the oil & gas industry is a well-discussed topic where also newspaper articles have been included in the literature research.

1.6 Scope and structure

This thesis will mainly focus on the experiences concerning outsourcing in the oil & gas industry. To prepare a solid research and analysis of this, theory of the concept outsourcing in general basis will be presented. There will also be explored some history about the oil & gas industry's development to gain an insight into the interaction between oil and service companies. To answer this issue at some extent, this study will involve both theory and data collection. Chapter one is an introductory chapter where the issue are presented as well as a questioning surrounding it. Relevance for the task and the empirical data that is used, are also presented here.

Chapter two describes the relevant theory of outsourcing and outsourcing in the oil & gas industry with a historic run. This theory will be used further in the thesis analysed and describe formulas of discoveries that have been made. Chapter three deals with selected data collection and

the range of information that is carried out. This chapter represents the method used to solve this task. The design, data collection and presentation of the analysis will be presented here.

In the fourth chapter, empiric and analysis will be completed and presented showing the progress and results. In chapter five, it's time for interpretation and discussion. In this chapter, the findings will be discussed in the form of empiricism taken from data collection. The discussion will include the findings form the data collection and connect it to the theory presented in chapter two. The issue statement and the answer to the questions at the end will be narrowed in a conclusion and any recommendations.

THEORY

The following chapter deal with relevant theory of outsourcing and literature used for this study. The theory presented here are about the phenomenon outsourcing, the claimed benefits and drawback – which the literature does not seem to agree upon. The theory chapter also address industrial network, value chains, capabilities, the boundaries among oil companies and service companies. There exist several definitions of the phenomenon “outsourcing”, the next sub-chapter will contain some of these definitions.

2.1 The Phenomenon of Outsourcing

“Outsourcing was not formally identified as a business strategy until 1989 (Mullin, 1996). However, most organizations were not totally self-sufficient; they outsourced those functions for which they had no competency internally” (Handfield, 2006).

In the literature over the years, there has evolved several definitions of what outsourcing is, but an unambiguous definition of the concept is still not settled. In Johnson, Whittington, Scholes, Angwin & Regner’s book, “Exploring Strategy” 10th edition, p. 235, the definition of outsourcing is as follows;

“Outsourcing is the process by which activities previously carried out internally are subcontracted to external suppliers”.

Kern (2002) offers a more detailed definition:

"A process whereby the company decides to sell or move the company [...] Assets, people and / or activities to a third party vendor that supplies complex services back for an agreed sum over an agreed period of time".

The term outsourcing deals with allocating specific business process to an external service company, which are often experts in those activities that are outsourced. Those are the process of assigning an external company the selected business process and then buy services from the external company. When companies outsource to service companies in other countries or foreign subsidiaries, this is frequently denoted as “offshoring”, but also known as offshore outsourcing. In this thesis, outsourcing and offshoring are intended to be the same generic term, namely outsourcing. Pros and cons of outsourcing is a controversial topic and there are several reasons that companies decide to outsource, or choose not to outsource.

However, outsourcing strategy may be initiated due to companies are unable to cope with all the activities within the organization, or it may be initiated because the company does not want to hire in-house staff to perform temporary activities (Flatworld Solutions, 2015). Activities are everything that happens in an organization can described in terms of activities, and most activities are cost drivers (Hoff, 2009, p.64). Administrative control by the outsourcer will during normal activities be in the form of daily management reports and internal guidelines.

By outsource or outsourcing the relationship between customer and supplier is defined in terms of appointment description and agreed service quality. Outsourcing is thus a precise tool for management, because it may be possible to control and measure deviations in the agreement, which may result in both lower and more predictable costs (Aase, 2005). On the other side, outsourcing may also lead to hidden costs that are difficult to log which will be discussed further on in the paper in the analysis chapter. There are many different types and forms of outsourcing, and the following chapters will give an insight to the different types.

2.2 Types of outsourcing

When a firm choose to outsource, it can mainly choose to unbundle corporate functions and outsource a internal supporting service such as HR, purchasing, or finance. The other choice is to choose a vertical disintegration. This is when suppliers make inputs that og into firms final product or service. How this is done, either a corporate function or vertical disintegration, Hoff (2009) represents four types of how to define the outsourcing.

2.2.1 Operational Outsourcing

Operational outsourcing is a decision to outsource carried out from operational, technological, and capacity considerations. Background of operational outsourcing is often when technological activities in a company do not feel sufficient and adequate, seen from of both quality and cost-related criteria. This form of outsourcing can apparently be characterized by a lack of awareness of an overall strategy (Hoff, 2009, p.108).

2.2.2 Strategic outsourcing

Strategic outsourcing means that the focus is on how outsourcing can both support corporate strategy while also creating new strategic options. The difference between strategic outsourcing in relation to operational outsourcing, is that the choices made in strategic context,

comes as a result of reflected decisions associated with the organization chosen strategies and strategic objectives. These strategic decisions can be embedded in management and control, and will consequently gain long-term consequences for the company's employees and spheres (Hoff, 2008, p.110). There are also other elements that explains that an outsourcing process is considered to be strategic: A close bond between the process and the critical success factors in the company enables outsourcing to be a success out of these factors.

By transferring ownership to the supplier through changing staff and assets, the outsourcer company signals that it wants to create a trusting working relationship. Long-term contracts provide stability and facilitate a strategic partnership over time. The contract should also describe different levels of activity of the parties' commitments, enabling better management of strategic outsourcing (Quelin & Duhamel, 2003). Recognition and consider strategic outsourcing to be strategic, then it should be included as part of a corporate peculiarity.

2.2.3 Multisourcing

Multisourcing can be described as a new operational model based on outsourcing. Multisourcing has emerged as a result of the researchers Cohen and Young believes outsourcing methods, as we know them, is a process that is inefficient in today's complex markets. The researchers believe it is no longer sufficient to put out an activity. Multisourcing is based on traditional outsourcing, but shall, in addition to rapid cost cutting now bring forward i.e. assist global expansion, increased agility, capacity building and competitive advantages. To achieve success by using multisourcing it is important to design a resource acquisition strategy that is closely linked up to an overall strategy. It must also create an effective management system that continually monitors this (Cohen & Young, 2006).

2.2.4 Business process outsourcing (BPO)

Business process outsourcing (BPO) involves subjecting an entire business process. The main difference between putting out one service and an entire business process is the division of responsibility. When a single service set out, it is up to the customer to put the individual services into a functioning whole, while this responsibility will lie with the supplier if the entire business processes deployed. In the initial phase BPO mostly associated with outsourcing processes payroll services. Gradually it was expanded and developed to also include other segments (Aase, 2005).

2.3 Reasons to outsource

A number of motives turn up when exploring the literature of outsourcing. The most common motive and proclaimed benefit of outsourcing are cost reduction, due to a supplier's superior economy of scale. Cost savings appears to be the first and most important reason for outsourcing, but is supported by many reasons where the main reasons can easily be set up in a point list (Flatworld Solutions, 2015; Hoff, 2009, p.102).

- Lower operational, labour and administration costs are one of the primary reasons why companies choose to outsource. It can provide good opportunities for revenue and perceptible savings.
- Companies that want to focus on their core competencies, outsourcing might be time-consuming by outsourcing activities to external suppliers. This can release time and resources to focus on their core competencies, and further on what gives the company competitive advantages.
- Access to external suppliers, which are favourable specialists in their expertise. The outsourced activity may be executed well than if it was held internally. This way they expand their competence resources and have expertise competence available.
- Outsourcing opens up to global knowledge base by having access to capabilities possibly world-class businesses.
- Freeing internal resources that can be used effectively in other activities.
- Lack of necessary specific expertise, and lack of internal resources located within the company or geographically, outsourcing or offshoring may be a good solution.
- By delegating responsibilities to outside vendors can release the company from activities that are difficult to control and manage, simultaneously focus on internal activities. With regards to fast developing technology that may be challenging to keep up with, investments in this could be used elsewhere, and it is very costly to continuously have employees updated on the very fast technology development. A really good example on this is the very huge outsourcing segment of IT-systems.
- Outsourcing can help companies to reduce risk by transferring the responsibility with the activity.
- Reorganizing can provide different benefits to restructure the company.
- Outsourcing may provide the opportunity to expand and access new markets by taking production or services closer to their end users.

- A desire of greater cost flexibility. By outsourcing support activities modifies the cost structure. The proportion of fixed and often non-operational expenses is reduced, while the variable costs increase accordingly. This means that normally one company can adapt to changes more quickly without affecting profitability to a great extent.
- Infusion of capital through the sale and leaseback of assets. Businesses have thus exploited good estate prices to release capital to boost its financial hand freedom.
- Cooperation with suppliers can reduce time of launching new products. Particularly with knowledgeable suppliers can create better products at lower development expenses than if the company had used its own resources. This may contribute to the development time from start to finished product, often could be reduced.

2.4 The claimed effect, benefits and drawbacks

The effects of outsourcing are subjective to the industry and it is also why it is undertaken. It seems that outsourcing is undertaken primarily to make it possible for businesses to generate higher income and to acquire competitive differentiator. When one chooses to outsource, it is with the best intentions for the company, nonetheless it has a direct impact on the results to come. This meaning it has an effect on the quality of the products and services provided by the external company, and could be of either enhanced quality or lowered quality. Yet, outsourcing is often undertaken to provide enterprises a competitive advantage, easier management and better productivity. Outsourcing has a direct influence on an organization, and it affects a company's top and bottom line. However, when the enterprises are looking for benefits like low cost labour, better quality and improved innovation internally, and some may believe outsourcing can unravel it, the believed benefits may not be that shortcoming. (Flatworld Solutions, 2015; Hoff, 2008, p.110). Therefore should managers be aware and understand the whole picture of the effects outsourcing gives and the pros and cons (Heskett, 2007).

- The claimed effect when choosing outsourcing as part of a company's strategy are primarily to achieve increased revenue and enhanced returns on investments. Business activities are, for most of times, outsourced to external suppliers who are specialists and possess a deeper knowledge in their field. The specialists can provide technical expertise together with specific equipment. This way they can offer the activities to be completed in an efficient way with enhanced quality product. This also contributes the outsourcers to focus on their core competencies by concentrating on other activities rather than the supporting activities.

- The organization may have more time to strengthen their core competencies and create internal innovation. One crucial factor influencing the outcome when outsourced is the risk-sharing factor. That meaning, when one activity and responsibility is outsourced, so is the risk concerning the activity. Often is the external company a specialist, and are able to plan and highlight the risks and the risk mitigating factors in an efficient way. This is usually something the outsourcer would value to be part of the outsourcing package.
- Yet, in the outsourcing process, there is also a risk of exposing confidential data with the external vendor who requires it in their work. Companies may be concerned about how the confidentiality information is secured, how the systems are taken care off, and how the storage of electronic data is handled. This is something that might be vital for the outsourcer (Flatworld Solutions, 2015; Hoff, 2008, p.112).
- Another disadvantage beside the risk of exposing data, is the possibility of loosing quality control over the company’s business processes that’s been outsourced. It may be challenging to insure the quality of the production or service is according to the outsourcer expectations. In addition, to control problems related to turnaround time and agreed time of delivery. For the outsourcers’ side, they are also tied up and locked in terms of contracts. That meaning, the outsourcer is unable to react even if they wanted to. Another drawback can be slow response from the external vendor combined with easy provided solutions.
- Still, that can also be challenging for the outsourcer to control and influence to the better. If for instance there are several vendors in one project where the result is depending that all parts deliver high quality products and services on schedule. There may be problems like stretched delivery time, sub-standard quality output and inappropriate categorization of responsibilities. At some occasions, things like this can be easier to handle inside an organization rather communication with several independent suppliers. Also, an outsourced vendor may have several sub-clients at the same time to handle in addition. In such situations, even though they may be specialists on the outsourced activity, there is a risk to loose focus in the attempt serving all clients simultaneously.
- There is also the human factor to consider when outsourcing, where human strategic capability also needs to be taken into account concerning business processes, ref. figure 3, page 25. There are discussions and theories concerning outsourcing create disturbance and less efficiency in the remaining organization. This thesis will not include the human factor of outsourcing, but concentrate more about the “Physical” and “Financial” effect (Johnson. Et. al., 2014, p.71).

- At the end, there is also this vital disadvantage of outsourcing, which is weak performance provided by the vendor, and does not meet the outsourcers' expectations. It's been mentioned earlier, but poor performance can result in unfortunate lack of benefits and results, and further shortage in expected revenue (Flatworld Solutions, 2015; Hoff, 2008, chapter 4.4). Though outsourcing is claimed to be cost-effective, there exists literature on hidden costs involved. More of this will be in the empirics, nevertheless how to decide whether to outsource or not is also important issue in this subject. Next chapter contains a decision model for outsourcing.

2.5 Decision model for outsourcing

Enterprises continually try to find better ways to adapt with the relation to new surroundings in a constantly changing market. Decisions relating to purchase of services from external suppliers or whether one should keep it in-house is an important question many companies asks themselves. Outsourcing will consequently often be a strategic position, rather than being an instrument associated with cost savings and cost effectiveness (Fill & Visser, 2000). Further, argues McIvor (2000) that the reason why some companies do not achieve the desired benefits of outsourcing is that their only focus on an overly short-term strategic perspective. This means that they may take decisions on the wrong basis, motivated by short-term cost savings, when it is more important to pay attention to long-term competitiveness of the company. To help companies understand and thus be more able to make better decisions exists in the literature where a few frameworks and recipes can be used. A recipe will facilitate decision making among managers in a company, while frameworks help them implement outsourcing from a strategic perspective and integrate it into an overall strategy (McIvor, 2000).

Hoff (2009) developed a model for strategic outsourcing. The model may be useful for companies who are considering whether they should outsource or not. The model includes strategic considerations, and its elements are trying to catch up pitfalls and potential drawbacks, as mentioned above. The model developed by Hoff (2009) is illustrated below.

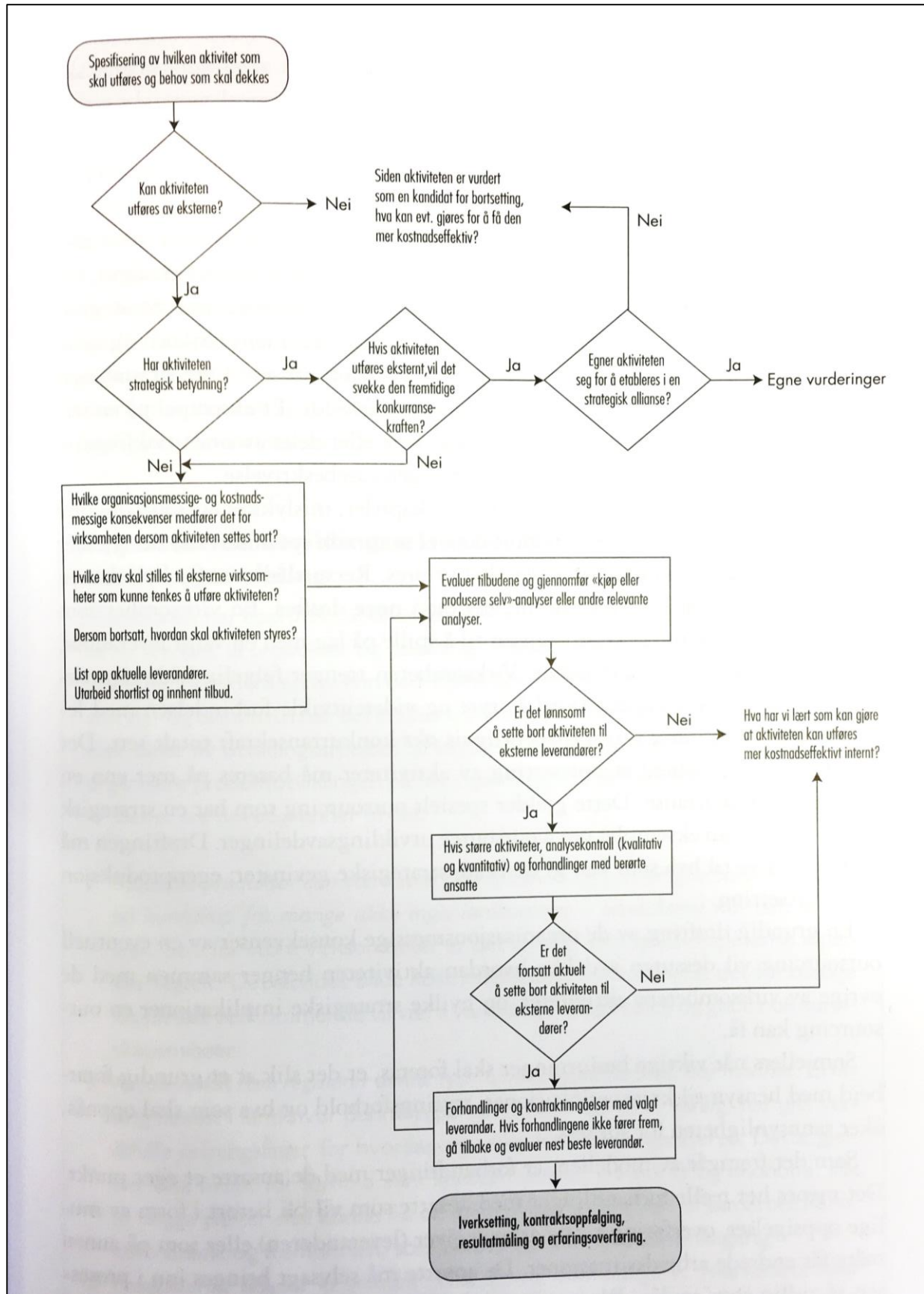


Figure 1 Decision model for strategic outsourcing

The model is relatively self-explanatory and can be viewed as a "guideline" for how to proceed in order to analyse whether there is a need to outsource a current activity. It begins by specifying which activities should be performed and what needs to be covered. Here you may want to conduct a thorough specification and requirements analysis including may reveal problem areas associated with activity and uncover problem areas associated with the activity. Furthermore, it is only to assess each step in the model thoroughly and follow the arrows to the next step. The model envisages that through careful deliberation on key areas of activity, can be more thoughtful and more able to see the usefulness of a possible outsourcing, and whether this will pay off when compared with making internal changes (Hoff, 2009, p.115).

In literature, it is given excessive scopes of factors associated with strategic decisions to produce by themselves or to outsource. Yet there are few who have researched for practical approaches to how to choose the right strategy for dealing with an outsourcing process (McIvor, 2000; Bhalla, C. & Burdon, S. 2005). Outsourcing literature contains very little of practical framework until 2000. Eventually, however, it has been attempted made any framework for outsourcing decisions related to operationalize the process of outsourcing of activities. Many of the models consist of both still few and small detailed step. It may therefore be difficult for many managers to transfer the general frameworks that exist for outsourcing of practical decision-making (McIvor, 2000; de Boer, Gaytan & Arroyo, 2006).

Fill and Visser (2000) developed a framework by reviewing existing literature, only to compose a bold approach in order to make better outsourcing decisions. The framework consists of three main factors and importantly that management focus on all these three key factors when considering outsourcing. The researchers have called the framework "composite outsourcing decision framework" (CODF). In other words, this should be a comprehensive framework for outsourcing decisions. The three key factors are:

1. Contextual factors - CODF Element 1

- The factors associated with the company's internal and external conditions

2. Strategy and structure - CODF Element 2

- Strategic and structural consequences of choosing outsourcing must be assessed

3. Transaction costs - CODF Element 3

- Analyse the costs associated with the process and / or implementation

The figure below shows how these various aspects related to a decision on outsourcing:

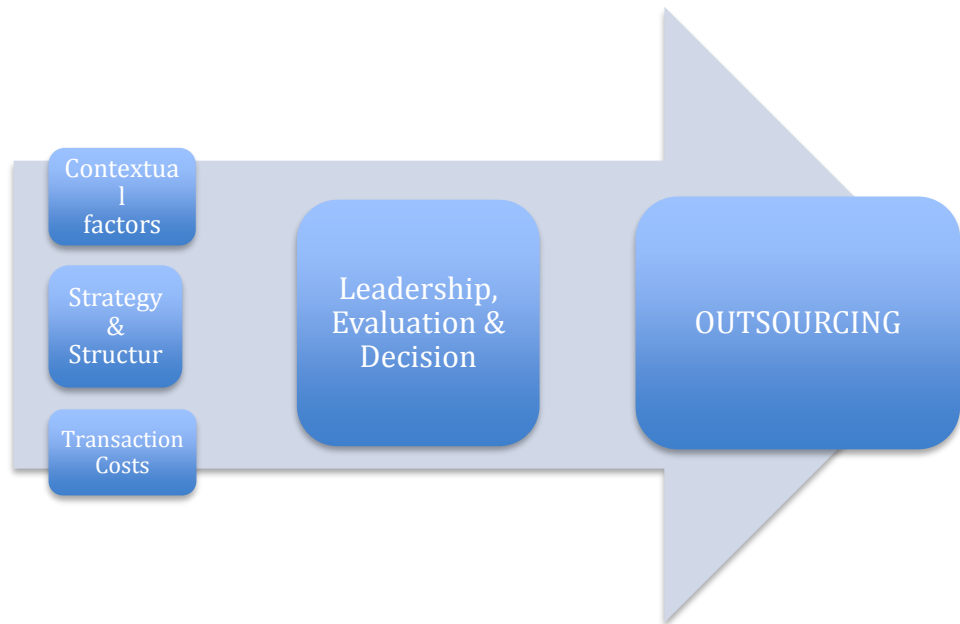


Figure 2 Composite Outsourcing Decision Framework; CODF (Fill & Visser, 2000)

2.6 Capabilities and value systems

Each organization has its own strategic capabilities. These are made up by its resources and competences employed by the organization's strengths and weakness. Strategic capabilities are a part of the strategic position, which is central regarding future strategy. Johnson et.al (2014) defines them as “*capabilities of an organisation that contribute to its long-term survival or competitive advantage*”. There are two sorts of strategic capabilities; resources and competences. Resources are the assets that organisations have or can call upon, and competences are the methods those assets are used or deployed effectively. This is presented in the figure below (Johnson et.al., 2014, p.71).

Strategic capability		
Resources: what we have, e.g.		Competences: what we do well, e.g.
Machines, buildings, raw materials, products, patents, data bases, computer systems	Physical	Ways of achieving utilisation of plant, efficiency, productivity, flexibility, marketing
Balance sheet, cash flow, suppliers of funds	Financial	Ability to raise funds and manage cash flows, debtors, creditors etc.
Managers, employees, partners, suppliers, customers	Human	How people gain and use experience, skills, knowledge, build relationships, motivate others and innovate

Long-term survival and competitive advantage

Figure 3 Strategic capability

Typically all strategic capabilities have elements of both resources and competences as table above shows. It is important to consider how and to what extent they can manage the development of strategic capabilities of the organisation by internal and external capability development. As Figure 2 show, there are three categories of the two type of capabilities; Physical, Financial and Human. This master thesis hasn't included the human part of outsourcing. The human side of outsourcing is of course very important, but for the sake of limitations of the thesis, this category is excluded.

2.7 Core competence

A central concept in strategic analysis is core competencies. Definitions of this term are many and misunderstood accordingly. Løwendahl & Wenstøp (2012) believes core competencies can be defined as

- It is special value seen by the customer.
- It can be used across different products and business areas.
- It gives the company a competitive advantage.

In this definition underlies several difficult criteria. Hoff (2009) have the same definition, and also contributes that core competence is contained in the company's core products, which in turn forms the basis for the trade or business areas known as the business core.

2.8 Industrial network

In this assignment a corporate and their business relations are considered to be a part of an industrial network. In this type of network, a corporate is connected together with other operators through business relations. A complex construction project is also reviewed as a corporate or an operator. In order to get a deeper understanding how a network is put together, theory in networks will be presented in the following text.

We consider a company's business relationships are woven into an industrial network. This network we define as "a set of two or more interconnected business relationships, where each exchange relationship occurs between firms considered collective actors" (Anderson, Håkansson, Johanson, 1994). Terms of trade in a relationship are dependent on relative values in other relationships. This means that the buyer and seller are understood mutually dependent on others, in addition to being influenced by outside parties. Coupling between parties called for “dyad”, while coupling of several parties are called “networks”. It is now considered as an actor who performs activities and utilize resources and the way these are handled, are important for dyad.

Interdependencies and direct relationships with other actors are found in a number of empirical studies. Direct business relationships and their degree of continuity can be characterized by stability. This is something one can recognize in the oil and gas industry on the Norwegian continental shelf. Players on the supplier side have lost and won contracts since its inception, but they are mostly the same today. Easton and Håkansson (1996) believes interdependencies can thus be said to be present both at the enterprise level, dyadic level and network level. Våland (2001) points out what happens in a relationship between buyer and seller, is relatively dependent on what happens in other dyads. A good project results are thus influenced by other factors than just the focused buyer and seller.

Changes in an activity will in most cases affect other activities in the same value chain. Activities of other operators will then be synchronized to fit better into the whole. To examine and focus on this could have an effect on the opportunities in the future for a company. The final component is resources, which can be physical, financial or knowledge matters. These three dimensions, actors, activities and resources are illustrated in a network model, see figure below (Våland, 2001).

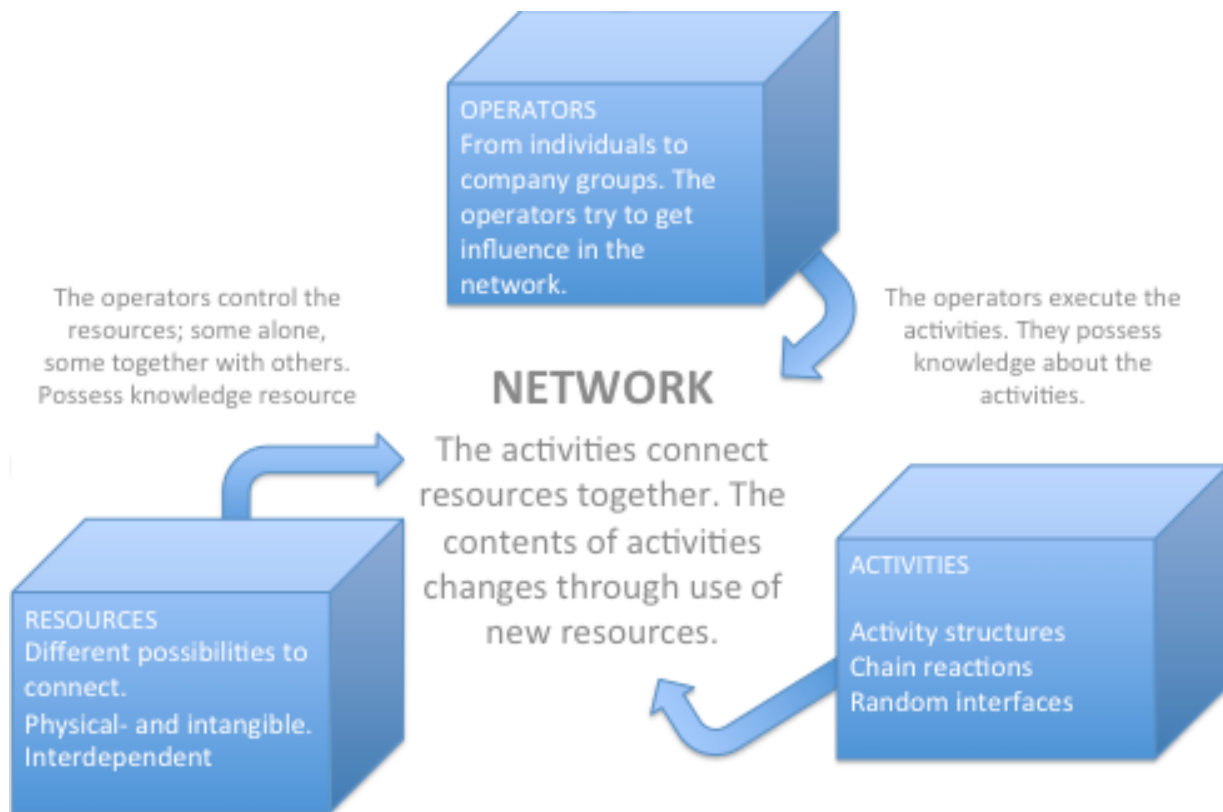


Figure 4 Network Model (Vaaland, 2001)

Richardson (1972) specifies a framework consisting of two concepts activity, activity complementarity and activity similarity. If a complementary activity is directed towards a subsequent specific activity, introduces Richardson (1972) concept of near-complementarity. The result is thus intended for specific purposes and cannot easily be used alternatively. Activity chain consists of the general activities and specific activities. A point in the chain where the activities shifts from general to specific character moves activities from complementary to near-complementary activities. In a complex project, for example a construction of an oil production ship is the separation line between complementary and near-complementary activities relatively far away from the final product. This project is characterized as technological and market specificity, and is the driving forces for this classification of activities complementarity. However, the interfaces are dynamic and modifiable. That means complementary can be classified as near-complementary, but also near-complementary activities classified as complementary - then able to achieve economies of scale through the open market (Våland, 2001).

2.9 Value chain and shifting organisational boundaries

In general terms, outsourcing can be regarded as the final outcome of a particular form of externalisation of non-core activities. Many companies are increasingly using outsourcing contracts as a way of handling the dynamic resource needs of business. The benefits of outsourcing include creating efficiencies, accessing specialised expertise when required, and improving responsiveness. Several factors influence the responsiveness of firms that affects the outsourcing practices and other aspects of organisational structure. Such factors are rapid technological change, increased risk and the search for flexibility, greater emphasis on core corporate competencies, and globalisation.

Each of these factors is likely to shift the management’s focus and organisational boundaries. Much of the strategic management literature predicts downsizing and outsourcing to result from the ubiquity of non-core competencies. Where these boundaries in the value chain is settled, may change over time. Analysis of activities, profitability and cost drivers will lead to actions and then further the reconfiguration of the value chain. Reconfiguration of the supply chain about the firm develops or modifies positioning in view of information from the strategic cost analysis. Reconfiguration may involve major changes, such as outsourcing, acquisitions, or integration (Hoff, 2015, p.89).

The value chain for an oil company may be separated into six segments;

- Field exploration
- Field development
- Production and maintenance
- Transportation
- Trading
- Marketing and sales

Where value chain looks like this:



Figure 5 Example of value chain in the petroleum industry

In the attempt to distinguish activities from each other in a comprehensive value chain, like in this case, it is often done from the market in a value chain analysis. Then it is possible to compare units in a vertically integrated enterprise. In this comprehensive supply chain that have less activities and more cost drivers, it will be considered in a more "macro market" perspective. In an industry analytical value chain as described here, it is above all the strategic perspective and explanation of what drives costs. Influences are more important than the allocation of expenses (Johnson et. al. 2014, p.83).

METHODOLOGY

3.1 Purpose and principles

This chapter will characterize the methodology used in this thesis in order to describe how the research has been performed. According to Jacobsen (2005), methodology is a tool to describe reality. In order to describe reality, the methodology of the thesis has to be examined. Choosing an unclear methodology can result in misinterpretation of results and the findings may be invalid. Therefore it is essential to choose the right design and method before initiating the study. Some designs are better suited for specific tasks and the purpose of this chapter is to represent the optimal tools and design for this thesis investigation.

The chosen method in order to solve this study, a following methodology process has been used and the process is taken from the book *Metode og dataanalyse: Beslutningsstøtte for bedrifter ved bruk av SAS JMP* (Gripsrud, Olsson, & Silkoset, 2010). This process follows six steps:

1. Define the goal of the study, define field of study and motive for the investigation.
2. Choose research design, construct an orderly research question and define data requirements.
3. Collect data.
4. Analyse collected data.
5. Report and evaluate.

The list above shows the process of how the work is executed and also in the order the following subsections are divided into. There will not be developed new theory in this study, but rather apply established theory to investigate the research question. The best place to start for the method selection is to keep the field of study and the purpose of the thesis itself in mind.

3.2 Field of study

In order to find a solution for the problem statement, this study first deals with theory concerning outsourcing as a general phenomenon, and theory about capabilities, value chains and industrial networks. The chosen theory is due to increase understanding of how organizations are structured and how they might be affected. In addition, it is also beneficial to get a bigger picture of practice of outsourcing in the oil & gas industry, where an introduction to the Norwegian oil & gas model with an historical perspective is of interest.

Further, this research and study will take a look at how outsourcing has affected the petroleum industry, as well as the relation between oil companies and service partners. In order to perform this study, the research for available scientific theory existing on the subject must be investigated, ref. chapter 2. Relevant theory concerning experiences of outsourcing in the oil & gas industry, and especially outsourcing that has not been successful is of particular interest to investigate the problem statement. Further this research will investigate if any critical factors for a successful outsourcing, particular for the petroleum industry, exist. This is discussed in more details in the research design.

3.3 Research design

A robust and well-performed research is not accidental. It requires careful planning as well as careful execution. According to Saunders et al. (2007), the research design is the general plan for how to answer the research question. It is therefore, prudent to restate the problem statement before discussing the choice of research design. The problem statement of this research project is as follows:

A critical assessment of outsourcing in the oil & gas industry.

In order to perform a proper research on outsourcing in the oil & gas industry, the existing literature of the subject has been investigated and has been the fundament of this research. The aim of the qualitative data is to seek diversity and gain an understanding of the context. The research contains three steps. Firstly literature on outsourcing in general has been reviewed with a focus on experiences of this phenomenon in the petroleum. Second, several approaches towards oil and oil service companies have been done to gain information about outsourcing attempts which have been characterized as not successful. Thirdly, small systematic conversations with employees in different departments in oil and service companies have been performed. This was done with the intention to gain more information that was not available in terms of scientific literature. Lastly, the findings and the implications have been analysed and discussed. In order to use this research process a detailed description of the plans and research design is outlined. The following section will cover the choice and description of the research design.

It is important to appraise the starting point of the research design. Saunders et al. (2007) discusses how research design can be either deductive or inductive. The deductive scientific method is the traditional method of research. This method addresses the research on known theories and it is founded in a clear hypothesis or research problems. The hypothesis, or research

problems, represents the foundation for the methods and data collection. On the other side, inductive research is founded in the data rather than on an underlying hypothesis, or theories. This means that inductive research does not have the problem statement clearly defined before data collection begins. This study is based on known theory, and the problem statement is clearly defined, so this research conducted is therefore deductive.

Also, Ghauri and Grønhaug (2005) distinguish between three main types of research design; exploratory, descriptive and causal. Exploratory research is applied to problems requiring new insights (Saunders et al. 2007). It is particularly good at unstructured problems where the research process may change directions. Exploratory research attempts to answer question such as; what, when, where, how, who or why. In addition, this type of research covers any combinations of these questions. This is often assessed in studies attempting to get an overview and understanding of a topic, particularly in topics that are wide and unclear (Shields, 2006). The exploratory research employs a hypothesis and is usually conducted using a qualitative methodology, such as interviews or focus groups, or through searching the literature.

Descriptive research, however, is applied to structured and well-established problems (Ghauri and Grønhaug, 2005). This type of research is often conducted as an extension or a forerunner to the exploratory research (Saunders et al., 2007). Descriptive research attempts to answer the question “what”. It attempts to give a detailed explanation of a situation or a phenomenon. This type of research assesses descriptive categories and is conducted either through surveys or content analysis (Shields, 2006). The third and last, causal research deals with structured problems just as the descriptive research, but this type of research is faced with cause and effect relationships (Ghauri and Grønhaug, 2005). This casual research design seeks to answer the question “why”. It attempts to give a description of the correspondence between the different variables. Employing formal hypotheses and describing variables conduct this type of research. It is usually quantitative, experimental or quasi experimental (Shields, 2006).

Considering the problem statement, the focus of this research is to get an overview and understanding of why oil companies choose to outsource, and why it is a success, or for instance, a failure. This means that three approaches are required in order to answer the problem statement. First, an insight to the historical perspective of the oil companies and the resurrection of service companies allowing the expansion of outsourcing which will be very informative and a good supplement to understanding the whole picture. Second, a literature review of existing scientific articles on the subject is the research of this study. Third approach is a research to find which

critical success factors is suitable for a successful outsourcing, particular for the oil & gas industry. This meaning there will be a data collection on the practice and results of outsourcing in oil companies with an exploratory research design. This will be the frame of the data collection.

3.4 Data collection

To be able to answer the problem statement and carry out the required literature research, a profound data collection is necessary. Two main methods of data collection exist; qualitative and quantitative. This study employs a collection of qualitative data for gathering relevant literature and further sort out what to be used in this exploratory research. This method utilizes written words and sentences rather than quantitative numbers and statistics (Johannessen, Tufte, Christoffersen, 2010, p.33). Secondly in this qualitative data collection, a distinction between primary and secondary data must be made (Ghauri and Grønhaug, 2005). This sub-chapter will discuss the case study design, the sampling technique and data gathering.

3.4.1 Qualitative and quantitative methods

Qualitative studies are studies that focus on the meaning and content, more than breadth and scope, as in quantitative studies (Fangen, 2015). Although quantitative methods are characterized by rigorous requirements for structure, this method also provides flexibility and pragmatic adaptation. A qualitative data gathering forms the basis for a follow-up quantitative analysis. Moreover, data collection to be qualitative while the analysis is quantitative. The scientific articles will then be categorized and quantified and added to facilitate statistical processing. Qualitative methods can also be used to deepen the findings from a survey. While survey studies may provide a general academic overview, the qualitative data have the potential to provide subtle insight into informants' perceptions and experiences.

In qualitative interviews, it is important to ensure the integrity of the persons interviewed both during the actual interview and afterwards. It is usually a requirement that anonymizing identifiable details. This is especially important regarding sensitive issues, such as outsourcing, which is as part of a company's strategies. In this study extensive interview has not been practiced, but instead a discussion forum with various informants. The reason systematic interviews have not been emphasized is because experiences of outsourcing and any possibly failed outsourcing implementations, is top confidential and often something companies do not want to announce.

The discussions and statements that are performed in this study function more as a survey to discover possible access to information about failed outsourcing strategies. The reason interviews are not emphasized is to avoid the subjectivity interviews brings with it. In addition a representative selection may be difficult to define. However, the performed structural discussions function more as a survey and are intended as a supplement, not to be analysed and included in any conclusion. After collecting qualitative data, it is analysed and interpreted by processing all the text (Johannessen et al., 2010, p.33). The following sub-section will discuss and define the primary and secondary data, and in order to do that, population and selection frame must first be mentioned.

3.4.2 Population and the Selection Frame

In the method chapter, one of the main purposes is to describe the method used for data collection. Further, it should contain and describe the population and which frame is selected. A population is the sum of all the study units one wants to say something about (Gripsrud, Olsson, & Silkoset, 2010). The selections that are made in connection with qualitative data are not randomly selected. It is important to evaluate in forehand whom and what it is desirable to obtain information from. Sampling from a population is first and foremost at problem associated with quantitative research. However, it is also important when considering qualitative studies. Choosing an optimal number of representatives is therefore important for both the validity and the possibility of generalizing the findings (Ghauri and Grønhaug, 2005).

3.4.3 Primary data

Primary data is data collected by the researcher for the purpose of the current study (Ghauri and Grønhaug, 2005). This type of data may be collected through various research methods, such as interviews, questionnaires, experiments or observations. The main advantage of using primary data is that the data is collected for the problem statement in the study. This allows for specific information like details, in-depth information and demographics. Another main advantage is when the researcher collects the data, the researcher can be sure that the validity has been maintained throughout the process.

The main disadvantage with primary data is the time and cost of collecting it. While secondary data can be found online or at the library, the primary data needs to be collected from the sources that are being studied. In addition, the process of collecting data is less easily controlled when collecting primary data compared to secondary data. This in turn highlights another problem

associated with primary data; the dependency on the willingness and ability of the primary sources to contribute to the study. This may severely limit the amount of information that the researcher is able to gather (Ghauri and Grønhaug, 2005). In this study, primary data has been used to explore experiences from different companies, and different employee roles. This data gathering is more on a personal level, but will only be valuable for a total understanding.

3.4.4 Secondary data

Secondary data is information collected by others for purposes that can be different from the purpose of the present study (Ghauri and Grønhaug, 2005). Such data can be both raw data and publicly available documents, and can be valuable to understand and explain the research problem. Use of secondary data has both advantages and disadvantages. First and foremost, the use of secondary data saves both time and money. Given that studies often are limited by the resources available, secondary data allows for the researcher to have a broader base from which scientific conclusions can be drawn. Also, the use of secondary data may aid the researcher in segmenting and sampling. Additionally, using secondary data may allow for comparisons between time and spaces, cultures or nationalities. However, the use of secondary data may have some drawbacks.

Secondary data are collected by someone else for other purposes than the study in question. The data may therefore have a less than optimal fit with the problem at hand. Any data that does not fit with the research problem should not be used, to avoid using information that is faulty. In addition, the data may use different measurements for variables. If the researcher is careless, the results from the use of this information can be invalid (Ghauri and Grønhaug, 2005). With this in mind, the secondary data in this research are scientific articles, and published articles from newspapers and magazines.

3.4.5 Data Gathering and Analysis

As mentioned earlier, the main data used in this study are available scientific articles, which is defined as secondary data. The collection of qualitative data is employed for gathering relevant literature and further sort out what to be included in this exploratory research. In this subchapter it will describe where and how the data was gathered. It will also describe why the data collection was performed in the way it was, and briefly mention how the result was. This is due to the result from the data collection affected the development of the research. Therefore it will mention something about how the search results went to reasoning why the particular data collection was assessed. Secondary data are the fundament of the data gathering, and will be presented first.

3.4.5.1 Secondary data

The process of collecting raw secondary data began by using different databases online. These databases were my first choice to look for literature and should cover and access to most available literature. Following databases was used which I could access through my account in the library in the University of Stavanger (UiS).

- Oria.no
- Onepetoro.org
- Sciencedirect.com

Outsourcing is a well-debated subject, which exists a lot of literature around. In order to do a critical assessment of outsourcing in the petroleum industry, the first objective for the research was to find outsourcing attempts that had failed. To be able to find relevant data, applicable keywords must be applied in the research. The search started off chronologically with the following keywords “outsourcing, oil, failed”, “outsourcing, oil, experience”, “outsourcing, petroleum”, “outsourcing, oil”, “outsourcing, strategy, oil”, “outsourcing, oil”, “outsourcing, petroleum”. The result was poor in the numbers of articles, so the set of databases was expanded and additional research was performed with the same keywords. Following databases was also expended;

- Deepdyve.com
- SPE.org
- Scholar.google.com

Also with these databases, the result was the same and the number of relevant hits was rather low. The first thought about this result was the fact there existed very little literature on experiences of outsourcing in the petroleum industry. In order to find articles and hopefully bigger number of hits, the applied keywords got more general. The keywords now used were about outsourcing experiences, and not defined for any particular segment or industry. The keywords were basically the same, but without the words “oil” and “petroleum”. The number of hits suddenly was huge in number. The search result contained a lot of outsourcing in information technology (IT), and human resources (HR) and logistics. There was also some in the automobile industry, which is discussed in the Empiric & Analysis chapter.

Obviously, there is a void for literature of outsourcing of core competences for the petroleum industry in the literature databases. In the early stage of this research, the first objective was basically to find outsourcing implementation that had not been successful, preferably concerning core competences. At this stage, examples of such experiences were first priority, but very low in number in order to make a general conclusion in this literature study. A change in the research had to be done, and it would be of interest to see if there was any literature on alternatives to outsourcing. With this in mind, additional research was done with the keywords “insourcing”, “backsourcing”, “homesourcing” including the words “oil” or “petroleum”. The results were the same – nothing relevant, or nothing at all.

I found chosen five relevant articles within the oil & gas industry, which I have used for a deeper examination. I also have found several articles discussing five real cases of implementing outsourcing in some of the biggest oil companies. About outsourcing and outsourcing experiences in general, I chose X numbers of relevant articles that was relevant for this research.

After my data collection for scientific articles, I still thought I needed a supplement to achieve a bigger database of experiences around this subject. A part of my primary data research, I performed a research for relevant articles online in newspaper and magazines. I used much of the same keywords as in the first collection. Both searches including “oil” and ”petroleum”, and without. I used following databases;

- Retriever.com (Atekst)
- Library PressDisplay
- NB digital aviser
- Nationen.no
- Google.com

Also in this research. the result was not too successful with a low number of articles concerning outsourcing. In addition, another attempt for more relevant hits was performed. “Outsourcing” is an English word and it seems the Norwegian language have adopted that word. If the Norwegian articles by any reason had chosen to use the direct translation, the Norwegian word for outsourcing is “utsetting”. I did several attempts in my research using the word “utsette” or “utsetting” instead of outsourcing. Since this word also has another meaning (postpone in English), it was very time consuming to find relevant articles by using this Norwegian keyword.

In addition to the databases for newspaper, I tried to use this word in my initial databases to search for articles, but also here, no relevant hits concerning failure of outsourcing of core competences.

I managed to find several relevant articles in newspapers and magazines. Of this amount, there was very little of core activities, but more on service activities as clean & maintenance and cafeteria services. With this data collection, I still wanted more information and to gather more experiences.

3.4.5.2 Primary data

Even though when determining the method of this thesis, interviews was not supposed to be part of this research due to remain the objectivity as high as possible on such a delicate and sensitive subject. I questioned why there was so little experiences around this topic in this industry, when the industry have been practicing this strategy for decades. I speculated if the oil companies, nor the service companies, did not want this confidential information to be published, because they did not want to announce failures they've spent a lot of resources on.

With this in mind, I made several attempts contacting oil companies in hope they had some written material about their company's experiences of outsourcing. I thought this was worth the try to see the reactions, and discover how easy or difficult to gather experiences through conversations by phone or email. I performed several attempts to get in touch with different companies to harvest some experiences with various results. Look in APPENDIX B for an overview of the data collection. The selection of people is not randomly selected, but chosen in belief they have an additional valuable contribution to this study. The collected data will be analysed and organized in order to make an analyses of the data.

3.5 Data analysis

According to Ghauri and Grønhaug (2005), the key purpose of data analysis is to understand and improve insight from the collected data. In other words, the collected data should be brought into order and structure, enabling the researcher to give meaning to the mass of data collected. Structuring the primary and secondary data is presented with its basic parts in a table view so that the details and findings may be clearly presented and comprehended.

A comprehensive search for scientific articles concerning the subject “outsourcing experiences in the oil industry” was performed with different keywords. This sub-chapter will describe further on how the collection was executed and an insight to the data will be given. A significant challenge in carrying out this thesis has been to gather enough relevant theory and literature to make findings for the problem statement. The academic and scientific articles that have been extracted are the empirics this thesis.

As previously stated, this is a thesis that will use established theories to find a conclusion to the problem statement based on the existing material about experiences about outsourcing in the petroleum industry. A systematic and evidence based literature review is therefore useful to represent the data collection that’s been made. However, a few articles from this collection are more specific and relevant to the problem statement and will be examined and presented in a more detailed manner in the Empiric & Analysis chapter. These relevant articles are in a dedicated table 2 on page 56. Regarding the primary data with the dialogues and discussions, these representatives are chosen and representative due to their roles in the industry. These employees are within different disciplines, and also different companies, operator and supplier, and also the size of the company they represent are diverse.

In the previous chapter, an introduction to primary and secondary data was described and why the different data sources were defined as primary and secondary data. How and where the data collection has been found was also described in the previous sub-chapter. The table below has been prepared to give an overview of the data collection and what has been chosen to be included in this study. More details and information can be found in table on page 56.

Table 1 Overview of primary and secondary data collected

Primary findings	SCIENTIFIC ARTICLES chosen due to their relevance and diversity for the petroleum industry	Emerging technologies to support indirect procurement: two case studies from the petroleum industry	Outsourcing Procurement & MRO supplies
		The evolution of outsourcing and insourcing in oil and gas accounting	Outsourcing Accounting
		From outsourcing to open innovation: a case study in the oil industry	Outsourcing core competencies
		Samhandling på sokkelen - Kontrakter og insentiver	Contracts and relation between oil company and service company

		Breaking up is hard to do: Organisational Learning and Outsourcing in the Norwegian Oil Industry.	General learning about outsourcing in oil & gas industry, Norway
	CASES of outsourcing from the oil and gas industry	Royal Dutch Shell	Information structure
		British Petroleum	Partnership with Accenture
		Exxon Mobile	Information Technology
		Chevron	Information Technology
		Statoil	Information Technology and business management
Secondary data	Supportive scientific articles regarding experience of outsourcing in the oil industry		Any other contributing article
	Articles from newspapers and magazines		Nothing relevant to include in any conclusion. Just for a more general curiosity data from this type of source was investigated in the research.
Primary data	Dialogue/ Discussions	Informant 1, VP Human Resources, Statoil	Outsourcing experiences
		Informant 2, Responsible for outsourcing GBS, Statoil	Outsourcing experiences
		Informant 3, VP Drilling & Well, Statoil	Outsourcing core competencies
		Informant 4, Petroleum Chemist, Nalco	Hidden costs and transfer of responsibility
		Informant 5, Logistics Department, Baker Hughes	Hidden costs

This is a thesis that deals with recognized theory and a solid literature search is a big part of the study. Therefore scientific articles have been a natural choice as primary source. However, these scientific articles are presented and discussed as empirics in this Empirics & Analysis chapter, and the real cases of outsourcing from the oil industry are examined in the Discussion chapter. The reason for the data was divided in this matter was that the empirics are scientific, and the real cases are examples that fit to discussion, not empirics. Another important thing to mention is cases of core competence were not found – only on a general strategic matter regarding mostly IT, and IS. Though the number the number of relevant articles was rather limited for the oil

industry. For this reason, and also for comparison reason, the research opened up for other industries and segments. This was due to explore if there existed anything in general or within other industries for “outsourcing experiences”, “successful outsourcing” and “outsourcing failed/failures”. There exist a world of literature on just the keyword “outsourcing” and “offshoring”, and is something many apparently have interest of.

In the attempt to find specific examples on outsourcing failures, I contacted different employees in some oil and service companies in the attempt to achieve some useful information. This was an effort to gain experiences around outsourcing from their company in the oil industry. Especially, and the most interesting, I hoped to find were examples of outsourcing that had not been any great success and what measures could be done. APPENDIX B representing which companies was contacted and what the results were. This was not organized interviews with the exactly same questions to all, but more of a personal approach to reap some useful experiences.

However the conversations was of an open type where the informant got the chance to speak freely and to decide what information to be given. All the people I reached out to, and spoke to, I opened up with an explanation for reaching out to them and I basically had only one question; “Do you, or do you know someone, who is knowledgeable about outsourcing that has not been successful in the oil industry?” It seems that the two people I spoke to in the service companies, was more sceptical to outsourcing. The oil companies on the other hand, referred to the lack of reporting on how outsourcing has affected the company.

Besides from the informants shown in table x above, I also reached out to Wood McKenzie, NHO (Confederation of Norwegian Enterprise), Norwegian Oil and Gas Association), Weatherford, and Arthur D. Little. The answers they could gave, was either it was confidential, or they did not have any written information regarding this, or there was no answer at all. Even though these attempts did not give any result, it is important to evaluate the quality of the data that is collected.

3.6 Evaluation of quality

In choosing the research design and conducting a study, it is important to evaluate the quality of the research and research design. When evaluating the quality, there are four factors that need to be considered. Firstly, the trustworthiness of the data, secondly, the credibility of the data, thirdly, the conformability of the data, and finally, the dependability of the data (Yin, 1994). To ensure that these factors are evaluated, the researcher needs to consider validity and reliability that

will be sufficient to evaluate the quality of the collected data (Johannessen et al., 2010, p.229). I find it applicable to assess all concepts that are distinctive since this is a qualitatively research.

3.7 Validity

The term validity is often divided into two distinct parts; validity and external validity. Validity or relevance is about whether the data that emerges from the survey, truly represent the phenomenon being studied (Johannessen et al., 2010, p.230). We can say that the study is valid if it reflects reality as it is. To ensure good validity in literature searches, which will form the basis for analysis chapter, most available databases were used. Furthermore, I searched with many different combinations of keywords to maximize the result. This method increases the cover rate of the available online literature on the subject. Also during the conversation with the selected informants, it was verified as the conversation often resulted in emails. This way there was no room for misinterpretation and misunderstanding. Also to increase the validity of the report, follow-up questions was asked during the correspondence if something was unclear. This was to make sure the understanding of what the informant believed was correct. This is not something that would not be possible with a quantitative survey.

External validity is about the extent to which the findings and conclusions that can be generalized and also be used in other contexts. In this thesis, a critical research on general experiences around outsourcing in petroleum industry is executed. Further, this context exists a certain degree of external validity in that design and method selection which can provide opportunities to transfer to general theory. In other words, if there are enough results in the study this could be generalized and used in other contexts, and also provide opportunities to transfer to general theory. This means that by going deep into a large and comprehensive outsourcing agreement, it will be able to give indications of how things work together in practice. This can be used as input into the general outsourcing theory of which critical factors exist for a successful outsourcing.

3.8 Reliability

Reliability is about how reliable the data collection is. To achieve good reliability in a survey it is important to be careful on what data is used, how data is collected and how data is eventually processed (Johannessen et al., 2010, p.229). Since this study primarily is a qualitative study, there are no standardized methods for evaluating reliability. Data collection here is mostly based on literature search and it will therefore be very challenging to verify the results. In other

words, the result of a qualitative study is therefore often outstanding. Also the conversations I had with the Informants also supported my findings. For the reliability of this research, I have tried to present the collection in a responsive and professional manner.

The data collection, regardless of the collection method, may affect the information that is acquired. A particularly well-known phenomenon regarding interviews as data collection, is the so-called "interview" effect. Interview effect means that my behaviour in the interviews may have influenced informants' answers to the various questions raised and thus the results of data collection. Since outsourcing is a sensitive and often classified subject due to being a part of a company's strategy and also including classified experiences, I have chose in an early stage that interviews would not be a part of this research. However, after low number of specific examples, I still wanted to investigate with a chosen selection of people and companies, how available information concerning this subject was. I also wanted to see if they at all were willing to share any experiences. With those people I did manage to get in contact with, and to avoid any "interview-effect", I tried during the conversation or emailing correspondence to meet the informants with an easy-going attitude so they would feel comfortable. I wanted the informants to feel that I was not approaching with a point finger against anyone or any company, and just simply facts about their experiences around outsourcing. I assured them that I would not put them in a difficult situation on the basis of what answers I got.

3.9 Limitations of the Study

The primary limitation that this study faced was in obtaining information from the local oil and gas companies as they were quite confidential with such data. Also, some firms did not consider the act of outsourcing a strategy and could not therefore attribute the results to the practice. In other words they could not state clearly whether it is outsourcing that made them flourish or diminish in their performance as an organization. In countering this limitation, the researcher found insightful information about other oil and gas companies published online. This data was the basis of the analysis and discussion that ensued thereafter. Despite the limitations experienced, the study still brought out the thesis clearly and made relevant recommendations regarding the same.

In the next chapter, empirics and analysis, there will be subchapters containing experiences of outsourcing, some history of the oil & gas industry to give a bigger picture, the chosen articles for empirics will be presented and analysed.

EMPIRICS & ANALYSIS

The phenomenon outsourcing is very well debated and presented in the scientific world of articles, but there is a substantial space for outsourcing in the oil & gas industry. This was barely mentioned in the method selection chapter, and will be illustrated in details in the following chapter. The data collection that has been executed and the results will be clarified in terms of table overviews, but only the chosen significant literature within oil industry will be presented in more details. As mentioned earlier, this thesis includes both a literature collection as well as professional statements from employees in the petroleum industry. The highlights and the findings from articles will one by one be examined and linked up to theory. In addition to this data collection, the supplementary information given from the different employees is also set up in the table for a more brighter overview. Also some additional empiric and information about the petroleum industry with its oil companies and the suppliers (oil service companies) are presented. This Empiric and Analysis chapter contains of five main parts; the first part concerns experiences of outsourcing. The second part addresses outsourcing in the oil & gas industry and its history. The third part addresses the finding in the chosen relevant scientific articles. These articles and cases are set up in a table to view its relevance for this research, and to show the red tread that's been used to investigate the issue. The fourth part in this chapter concern outsourcing in other industries - which correlates to the third sub-question in the problem statement. The last and fifth part of this chapter is the analysis of the findings. But first, diverse experiences of outsourcing are investigated.

4.1 Diverse experiences with outsourcing

The business community in the United States probably has the longest experience with the less traditional outsourcing activities. It may therefore be interesting to look into the experiences that have been made here. According to a study of 70 large US companies conducted by the consulting firm Compass Consulting (2006) consider almost all (96%) to take back the IT-activities that they had outsourced to external suppliers, when the contract period was over. For example, while TeliaSonera and Electrolux have outsourced their IT activities, the truck manufacturers Volvo and Scania moved the opposite way.

An important reason for that American corporations are considering taking back the outsourced activities is that envisaged cost reductions instead lead to cost increases. Many businesses claim that the costs related to outsourcing of IT systems has increased by 30% than if

it was retained internally. Another reason is that the companies have not managed to establish sustaining internal management of the out put services. This affects both the internal relationship and interaction with suppliers, who are too poor. In addition, thought many of the businesses that suppliers failed to deliver the benefits that were promised. The survey suggested, moreover, that strategic aspect regards to outsourcing in the future would be given far greater weight when new decisions were to be made. Then it is not the cost question that is most important, but the solution - own production or outsourcing - that best support your business strategies.

Another survey conducted by Rolls Royce, ABB and Scandinavian Airlines in 2004, all had outsourced its IT services. The survey showed mixed experiences, but concluded that a successful outsourcing partnership necessitated the buyer to retain employees who had great knowledge in the IT area. It also captured that in an outsourcing cooperation, a contractual framework should be developed to regulate the cooperation, how conflicts are handled, define roles and responsibilities etc. A good climate of cooperation should be the base. However, outsourcing has become such an integral part of successful business practice that many organisations are embarking on outsourcing initiatives almost without thinking, according to Cohen (2006).

Linda R. Cohen is an outsourcing specialist, Hoff (2009); Gartner.com (2005), who claims eight pervasive myths exist about outsourcing that are undermining outsourcing success. These are

“

1. The misconception about sourcing independence: In this case, sourcing decisions are and can be made entirely free of the business strategy. consequently, organisations do create outsourcing associations that are mismatched with the expected business results.
2. The misconception about service autonomy: Another myth similar to the one stated above is that services are autonomous, in which case one sourcing relationship should have nothing to do with others.
3. The misconception about economies of scale: The myth considers service recipients that demand cut-rate prices for services that are customised highly. In this caae, service providers only pass along some cost savings from the economies of scale should they achieve scale through standardised offerings.

4. The misconception of self-management: in this myth, buyers believe that when they have signed a contract, the outsourcing party and the contract will be able to manage the service. Several firms have no budgets and do not adequately plan for the management of the relationship and also for the provided services.
5. The misconception of the enemy: This myth deliberates on the idea that providers of services intend to swindle service recipients. As a result, most organisations view negotiations for contracts as a war where there will only be a single winner. They don't see them as an attempt to formulate a mutually beneficial relationship.
6. The misconception about procurement: The myth advocates that sourcing of services is basically an exercise of procurement where the most competitive price wins. However, many outsourced services today are important to the corporate strategy of a firm, Therefore, issues capability issues, cultural issues, relationship issues, and others are usually more vital to the success than price in the long-term.
7. The misconception of the solid state: It opines that the outsourcing contract remains set for the term once it is set. In actual sense, the relationship and contracts management ought to be developed to accommodate change.
8. The misconception about sourcing competency. Many businesses believe that they have the right proficiency to take care of complex sourcing environments even though at times they may never have done it before.“ Gartner.com (2005); Hoff (2009).

Further proclaims Cohen (gartner.com, 2005), that "Messy and uncontrollable outsourcing results in many challenges as those that it solves. Additionally, in most cases, the issues are caused by the naivety of the organisation's sourcing actions rather than being the fault of the service provider. Organisations learn too late that managing external services requires vastly different competencies than managing the same, internally provided services." Common petition for multisourcing that was introduced in the theory chapter (2.2.3).

4.2 The structure of the oil industry (Norwegian Model)

In the last couple of decades, extensive changes related to price, profitability, risk sharing structures and resource structure have characterised the Norwegian oil industry. As a result, the Norwegian Ministry of Industry and Energy established a “Building and Management Forum” for the petroleum sector in 1993. Their report on the competitive standing of the Norwegian oil industry (NORSOK) resulted in proposals on such diverse fields as:

1. Changes in organisational culture
2. Industry co-operation to increase the value added through introduction of a new industry standard, new forms of co-operation between operators and suppliers, early identification of main suppliers and reduction of documentation requirements.
3. Improving the general conditions for oil activities – reduce cost and lead time by 40-50% compared to 1993 levels, and maintain high level of work safety.

Since these objectives are related to vital strategic areas, they affect the industrial organisation of the Norwegian oil industry and the division of labour among oil companies and suppliers. Al-Kasim (2006, p.117) further reasons that a particular interest in the NORSOK effort was the recommendations made by the working group on operator-supplier relationships.

4.2.1 Field operators

Traditionally, the operators have laid out the fundamental preconditions of offshore construction projects. Contractor companies have been introduced to offshore development projects relatively late in the process. At the mid-90s, and after the new NORSOK initiatives, the use of frameworks agreements has increased. This is particularly advantageous due to processes and products are standardised across different operators. Oil companies have increasingly concentrated on the core activities of finding and selling oil and divested tasks which can be supplied by specialists providers, increasingly delimited the strategic core of the operator companies.

4.2.2 Primary suppliers

Traditionally field operators had total control and co-ordination responsibility of the activities of their suppliers through an extensive use of bureaucratic procedures and detailed technical specifications. The organisation of primary suppliers reflected the requirements deriving from working on independent tasks in each project. In the long run, such bureaucratic organising created a skills overlap between the competencies of the oil companies and primary suppliers, increasing costs and lead time of supplies and preventing an efficient exploitation of the capabilities of the main suppliers. Reduction in the oil price forced the Norwegian oil industry into establishing new relations between operators and suppliers. This stimulated a new and more cost-efficient reorganisation of development projects.

4.2.3 Niche sub suppliers

Niche suppliers are product suppliers in the sense that they provide particular products and are not commissioned to solve capacity bottlenecks as they occur with the primary suppliers. The NORSOK restructuring phase has relived new opportunities readily exploited by niche suppliers thanks to their specific resources. An increasing focus on their core competencies has been necessary for the improvement for their products and services.

4.2.4 Capacity sub suppliers

A large number of subcontractors operate as capacity suppliers in the sense that their products are commissioned to solve bottlenecks within primary suppliers. Traditionally, these sub-suppliers connected to an oil company though framework agreements, which facilitated oil companies' requirements for control and coordination of project activities. Framework agreements were conceived to be in the interest of both parties. The sub suppliers guaranteed to supply their products/services when needed by the oil company. The oil company was guaranteed components compatible to its own systems and instruments. Logistics and distribution were core capabilities.

The NORSOK process has effectively reduced the use of framework agreements between oil companies and capacity suppliers. Therefore capacity suppliers have been more and more exposed to increased competition with the production units of primary contractors in supplying standardised products to the oil companies. Capacity suppliers are increasingly required to pursue strategies of process improvement aiming at increasing their flexibility and reducing lead-time and overall costs (Al-Kasim, 2006, p.117).

4.3 An Overview of the Oil and Gas Industry

The text presented in this chapter tells a modest story of how the oil & gas industry grew and developed. Reasoning for including this chapter is to show how fragile the industry is of the oil price, and how the operators have constantly been looking for new ways and strategies for cutting costs. It is a complex and immense history that can subsist of numerous pages, but this is an attempt to gather some of the relevant points in a humble chapter. It is natural to start looking back when the oil companies began to systemize their business in the US.

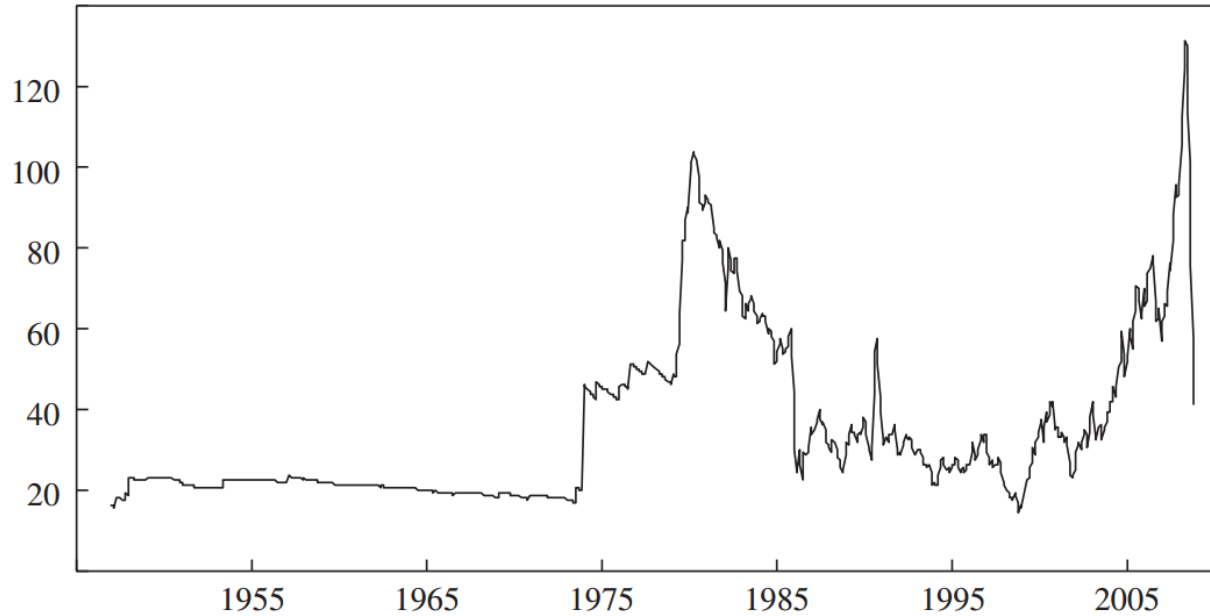
The major integrated oil companies in the US began in the early decades of the 20th century. They did not only do this by taking substantial risks, they also had good property managers later on. These major companies were successful in the years following, and by mid-1940s controlled most of the US onshore prospects and production. Miniature companies started to recruit investors and subjecting entire companies on offshore opportunities. As oil discoveries were moving offshore and on more deeper waters, solutions like building smaller platforms and used vessels next to the platform for support. This lowered the cost and drilling operations and got supported for longer period of time. US Navy vessels were used for support, and shrimp trawlers for transporting crew offshore. By 1953, operators were building their own support vessels, and cabin-forward crew and supply vessels. Oil enterprises continued to be the owners of most of the new mobile drilling vessels. In a way, the cost of building that large specialized vessels became high. They were so high that if the drilling industry were to fall, there was very little other use for them. With time, major oil companies had to consider themselves producers.

The oil companies also started to get uncomfortable with the fact that drilling vessels sometimes logged long periods of waiting on seismic interpretation, idle time, well log analysis, of a different prospect. On the contrary, the owner-operators were not that ready to lease drilling units to the firms they deemed to be their competitors. This was especially the case after they underwent troubles of training drilling crews. Either way, the leasing idea did not vanish. The rig companies made a discovery that they could train drilling crews themselves and make it available for the operators. This became a financial success and by 1965 there were few vessels still owned by operators. Oil firms were compelled to sustain long-term contracts through the 1970s in order to protect allocations and drilling programs. Prior to 1973, there was a shortage of drilling rigs. In fact, the industry was yet to catch up with the emerging demand.

Rig contracts in many cases exceeded five years. By 1973, there were 15 rigs under construction in Norwegian yards. Different from the North Sea, activity in the US expanded in a major way after 1979. Not several big firms were able to notice that the size of new discoveries in the US Gulf was slipping, and most of the new discoveries were gas, not oil. As long as oil prices remained in the \$24-28/bbl range, few companies noticed that offshore costs were pushing skywards. For example regarding platform fabrication costs rose by 85% only in a two-year period of time, from 1980-1982. Also mobile rig daily rates in the US Gulf rose by five times in the period of 1970 to 1980. With oil price (West Texas Intermediate, WTI) projections rising to the \$100/bbl

range, the industry was bent on bringing as much production as possible. There were no limitations, in both prices and capabilities (Le Blanc, 1997).

Constant dollars per barrel



Sources: Energy Information Administration (EIA) data; Bureau of Labor Statistics data.
a. Monthly average price of West Texas Intermediate crude in dollars of November 2008.

Figure 6 Oil price (WTI) from 1947 to 2008

The figure above shows the oil price development from the 1950 to 2008. What determines the oil price is complex, and it might not be directed to outsourcing as this research concerns event though when the oil price dropped in 1985, the economic squeeze forced the industry to undergo adjustments, for instance outsourcing, in the US as attempt to lower costs (Al-Kasim, 2006). Nevertheless, it is worth mentioning how oil price and trading crude is handled. In the oil and gas industry, direct procurement constitutes crude oil and natural gas and so it is usually not handled by central purchasing as required.

Price determination involves macroeconomic variables such as economic growth, weather, specifics of demand and supply, and, very importantly, geopolitical factors. Trades involve the physical presence of brokers, speculation, options and hedging mechanisms, contracts, and bids. In many cases, prices are finalized only at the time when the oil leaves the harbour or according to similar variables (Gebauer & Segev, 2000, p.118). The world picture has a huge influence on the oil price and the figure below show how different incidents affected the oil price.

WORLD CRUDE OIL PRICE AND ASSOCIATED EVENTS, 1970-2014

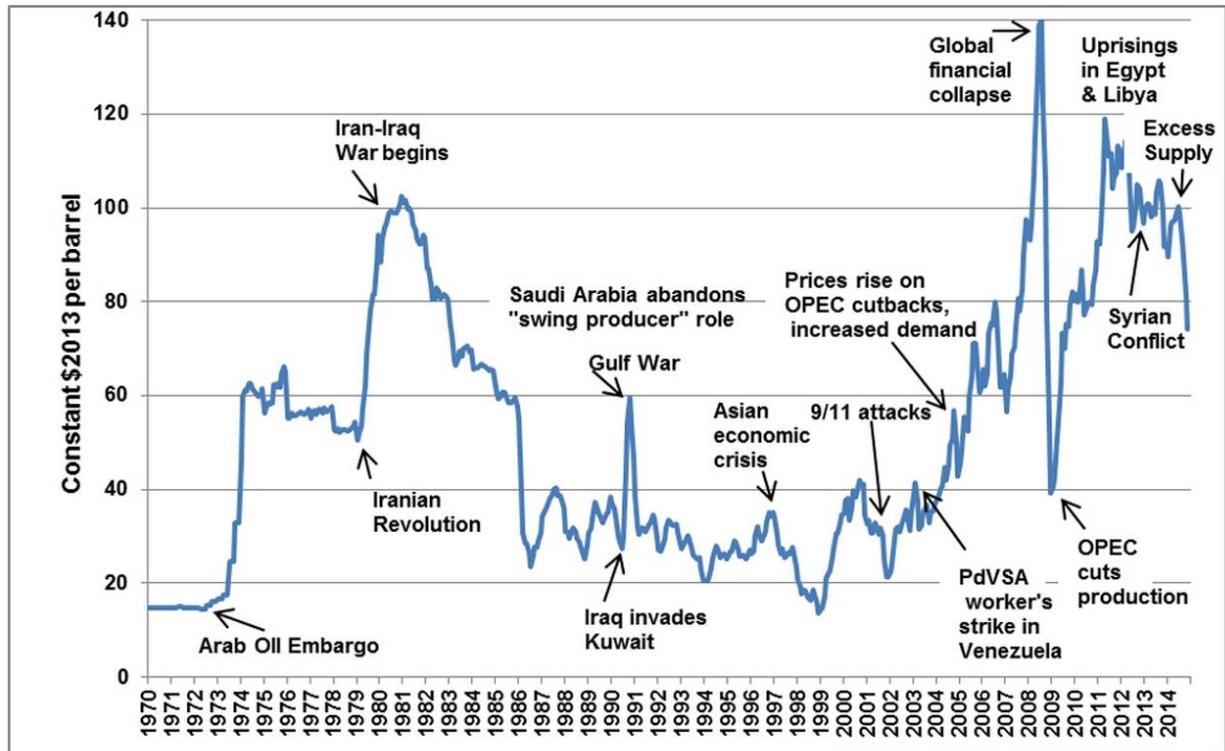


Figure 7 Oil price (WTI) associated with world events from 1970 to 2014 (energy.gov, 2015)

As the figure above show, there was a big drop in the oil price 1985. It was disastrous as it was unexpected for the operators. In only a single night, several leases had to be returned to the sources which were governments, and consequently, drilling was curtailed. Both, operators and service companies, had to take action on costs immediately. The depression caused some large investors, stuck with under-valued stocks, for them to decide on what to do with the oil companies segments. The decision entailed determining whether they might be more valuable than entire integrated companies (Le Blanc, 1997).

New buyers used the opportunity to extract a profit out of depleted oil and gas fields, which was left behind by the majors, and became an independent force in the US Gulf. On the other side, the majors needed something to suit their size and ability that meant moving overseas. The independents in the US Gulf were hard at work on marginal gas development and were already having low profit margins.

Before the year 1994, something important emerged - technological development. There was also the introduction of some new drilling and development technologies between 1995 and

1996. During the winter between 1995 and 1996, petroleum commodity brokers detected that there was a balance in the overall supply and demand for oil and gas. They also detected that oil was a vital product. Afterward in the year 1997, apart from the inadequate mobile rigs, an open shortage of fabrication capacity was also revealed. There was also supplies such as pipe and wellheads. The outcome was that it turned up rates of the day again for businesses (Le Blanc, 1997).

Today, however, many of the major companies' oil and natural gas basins are aging and generating less than they did in their prime time. That is particularly true in North America and north-western Europe. In these areas, production costs continued to climb, and every new investment to extend the life of the reservoirs become more marginal, as shrinking volumes covers fixed costs. In the North Sea for example, the average extraction cost for a barrel of oil rose by 42 % from 2000 to 2005 (Bozon, 2005). In many cases, finding hydrocarbons and extracting them are not enough to create a profitable business.

Friday the 11th of July 2008, the financial crisis happened overnight when the oil price (Texas Intermediate, WTI) had a drastic volatile drop from 147.27 \$/bbl to 75.84\$/bbl on the following Tuesday (Ausik, 2014). Oil price is a fluctuating parameter, which has influenced the oil & gas industry in their upturns and downturns. With this uncertain and fluctuating parameter, the oil and gas industry is constantly looking for ways to reduce costs. To give a deeper understanding of who does what in this value chain, the activities are set up in a table and are presented in the Appendix A.

As in a value chain, activities in an oil company and in an oil service company, the boundaries for what is performed by whom may change over time. For oil & gas industry it is more advanced to put the boundaries due to all the underlying activities. One main segment may contain activities done by both the oil company, and also a service company. This way, it might be more advanced to divide the boundaries of the process than for instance the process of slaughtering a cow to the final product, which is dinner. Below is an overview of the activities that have moved from vertical integration to divided specialised activities.

Activity boundaries in the oil & gas industry

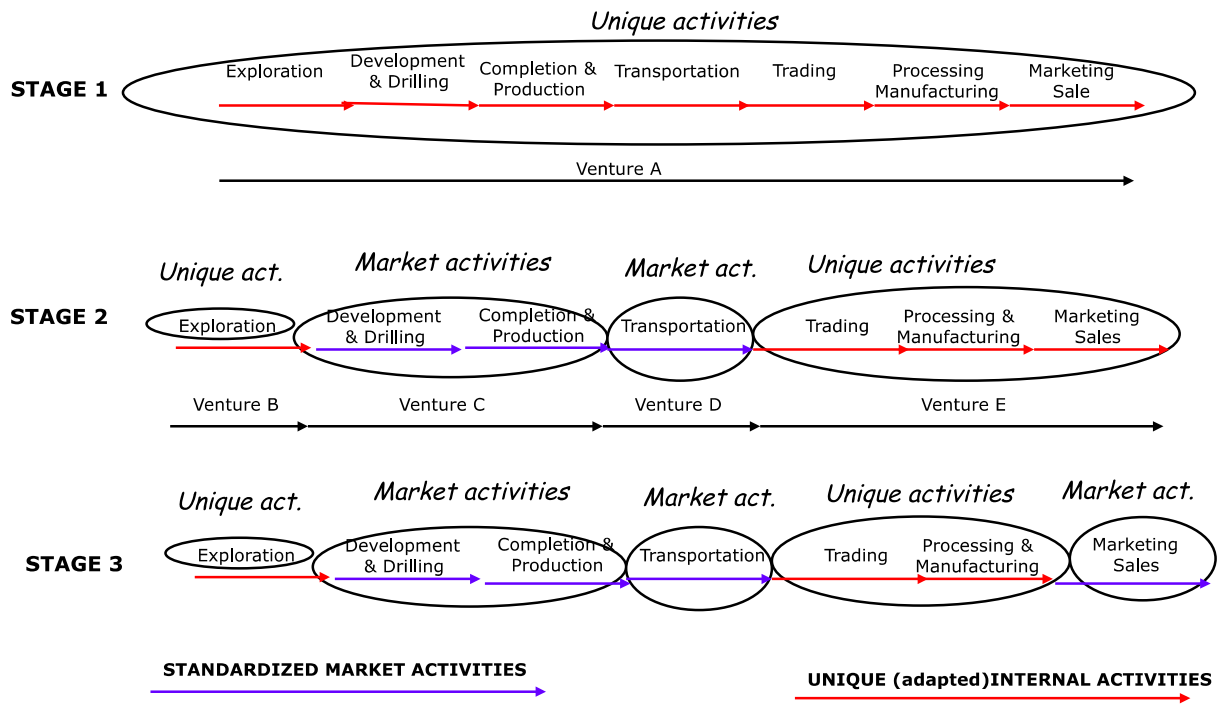


Figure 8 Activity boundaries in the petroleum industry

Venture A in the figure above shows a fully vertically integrated process from raw material source to end-users. Venture B is specialized in raw materials and semi-finished, while venture E is a marketing distributor, etc. Venture A can compare their costs, revenues and capital employed on all steps / activities in the value chain with the more specialized enterprises (B, C, D, E) to win insight how the sources of cost or differentiation advantage (Hoff, 2015, p.85).

4.4 The Empirical articles

With a starting point in the table in the previous chapter, below are the primary data collection extended in a table that provides more accurate information about the different articles. Below is an overview of empirical literature that's been found of relevance in this study. In order to understand what the results are and the empirics, these articles will be presented in the following chapters in more details. As it was mentioned in the Method chapter the importance and reliability of diversity, these articles have been chosen due to their relevance and topic. In the table below the column outer to the right show what the specific article contains. Such topics as core competence, capabilities, knowledge transfer, contracts, accounting and MRO activities as something that have been mentioned through this thesis, and therefor also relevant to look deeper into the outsourcing challenges regarding these topics. These selection of articles and this overview below, gives it easier to see if there are any similarities among them, and also possible contradictions.

Table 2 Overview of relevant articles used in this research

Articles concerning outsourcing in the petroleum industry								
	Nr	Author	Year	Title	Method	Advantages	Limitations	Headline
Articles used to highlight each headline	1	Lazarotti, V., Pellegrini, L., Pizzurno, E.	2012	From outsourcing to open innovation: a case study in the oil industry	Research on Eni's experience on outsourcing of core activities lead to a technological trajectory. The research says Eni moved to OI approach after this.	Outsourcing of core competences and how it has influenced the industry. It also contributes choices an oil company have if outsourcing is not successful, here that option is open innovation.	One single study limits the possibility of generalisation of results. Elements that could affect the results are time, memory, based reflection.	Outsourcing core competencies
	2	Askevold, O. E., Gjelsvik, M., Steineke, M. J.	1999	Breaking up is hard to do: Organisational Learning and Outsourcing in the Norwegian Oil Industry.	A study of how learning capabilities can be built by applying a resource-based strategy approach on outsourcing in the Norwegian oil industry.	It provides case studies of skills acquisition in supply chains-relationships, outsourcing effects on both oil companies and suppliers.	Not specific example of outsourcing failing.	Capabilities and outsourcing

3	Osmundsen, P.	2011	Samhandling på sokkelen - Kontrakter og insentiver	This article concerns relationship between oil companies and service partners on the Norwegian continental shelf.	It deals with the type of contracts and what are important and possible failures from both sides.	Mostly concerns drilling activity. No specific example.	Contracts
4	Gebauer, J., Segev, A.	2000	Emerging technologies to support indirect procurement: two cases studies from the petroleum industry	Reorganize procurement with the help of innovative technologies and to optimize the benefits they can provide.	Case 1: A concrete example from BP when outsourced MRO.	Example limited to MRO supplies only listed up the advantages - no disadvantages.	Procurement and MRO supplies
5	Adams, G. A., Youdal, S.	2007	The evolution of outsourcing and insourcing in oil and gas accounting	Investigation on outsourcing in general of accounting in the oil industry.	List up the main issues and future recommendations.	No concrete example.	Accounting

Articles concerning outsourcing in the petroleum industry								
	Nr	Author	Year	Title	Method	Advantages	Limitations	Headline
Articles used to highlight each case	1	Hart (2010) / Ernest & Steinbul (1997)		CASE of Royal Dutch Shell	Outsourced their information structure	Cost savings, and streamline their operations		
	2	Goolsby (2002) / Hart (2010)		CASE of British Petroleum	Due to lack of stability in the oil & gas business, and over bloated staff, BP partnered up with Accenture.	Reduce costs, higher margins, lower risks, etc.		
	3	Pellegrini, Lazzarotti & Pizzurno (2012) / Blokdiijk (2012) / Mitchell (2010) / Zabyelina & Kustova		CASE of Exxon Mobile	Outsourced IT, HR-management and supply chain management	Reduce costs.		

4	Currie & Seltsikas (2001) / Leem / Lee (2004) / Beat & Blokdiik (2012) / Mitchell (2010)		CASE of Chevron	Outsourced their information structure	Lower costs, provide better career opportunities for their IT personnel, and to increase their service level. Also to gain more competitiveness in the industry.		
5	Accenture (2010) / Offshore Post (2015)		CASE of Statoil	Outsourced IT- and SAP technical activities.	Reduce bloated staff, reduce costs.		

Further, these articles, together with the found cases, are used to investigate and to give answers to the problem statement, and also the underlying questions in this thesis – what studies have been found, and what are the results? Let’s briefly mention the problem statement with the underlying questions again; **“A critical assessment of outsourcing in the oil & gas industry”**

1. *Are there any common critical success factors for an effective outsourcing for oil companies?*
2. *How dependent are the oil companies of the service companies, and how does this affect the outsourcing agreement?*
3. *Is there a difference in outsourcing processes in the oil & gas industry and other industries, and is there anything oil companies can learn from outsourcing processes in other industries?*

With these questions in mind, let’s start with number one in the tab

4.4.1 Outsourcing of core competences

“From outsourcing to open innovation: a case study in the oil industry” was written by L. Pellegrini, V. Lazzarotti, and E. Pizzurno and is the most relevant article I have found in the data collection due to its critical arguments about practising outsourcing in the oil and gas industry. Another reason why it is very relevant is because it is an example and experience of a critical view of outsourcing of *core competences*, see chapter 2.7 for definition. The paper describes how outsourcing has weakened the strategic position for the oil company towards external actors such as service companies. Further it describes how to overcome such weakness of partnership, by implementing a strategy approach such as ”open innovation”. There has been a strong appeal to outsourcing technical segments as geophysics, drilling, onshore and offshore operations, and well activities. This has led to a technological trajectory that proved to be difficult to correct in the short term and the article argues that the Major’s position is not easy to change. This also corresponds to sub question number 2 in the problem statement, which further describes the dependency between an operator and a supplier.

The Majors are a term for the biggest oil companies in the world and track back to “The Seven Sisters” who dominated the global petroleum industry from the mid 1940s to the 1970s. Now The Majors are considered to be “The Big Oil” and describes the six largest publicly owned oil and gas companies (Bozon, 2005).

Pellegrini et.al. (2012) contends that most of the worlds oil and gas reserves are under control of National Oil Companies (NOCs) and are now autonomously with both exploration and production activities. Besides, and very importantly, the technological innovation is increasingly dominated by the service companies – which the oil companies have outsourced many of the R&D activities to. Ironically enough, initially outsourcing was aimed for cost cutting, but has now weakened the Majors who have lost control over technology. Eni claims they have lost control over their core competences due to the service companies invest heavily in R&D, and they have remarkable results in patented applications. This was happening while the Majors where focusing on cutting costs.

4.4.2 Capabilities, relationship and outsourcing

Another article concerning sub question number 2 in the problem statement is ”Breaking up is hard to do: Organisational Learning and Outsourcing in the Norwegian Oil Industry” written by

Askevold, Gjelsvik and Steineke. This is a study executed by the Strategic Institute Programme (SIP), Norwegian Research Council about the topic of competence development and value creation. Further it reveals how a learning organization in strategic management can be expanded from an orientation of abilities. Further, with this perspective, it displays how to approach a resource-based strategy on outsourcing in the Norwegian oil industry. It provides case studies of knowledge acquisition in supply chain relationships and identifying the outsourcing effects on various organisational capability dimensions. Further it distinguishes between tactical and strategic motivations for outsourcing, and it examines organisational learning and characteristics of an outsourcing relationship. It deals with the relationship between the operators and suppliers operating in the Norwegian oil industry, which are also presented, in the Theory chapter 4.2. It also discusses the shifting organisational boundaries, growth through mergers and diversifications, and downsizing in core business.

When the objective of outsourcing process is to reduce costs, often within short period of time, the motivations can be described as tactical. In this matter, the short-term bottom line is in focus. Another tactical motivations for outsourcing are when required resources or competencies cannot be found in-house, and to develop these functions within the organisations are inefficient – which also something Flatworld Solutions (2015) and Hoff (2009) supports. Additionally, when business functions may appear unmanageable in their present state with respect to costs and personnel. In order to induce improvements, the entire activity may be outsourced.

On the other side, strategically outsourcing advantaging the enhanced focus on core activities while outsourcing other activities. This involves using Porter’s value chain approach to identify the various activities a firm needs to have accomplished and to identify which ones the firm can develop into core competencies (Porter, 1996). Further, the report argues that a position in the market is not static. The success factors in an industry will change and so will customers preferences, which corresponds to sub-question number 1 regarding critical success factors which this report claims these factors are dynamic and do change along with the market. Further, when it comes to deciding what functions to outsource, it is useful to do a mapping of the functions and core competencies to their ability to deliver strategic business value. Osmundsen (2011) are discussing the relationship between an operator and a supplier and their binding contracts in the given industry with “Collaboration on the shelf - Contracts and Incentives”.

4.4.3 Contracts and relationship

Osmundsen (2011) says when oil companies and suppliers work closely, so the situation is by operation of oil and gas fields, it is important to ensure that the parties are pulling in the same direction. Not until you create goals compatibility ensures full benefit of close cooperation. The reason this article is so wide presented here are its direction towards core competences in the oil industry, and this article correspond directly to the main problem statement.

One advantage of close integration between supplier and purchaser is flexibility. This is particularly important in drilling, especially when drilling in the reservoir. New information from the reservoir will often make it desirable to adjust the initial drilling plans. This is necessary to achieve an optimum drainage of the reservoir, and the economic impact of this could far outweigh other considerations, including minimizing drilling costs. Osmundsen (2011) further claims the necessity an oil company have for control and flexibility is in conflict with the goal of predictable incentive systems.

Rethinking closer interaction on the operational side has a certain parallel in field developments, where by NORSE process set out some coordination tasks for the supplier industry, which was first introduced in chapter 4.2. Man created total suppliers as large for coordination of Engineering, Procurement, Construction and Installation (EPCI) contracts. The tasks were previously outsourced, when used fabrication contracts, but the coordination and interfaces between deliveries was conducted by oil companies.

Nonetheless, Osmundsen (2011) claims also in drilling there is a high level of outsourcing, an estimated 90 per cent. A full transition where the operation takes place from the supplier's control centre, seems to imply similar type launching of coordination tasks. Instead of buying consulting services (on hourly rates) for each sub-process, in which each person is specified, buys you an overall operational service. Regardless, it will normally be such that the oil company stock drilling program and follow this up, but that coordination between the various features within drilling deployed. First of such a solution can bring out all the benefits of decentralization. By operating several oil companies from the same place, and operate many fields simultaneously, the vendor can achieve specialization, skills and economies of scale.

They look at drilling as one of the oil companies' primary responsibilities and wants to have complete control over the process. It can also be strategic considerations in behind. They see that oil companies take over tasks internationally previously reserved for the oil companies, which

clearly signifies that oil companies have set out many functions. They may also have made large investments in its own operations, and it will consequently be constructive to not only seek solutions where all operations are done from the vendor's premises, but also intermediate solutions where the oil company retains coordination of key elements of the drilling process. From drilling activities to maintenance, repair, and operation (MRO), Gebauer & Segev (2000) present seven critical factors in order to choose an vendor in the article “Emerging technologies to support indirect procurement: two cases studies from the petroleum industry”.

4.4.4 Success criteria when outsourcing of MRO and procurement

This article is relevant due to sub-question number one regarding come critical findings and experiences British Petroleum did from this outsourcing agreement. This paper was written to highlight the use of Internet technologies to support indirect (non-production oriented) procurement processes. Gebauer & Segev (2000) used two case studies from the petroleum industry to help demonstrate the concept of available technologies and some of the critical success factors and key decision points. This article argues for seven success factors in order to choose a vendor and that might ultimately determine the success of a vendor;

1. Content management
2. Supplier connectivity
3. Scalability
4. Security
5. Meeting functional responsiveness requirements
6. Development skills – the ability to build robust systems using innovative methods and technologies.
7. Strategic alliances – the ability to partner with key market players.

These factors are developed for electronic procurement systems. In order to reorganize procurement with help of innovate technologies and to optimize the benefits that they can provide, the specific situation of a firm needs to be taken into account. Exploration and production processes are becoming increasingly complex and capital intensive. Advancements in technology help exploit oil fields more efficiently than in the past and have led to the them discovering more oil than before. Further Gebauer & Segev argues technology is fast becoming one of the primary success factors of the industry. Transfer of technology know-how is usually mandatory and contracts require extensive and complicated negotiations up front. Especially in countries often

with unstable political situations and poor infrastructure, requires intense negotiations precede a long-term contract.

4.4.5 Risks of outsourcing core competences

From MRO to accounting, Adams and Youdal (2007) proclaims there has been an evolution in outsourcing in oil & gas accounting in their article “The evolution of outsourcing and insourcing in oil and gas accounting”. With regard to outsourcing accounting, managing risks through the entire oil and gas production accounting value chain begins with defining and mapping the transactional and no transactional accounting process. Transactional accounting is most associated with simple revenue accounting processes. No transactional processes include proprietary data such as joint-interest billing information, division of interest setups and detailed royalty breakdowns. Lack of these holds the highest risk. High risk as lack of core business processes such as internal production data, production accounting data and division of interest, can lead to negative consequences such as inaccurate data and legal issues. Porter (1996) discuss, that information sharing could be potentially hazardous to most companies, as it is hard to disentangle which competencies are core competencies. Drew (1997), however, argue that the view on how much information to share depends entirely on the value chain, and that the benefits from benchmarking therefore would differ as a result.

This article by Adams and Youdal (2007) is relevant in this thesis due to their critical assessment of outsourcing practice in the petroleum industry. The last decade of outsourcing accounting services has had mixed results in the oil and gas industry. Companies have been able to enjoy important cost savings by outsourcing commoditized tasks, such as purchasing, which allows outsourcing companies to manage their own costs adequately and at the same time provide a quality service.

4.5 Outsourcing Cases from some oil companies

4.5.1 The Case of Royal Dutch Shell

In the year 2006, Information Service Group (ISG) recommended to Royal Dutch Shell Company that they should consider outsourcing their information infrastructure. ISG had made some research into the firm’s cost structure from which they came to a conclusion that the Shell was not operation optimally cost-wise. Apparently, the suggestion for Shell to outsource was to propel the company to attain its economic objectives in a sustainable manner well into the future.

Between the years 2007 and 2008, Royal Dutch Shell carried out significant outsourcing of its manpower. According to the then Chief Finance officer, the decision was meant to ensure that their operations are streamlined. Beforehand, the company had experienced issues with the information technology department which they thought cost the firm too much regarding wages and salaries. The decision made was to be effected in 2008 where more than 3000 personnel were laid off (Hart, 2010, p.212).

Apparently, there were lots of redundancies among the IT staffs as they were more than the company required. They caused the firm to spend more than they could have had it not been for these staffers. The decision that was reached was in conjunction with all the main stakeholders of the firm. These stakeholders were the chief financial officer, IT Department heads, and the general administrations. The outsourcing exercise was agreed to be made to six companies as a result.

In the end, Shell managed to reduce its recurrent expenditure and saved its funds for more sensible uses. As expected, the company still holds on to this approach regarding its manpower, and it is one of the reasons that have given it the success that it has. The international prominence that the firm commands can also be attributed to this fact too. It is possible that other firms in the industry have copied emulated the strategy, as it seems to be quite formidable.

4.5.2 British Petroleum Case of Outsourcing

British Petroleum Company experienced tremendous growth in its operations in the years between 1989 and 1991. The results were that the firm had to bear with bloated staffs which they could not manage well. It is indicated in Goolsby (2002) that the company had doubled its volume of operations in the stated period and almost did the same for its workforce. The problem that emanated from this development is that most workers remained redundant at times. The firm could, however, not dismiss them because they understood that there were times that they would need them.

The lack of stability in the oil industry was the biggest challenge that BP faced at the time. It was not possible for them accurately project sales even for three months into the future. Human resource wages and salaries were weighing highly on them and more so for technical personnel. The solution was to consider reducing the number of employees, which the company thought were not required at all times. They decided to outsource these services to Accenture Company (Goolsby, 2002, p.77).

This decision turned out to be one of the best decisions that they ever made. Accenture became not only their outsourced company but also their partner. Risks that the firm faced beforehand were mitigated by this relationship and it got better with time. In fact, their success led other oil firms undertake similar approaches to boost their prospects in the industry. British Petroleum used outsourcing to build its competitiveness in the industry at a time when it faced rivalry from other big companies such as Total Company.

The results were that the firm gained more competitiveness as its cost structure got streamlined. This result made it have the capability of reducing its prices and also enjoy higher margins at the same time. The business grew more successful with time, and it is still engaging the strategies it laid out in those years (Goolsby, 2002, p.78).

Perhaps one of the most prominent negative consequences of outsourcing, come from British Petroleum. In the year 2010, BP received a blow where one of its on-board Transocean's Deepwater Horizon drilling rigs. It occurred in the Gulf of Mexico, and it caused mayhem all over the news. Many blamed it on outsourcing as it had entered an agreement with Transocean and Halliburton. It is said that the probable reason that led to the explosion and lack of proper management was the fact that no one could take the blame among the three (Hart, 2010, p.122).

However, coming to the rescue of the situation was Hart (2010) who sort to distinguish what people termed to be outsourcing and subcontracting. In his review, he offers that outsourcing is not to blame for the quoted occurrence. He claimed that the arrangement that was between the three companies was a subcontracting and not outsourcing. In explaining the mystery, Hart (2010) states that in an outsourcing arrangement, the outsourced company is given the description of a product, and it is upon them to use their creativity to create such a product. On the contrary, in a subcontracting arrangement, the outsourced firm gives the description but also monitors the process of its manufacturing. He finds fault with this approach as it is chaotic and presents several avenues for failure.

4.5.3 ExxonMobil Outsourcing Experiences

ExxonMobil stands as one of the biggest oil and gas companies that have engaged outsourcing strategies in their operations. Just like most of the other outsourcing deals made by fuel companies, ExxonMobil decided to outsource its information technology related activities to competent firms beginning from the year 2009 (Pellegrini, Lazzarotti, & Pizzurno, 2012, p.105). At the time, Enterprise Resource Planning software had started gaining ground regarding their

usage in this industry. Their integration into business tasks and contexts was not easy, and it would have resulted in major inconsistencies if allowed to be controlled by amateurs. For this reason, ExxonMobil outsourced these tasks of ERP systems development and maintenance to other firms that had it as their core business. Other services outsourced by the firm, later on, were supply chain management and human resources recruitment (Blokdiik, 2012, p.58).

Most client companies had the target of reducing their costs of running their businesses by averagely 30% and so there was an almost spontaneous realization that offshoring IT related services to other countries would be a good place to start with (Mitchell, 2010). At the time, ExxonMobil was running on SAP, which is an enterprise resource planning software that is still popular to the time of speaking. The intricacy that comes with the software may have been the primary factor that made them reach this decision. However, other firms were also in the same queue, and this fact may also have compelled ExxonMobil to act in the same way to avoid losing out in the rivalry.

In the stated year, the firm managed to outsource 70% of their IT requirements, and this figure rose to 90% only two years later (Zabyelina & Kustova, p.27). Other companies such as Dutch Shell, BP and Chevron did the same to prove that it was a strategically proven approach at the time. Even though they outsourced most of these technologies to India, some of the basic infrastructural integration activities were still in the hands of IBM. The results from this initiative indicated that the firm made savings of about 5% in the first year and that they have been increasing at about 1.5% with each new financial year (Blokdiik, 2012, p.66). As much as this may not be substantial enough financially, the firm reports that it has increased its efficiency and effectiveness as it now deals with a less bloated staff.

4.5.4 Chevron Outsourcing Experiences

As one of the global leaders in the oil and fuel industry, Chevron realized the need to outsource since the year 1997. It opted to enter into a contractual arrangement with three information technology companies, namely SPRINT, GTE and EDS. EDS was the core member of the outsourced group of companies, and the contract was valued at about \$450 million. EDS and GTE were to provide support services while SPRINT was to act as the carrier for data and voice transmissions. The entire arrangement began in the following year 1998 (Currie & Seltsikas, 2001, p.30).

The aims that Chevron had as a company were to lower costs, provide better career opportunities for their IT personnel and also increase their service levels. The deal affected up to 400 employees across the company's branches in the world. A secondary target that the firm had was in keeping with their intention to create a global network in their computing environment. Their belief was that achieving this would help them in competing with other firms in the industry. The firm was part of an oligopolistic market structure that was also slowly embracing outsourcing. Also, being one of the Fortune 20 companies at the time, it was striving to maintain their position as a renowned oil company and act as a global leader in innovation (Leem & Lee, 2004, p.117).

The results were in favour of the firm as it has been recording consistent performance since the inception of this plan. According to management, their cost structure needed streamlining if their profits were to remain sustainable. As it turns out, their level of profitability has been on the increase, which suggests that the outsourcing strategy adopted by the firm is still working. Profitability is not the only advantage that the firm reaped. Chevron also reported higher effectiveness in serving its workers, which is similar to the case of ExxonMobil (Beath & Ross, 2007, p.93). These two benefits must have been the central achievements that the company made, and they still stand as the core justifications of the adherence that they still show to this strategy.

4.5.5 Statoil Outsourcing Experiences

Since 2013, Statoil has been engaging itself in outsourcing and offshoring activities in a bid to improve their operational efficiency. In Norway, where it is headquartered, the company lamented that it had a bloated workforce. Moreover, it was also claimed that the cost of labour in the country was more than the company could bear. For this reason, the firm decided to offshore its staffs to Eastern Europe countries where the cost of labour was affordable. This move resulted in the workforce of Statoil in Norway cut by 20% since 2013 (Offshore Post 2015).

The company has also engaged in outsourcing deals. In the year 2015, Statoil announced its intentions to outsource some of its technical tasks to Capgemini Consultants. The outsourced firm is a French consulting company that is widely knowledgeable and skilled in vast areas of business management. It has in fact emerged as one of the premier global companies to provide outsourcing for services such as application development and maintenance services. Capgemini is well versed with operating the SAP software, and this is what the most valuable input they have in improving the efficiency of Statoil (Offshore Post, 2015).

Even though the 2013 deal was the most notable one that the firm made with outsourcing companies, Statoil also had other deals that it struck in earlier years. For example in the year 2010,

the company awarded an outsourcing contract to Accenture. The deal entailed Accenture managing its accounts payable in its branches which were spread in over 40 countries worldwide. The results were that it managed to have higher efficiency in paying up their obligations. Beforehand, the firm faced issues with late payments and fines as a result of poor management of payables (Accenture, 2010).

4.6 Outsourcing in the Oil Industry

According to Steinhubl (1997), outsourcing is slowly growing to be an integral part of the oil and gas industry as more companies consider this option. This revelation comes as a result of consolidated alliances between outsourcing and outsourced firms. None the less, it has benefited the sector in a major way. As Ernst & Steinhubl (1997) notes, the practice has resulted in the British Petroleum Company saving 30% of its budget by outsourcing some of its functions to third parties in the United Kingdom. From this experience, the company had to consider extending this practice to other branches in the world; including the US. Phill Carrol, who was the president of Shell Oil in Houston, once predicted that oil companies will outsource up to 40% of their activities to other parties in 15 years. Fifteen years later, evidence suggests that his utterances were quite true as such companies are now outsourcing even their logistics.

Noke et al., (2008) compiled a study in which he sought to find out about the effect of strategic alliances in enabling discontinuous innovation in the oil and gas industry. Their interest was spurred by the fact that they considered the industry to be slow-paced and that something ought to be done. Their findings indicated that indeed if there is a strategic alliance among members in the supply chain, it is innovation would also be achieved. They concluded that such alliances had strategic relevance in that they nurtured and promoted the spirit of innovation from the information that is shared in such arrangements.

4.7 Outsourcing in Other Sectors

In order to make a critical assessment of the usage of outsourcing in the petroleum industry, and to answer sub-question number two, it could be interesting to compare this practice with other industry segments.

4.7.1 Outsourcing in the General Manufacturing Sector

McCarthy and Anagnostou (2004) investigated the impact that outsourcing has in the manufacturing sector in the United Kingdom. Their review gave tremendous insights into the role

played by the approach in affecting how this industry operates. They found that outsourcing has had a positive effect on the industry by improving its economic performance. They argued that this outcome was as a result of the firms in this field having more time to focus on their primary activities that add value. The authors used the transactional economics theory to justify the conclusion that they drew in their study. In this case, they claimed that there has been a significant financial growth in the manufacturing sector, and they attributed it to the fact that more such companies continue to outsource. They, however, warned that this strategy only applies to the functions of a business that are not primary to their operations. Outsourcing core activities to a third party is impracticable. The firms should take outsourcing as a technique that would help them rid themselves of obstructions and have the firms focus on what matters in their operations.

In another study conducted on the same topic of outsourcing in the manufacturing sector, similar results were evident. The research carried out by Raa & Wolff (2001), an indication is given that the act of outsourcing and its benefits have been there for quite some time. The article dwells on the impact that outsourcing had on the US manufacturing industry between the years 1977 and 1987. The authors provided quantitative evidence to suggest that there was a significant increase in the Total Factor Productivity of this industry during that time. They also matched this increase with the increase in the act of the companies purchasing inputs from the service sector at the time. The TFP of the ten-year period between 1967 and 1977 was 0.04 which was increased to 0.87 in the next period of ten years. This change accounted for a 0.83 increase in the TFP of the manufacturers. They, however, caution that the increase may not have been strictly due to outsourcing, and it would be too optimistic to make such an assertion. What the study proves is that during the latter ten year period, there was a high influx of service companies and at the same time the total factor productivity of the manufacturing firms increased in a major way.

Egger & Egger (2006) made a similar research on the effect that outsourcing has in the manufacturing industry. Their concern was about the impact of international outsourcing in influencing the productivity of low-skilled labour. They found that global outsourcing is a means through which firms can augment their productivity. They reason that this outcome is a possibility as there are several countries whose citizens have good work cultures. Such an urge to work drives productivity up if considered by the outsourcing firms. They claimed that in the short run, such results may not be realizable, but over the long term, the strategic approach of international outsourcing of manpower tends to impact the said companies positively.

4.7.2 Outsourcing in the Automobile Industry

Novak & Stern (2008) conducted a study to examine the relevance of outsourcing in the automobile industry. They sought to analyse the effect that contracting other parties in making the parts of the vehicles in various automobile companies. Their findings indicated that the performance of such firms is likely to suffer drawbacks in the first period or periods after the inception of this idea. They explain that this reduction in performance is due to the fact that the firm would still be in the learning phase and it would not have the right experience to capitalize on this opportunity. Another reason given is that the firms may register low performance in the initial phases is that there is no conducive environment for them to engage in such an approach. It takes time before they can adapt and realize the benefits enshrined in this strategic move. However, the firm is most likely to have higher than normal performance in the long run. These findings are similar to those made in Egger & Egger (2006). The overall implication is that there is always a trade-off between the evolution of firm capabilities and short-term performance.

Calabrese & Erbetta (2005) undertook a study to examine the effect that outsourcing has on the financial performance of automotive companies in Italy. The researchers sought to understand the impact that “de-verticalization” had on the debt ratio and Returns on Investment ratios. They were also interested in learning about its effect on the productivity of labour as an additional measure of performance. Their findings suggested that vertically integrated firms experienced lower growth in the mentioned financial metrics and labour productivity. On the other hand, firms that engaged in outsourcing had their performance in the same metrics grow steadily over time. For this reason, they suggested that it would be more financially sound for firms in the automotive industry to consider the outsourcing option for activities that they do not deem as their primary ones. Their backing of this recommendation is based on financial performance, and therefore, it would be prudent to observe the suggested approach.

4.7.3 Outsourcing in Electronics Manufacturing

Mason et al., (2002) made an investigation to find out the role played by outsourcing in the electronics manufacturing industry. In the study, the authors state that outsourcing has improved the operational and administrative capabilities of the outsourcing companies. More importantly, they reckon that the agility of the company seeking the services of another tends to get better with time. Just like in McCarthy and Anagnostou (2004), they reckon that this trend manifests because the company can then focus on their core operational activities. Agility is such a vital issue in the

electronics industry as it is one of the standards that make the sector quite competitive. They also state that outsourcing allows the firm to get closer to other members of the supply chain and share information regarding the developments in the field. If all materials were produced in-house, this meet-up would not be occurring that often, and it would then lead to delays in information getting to the company's attention.

Girma, S., & Görg, H. (2004) wrote a paper on the outsourcing foreign ownership and productivity of firms. Their focus was quite diverse as they examined various industries including the electronics manufacturing sector. In their analysis, they drew from a wide range of published materials and working papers which made their research credible. Their findings suggest that there is a high correlation between outsourcing and its effect on the productivity of the outsourcing company. They also found out that foreign owned business establishments tended to outsource more than locally owned firms. Additionally, they also gave the notion that the relationship between outsourcing and productivity is more pronounced in foreign firms than it was for domestic companies. This study is relevant to the context of business outsourcing as it provides empirical evidence supporting the move to outsource.

Kotabe et al., (2008) seem to have a different view of the effect of outsourcing in the consumer electronics industry. According to them, they fear that with more firms relying on outsourcing, it is likely to destroy their competence. Due to the third party factor which the firm cannot rely upon, the firm places its fate in the shaky hands of people who do not have the interests of the primary company at heart. Their argument is that the firm might end up in a vicious cycle. They state that when firms engage in the act of outsourcing competencies and such competencies grow to become important to them.

4.8 Analysis of Other Findings

Phenomena outsourcing is a much-discussed topic with their strengths and weaknesses. Both outsourcing and offshoring has direct impact on a company's revenues and income. In the the said sector or industry, the oil price is a big external influence and is a factor that affects an entire industry with all that entails, government revenues, employments, etc. Chapter 0 gave an introduction to this in order to provide an understanding and introduction to the oil industry and the ruling tear of the oil price. The reason oil price being mentioned in a study about outsourcing is just that with fluctuating oil prices, the oil and gas industry are very sensitive when so dependent

of a parameter that can divide in half on just a day. Some may believe outsourcing is a solution to more steady and cost reducing business.

When the industry established in Norway, it was affirmed that Norwegian oil companies would continue to receive an increasing share of the resources, while reassuring international oil companies an important role in future exploration and exploitation in co-operation with Norwegian companies. A term “Norwegianation” occurred meaning that activities were directed at increasing the participation of the Norwegian industry in petroleum operations, both onshore and offshore. Considering the enormous sums of money involved in deliveries of goods and services to the petroleum industry in the intensive development phase, there was every reason to try to channel as much as possible of the investments through the Norwegian economy. On the other hand, and some years later, it seems outsourcing and offshoring becomes more approved as a way of doing business – even though it moves investments away from Norway.

On the development side it is obvious that the combined effect of the trends towards smaller fields, deeper waters, higher gas content in Mid-Norway, longer distances to the gas market and so on, would increase the unit development cost per barrel. In order to improve profitability in a low price environment, both the companies and the authorities have no choice but to pursue possibilities for improved efficiency on the one hand, and reduced cost on the other. Ideally of course, the two efforts should be pursued in combination.

Following the fall in oil prices and the subsequent economic squeeze of the late eighties and the nineties, the petroleum industry had to undergo considerable adjustments in its mode of operation. Several joints (a business agreement in which the parties agree to develop) and individual efforts were made to reduce capital and operating costs in petroleum operations. Although this helped a great deal, there was still a need to undertake drastic measures in order to mitigate the effects of a long period of low oil prices.

The elements of uncertainty and risk prevail not only in the industry’s assessment of a particular discovery, but also in the perception of the technical, environmental, economic, financial, political and social aspects of developing that discovery. When considering a given option, oil companies carefully weigh the risks against the potential rewards. The higher the risk, the higher will be the reward that the company demands for taking that risk. Similarly, the lower the reward the less it will be willing to accept risks. Under the same conditions of cost and price,

the reward in both cases will be largely influenced by the resource size and quality on the hand and by the economic conditions of the licence on the other.

Askevold et. al. (1999) proclaims in their report from 1999 that the present regime (1999), contractors and suppliers to the oil industry are required to take on increasing technical and commercial responsibility in the field development and maintenance process. This is something Lazzarotti et. al. (2012) discusses 13 years later in their report that this has happened. That the service companies have gained a major advantage in developing and possessing great technological advances. Further in their report Lazzarotti et- al. proclaims that this is not necessary an advantage for the oil companies.

Askevold et. al. (1999) says when the cost-efficient reorganising started its establishment, corresponded well with the general trend following from the NORSOK restructuring process, whereby operators invest in core service contracts such as exploration and drilling activities in order to ascertain future income flows while increasingly outsourcing total number of different projects to main construction companies.

The outsourcing of total EPCI projects has resulted in three main segments. First, a reduction in the total number of upstream suppliers to the operator companies as well as a shift in the procurement strategies of the main contractors. A stable set of sub suppliers can be interpreted as a source of competitive advantage for main suppliers. It provides the main supplier with a better control of the precision, the cost efficiency, timeliness and the quality of the delivery. Secondly, there have been a more systematic project coordination among operators and main suppliers and among main suppliers and sub suppliers. Main suppliers are required to identify what kind of activities are best done internally, what kind of goods and services are best obtained through their network of suppliers and through market transactions, and what kind of resources are best amassed by integrating operator and supplier activities through cooperation agreements. Thirdly, there has been an adaption of the organisational structure of main suppliers to the new contract requirements. Since EPCI contracts range in tasks from the engineering to the installations phase of a project, the restructuring of main contractors have been centred on efforts to integrate their operative units and to develop competencies such as market surveillance, coordination and collaboration both with operators and sub suppliers. Their integration capabilities have been greatly challenged.

One question I ask myself after reading the article about Eni, is this; “does outsourcing weaken the petroleum company’s ability to use and develop new technology or other strategic capabilities to keep up with competitors?”

Lack of resources is a problem that supplier have. These resources would have assisted them in providing full engineering services. Subcontractors may be unfamiliar with the engineering contract provisions, and the strategic interest of the operator. For these Norwegian oil companies, there have been limited options for changing domestic offshore technology development partners. The scale of field development projects are preventive for most engineering firms, and the range of options for using local suppliers other than the developers obstacles to organisational integration in production as technological “lock-ins”. This can be argued that the technological lock-ins merely transfers the dependence from one potential supplier to another.

One of the first thoughts about how to solve and disclose this study was to distinguish between outsourcing of core activities and non-core activities. First I discovered was where that line was drawn was not a common understanding and is probably something that has changed during the development of the industry. My first discovery was there was no existing literature on outsourcing of core-activities in the petroleum industry. The literature covered mostly IT-technology, some procurement, accounting and logistics. This is not among an oil company core activity.

Firms are usually not ready and willing to report their outsourcing failures because they tend to be reluctant to publicize them. Nevertheless, conflicting them with outsourcing efforts that have been more successful can yield useful “best practices” (Barthelemy, 2003).

High reversibility i.e. the possibility for firms to rapidly abandon the alliance at any moment, represents a key characteristic of alliances between firms pursuing a strategy of exploration for product development; firms want to have the possibility of rapidly abandoning the alliance until they do not know whether the technology will be useful to them. Instead, less reversible forms are more suitable when firms want to make the most of established technologies and products (Pellegrini et.al. 2012 by Dittrich et.al. 2007, p.127).

There are very few empirical investigations that focus on the relationship between vertical manufacturing scope and economic performance. Recently, outsourcing has come to be a widely spread management practice the rationale of which appears rather questionable in the light of the governance and competence perspectives. The literature summarises a number of advantages and

disadvantages of outsourcing, while empirical data are still rare (Broedner, P., Kinkel, S., Lay, G. 2002, p.101).

Productivity effects of outsourcing as a relevant long-term performance measure not regarding other firm level performance measure and does not consider other performance indicators at firm level. The most decisive factor whether to outsource or not is asset specificity. A basic idea is that different assets and investments are more or less unique and specific to a certain business segment. Assets and competencies with high specificity are deeply embedded in existing procedures, and should be kept in-house, according to this thinking. Assets with low specificity could be outsourced (Bengtsson, L., Dabhilkar, M. 2008, p.79).

The perceived cost advantages are in fact moderated by a number of additional costs when outsourcing. Besides obvious logistics costs for transport and stock, there are usually some hidden costs for managing and performing the transfer project, including costs for the new establishment, transfer of technology and knowledge, and remaining overhead costs. There are also associated with longer delivery times and risks of delays in delivery and market introduction. The additional costs could be substantial, which in turn could reduce the expected benefits significantly.

Pellegrini by Trott and Hartmann (2009) paraphrased; is OI the new bottle into which outsourcing was poured? The objectives of outsourcing concern costs and competencies. As regards the former, outsourcing firms aim at reducing direct operating costs, although it should be noted that cost reductions in the short run are counterbalanced by a consistent cost growth due to searching for provider(s), setting up contracts, transferring in-house activities to the provider(s) and managing the on-going contract to avoid risks connected with opportunism on the side of the external contractor (monitoring, on-going bargaining, sanctioning and negotiation of contract changes – where necessary). In terms of goods, the logistics costs should also be included. They also mention other negative shortcomings as low impact on lead and delivery times and accuracy, and additionally costs when finding new provider or re-insourcing when a contract is unsuccessful. As regards competencies, outsourcing firms aim at specializing in core competencies and substituting non-core competencies with input from specialist providers. This is something that has to be carefully analysed prior to outsourcing due to certain risks. The serious weakening of the portfolio of competencies a firm possess, and the undermining to the development of new core

technological competencies in the future. The serious deterioration of the portfolio of competencies a company possesses, and that it undermines the development of new technological core competencies in the future. This also challenges the opportunity for coordination of R & D, design and manufacturing activities of suppliers.

In the early age of the industry the oil companies more or less held most activities inside the company, but today many of those activities are outsourced to contractors and suppliers. Since the early 2000, the most common activities of the petroleum industry are primarily to be found in three functions; back-office human resources, information system (IS) management and in the technology development. Catering services, bookkeeping, legal and financial services are typically some of the favoured corporate auxiliary functions prone to outsourcing. The international literature on outsourcing is ripe with studies of the IS function. It seems like it is more normal to outsource/ offshore this function, than it is not to.

The third function, technology development, it seems the commercialisation of new technology is increasingly the domain of complex organisation. New technological challenges require new organisational forms and the development and astute exercise of dynamic capabilities. This also requires an understanding of the nature of knowledge and competence as strategic assets (Askevold, 1999, p.28).

In the oil industry, there are volatile prices and the dominance of a few companies, at first the giant private oil companies and, more recently, the State-owned national oil companies (NOCs). The two characteristics are related: the oil price is a function of the vagaries of oil exploration and production (and therefore of discoveries) and of changes in the demand for oil with recessions/booms in industry in different parts of the world, and also of the manipulation of oil output by the NOCs, especially the OPEC countries. By the end of the 1990s, the oil industry had entered an unprecedented period of turbulence affecting the structure of the industry itself, competition between the players and, strategy within the oil producers.

Going back earlier, oil prices slowly declined between 1982 and 1986 and in that latter year collapsed. Apart from a short-lived spike in 1991, they remained fairly flat until the serious 1998 collapse. So that for most of the recent past, oil prices have been low with the oil industry competing intensely. These low prices and lower cash flows affected the industry.

The NOCs sought to privatize as far as possible, and the private sector companies reacted by mergers, acquisitions and alliances. The private sector tried any number of corporate tactics: asset rationalization, staff downsizing, rightsizing, reinvention, re-engineering, total quality management, shared services and outsourcing, to name just a few (Christensen, 1999, p.204).

Although the NOCs, as a result of their State-owned structure, were precluded from the major acquisitions and asset plays that the private sector companies engaged in, they became more like the large private sector oil companies, introducing stricter commercial orientations and business discipline. The era of low prices had an important effect on the structure of all oil companies and their shifting strategies.

In the studied case of the big merger of BP and Amoco, their strategy work has been examined wisely. The huge oil company's strategy has been put into a frame work, and has chosen to adopt that frame done by Thakor et al. (1999) which aims to identify critical value drivers for a company wishing to develop winning strategies. They also consider that companies can create and sustain shareholder value by strategy. For them, the secret of developing winning strategies lies in discovering key value drivers in the business and tying the company's strategy to those value drivers - this is a long term exercise, not a focus on the bottom line.

The model is termed 'Wholomics', named after the consulting company of one of the authors. It is a 'total value' approach to creating shareholder value through strategy by integrating resource allocation, performance metrics, organisation culture, compensation contracts and leadership. All these must be consistent with each other and with the firm's over-all strategy.

It was during this time that BP realised the limitations on cutting operating costs, and that costs could be reduced more significantly through synergy following acquisition, and through economies of scale. It became more crucial as the oil price fell ever. The merger made Amoco less sensitive to natural gas and chemicals and BP less sensitive to crude oil, making a better-balanced company than Amoco or BP alone. There was very little overlap in this merger. The spectacular rise in the oil price in 2000 however, would cause BP Amoco's management to assess its current strategy again. It could well be that BP Amoco was already moving its strategy in the right direction (market awareness) to benefit from this change in market conditions.

Outsourcing seems to be a growing and "must have" strategy among companies, especially for the service activities and non-core activities. One strategy and reason to outsource is to outsource a competence (also core-competence) to a specialist firms. On the other side, it is also a

complementary discussion what to define as core and non-core competences in an outsourcing process. In the oil & gas industry, what is core and what is non-core, is not something that is settled among the oil companies (Informant 3, ref. table 4 in APP B).

Mostly it was about offshoring and peoples reaction to that. Many says that Statoil as Norway’s largest company with the biggest revenue have a duty to the society where many react to moving activities abroad and diminish Norwegian workers.

Crude resources are traded in future markets, where prices are highly volatile and time sensitive. Price determination involves macroeconomic variables such as economic growth, weather, specifics of demand and supply, and, very importantly, geopolitical factors. Trades involve the physical presence of brokers, speculation, options and hedging mechanisms, contracts, and bids. In many cases, prices are finalized only at the time when the oil leaves the harbour or according to similar variables (Gebauer & Segev, 2000, p.118).

With these primary findings, lessons learned, and further experiences will be further discussed in the next chapter.

DISCUSSION

The aim for this chapter is to discuss further the findings from previous chapter and look deeper into lessons learned from the different highlights from the chosen articles, and the cases presented. The challenges of outsourcing are also in this discussion to manage a proper critical assessment of the phenomenon in the petroleum industry.

5.1 Chosen relevant empirical articles

Concerning the article and example of the oil company Eni who Pellegrini et.al. claims that Eni have lost control over their core competences and the service companies have gained too much technological power. This is due to the service companies invest heavily in R&D, and they have remarkable results in patented applications. This was happening while the Majors were focusing on cutting costs. As a remedy, Pellegrini et.al. argues that experts recommend the oil companies e.g. the Majors to react and recover technological leadership. They should do this by increasing their investment and reshaping the relationships with the service companies and with all the relevant actors in the energy sector.

Despite the need for innovation, oil majors spend only 0.5% of upstream revenues on R&D that is approximately 1/3 of the rate of service companies. Although these firms are smaller than Majors, the absolute value of their R&D expenses is similar (Bakewell et.al. 2005). The number of patents applied for in the recent years is even higher which shows evidence of a much richer portfolio of technologies. As a result, they have become technological leaders in exploration and production.

Since the availability of reserves and investments in R&D can be considered as indicators of a strong strategic position, Majors in the recent years have let themselves be bypassed. Grant (1996) outlines the cause of this development, although the question of reserves is also political, the technological weakening of the Majors seems to date back to the period of their internal restructuring back in 1985-1994. It was initiated as a result of falling oil prices and consequent loss of profitability. Driven by the need to maintain good financial performance.

Majors put in place two actions; firstly the disposal of non-core assets with low performance and general cost cutting. This led to outsourcing every time it was cheaper to entrust outside rather than implement internally. Secondly, particularly in the upstream area, Majors outsourced to service companies several technology-specific problems mainly relating to

geophysics, drilling, onshore and offshore operations and well activities. Gradually, some service companies became pioneers in the application of advanced solutions in the E&P segment. Eni, the oil company which is studied in this case, has been increasingly aware of the dangerous strategic weakness of divisional R&D caused by the loss of competencies in favour of service companies.

Pellegrini et.al. (2012) by Grant (1996) since the 1990's the competitive arena required technology, skills and knowledge to be appealing to the NOCs. Thus, the risk of losing further skills began to be perceived by Eni as too high, even more so than advantages of outsourcing. Consequently, while still maintaining a constant focus in cost control, Eni's top management began to think about the redefinition of the divisional role in R&D. The reason why Eni and the Majors would be concerned about this is the risk that NOCs and service companies can work together and bypass the non-governmental oil companies. Additionally, with the help of service companies the NOCs have access to modern technologies and are less interested in partnerships with the Majors. Eni therefore wished to reposition and moved from outsourcing to an open approach.

“Open innovation starts with simple outsourcing deals with contract service organizations to reduce overcapacities, cut costs, grow through complementary assets or reduce risks. More strategic modes of open innovation have already become a standard in the pharma industry” (Pellegrini by Gassmann et.al. 2005)

As Eni also considered the main objective of outsourcing was to reduce costs, Askevold et.al. discusses different types of outsourcing, tactical versus strategic, also presented in theory chapter X. Askevold. Et.al. further also discusses and claims businesses undergoing mergers or acquisitions are turning to outsourcing as a way to ease the transition and to build new infrastructures which can be bad news for the major oil companies. In the USD 10 / Barrel industry landscape, deal-making skills and economic competencies should be added to the traditional economies of scale and technology as drivers of profits. Major oil companies were once able to rely on their distinctive skills at building and running operations in technologically challenging environments such as the North Sea.

The recent decade, the rapid dissemination of benchmarks and best practice via industry consultants, service/engineering and construction companies have reduced the competitive value of controlling these kind of functional skills. And when it comes to downsizing by outsourcing, it

is being criticised as having “anorexia nervosa”. Critics argue that downsizing through outsourcing is driven more by tactical motives of comforting the market than by reasons of improving the strategic fit of core competencies. In a case study of Fortune 1000 corporations, those corporations that outsourced heavily were found to be economic losers heading into outsourcing act.

They were outsourcing because they were already shrinking their firms. Thus outsourcing may have seen as a defensive and reactive act of management. Brynjolfsson and Hitt (1995) have studied the relationship between outsourcing and profitability, found no association between outsourcing and success. The only performance heavy outsourcer did well on, was stock-market returns. In the short-term, the market reacts favourably to outsourcing.

The report says that in the petroleum industry, outsourcing relationships may raise the conflict potential with respect to skills and economic competence in the participating organisations. In part, this may be due to differences in activity levels. Yet, while oil companies face comparatively low variability in activity and personnel levels, the main contractor and sub-suppliers experience relatively more volatile activity levels.

“The new world will put influence before ownership, outsourcing before integration, and relationship networks before hierarchies”. Askevold. et.al. p.36

Osmundsen (2001) on the other hand claim that many oil companies are keen to maintain control of elements included the drilling process, as well as ensuring access to critical skills. By dedicated personnel is one sure to have access to capacity, and by retaining its own expertise prevents one lock to individual suppliers, which can weaken the bargaining power and technical capabilities in the longer term.

Degree of outsourcing is usually dependent on the rate of ripening on the supplier market. If there is an illiquid market dare you often do not bet on outsourcing. There is not enough competition and risking lock, meaning that it will be difficult after switching supplier after expired contract period,

The operators are big on the Norwegian continental shelf seeking to prevent this problem by having multiple suppliers and through periodically switching supplier. Other relevant factors are ownership of information, information security and flexibility. These are arguments that can persuade to keep activity at the house. Cost gain by outsourcing operational coordination lies partly

in that supplier can standardize operations. The disadvantage of this, as seen from the operating companies, is that they get less opportunities to choose their own systems and analysis.

The general impression is that vendors often think industrially. They want good and safe margins in growth areas, with a focus on long-term thinking. They wish and abilities not to take much risk, and certainly not outside its control sphere. Moreover, they appreciate the projects that involve training workers and where the customer contributes to skills development in the company.

It also questions whether the control systems used in the oil sector in adequate safeguards the companies' finances. Here there will be a balance between safeguarding the whole and to establish effective and decentralized governance models.

The article “Emerging technologies to support indirect procurement: two cases studies from the petroleum industry” by Gebauer and Segev (2000) includes two cases from the petroleum industry. I will only discuss Case 1 in the since this case concerning outsourcing MRO activities, and also use of emerging technology in procurement processes to achieve cost savings and efficiency. Case 1: In 1995, British Petroleum’s Exploration branch in Alaska (BPXA) started an outsourcing project with the objective for reducing costs for MRO supplies. BPXA explores and develops oil and gas reserves in Alaska and manages the company’s interest in the Trans-Alaska pipeline. During the project, BPXA handed over responsibility to Fairmont Supply.

The outsourcing agreement includes all steps from requisition to payables as well as warehouse operation. Consequently, the company is expecting cost savings of as much as \$5.5 million annually from process improvements and lower prices. Inventory reductions might account for another \$11 million. Although the figures are still small compared to BPXA’s total spend of \$740 million, where \$640 are related to drilling, maintenance and engineering.

Elimination of redundancies is currently the main focus, process management via performance metrics, and process improvement through integrated supply. Fairmont Supply administers and executes agreements of BPXA with a small group of local MRO suppliers. Five years after the outsourcing agreement, the integrator had helped BPXA reduce the supplier base from more than 1000 MRO suppliers located all over the US to less than 30, all of which are located in Alaska. The small network of core suppliers has been, according to Gebauer & Segev,

expanded to the second level including another 250 vendors. The local character of BPXA’s network helps strengthen the links between the companies involved and further insures synergies.

MRO was chosen as an area for improvement because it was especially transaction intensive and therefore costly. Besides cost reductions, the new arrangement also helps suppliers and BPXA’s buyers get closer and intensify information exchange. Savings are expected from product standardization, application improvement, buying power leverage, supplier consolidation, and suppliers focusing on core competencies. In addition, the inbound logistics program helped gain additional savings.

In addition to supplier management, BPXA’s outsourcing partner handles procurements operations and in that context helped unify the process, which used to be done in six different ways. BPXA actively helped smaller suppliers get online in order that everyone had access and used the same systems. In addition to procurement, as well as systems interfacing with logistics was also introduced. As an outcome of the project, BPXA’s procurement division can now concentrate on more strategic activities such as planning, innovation and continuous process improvement.

The performance of the procurement integrator is measured in several different terms. Measures for internal customers of procurement include delivery dates versus promised dates, fill and error rates of orders, and price via a market basket. The petroleum industry is characterized by relatively low grow rates, tight cost structures, and increasing competition. The industry is shifting from a commodity market towards a high tech industry where the access to technologies, knowledge, and services is the key. Companies are internationally dispersed and, as a result, often not leveraging their full corporate power.

However, outsourcing non-commoditized tasks such as revenue distribution has been more challenging for oil and gas companies, and the original strategy of worrying less about recruiting and retaining PRA talent has not been fully realized. One of the key lessons learned is how to decide which functions can be safely and efficiently outsourced and which should remain in-house (Adams and Youdal, 2007).

Lack of control over non-transactional proprietary data holds the greatest risk. Lack of control over business process, such as internal production data, production accounting data, division of interest, and royalty data, can lead to negative consequences such as inaccurate data and legal issues. Having a decade of integrating shared services and outsourcing behind, many

companies are maturing their decision making process with regard to PRA outsourcing. They have built robust procurement organizations that monitor contracts and strategic sourcing efforts. This has balanced their competitive operations with outsourced services.

Many companies have importantly learned to optimize their competitive advantage and relationships by evaluating each outsourced accounting function in terms of its strategic importance to the organization. Further claims Adams & Youdal that the future will hold a hybrid of outsourcing and strategic insourcing of proprietary and non-transactional functions. Companies must decide for themselves what their appetite is for risk regarding the sharing of master and production data, as well as their production accounting information, with a third-party outsourcing company. Managing the more important operational issues, while outsourcing the more mundane accounting tasks, can help control data accuracy and external relationships. The ability to manage these well will become a key measure of success in the future for healthy PRA divisions.

5.2 Cases of oil companies

5.2.1 Lessons Learnt from Royal Dutch Shell

The primary issue that remains outstanding in the case of Royal Dutch Shell is that outsourcing brings about success in the oil and gas industry. Its applicability in this field of business was also at this moment confirmed. For many oil companies, this decision may be a critical one to make as it has huge consequences for the organizations if implemented. However, the example set by Shell gives the hope that there are good results in the end.

As Ernest & Steinhubl (1997) implied in their study, the practice of outsourcing is a consideration that many oil companies are making as time goes by. The main reason is that costs are becoming more difficult to handle in the contemporary corporate world of oil and gas (Ernst & Steinhubl, 1997, p.78). Low profitability is a common challenge that such firms are facing in their businesses. There have been active initiatives geared at ensuring that they salvage the situation with profitability and continuity of operations.

It is likely that the reason that made Royal Dutch Shell succeed in their outsourcing strategies is because they solicited the consultation of major stakeholders in the company to get a refined idea of what they were going into. Another reason that can be cited as the justification for the success is the fact that they made intensive research on it before examining the findings and

making critical decisions. By incorporating the assistance of Information Service Group to conduct research into the issue was their first right step into the success (Ernst & Steinhubl, 1997, p.83). They could have done the research themselves as they have the financial and personnel requirements. However, it is quite an ironical situation as they considered outsourcing this service to ISG.

Therefore, if one is to consider this case alone, they should be moved at the prospects that outsourcing in this industry promises to them. The fact that the strategies are still operational at the time of writing proves that they were and are still effective in propelling the organization to more economic liberation. The case does not mention any drawbacks that were encountered, and it is, therefore, a fair assumption that the procedure ran smoothly.

5.2.2 Lesson Learnt From the British Petroleum Case

The case of British Petroleum presents a more comprehensive picture of the experiences that oil and gas firms have with outsourcing. This is because both positive and negative perspectives are given insights. Just like Shell, BP is a global company that serves in the oil industry. It seems that the problems faced by oil firms before they outsource are similar. Both BP and Shell had issues with bloated workforces and the instability of the industry.

On a positive note, BP succeeded in reducing its costs and increasing its competitiveness. This was also evident in the case of Shell to suggest that, indeed, has a positive impact on the economic performance of firms in this industry. From a wider perspective, it is also valid to say that outsourcing has broad applicability. In the empirical review section, various industries were seen to benefit from this approach. The industries that were found to be beneficiaries are the general manufacturing industry, electronics industry and the automobile industry.

The unique aspect of outsourcing that firms like manifested in outsourcing. It is the fact that it builds a company's competitive advantage. The premise of gaining an edge over sector rivals is intriguing to the extent that British Petroleum could not resist the urge to engage in outsourcing practices. All firms in whichever industry have the ultimate goal of outwitting rivals.

The downside about outsourcing as presented in this case of BP was that it may lead to confusion if not properly handled. The explosion that happened was one of the major setbacks in the practice of outsourcing in this industry. Sometimes it 's hard to ascertain who should be to blame especially where there are several parties involved in overlapping responsibilities. But as

Hart (2010) outlines, the catastrophe was caused by an arrangement that, to him, did not appear to be outsourcing. In other words, if the rules and policies regarding outsourcing were duly followed, the incident either would not have happened or it would have been easier to identify the party responsible (Hart, 2010, p.122).

5.2.3 Lessons Learnt from ExxonMobil Case

As seen, the firm enlisted the help of outsourcing strategies to remain competitive in the oil and gas industry. It seems that technology is one of the areas where these firms gain a competitive edge against each other. The fact that other firms such as BP and Chevron also did the same fortifies this notion. In the end, the firm does not report significant financial savings. However, it is still happy to report that the work environment is now more convenient, which has led to more effectiveness and efficiency in their operations (Zabyelina & Kustova, 2015, p. 89). From these findings, we get the idea that at times outsourcing does not have to be for quantitative reasons. It is quite clear that the biggest gain they firm sought was to lessen the span of control that managers had beforehand. Research indicates that a bigger span of control for management may cause ineffectiveness on their part as opposed to a smaller span. As much as this is not always true, it served ExxonMobil well to the extent that they still rely on the same approach to remain competitive in an otherwise rivalled industry (Blokdijs, 2012, p.111).

5.2.4 Lessons Learnt from Chevron Case

Again, a similar trend ensues where the firm engaged the outsourcing approach as a counter mechanism to its operational inefficiencies. The fuel industry's cost structure also seems to be a burden to them and for them to enlist the help of such service companies shows that they are willing to go to all lengths possible to mitigate this issue (Mitchell, 2010, p.150). High wage packages usually characterize the IT departments of any industry that to some, they may consider it a waste of resources. This could be the reason that led firms to make decisions to outsource the services to other firms. Its implication to the firms' costs is that they will only have to pay for what the outsourced company does. On the contrary, if they had not outsourced these services, they would have to pay their workers no matter how much work they perform; even in periods when they would not have done any significant work (Blokdijs, 2012, p.139).

5.2.5 Lessons Learnt from Statoil Outsourcing Experiences

From the case of Statoil, it is clear that the firm is embracing outsourcing quite late, and it might not serve their competitive interests as much as it would have served them had they considered the option a decade ago. However, the firm is still likely to improve its efficiency in operations since outsourcing has a good reputation in managing organizational costs in almost all major industries. It also seems that Norwegian firms are rather behind in adopting and embracing the art of outsourcing. It is possible that they are doing it just because it has become a common trend in the industry. Should it work, it is expected that more local firms in this industry should consider the option too in the long run.

Just like in most other cases of outsourcing, the analysis of Statoil case proves that the most outsourced services are IT related. It is possible that the technicality that comes with handling such processes is what compels firms to consider outsourcing it to other able companies for management. Platforms such as SAP are highly technical, and their databases and interfaces are better handled by personnel that are highly qualified in just that. Having regular employees working as administrators of the systems is a risk that Statoil was not ready to take hence extending the contract to Capgemini.

Another lesson that is also clear from this case is that outsourcing goes hand in hand with offshoring. Not that the two concepts mean the same thing, but they solve some common problems. The fact that Statoil has stuck mostly with outsourcing implies that it is a much more viable option than offshoring. Both approaches have advantages and disadvantages, but it is outsourcing that triumphs if the two are compared relative to each other. The positive results from the approaches underscore their relevance and applicability in modern day organizations, especially in the oil and gas industry.

5.3 Challenges of Outsourcing

5.3.1 Profit-Oriented Outsourced Firms

Most of the businesses consulted to provide services to oil and gas sectors are profit oriented. It is difficult to synchronize their interests with those of the parent company. This difficulty has caused problems as they would not do more than they are asked to. While this should not be a problem, there are times when they ought to do more than what is stipulated in the agreements. It is quite usual for employees to devote more time than normal to serving their companies in times when there is an emergency. This is not provided for in the case of outsourcings. It goes without saying

that it is a matter of interests. The interests that the outsourced and the outsourcing firms have differ and merging them is quite unrealistic (Kirkegaard, 2008, p.189).

5.3.2 Change Management

Another challenges faced is in managing changes that occur after outsourcing. This issue is of concern at the time when the enterprise takes up the practice. It is usual for employees' synergy to go down as a result and it requires brilliant management techniques to bring things back to normal (Maertz, Wiley, LeRouge, & Campion, 2010, p.69). Management of different department and the overall management team will tend to have more work in effecting control over a demoralized workforce. Changes and inevitable in businesses but most stakeholders are not in favour of change especially the employees (Kirkegaard, 2008, p.187).

5.3.3 Laying Off Workers

At times, outsourcing renders the services of some of the workers in an organization as “no longer required.” What it means for these workers is that they would have to seek employment from elsewhere. The economic conditions that currently prevail do not favour switching jobs with ease. Some of them spend lengthy periods looking for jobs which are hard to find (Maertz, Wiley, LeRouge, & Campion, 2010, p.120). Others settle for employment opportunities that are exploitative in nature. The rest decide to switch industries and their professions in the end due to continued disappointments.

5.3.4 Perception from the Public

There is a negative perception form the public regarding layoffs that come as a result of outsourcing. Usually, when a firm decides to downsize, outsource or offshore, the obvious consequence is that it will dismiss employees (Schwörer, 2013, p.48). While this is a challenge on its own, the perception that the public has about this is even more tragic. For those firms that sell directly to the public, they may even face boycotts of their products by the latter (Maertz, Wiley, LeRouge, & Campion, 2010, p.154).

5.4 Chapter Conclusion

To achieve the objective of lowering costs, outsourcing has been quite instrumental as it has resulted in an average of 10% savings on their costs (Mitchell, 2010, p.77). It has also made their effectiveness rise as they now deal with core or primary activities if their firms. On the other

hand, the issue of hidden costs seems to be less discussed than the distended solo benefit of outsourcing as cost reductive strategy. This is also something Informant 5 (personal communication, ref. table 4 in APP B) confirms and have an explicit example of when Baker Hughes have outsourced manufacturing of some completion oil tools such to an external service company. In this example they observe hidden costs in terms of providing knowledge to the service company about the products and manufacturing, the increase of indirect costs, higher transportation costs and less flexibility.

This study also suggests that outsourcing has been taken to be as an innovative approach to the working of the firms in this and other industries. The Norwegian oil and gas industry is part of this innovative force that is already breaking records. The local industry is however, still playing safe with outsourcing. Some of the firms that are in this practice do not tend to consider it a strategy at all. Rather, they consider it their norm. In some cases, it becomes difficult or even impossible to quantify the successes failures and attribute them to outsourcing. It happens because the approach seems to be taken to be their culture and not a specific strategy used in building competitive advantage. In other words, the effect that outsourcing has had on the supply chains of Norwegian Oil and Gas Sector is hard to identify separately.

Due to their high rate of exposure it was also established that the firms that are foreign-owned tend to be more vigilant to outsourcing than their domestic counterparts. This reason is probably what cause most local firms to fail in staying ahead of competition as they usually discover this secret late when they cannot salvage the situation. It is therefore reasonable to consider foreign firms as the most users of outsourcing from a percentage point of view. The success rates of these foreign firms is also well documented by several studies that attest to the fact that indeed the companies have registered immense success and prosperity compared to local or domestic firms in similar industries.

The most decried reason that makes oil and gas firms consider outsourcing is management effectiveness. It is given that the span of control that management has is usually large due to the number of employees under its wings. However, when some of these employees are laid off and or passed on to outsourcing businesses, they cease to be under their direct control. This reduces their span of control and consequently increases their effectiveness in managing workforces.

The challenges faced by outsourcing firms have also been made clear. Most of the businesses that do outsourcing do not tend to have the interests of their clients at heart. All they do

is to ensure completion of the duties and they would not make any adjustments even if the situation demanded that they do. In such cases, some of them usually ask for more funds than it is necessary just to make sure that they get they maximize their profitability from the plight of their clients. When this fact is compared to how it happens with no outsourcing, it is found that when there is no outsourcing, the control of irregularities is easier to handle. Other challenges have also been discussed such as management of change, laying off of workers, and negative perception from the public.

CONCLUSION

This study was initiated by examining the practice of outsourcing in the global oil and gas industry, and some very interesting insights regarding this have been found. Because of economic downturns an increased competition has followed in the oil and gas industry, controlling costs has been one of the survival techniques used by the firms. The oil price has such a strong impact on the petroleum industry as in total, and may therefore be inconveniencing due to its instability. Other challenges faced by this energy sector are reduced production capacities, aging infrastructure and changing compliance requirements. These factors underwrite the necessity for the companies to consider other options to manage the dynamics of their enterprises. To achieve this objective, outsourcing has been quite instrumental.

However, the fluctuating parameter, oil price, is a motivation that has pushed oil firms to consider options that promise more efficient operations. The oil companies started outsourcing in its early days, and it's been a long substantial development. Today, however, they are frequently outsourcing supporting activities, such as for instance catering and information technology activities. All this time the industry has been on a learning curve, which now places them amongst the ardent users of the approach outsourcing. Today the industry have two dominate sides where the oil company's are at one side who seems to struggle with defining what their core competencies are, and the other strong side with service companies holding a pronounced technological power. Evidently there have been both positive and negative experiences encountered by these firms. Outsourcing has come out to be one of the most prolific areas where the companies can streamline their cost structure. This has resulted in several outsourcing firms getting business contracts in this industry. The oil and gas sector is a crucial field as it is responsible for two-third of the world's supply of energy.

The objective of this research was to perform a critical assessment of the use of outsourcing in the petroleum industry, and if there existed any critical success factors for this strategy practice. Further, also investigate how this has affected the industry, and if there are any similarities of this outsourcing practice to other industries.

Some results illustrates there are no significant effects of outsourcing manufacturing on operating performance. A research displays that investments in technological and organizational capabilities explain the improvements of performance to a significantly higher extent than outsourcing does. Another lesson and critical factor from this research is that outsourcing motives

and effects should not be analysed in isolation. However, most importantly the performance outcome depends on what other strategies apply when outsourcing – or not outsourcing. Further it still seems crucial to arrange close cooperation among product development, design, and manufacturing, regardless of outsourcing strategy, in order to obtain an efficient business strategy.

Another important lesson from this research is the underestimation of costs and the existence of hidden costs when outsourcing. Thus an analysis of outsourcing alternatives should not be based solely on direct comparisons of earnings, but should also include indirect costs and particularly how different alternatives affect flexibility, and customer problems with partial outsourcing. A separation of knowledge-intensive and interdependent key-processes, such as design and manufacturing, may have negative effects on costs and innovation capability.

Another core element of outsourcing has been to establish better relationships with customers and vendors. Such relationships have been quite determinant on the rate at which a firm’s efficiency and effectiveness is. When there are good relations with suppliers, the flow of supplies is guaranteed to remain constant throughout the year, thereby increasing the effectiveness of operations. Better relations with customers usually lead to a more elaborate understanding of the clients’ needs. This makes the company serve them better and in that way get referrals from present customers. In conclusion, it is safe to state that most firms have outsourced for the sole reason of seeking to be competitive in their industry. Most of the firms that have engaged the exercise have registered success, and they are still benefiting from it. This fact not only affirms the need for outsourcing in the oil and gas industry, but it also implies that it is a feasible solution to operational issues to date.

In other sectors than the oil and gas industry, the report has established that companies have felt the urge to give outsourcing a chance to bring about their operations to sanity. Apparently, these firms especially those in the electronics sector have issues when it comes to the management of several operations some of which add very little value to their products. These activities are the ones that have had to be outsourced to save the businesses some important time and commitment of their companies. The same is prevalent even in other sectors such as electronics, automobile, and general manufacturing industries.

In the oil and gas sector, a similar trend was observed where most businesses have made outsourcing their strategy and goal. The streamlining of operations that has occurred and is still occurring through consulting this practice is overwhelming. Throughout time, more and more oil

companies make the discovery and switch to the other system of operations. By outsourcing some of their activities, most oil and gas companies have been able to incur less costs. Ultimately, the result has been better financial performance and more effective management.

Throughout the study, outsourcing has come out as a salient factor in the approaches that firms take to ensure that they operate optimally. Both successes and failures have been registered to suggest that the experiences have been both good and bad. From a critical point of view, the successes registered by the companies that have engaged outsourcing seem to be more than those failures. This is quite evident both from the oil sector and other sectors that have been involved. It is therefore valid to say that indeed the practice is beneficial to organizations.

MY RECOMMENDATIONS

The research has some few suggestions regarding improvements of the outsourcing practices in the oil and gas sector of Norway.

Consideration to outsource from international service providers. Some of the bad outsourcing experiences that have emerged have been attributed to poor service delivery by the outsourced firms. Opening up for also internationally providers gives broader range of providers, and also enhances the competition. By giving international service providers an opportunity to serve the oil and gas companies, it would be opening up to the chance to experience better and higher quality services than those ones they are already accustomed. Or at least give them increased competition.

Allow competitive bidding before selecting service providers. Oil companies usually operate on a large scale and follow specific code of procurement of services. However, some firms deviate from this practice and they select their service providers in rather crude procedures. Some managers allow favouritism in their selection and contract awarding processes, which is not warranted for such organizations. Favouritism is also another result of undue processes of procurement. All these loopholes need to be sealed for a better outsourcing experience.

Continual business process auditing. It is not enough to outsource once and assume that the problem is solved. The company needs to engage in a continual process of auditing their processes to identify areas that might also need to be outsourced, the criteria to be use in determining which and whether a process needs to be considered for outsourcing should be clearly defined. Generally, a process that adds little value to the product offered by the enterprise can and should be done by outsiders. Other criteria may also be added on top of this one for a clearer identification procedure.

Benchmarking with other firms and parallel industries. The firms ought to benchmark their operations and those carried out by other companies whether they are in the same industry or other parallel ones. The idea behind this suggestion is to have the business ahead in terms of issues relating to outsourcing strategies. The concept is dynamic and it is not justifiable to think that a single strategy can work wonders always. The firm needs to conduct research regarding what other enterprises are doing. If they are more efficient strategies, they should also investigate about their applicability in their context. If both of these conditions are duly fulfilled, the firm should go ahead and adopt them into their plans.

Engage in short contracts with outsourcing companies. There is usually the temptation to offer outsourced companies with contracts that have longer durations. This practice is quite dangerous and may result in the business partners becoming too comfortable with the contract thereby not striving to perform. One-year contracts should be sufficient to the outsourced firms to be motivated to act in a rational manner. In this case, annual bidding processes should be initiated whereby the incumbent service providers will battle it out with potential replacements for the awarding of the contracts. When the service providers do not feel too comfortable, they will work harder knowing that their performance will determine their chances of having their contracts renewed.

LIST OF REFERENCES

- Accenture. (2010, January 2). *Statoil awards Accenture five-year finance & accounting business process outsourcing contract*. Retrieved from Accenture: <https://www.accenture.com/no-en/insight-statoil-awards-outsourcing-contract.aspx>
- Adams, G.a., Youdal, S. (2007) *The Evolution of Outsourcing and Insourcing in Oil and Gas Accounting*. JPT December 2007.
- Al-Kasim, F. (2006). *Managing Petroleum Resources. The Norwegian Model in a broad Perspective*. Alden Press; Oxford.
- Askevold, E. O., Gjelsvik, M., Steineke, J.M. (1999). *Breaking up is hard to do: Organisational learning and outsourcing in NCS*. Norwegian Research Council (NFR).
- Ausik, P. (4. Nov, 2014). *Oil drops 50% from all-time high*. USA TODAY. Hentet fra [<http://www.usatoday.com/story/money/markets/2014/11/04/oil-drops-50-percent-from-all-time-high/18471735/>]
- Bairi J., Kundu G.K., Manohar B., M. (2013). *Knowledge acquisition by outsourced service providers from aging workforce of oil and gas industry*.
- Barthelemy, J. (2003). *The seven deadly sins of outsourcing*. Academy of Management Executive. Vol. 17. Issue1, p87-98.
- Beath, C., & Ross, J. W. (2007). *Outsourcing commodity processes in a commodity business*. San Ramon: Chevron.
- Bengtsson, L., Dabhilkar, M. (2008) *Manufacturing outsourcing and its effect on plant performance—lessons for KIBS outsourcing*. Journal of Evolutionary Economics
- Bhalla A., Burdon S. (2005). *Lessons from the Untold Success Story: Outsourcing Engineering and Facilities Management*.
- Blokdijk, G. (2012). *Outsourcing 100 Success Secrets-100 Most Asked Questions: The Missing IT, Business Process, Call Center, HR-Outsourcing to India, China and more Guide*. Beijing: Emereo Publishing.
- Bozon, I. J. H. (2005) *What's next for big oil?* McKinsey Quartely. Issue 1, p94-105.

- Calabrese, G., & Erbetta, F. (2005). Outsourcing and firm performance: evidence from Italian automotive suppliers. *International Journal of Automotive Technology and Management*, 5(4), 461-479.
- Cibin, R., & Grant, R. M. (1996). Restructuring Among the Worlds Leading Oil Companies. *British Journal of Management*, Vol. 7, 283-307 (1996).
- Cohen, L. & Young, A. (2006). *Multisourcing: Moving beyond outsourcing to achieve growth and agility*. Harvard Business School Press.
- Currie, W. L., & Seltsikas, P. (2001). Exploring the supply-side of IT outsourcing: evaluating the emerging role of application service providers. *European Journal of Information Systems*, 10(3), 123-134.
- Drew, S. A. W. (1997): *From Knowledge to Action: the Impact of Benchmarking on Organizational Performance* (Long Range Planning, 3, pp. 427-441)
- Egger, H., & Egger, P. (2006). International outsourcing and the productivity of low-skilled labour in the EU. *Economic Inquiry*, 44(1), 98-108.
- Energy.gov (2015) *Fact #859 Excess Supply is the Most Recent Event to Affect Crude Oil Prices*. Hentet fra [<http://energy.gov/eere/vehicles/fact-859-february-9-2015-excess-supply-most-recent-event-affect-crude-oil-prices>]
- Ernst, D., & Steinhubl, A. M. (1997). Alliances in upstream oil and gas. *McKinsey Quarterly*, 144-155.
- Fangen, Kathrine. (17. Juni, 2015). *Kvalitativ metode*. Hentet fra [<https://www.etikkom.no/FBIB/Introduksjon/Metoder-og-tilnarminger/Kvalitativ-metode/>]
- Fill, C. & Visser, E. (2000). The outsourcing dilemma: a composite approach to make or buy decision. *Management decision*, 38 (1): 43-50.
- Flatworld Solutions (2015). *Articles on Outsourcing*. Obtained 08.0.2015 from [<https://www.flatworldsolutions.com/articles/>]

- Gartner.com (2005). *Stop Outsourcing Now! Disciplined Multisourcing is the Way Forward*.
Obtained the 15.12.2015 from [<http://www.gartner.com/newsroom/id/492215>]
- Gebauer, J. and Segev, A. (2000). Emerging technologies to support indirect procurement: two cases
- Ghuri, P. and Grønhaug, K. (2005). *Research Methods in Business Studies – A practical guide*, third edition, Prentice Hall, Harlow, UK
- Girma, S., & Görg, H. (2004). Outsourcing, Foreign Ownership, and Productivity: Evidence from UK Establishment-level Data. *Review of International Economics*, 12(5), 817-832.
- Goolsby, K. (2002, February 1). *How British Petroleum Began Using Outsourcing to Make its Dreams Come True*. Retrieved February 3, 2015, from Outsourcing Center: <http://www.outsourcing-center.com/2002-02-how-british-petroleum-began-using-outsourcing-to-make-its-dreams-come-true-article-38072.html>
- Gripsrud, Olsson, & Silkoset, 2010. *Metode og dataanalyse: Beslutningsstøtte for bedrifter ved bruk av SAS JMP*.
- Handfield, R. (2006). *A Brief History of Outsourcing*: NC State University
- Harris, E. (2012). *Uncovering How E Business Facilitates Business Operations in Global Companies in Banks*. New York: Grierson Gallery Collections.
- Harry, M. (2000). *Systems Approach to Business Functions and Coordination*. Kuala Lumpur: Central City Publishers.
- Hart, M. (2010, June 17). *BP oil spill: Outsourcing versus subcontracting*. Retrieved February 3, 2015, from Computerworld UK: <http://www.computerworlduk.com/blogs/hart-outsourcing/bp-oil-spill-outsourcing-versus-subcontracting-3571219/>
- Heskett, J. (2007, November 30). *What is management's role in innovation?* Retrieved from Harvard Business Review: <http://hbswk.hbs.edu/item/what-is-managements-role-in-innovation>
- Hoff, K. G. (2009). *Strategisk Økonomistyring. Kapittel 4 – Outsourcing*. Oslo, Universitetsforlaget.

- Jacobsen, D. I. (2005): Hvordan gjennomføre undersøkelser? Innføring i samfunnsvitenskapelig metode, andre utgave, Høyskoleforlaget, Kristiansand, Norway
- Johannessen, A., Tufte, P. A. & Christoffersen, L. (2010). *Introduksjon til samfunnsvitenskapelig metode*. Oslo, Abstrakt forlag AS.
- Johanson, J., & Vahlne, J.-E. (1977). The internationalization process of the firm - a model of knowledge development and increasing foreign market commitment. *Journal of International Business Studies*, 8(1), 23-32.
- Kirkegaard, Jacob, F. (2008). Offshoring, Outsourcing and production relocations. Singapore Econ. Rev., 53, 371
- Kotabe, M., Mol, M. J., & Ketkar, S. (2008). An evolutionary stage model of outsourcing and competence destruction: A triad comparison of the consumer electronics industry. *Management International Review*, 48(1), 65-94.
- Lazzarotti V., Pizzurno E., Pellegrini, L. (2012). *From outsourcing to Open Innovation: a case study in the oil & gas industry*
- Le Blanc, L. (1997). *Fiftieth Anniversary*. Offshore Magazine.
- Leem, C. S., & Lee, H. J. (2004). Development of certification and audit processes of application service provider for IT outsourcing. *Technovation*, 24(1), 63-71.
- Maertz JR, C. P., Wiley, J. W., LeRouge, C., Campion, M. A. (2010). Downsizing Effects on Survivors: Layoffs, Offshoring, and Outsourcing. *Industrial Relations: A Journal of Economy and Society*. Volume 49, Issue 2, pages 275–285.
- Mason, S. J., Cole, M. H., Ulrey, B. T., & Yan, L. (2002). Improving electronics manufacturing supply chain agility through outsourcing. *International Journal of Physical Distribution & Logistics Management*, 32(7), 610-620.
- McCarthy, I., & Anagnostou, A. (2004). The impact of outsourcing on the transaction costs and boundaries of manufacturing. *International journal of production economics*, 88(1), 61-71.

- Millichamp, S. (1995). *Analysis of Computer Systems and Technology as used in Businesses and Organisation*. New York: Adventure Works Press Service.
- Mitchell, R. L. (2010, January 1). *Exxon gets power from IT standardisation*. Retrieved from Computer World: <http://www.computerworlduk.com/it-management/exxon-gets-power-from-it-standardisation-377/>
- Noke, H., Perrons, R. K., & Hughes, M. (2008). Strategic dalliances as an enabler for discontinuous innovation in slow clock speed industries: evidence from the oil and gas industry. *R&d Management*, 38(2), 129-139.
- Novak, S., & Stern, S. (2008). How does outsourcing affect performance dynamics? Evidence from the automobile industry. *Management Science*, 54(12), 1963-1979.
- Offshore Post. (2015, 10 16). *Statoil To Cut Jobs And Outsource To Eastern Europe*. Retrieved from Offshore Post: <http://www.offshorepost.com/statoil-to-cut-jobs-and-outsource-to-eastern-europe/>
- Peisch R. (1995). *When Outsourcing Goes Awry*
- Pellegrini, L., Lazzarotti, V., & Pizzurno, E. (2012). From outsourcing to open innovation: a case study in the oil industry. *International journal of technology intelligence and planning*, 8(2), 182-196.
- Porter, M. E. (1996): What is strategy? (Harvard Business Review, Nov-Dec, pp. 61-78)
- Quelin, B., Duhamel, F. (2003) *Bringing Together Strategic Outsourcing and Corporate Strategy:: Outsourcing Motives and Risks*. European management journal. Volume: 21 Issue: 5 Page: 647 -661.
- Saunders, M., Lewis, P. and Thornhill, A. (2007): *Research Methods for Business Students*, fourth edition, Prentice Hall, Harlow, UK
- Shields, P. M. and Tajalli, H. (2006): *Intermediate Theory: The Missing Link to Successful*. Student Scholarship (Faculty Publications, Political Science, paper 39).
- Strassmann. *Outsourcing is for losers*. *Ref i* (2). Ernst, D., & Steinhubl, A. M. (1997). Alliances in upstream oil and gas. *McKinsey Quarterly*, 144-155.

Ten Raa, T., & Wolff, E. N. (2001). Outsourcing of Services and the Productivity Recovery in US Manufacturing in the 1980s and 1990s. *Journal of Productivity Analysis*, 16(2), 149-165.

Yin, R. K. (1994): Case study research – Design and methods, second edition, Sage Publications, Thousand Oaks, USA

Zabyelina, Y., & Kustova, I. (2015). Energy and conflict: Security outsourcing in the protection of critical energy infrastructures. *Cooperation and Conflict*, 50(4), 531-549.

APPENDIX A

The different segments in a value chain in the petroleum industry are presented in the table below - where an oil company’s role and a service company’s role are discussed for each segment.

Table 3 Overview of the different segments in the value chain for the petroleum industry

	Oil Companies sector role	Oilfield Services sector role
Exploration	Locate underground rock formation that may contain hydrocarbons, delineate the scale of the resource.	Acquire seismic data (land, transition zones and offshore) using dedicated equipment and the process them to de-risk exploration drilling operation. Perform exploration drilling (coring, logging) to help locate and delineate the resource.
Field Development & Drilling	If field economics justify, invest in full field development. Define the well architecture and the development scheme that contractors will follow.	Drill for resources (onshore, offshore, subsea, horizontal, directional). Intervention. Manufacture drilling fluids. Provide supporting equipment (e.g. rentals). Engineering, procurement and construction firms develop infrastructure (onshore, offshore and subsea).
Completion & Production	Extract as much hydrocarbon as possible without damaging reservoir properties in a safe and cost effective manner. Maintain the asset integrity over life of field and invest if price of crude/gas is supportive to increase the	Case and cement the well, stimulate the well to increase the productivity of the well, and perform work over operations. Enhance the production of existing wells. Perform

	recovery rate and lengthen the production.	modification and maintenance operations.
Transportation	Oversee the transportation of the produced hydrocarbons from the well site to market.	Build and operate natural gas compression and processing equipment. Support pipeline companies to build and operate pipelines.
Trading	Trades petroleum products over the world.	Transportation/shipping activities of the petroleum products.
Marketing & Sales	Oil companies sell gasoline and low sulphur diesel to drivers via service stations and 3rd parties who have their own service stations.	Buy petroleum products from oil companies and produce various products to sell to different clients.

APPENDIX B

Table showing the bases of the conversation I had with some operators and service companies regarding their personal experiences about outsourcing in their employee company.

Table 4 Overview of dialogue and communication performed with different organizations and companies in the petroleum industry

Question to different representatives in each particular company: “What are your experience regarding outsourcing, and do you have examples of outsourcing that have failed or haven’t been successful?”			
Primary data	Informant 1, VP, Human Resources, Oil company	Man ønsket i en studie å finne eksempler på outsourcing som hadde vært vellykket, og outsourcing som hadde feilet (som ikke hadde gitt ønsket kvalitet, eller der kostnadene hadde steget mer enn antatt). Fagforeningene stilte de samme spørsmålene, og ville i tillegg se regnestykket på de tjenestene som allerede hadde vært outsourcet en stund i selskapet. Det var lite å hente, både eksternt og internt. Årsakene er ganske åpenbare; det føres ikke regnskap med slikt, og det er heller ikke ønskelig, bevisst eller ubevisst, å få eventuelle negative økonomiske konsekvenser av beslutninger som er tatt flere år tidligere fram i lyset.	Outsourcing experiences
	Informant 2, Responsible for outsourcing GBS, Oil company	The goal is to reduce staff, and at the same time reduce costs. Outsourcing processes requires patency and takes a long time to settle, but we are getting there.	Outsourcing experiences
	Informant 3, VP, Oil company	”Dersom jeg skal driste meg til å definere hva som er vår kjernekompetanse inne B&B så er det nedihullsforståelsen (subsurface). Det er dette segmentet vi ikke ønsker å «source» ut eller overlate til andre. Denne kunnskapen er kun tilgjengelig for den aktuelle lisensen og definitivt et konkurranse fortrinn ved tildelinger av nye lisenser. Selve operasjonen med å operere riggutstyret som i dag gjøres av for eksempel Archer vil ikke være det vi definerer som kjernekompetanse. Derimot er det flere elementer i vår kjernekompetanse som vi i en periode med veldig høy aktivitet har satt ut til spesialselskap. Disse tjenestene kan det være aktuelt å ta tilbake. Jeg tenker da på elementer som beregning av kick rater osv. Dette utgjør en svært liten del av total volumet i B&B”.	Outsourcing core competencies

	Informant 4, Petroleum Chemist, Nalco	Nalco uses a lot of time on accounting because the oil companies have outsourced and offshored their accounting department. This results that Nalco have to do a lot of tasks that was earlier done by the operators them selves. This requires a lot of resources in Nalco, which they do not get payed for.	Hidden costs and transfer of responsibility
	Informant 5, Logistics Department, Baker Hughes	Baker Hughes have outsourced some of their processes to a third vendor due to release staff to other tasks. BakerHughes wanted to free this personnel and hope to reduce costs in the end. Instead they observe the same staff use a lot of their time to learn the vendor how to deal with the given tasks which requires a lot of resources. Transportation costs have also increased due to the equipment have to be transported back and fourth to the vendor. This results in increased hidden costs and they haven't reached their goal of realising staff because they are still occupied with the same task towards the third vendor.	Hidden costs
Other companies/ lack of results	Halliburton, Drilling & Well dep. Norway	No comments.	
	Weatherford	No results.	
	Wood McKenzie	No comments.	
	Deloitte	Deloitte uttalte følgende: vi så på forholdet mellom leverandører og operatør – og hvor viktig samhandling er for å lykkes (inkludert det å velge rett partner, sette rette incentiv i kontrakt og ha ett vinn-vinn forhold). Ofte er det i samhandlingen det feiler, man gjør ikke riktig forventningsavklaring o.l. http://www2.deloitte.com/no/no/pages/energy-and-resources/articles/collaborating-for-success.html	
	Arthur. D. Little	No results	
	Confederation of Norwegian Enterprise	No results.	
	Norwegian Oil & Gas Association	No comments.	

