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Supplier Innovativeness through Contracting

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FACULTY OF SOCIAL SCIENCES,
UIS BUSINESS SCHOOL

MASTER'S THESIS

STUDY PROGRAM:	THESIS IS WRITTEN IN THE FOLLOWING SPECIALIZATION/SUBJECT:
Business Administration	Strategic Management IS THE ASSIGNMENT CONFIDENTIAL? No

TITLE:

Supplier Innovativeness through Contracting

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ACKNOWLEDGE RECEIPT OF 2 BOUND COPIES OF THESIS

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Acknowledgement

This thesis is submitted in fulfillment of the requirements for the degree of Master of Science (Msc) at the University of Stavanger Business School. The thesis finishes off our journey on becoming Master Graduates in Business Administration.

We wish to express special thanks to our supervisor Bjarte Ravndal for his contribution. His dedication and help has been exceptional, and crucial for the work and result of the thesis.

The companies taking the time to answer our survey also deserves acknowledgement. Without their contribution our thesis would not be the same.

We would like to thank all of our fellow students, professors and friends for making our 5 years at UiS so remarkable.

Stavanger, June 2015

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Abstract

In recent years there has been an increasing focus on virtual organizations, alliances, networks and supply chain management as tools through which companies can achieve competitive advantage. Innovation has become another important factor for achieving competitive advantage, especially in markets where the macroeconomic conditions are unfavorable, with high wage and high tax. This paper is an empirical investigation of how companies can achieve innovation through contracting, on a general level. The paper attempts to identify contract mechanisms which will foster suppliers' innovativeness.

The research in this paper was done by conducting a quantitative study. The investigation method was testing the dependent variable, supplier innovativeness, in relation to several independent variables; pay-for-performance, detailed contract, competition and close supplier relationships.

The findings showed a significant positive effect of detailed contracts on suppliers' innovativeness. Another finding from the research was that a close relationship with the supplier will be important for innovation. Close supplier relationships and a detailed contract was found to be complementary variables, and both will contribute to suppliers being more innovative. A surprising finding from this study was that reward schemes based on performance was not found to promote suppliers' innovativeness. This is a finding that contradicts other small studies of performance based contracts and innovation. A close supplier relationship stands out from the findings as the key mechanism to foster supplier innovativeness.

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1. Introduction

This study want to examine how contract mechanisms can function as tools to promote innovation in a buyer-supplier relationship. The study will look at factors that may foster supplier innovativeness. This introductory section provides a background for the study and presents the research question that will be further examined. This introductory section will also outline the layout for the rest of the paper.

1.1 Background

During recent years, there has been an increasing focus on alliances, networks and supply chain management as tools through which firms can achieve competitive advantage(Dyer, Cho, & Chu, 1998). Companies are spending much money and resources on purchasing goods & services. The purchasing cost as a percentage of sales revenue is increasing as a result of companies outsourcing more(Dyer et al., 1998). Consequently, supply chain management and purchasing performance is increasingly identified as important for companies' success and competitive advantage. As a result of companies outsourcing more, supply chain management has become a growing field of study during recent years. Effective contract management is an important element in the supply chain.

For companies operating in markets where the macroeconomic conditions are unfavorable, such as high wage and high tax, innovation has become another important factor for survival (Schiele, 2006). The companies operating in Central Europe are experiencing these types of challenges, and innovation has become important to achieve success. The Norwegian market is one of the markets that is characterized by having both high wage and high tax. It becomes important that companies are able to adapt and evolve if they wish to survive(Trott, 2008). The ability to change and adapt is important for survival and competitive advantage. For many companies to gain competitive advantage, innovation should be something to strive for.

The idea of innovation is widely accepted. Innovation has become a common core value of many companies – Perhaps used so much that it verges on becoming a cliché? However, even though the term 'innovation' is often used and known, to what extent do the companies fully understand the concept? Innovation management rises as important for organizing your company for innovation.

Innovation management has changed during the last decade, because of companies' growing reliance on external sources of technology(Schiele, 2006). Consequently, it becomes crucial for companies to integrate innovation focus in the purchasing of goods and services. Companies needs to identify which suppliers that actually do have a high potential to contribute to the innovativeness of the company. Companies also has to attract these suppliers in the pre-bid phase of the tendering process. Identifying innovative suppliers has become a new task for purchasing(Schiele, 2006). Since companies are outsourcing more to external suppliers, it becomes interesting to understand how companies can achieve innovation through contracting.

The rapid development and progress in information technology have made it possible for companies to easily exchange data and coordinate activities. This has contributed to the increasing trend that several individual companies choose to outsource their activities to an array of partners. The outsourcing of different activities creates a network of companies, where some are buyers, some suppliers, and some both. The term for this network is called a virtual organization(H. W. Chesbrough & Teece, 1996).

Sourcing can be defined as the process of identifying companies capable of supplying the goods or services needed by the buying company(Obal, 2011). Because of the current situation where many companies choose to outsource several activities, it becomes relevant to study how companies can achieve best practice procurement. In recent years, the market also demands more frequent innovation, which leads to it being important for companies to understand how they can achieve innovation in the products or services they have contracted to suppliers. To gain a better understanding of how companies can obtain innovation through contracting, it becomes important to study contracts, the procurement process and theory from innovation management.

1.2 Presentation of Research Problem

This paper will investigate how companies can achieve supplier innovativeness through contracting. Most companies outsource several functions, and it can be important to ensure that the functions outsourced are still open to innovation. How can companies ensure that they promote supplier innovativeness? How should companies then construct their contracts to be open for innovation? What is the most effective relationship between a company and their supplier when the goal is to obtain innovative deliveries? These are the central questions that will be analyzed in this paper.

1.3 The Layout of this Paper

The paper is organized in 5 sections. Section 2 is devoted to a review of the theory that is the basis for this master thesis. Section 3 will present the methodology for this paper, including development of measures and research design. In section 4 the results will be presented. Section 5 carries out the discussion, analysis and conclusion. The paper will end with proposals for further research, and limitations for this paper. Figure 1 illustrates the layout for the paper.

Figure 1: The Layout of this Paper

2. Theory and Literature Review

In order to gain a basis for analysis and discussion on how companies can achieve innovation through contracting, we need to study theory related to contract mechanisms and innovation management. The purpose of this section is to build a theoretical foundation for the empirical research in this paper. First there will be a presentation of Contract Theory. Second, Innovation Management Theory will be presented, and the section will at last finish with the research model and the hypotheses for this paper.

2.1 Contract Theory

A contract is legally defined as an offer, which is accepted and negotiated for consideration(Obal, 2011). A contract may be oral or in writing. Contracts represent promises or obligations to perform particular actions in the future(Macneil, 1977).

Contracts are helpful tools for the company, to ensure that they receive the right services or goods when they need it, and that it matches the company's specifications as promised by the supplier. Contracts also protect the supplier as the specific supplier investment to a particular procurement will not be 'wasted' in the sense that the company is obligated to buy what they ordered as stated in the contract(Dimitri, Piga, & Spagnolo, 2006). Hence, a contract may be beneficial for both the buyer and the supplier.

Contracting can in some cases lead to the company having a weakened innovative capacity(Domberger, 1998). If the contract is formulated in a way that makes it hard for the company to deliver an innovative product it leads the company to have a weakened innovative capacity. However, there are several examples of companies which have not lost their capacity of delivering new products and new processes to market(Domberger, 1998). Companies should encourage and assist their contractors to improve their products and services through innovation. This can be done between contracts, but also within the life of an existing contract(Domberger, 1998). In order to ensure that incentives to innovate are not suppressed, companies need to have properly structured incentive contracts(Domberger, 1998).

2.1.1 The Contracting Decision Tree

Figure 2, The Contracting Decision Tree is a theoretical framework that is made to briefly analyze the contracting decision(Domberger & Rimmer, 1994). What functions should

companies outsource and what should they keep in-house? This framework shows the decision to contract in the terms of the economic evaluation that must precede it. Deciding if a company should contract or not is an important process that should be done thoroughly. The Contracting Decision Tree is described with three steps that must be taken into account in order to determine the decision to contract a good or service. The Contracting Decision Tree helps to determine whether it is efficient or not to contract a service. Its purpose is to help companies in the decision of determining which functions they should have in-house and which it would be wise to outsource to external suppliers.

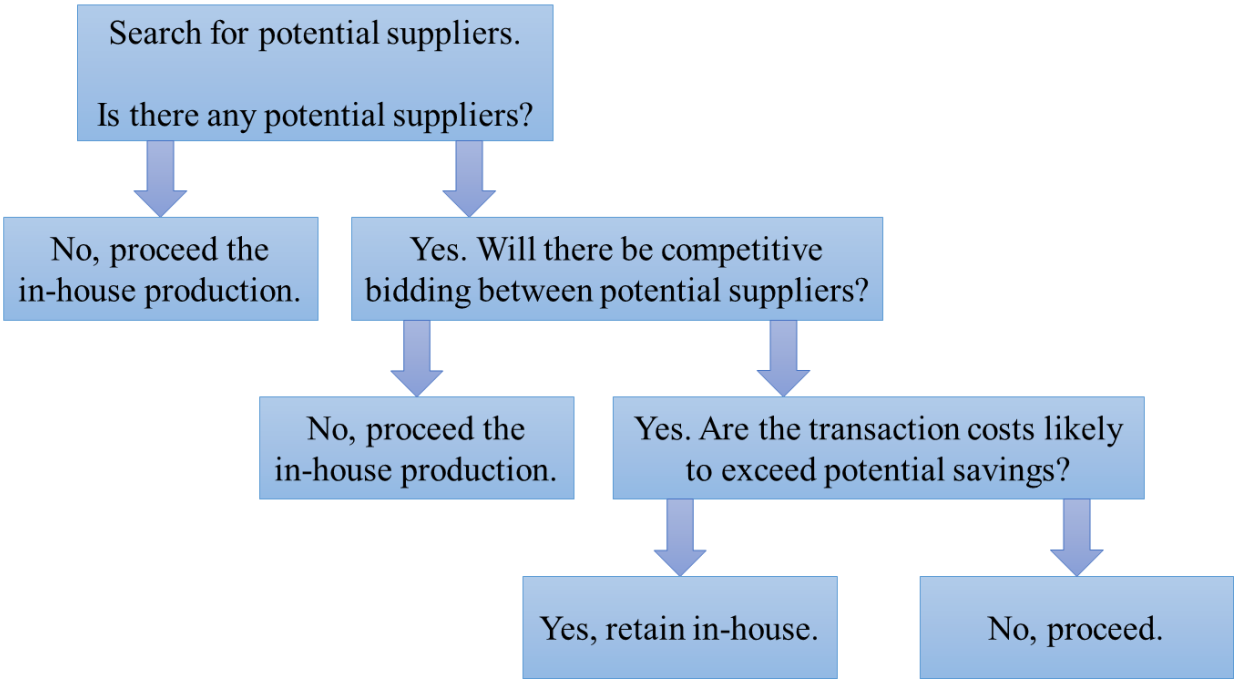

Figure 2: Contracting Decision Tree

The first step involves identifying potential suppliers. The economic rationality of the search for potential suppliers is to see whether contracting is likely to be feasible(Domberger & Rimmer, 1994). In order to see if the contracting is feasible, there are different criteria that needs to be fulfilled. These criteria involve a supplier that has productive activities and is efficient and effective. If the contracting organization thinks suppliers can fulfil these criteria the process of contracting can start(Domberger & Rimmer, 1994). If the suppliers are not able to fulfill the needs, the production continues in-house. When trying to achieve innovation, it is important that potential suppliers have high technical capabilities, which will be further discussed in section *2.2.4 Suppliers' Technical Capabilities*. If companies want to achieve

innovation in supplies, it is essential that they investigate the supplier market before determining if the service should be outsourced or not.

The second step in the contracting decision is the determination if the tendering process can be made competitive(Domberger & Rimmer, 1994). In the public sector companies are concerned about uncompetitive and collusive bidding behavior by contractors. The private sector often negotiate contracts directly with suppliers without going through a bidding process. When it comes to achieving innovation, competition may be an efficient mean to foster innovativeness(Domberger, 1998). However, close supplier relationships will also positively affect innovation(Song & Di Benedetto, 2008). The effect of close supplier relationships on innovation will be further described in section *2.2.3 The Connection between Supplier Relationships and Innovation* and the effect of competition on supplier innovativeness will be discussed in section *2.1.8 Competition.*

The third step in the figure involves the transaction costs of contracting(Domberger & Rimmer, 1994). These costs include the cost of organizing and assessing the bids, the costs of designing the contract, negotiation and the monitoring and enforcement costs. If these costs does exceed the cost of keeping the service in-house there is no point in continuing the contracting process(Domberger & Rimmer, 1994). When evaluating the in-house versus contracting the service, the company must consider the total cost of contracting against the savings they likely will achieve. The next section will define transaction costs, and give a brief understanding of how this connects to supplier innovativeness.

2.1.2 Contracts Should Minimize Transaction Costs

Contracts is a form of governance that should try to minimize transaction costs. Transaction cost is the cost of making a contract and managing the relationship between a company and their supplier(Wuyts & Geyskens, 2005). A general principle is that the more complex the contracts tend to be, the higher management costs are associated(Dimitri et al., 2006). There cannot be efficient procurement without efficient contract management(Dimitri et al., 2006). Transaction cost deals with the best generic decisions for organizing one particular transaction(Wuyts & Geyskens, 2005). There are two central assumptions in transaction cost theory of contracting(Mayer & Argyres, 2004). The two assumptions are that when negotiating and designing contracts the agents are (1) unable to anticipate all possible situations that can affect the relationship between the company and supplier and (2) they are able to predict major

contract risks by their contractual partners. Because they are able to predict the risks they can prepare contract structures to reduce them(Mayer & Argyres, 2004). Transaction cost theory makes equilibrium predictions with having a competitive environment(Mayer & Argyres, 2004). This means that firms with mis-designed contracts fail to learn quickly and will perform poorly in the market. If a company constantly perform poorly they will be forced to exit the market. Companies with well-designed contracts are more likely to survive. Having a detailed and formal contract can lead to a close relationship to the supplier(Poppo & Zenger, 2002). Close supplier relationships can lead to supplier innovativeness(Song & Di Benedetto, 2008). However, close supplier relationships can also lead to higher transaction costs(Domberger, 1998). The firm should investigate if the extra transaction costs will be gained through the possible achievement of innovative supplies.

2.1.3 Fixed-Fee, Cost-Plus and Hybrid Contracts

We can distinguish between three types of contracts; Fixed-fee, cost-plus and hybrid contracts(Kalnins & Mayer, 2004). Fixed-fee contracts are also known as lump sum contracts or fixed price contracts. This type of contract consists of a lump-sum payment for a completed service that has been specified in the contract(Kalnins & Mayer, 2004). Fixed-fee contracts are different from cost-plus contracts. In cost-plus contracts the company pay the supplier an hourly/daily/weekly rate for the time spent on a particular task plus the expenses the supplier uses on materials(Kalnins & Mayer, 2004). This type of contract is also known as a T&M contract, where 'T' is for *time* and 'M' is for *material*. The third type of contract is hybrid contract which is a contract type in between fixed-fee contracts and cost-plus contracts. A cost reimbursable contract, which is also called a T&M contract with a cap, is a form of hybrid contract. By placing a cap on a T&M contract, you achieve a hybrid contract that combines the fixed-cost and the cost-plus contract type(Kalnins & Mayer, 2004). In some literature this contract type is also known as incentive contracts(Dimitri et al., 2006). An incentive contract pays a fixed-fee in addition to some fraction of project cost(Dimitri et al., 2006). The amount of profit or payable fee that comes with the contract relates to the supplier's performance. This contract type is also known as a performance based contract, because the supplier is paid based on its performance. Hybrid contracts fall in between the cost plus contracts and the fixed-fee contracts.

Several procurement contracts are often a combination of these three broad categories; Fixed-fee, cost-plus and hybrid contracts. The combination contracts can specify incentives on some

aspects and fixed-prices on other aspects, and combining contract types in order to adapt the contract to the specific circumstances faced by the procurer(Dimitri et al., 2006). Choosing a type of contract is complicated, because there are pros and cons in every contract for both the company and the supplier. In a fixed-fee contract, the supplier is provided with strong incentives to operate efficiently because they hold all the cost overruns. This type of contract also allows the supplier to keep the results if there occurs any cost savings. This creates strong incentives for the supplier to search for changes in technology or look for input prices that can lower costs. A result of this is that a fixed-fee contract may create an incentive to innovate(Kalnins & Mayer, 2004). Domberger (1998) argues that a properly structured incentive contract is the best for achieving innovation. Incentives can be made through bonuses or other sanctions based on i.e. performance. The next section will cover theory on contracts that are called performance based contracts, where you have a pay-for-performance scheme in the contract. Pay-for-performance is also one of the variables that will be further researched later in this paper.

2.1.4 Pay-for-Performance

Pay-for-performance is a contract scheme that links payment and performance. This scheme assumes that rewarding the performance will help motivate the supplier to deliver a better result(Ganesan, George, Jap, Palmatier, & Weitz, 2009). In contract theory, Pay-for-Performance is also known as Performance Based Contracts(Sumo, van der Valk, & van Weele, 2012). Pay-for-performance includes the supplier to act in the interest of their buyer, by building incentives for the supplier. It is expected that pay-for-performance should lead to the supplier being more engaged to do a better job or new activities that will improve their performance(Sumo, van der Valk, van Weele, & Bode, 2014). Pay-for-performance should create an incentive for the supplier to perform better, because the better they perform the more they are paid. Pay-for-performance and Performance Based Contracts therefore expect that the supplier will be more innovative(Sumo et al., 2014). Sumo et al (2014) found a significant positive effect of pay-for-performance on supplier innovativeness. The same authors published an article in 2012 concerning Performance Based Contracts(Sumo et al., 2012). In the article from 2012 they suggest that one should empirically test the relationship between Pay-for-Performance and innovation, because this a relatively unexplored field of study. Research on how contracts affect performance is limited, and especially for supplier innovativeness. Pay-for-performance in relation to innovation is one of the variables that will be further studied in this paper. In 2014 Sumo et al conducted a study that found that pay for performance contributes

to supplier innovativeness, and it will be interesting to see if the same effect will be found in a different study that has different population and respondent profile.

2.1.5 Detailed Contracts

What drives companies to draft detailed contracts? Companies that are more collectivist, more likely to avoid uncertainty, and more tolerant of power distance in the supply chain show a greater propensity to write detailed contracts(Wuyts & Geyskens, 2005). Detailed contracts should be formulated to open innovation. Contract flexibility is important to open up for new suppliers and new solutions. Contract flexibility will depend on the use of specifications in the contract. Specifications are the description of the product or service that are being procured, and can be seen as a mean of conducting dialogue in the development process between a company and their supplier (Kaulio, 1996; Nellore, 2001). Specifications are written and contained in a contract. There are several ways of using specifications in contracts. A very detailed specification may reduce competition. Performance-based specification and functional specification may be better to maintain competition. Specifications can therefore have a direct impact on competition, and competition innovation(Domberger, 1998). This means that companies must be aware that by having a very detailed specification in the contract, it may reduce the probability of achieving innovation. The impact of competition on supplier innovativeness will be further examined later in this paper. First in section *2.1.8 Competition.*

As already stated, in order to achieve good procurement it is essential to optimize the use of specifications in contracts(Asmus & Griffin, 1993). The more complex the contract is, the greater the specification needed(Poppo & Zenger, 2002). Poppo and Zenger (2002) were the first to empirically explore a complementary relationship between relational governance and formal contracts. Their study found that managers tend to employ greater levels of norms as their contracts become more and more customized. Poppo and Zenger (2002) also suggest that these customized contracts will reduce the possibility for the parties to act opportunistic. More importantly, their findings show that contractual complexity and relational governance function as complements in explaining satisfaction with exchange performance. This means that formal contracts, together with relational governance, may lead to a greater chance of achieving supplier innovativeness. The relationship between detailed contracting and supplier innovativeness will be further studied later in this paper.

2.1.6 Arm's Length Contracts vs Long-Term Relationships

The relationship between the company and the supplier play an important role in the company's ability to change(Hoyt & Huq, 2000). Is the relationship is too restrictive; flexibility will be difficult to achieve. We can distinguish between two different supplier management models; arm's length relationships and close supplier relationships(Dyer et al., 1998). The traditional model of supplier management is arm's length relationships. Arm's length relationships aims to minimize the dependence on suppliers and to maximize the companies' bargaining power(Dyer et al., 1998). Michael Porter explains that in the arm's length model, purchases of an item can be spread among different suppliers in such a way as to improve the firm's bargaining power (Porter, 1980). The buyers purposely keep the suppliers at arm's length to avoid any commitment. The arm's length way of managing supplier relationships was previously widely accepted as best practice for supplier management in the United States, until the Japanese success(Dyer et al., 1998). A partner model of supplier management is in contrast to the arm's length model. The success of Japanese firms has often been attributed to close supplier relationship(Dyer et al., 1998). The success of close supplier relationship are often explained by firms sharing more information and have better coordination on tasks. In a close supplier relationship, firms often rely on trust to govern the relationship, which lead to lower transaction costs(Dyer et al., 1998). However, it is worth to mention that studies have shown that formal contracts and relational governance can work as complements(Poppo & Zenger, 2002). It means that a formal contract does not necessarily exclude relational governance and a close supplier relationship. In fact, a formal contract can be positive for achieving a close relationship with your supplier(Poppo & Zenger, 2002). Since a close supplier relationship leads to the buyer and supplier sharing more information and having better coordination between them, it may be likely that a close supplier relationship can foster innovation. As mentioned, the relationship between the company and their supplier will be important for the company's ability to change(Hoyt & Huq, 2000). This paper will later examine if having a close relationship with your supplier will lead to the supplier being more innovative.

2.1.7 The Procurement Process

Procurement is a complex process that at times is hard to define, understand and manage. Effective procurement of goods and services contributes to the competitive advantage for a company(Novack & Simco, 1991). The procurement process links all the members in the supply chain and takes upon itself the responsibility for assuring and managing the quality of

suppliers in that particular chain. Companies faces several options and challenges at different stages of procurement(Dimitri et al., 2006). First, the company must decide on what exactly should be procured, and on how to transmit and communicate those needs to potential suppliers. Second comes the contract which must be constructed to include contractual obligations and methods of compensation. Another important decision is the choice of how the company should award the procurement(Dimitri et al., 2006). The choice of how to communicate your needs to potential suppliers and how to award the procurement are stages in the tendering process. The tendering process is the process of choosing the best company to supply goods or services. Competitive tendering is done by asking several companies to make offers for supplying the goods or services. The tendering can be open for all suppliers or restricted to only a few selected suppliers who can participate in the bidding. It is important to analyze how to best design the tendering process to achieve innovation in contracting.

Virke is a Norwegian organization that has tried to answer the question of how one should design the tendering process to give room for innovation. They arranged a seminar between purchasers and suppliers in different types of industries, which tried to assess this question. They concluded that for companies to achieve innovative deliveries, , the purchasers in companies should establish arenas for ongoing dialogue with the suppliers(Virke, 2014). Virke's research showed that the situation today is that companies and suppliers usually only have a dialogue when it is related to a specific tender/purchase. Other research supports Virke's conclusion that early supplier integration in new product development might be an effective approach for achieving innovation(Schiele, 2010). Another finding from Virke's seminar was that the companies should use less technical specifications in their 'Invitation to tender'. The companies should instead use a demand-driven specification, which gives the suppliers more room for submitting an innovative solution to the companies' problem.

2.1.8 Competition

In contracting you can choose between several tendering formats. The tendering format can be important for the level of competition in the procurement process. The tendering formats are mainly defined according to the possibility for bidders to improve their bids; dynamic, auction vs. sealed-bid tendering(Dimitri et al., 2006). In sealed-bid tendering suppliers submit their offer without observing the tenders made by the opponents. In dynamic auctions prices are released in order to accentuate competition. Suppliers then have the opportunity to outbid the rivals before the auction ends.

We can distinguish between two types of procurement mechanisms; competitive tendering and negotiation(Dimitri et al., 2006). Competitive tendering is a procedure that increase competition. This procedure invites many potential suppliers from different venues to submit a tender. The communication between buyers and sellers is normally prevented which can improve price and quality(Dimitri et al., 2006). Open competitive tendering is also known to prevent corruption because the procedure is transparent and open(Dimitri et al., 2006). Competitive tendering is becoming an important management tool in both the private and public sectors. By having a competitive tendering, you are looking for the best possible supplier to do a job for you to the best possible price. Competitive tendering or informal market testing tries to determine which is the preferred supplier on the basis of price and non-price criteria(Domberger & Rimmer, 1994).

Instead of using competitive tendering, the company can search the market for suppliers that are able and reputable to do the job, and then negotiate with one chosen supplier(Dimitri et al., 2006). Negotiations allows the procurer to exchange information with potential suppliers. By negotiation they can utilize their expertise when designing a project(Dimitri et al., 2006). The negotiation method is especially used for valuable or complex contracts(Dzeng & Lin, 2004). When the company and the supplier negotiates, they discuss issues such as price, terms of payment, and delivery. The issues negotiated are determined at the beginning of the negotiation, but new issues may arise during the process. When both parties agree on the options and price the negotiation ends.

Competition can foster innovation(Domberger, 1998). Economists have long debated whether monopoly or competition is most suitable for achieving innovation, and the evidence favors competition as the best engine for innovation(Domberger, 1998). In bidding situations for contracts, innovation allows suppliers to provide improved solutions at better prices than their competitors(Domberger, 1998). Competition therefore stands out as a tool to achieve innovative deliveries from suppliers. Then it becomes important to design the procurement strategy in a way that secure competition.

Collusion between suppliers is a threat for competition(Dimitri et al., 2006). Coordination may be both tempting and feasible for suppliers, since most procurements are repeated over time. There are many means to lowering the threat of collusion and securing competition between suppliers. If the risk of collusion is high, it would be wise for the company to favor a longer contract length(Dimitri et al., 2006). Collusion is more likely to emerge in a stable and

predictable environment, and companies should therefore frequently change the design of the competitive bidding(Dimitri et al., 2006).

In the Japanese automobile industry you can find a sourcing strategy that is characterized by long term contractual relationships with carefully chosen subcontractors(Domberger, 1998). This is an alternative to the use of formal competitive tendering processes. Having long term contractual relationships emphasize performance and product innovation(Domberger, 1998). These relationships in the Japanese automobile industry typically involve more than one subcontractor. The system a of contract is referred to as 'multiple sourcing', or more specifically 'parallel sourcing'(Domberger, 1998). In parallel sourcing two or more suppliers are used to supply similar services in a way that their performances can be directly compared(Domberger, 1998). This means that the suppliers are given competitive incentives for performance.

This paper will further study if competition is a factor that will positively influence the chance of a supplier being innovative.

2.2 Innovation Management Theory

In recent years the market demands more frequent innovation. The purpose of innovation is to create new business. Companies must be able to adapt and evolve in order to survive. A major benchmarking study from 2005 found some specific factors that distinguish the leaders from the followers in procurement(Goffre, Plaizier, & Schade, 2005). One of the key findings on what separates successful companies from underperforming companies, is their commitment to innovation through purchasing. Successful companies commit to innovation and involve their suppliers at early stages of new product development(Goffre et al., 2005). From this we can conclude that a company's competitive position is influenced by its capabilities to engage in a network approach to innovation. This section will look more closely on theory regarding innovation, to gain a better understanding of what factors that may foster supplier innovativeness.

2.2.1 Open Innovation

The last few years, there has been an increasing focus on innovation through an 'open innovation' perspective(Hüttinger, 2011). 'Open innovation' states that innovations are developed through the interplay of different parties from different organizations. Dr. Henry Chesbrough defines 'Open Innovation' to be a paradigm that assumes that companies can and

should use external as well as internal ideas, and internal and external paths to market as they look to advance their technology(H. Chesbrough, 2006). A study by Roberts (2001) collected data from several of the largest R&D-performing companies in North America, Western Europe and Japan. This study showed that companies worldwide continue to shift toward acquiring more key technology from outside, relying increasingly upon universities for research and on joint ventures and alliances for development (Roberts, 2001). The study shows that there is a presence of a shift towards an 'open innovation' model. This suggests that suppliers play an increasing role in the innovation process. For companies to achieve innovation we can see that they are increasingly turning to suppliers, researchers and other partners to access innovations(Johnsen, 2009). It indicates that it will be important to study how companies' best can achieve innovation through contracting, and in the next sections we will go further into innovation management theory, first looking at what distinguishes autonomous vs. systemic innovations. The sections will also include the connection between supplier relationship and innovativeness, and how suppliers' technical capabilities affect their ability to innovate.

2.2.2 Autonomous vs. Systemic Innovations

We can distinguish between several types of innovation. Some innovations are autonomous, which means that they can be pursued independently from other innovations(H. W. Chesbrough & Teece, 1996). Other innovations are fundamentally systemic, which is in contrast to autonomous innovations. Systemic innovations can be realized only in conjunction with related, complementary innovations(H. W. Chesbrough & Teece, 1996). In other words, when innovation depends on a series of interdependent innovations, we define the innovation to be systemic. It is important to distinguish between autonomous and systemic innovation, because the distinction is essential for the choice of organizational design(H. W. Chesbrough & Teece, 1996). A company must decide if they should organize for innovation by using decentralized approaches or if they should rely on their internal organization. When the innovation is characterized as being autonomous, the decentralized virtual organization can manage the development and commercialization quite well(H. W. Chesbrough & Teece, 1996). However, when an innovation is systemic, the different subcontractors are dependent on one another, over whom they have no control. Systemic innovations are often complex, but they are important to create valuable business breakthroughs. Systemic innovations encounter more management challenges regarding information exchange, because systemic innovations require information sharing and coordinated adjustment throughout the whole product system(H. W. Chesbrough

& Teece, 1996). Chesbrough and Teece (1996) argue that loose partnerships of companies will produce more conflict of interest than what centrally managed companies do, and those conflicts may inhibit systemic innovations. The different companies involved in the systemic innovation may be linked through 'arm's length contracts, and it may be lack of information exchange between them which will lead to bad coordination on the systemic innovation. When companies are deciding what to outsource, they should look at the autonomy of the operation. Autonomous innovation will be more suitable for outsourcing.

2.2.3 The Connection between Supplier Relationships and Innovations

Studies of supplier relationships and innovations, show that greater supplier involvement benefits innovation(Song & Di Benedetto, 2008). All purchases done by a buyer from a supplier naturally gives rise to a relationship between the two parties, which sometimes is a contractual one. Since the concept 'Just in time' became a widespread concept, a 'close supplier relationship' has become more important. The 'Just in time' concept has required a close supplier relationship in some areas especially; quality, communications and product improvement(Obal, 2011). It is widely acknowledged that a poor relationships between buyers and suppliers create barriers to innovation(Domberger, 1998). This is because when you have a distant relationship with your supplier, you hinder the transfer of knowledge between the two parties. Antagonistic relationships between buyers and suppliers may lead to lower purchasing costs(Domberger, 1998). Perhaps the gains of a close supplier relationship in terms of the possibility to achieve innovative deliveries may outweigh the additional purchasing costs associated with this type of supplier relationship.

Studies of supplier relationships have also found that the phenomenon 'preferred customer status' positively influences supplier innovativeness(Hüttinger, 2011). 'Preferred customer status' is defined by Steinle and Schiele (2008) as a situation where the supplier offers the buyer preferential resource allocation(Steinle & Schiele, 2008). This finding indicates that companies should consider to allocate resources to what we call reverse marketing, in order to enhance their level of customer attractiveness. If the company manage to be an interesting customer for suppliers, the suppliers will pay more attention and loyalty towards your company(Hüttinger, 2011). It will also promote an open dialogue which leads to the exchange of knowledge, which again can provide the basis for inter-organizational innovative capabilities(Hüttinger, 2011).

2.2.4 Suppliers' Technical Capabilities Enhance Supplier Innovativeness

Research has shown that suppliers' technical capabilities positively influences supplier innovativeness(Hüttinger, 2011). This finding implies that it is important to carefully select capable suppliers before entering a contract situation and carefully select which suppliers who should be invited to participate in a tendering process. If the tendering process is designed as open tendering, without limitations of which suppliers who can participate, then the company should be aware that it is important to attract suppliers with strong technical capabilities in order to have a greater possibility of achieving innovation. The composition of an ITT (invitation to tender) will have an impact on which suppliers the company attracts to submit a bid. If a company chooses to go out on request for a total supplier, instead of dividing the work into lots, the company will find less suppliers capable of submitting a bid. However, if the company chooses to divide the contract into too many lots, it will encounter the risk of not attracting the larger suppliers in the market(Dimitri et al., 2006). Attracting the right suppliers to participate in a tender process, or choosing the right supplier to outsource to, will be important for achieving innovative deliveries. This is because the supplier's technical capabilities will affect supplier innovativeness(Hüttinger, 2011). Companies need to identify technical capable suppliers to outsource to, in order to facilitate for innovation.

2.3 Theory – Conclusions

Choosing the most suitable contract type is essential to effective procurement. Dimitri et al (2006) argue that *contract flexibility*, the *incentives for quality and cost reduction*, and the *allocation of procurement risk* are the most important dimensions influencing the purchaser's choice of the procurement contract. This paper wants to emphasize supplier innovativeness as the most important dimension to obtain through contracting.

Contract theory shows that fixed fee contracts may create a stronger incentive to be innovative, than cost-plus contracts do(Kalnins & Mayer, 2004). Fixed-fee contracts at least creates a very strong incentives for the supplier to search for changes in technology or look for input prices that can lower costs, because the supplier gets to keep the results if there occurs any cost savings. This is because the possible cost-reduction the supplier can achieve by using new technology or come up with new solutions. However, if fixed-fee contracts are going to be effective in promoting innovation, contract flexibility is essential. The contract must be designed in a way that makes room for suppliers to deliver new solutions. Companies should therefore specify needs based on functionality, not technical specifications. That will give the

suppliers room for providing new solutions for the company needs. It is crucial to note that not all contracts should specify needs based on functionality. It depends on the nature of the supply and the complexity of the contract. Some supplies require a detailed technical specification.

Studies show that close supplier relationships can contribute to innovativeness(Song & Di Benedetto, 2008). Open exchange of knowledge and ideas will help to promote an environment for innovation. A close supplier relationship, as in contrast to an arms-length relationship, can lead to a greater chance of achieving innovation from the supplier. Research studied also suggests that it is important for companies to have a preferred customer status amongst suppliers(Hüttinger, 2011). A preferred customer status will contribute to a closer supplier relationship, which again can enhance innovation. Close supplier relationship in relation to supplier innovativeness is one of the hypotheses that will be tested in this paper.

Studies have found a complementary relationship between formal contracts and relational governance(Poppo & Zenger, 2002). Based on the findings from Poppo & Zenger (2002) we expect that detailed contracts and close supplier relationship may be complementary to each other, and that both will positively influence supplier innovativeness. This paper will further investigate if a detailed contract can contribute the suppliers' innovativeness, and will also test the relationship between formal contracts and close supplier relationship.

Competition is another factor that is expected to give suppliers the incentive to come up with new and better solutions(Domberger, 1998). Fostering competition will therefore be essential in the procurement process. Research have also shown that suppliers' technical capabilities are important to achieve innovation in contracting(Hüttinger, 2011). These two factors implies that companies need to not only foster competition in the procurement process; they also need to attract the *right* suppliers. Based on Domberger (1998) we expect that competition will have a positive effect on supplier innovativeness, and this will be further researched as a hypothesis in this paper.

As previously stated close supplier relationship is believed to promote supplier innovativeness(Song & Di Benedetto, 2008). The immediate thought is that competition and close supplier relationship will be two variables in conflict. Both competition and close supplier relationships' impact on innovation will be closer studied later in this paper, including the relationship between the two variables. The expected positive impact of competition on innovation is solely based on theory by Domberger (1998). Therefore this is an interesting variable to test. It is especially interesting because of the anticipated relationship between

competition and close supplier relationship. It seems likely that the two variables will be in conflict, because it may be hard to have a close supplier relationship and at the same time maintain competition. This relationship will also be tested in this paper.

Pay-for-performance should lead to the supplier being more engaged to do a better job or new activities that will improve their performance(Sumo et al., 2014). Pay-for-performance should create an incentive for the supplier to perform better, because the better they perform the more they are paid. Pay-for-performance and Performance Based Contracts therefore expect that the supplier will be more innovative(Sumo et al., 2014). Sumo et al (2014) found a significant positive effect of pay-for-performance on supplier innovativeness. However, performance based contracts and innovation is a field of study that is relatively unexplored. This paper will have pay-for-performance as one of the variables to study in relation to supplier innovativeness.

2.4 Research Model and Hypotheses Development

From the section of Theory and Literature Review we looked at the theoretical foundation for this paper. Based on the theoretical foundation we have identified and concluded on some factors which we believe will be important for achieving innovation through contracting. This section will present the research model to be studied further in the paper, together with testable hypotheses. The selected factors which will be the variables studied more closely are how pay-for-performance, a detailed contract, competition and a close supplier relationship will effect supplier innovativeness.

2.4.1 The Research Model

The purpose of this paper is to investigate how companies can achieve supplier innovativeness through contracting. The study in this paper want to investigate some contract mechanisms' effect on supplier innovativeness. The objective is to understand how companies can facilitate for innovative deliveries from their suppliers. The research model will represent the research problem, and show the selected variables and the expected relationship between them. The research model will form the foundation for the further study in this paper.

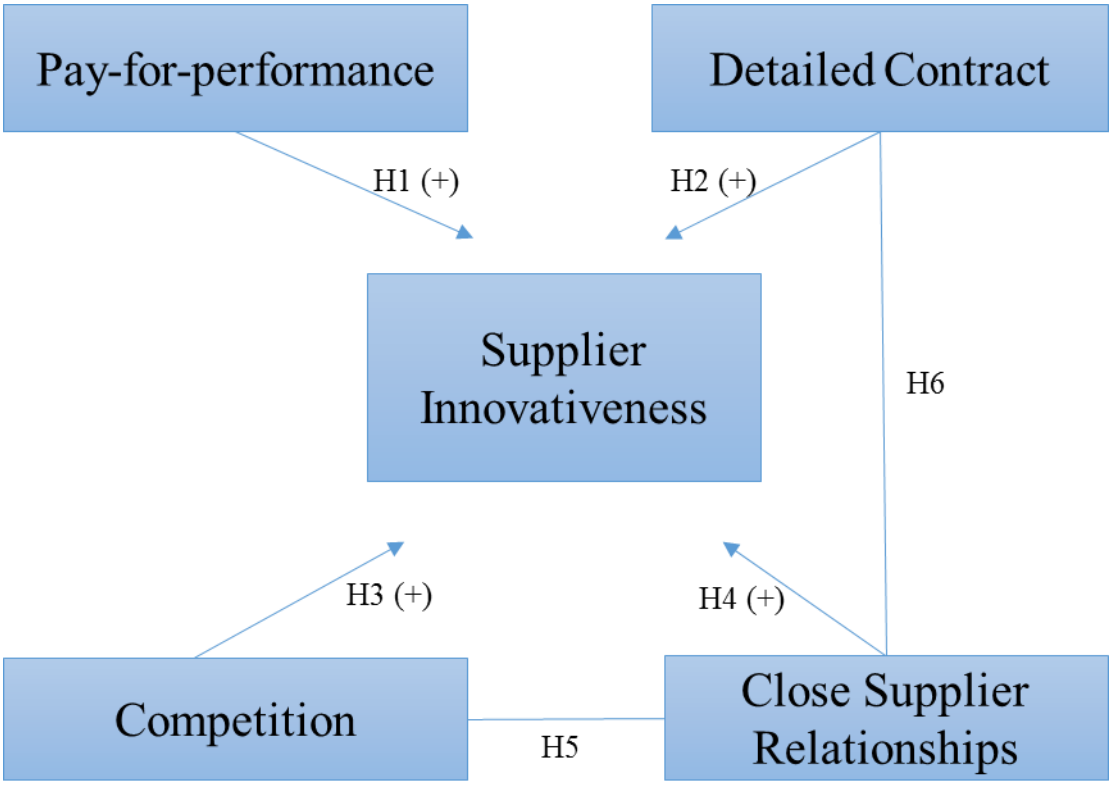

Figure 3: Research Model

Figure 3 shows the anticipated relationship between the different variables. Supplier innovativeness is the dependent variable, and pay-for-performance, detailed contract, competition and close supplier relationships are the independent variables. We expect that pay-for-performance will have a positive impact on supplier innovativeness, and want to study that relationship. The relationship between the variable detailed contract and supplier innovativeness is also expected to be positive. That is because we expect that a formal contract (a detailed contract) will have a complementary relationship with the variable of close supplier relationship. A close supplier relationship is anticipated to lead to supplier innovativeness, which is reflected by the research model above. The research model also shows the variable competition, which is expected to be a factor that may lead to supplier innovativeness. The variable competition and close supplier relationship are anticipated to have a substitute relationship. If you have a close relationship with your supplier, we expect it will be difficult to maintain a high level of competition.

The research model is mainly based on theory from (Domberger, 1998; Dyer et al., 1998; Goffre et al., 2005; Hüttinger, 2011; Poppo & Zenger, 2002; Song & Di Benedetto, 2008; Sumo et al., 2014; Wuyts & Geyskens, 2005).

2.4.2 Presentation of Hypotheses

Based on the research model and theory we have formulated six hypotheses to empirically test. These hypotheses form the research and study done in this paper, and are the basis for the discussion. The hypotheses are as follows:

H1: Pay-for-performance for the supplier will have a positive impact on supplier innovativeness

H2: A detailed contract will lead to supplier innovativeness

H3: Competition will lead to supplier innovativeness

H4: A close supplier relationship will lead to supplier innovativeness

H5: Competition and close supplier relationships are substitutes

H6: Detailed contracts and close supplier relationships are complements

3. Methodology

This section will describe the research design, the empirical setting, the method for data collection, and the measures used in our survey.

3.1 Research Design

In order to obtain the information needed from real life experiences we have to prepare a research scheme. The research scheme, or what we call a research design, has to be based on our research model(Halvorsen, 1989). Halvorsen (1989) explains that to develop the research design from the research model we should look at each variable that we need to collect data on, and find the most suitable method for the research.

A fundamental choice was to decide which research method we should use to collect the data needed. We can distinguish between two methods of research; qualitative and quantitative(Halvorsen, 1989). For the research in this paper we chose quantitative method in order to get data that is measurable. Quantitative research was the most suitable research method for this study. This is because the quantitative method makes us able to collect the data needed to test and analyze our hypotheses. The quantitative method is used when one begins with a theory including hypotheses, and tests to seek confirmation or disconfirmation of the hypotheses(Newman, 1998). We have chosen quantitative research method to be able to analyze correlations and to generalize our findings. To conduct the quantitative research we developed an electronically questionnaire that was sent to a number of different companies. Using a questionnaire as the method for data collection opens the possibility of reaching many respondents, which is important to obtain data that can be generalized.

3.2 Research Context

To conduct the research we limited the population down to two major industries in Norway; The Oil and Gas industry and the Construction industry. The reason for narrowing down the population to consist of the two industries was because of our impression from the pre-phase studies of this paper. Our research problem is to analyze what factors lead to supplier innovation, and in order for companies to be able to provide useful answers we experienced that we needed respondents from medium to large scale companies. We also wanted to choose a population where the industry was characterized by high level of technology, where

innovation may be an important success factor. In the pre-phase studies of this paper we found that these factors are typical for the oil and gas industry and the construction industry in Norway. Both of these industries contain companies that are of large scale, and operates in markets where innovation is important. This is why we chose to investigate companies in the oil industry and the construction industry.

To sum up, the population was defined with the following characteristics:

- The company should have minimum 10 employees
- The company should belong in the oil and gas industry or the construction industry in Norway
- The respondent should be a Purchasing Manager, Supply Chain Manager, Purchaser or similar in the company asked

In order to be able to generalize results from the research we needed to cover a substantial selection from the population. It is crucial for the quality of the study to choose the right selection amongst the population(Selnes, 1999). If we want to be able to generalize, the selection must be representative for the entire population. The objective is that the selection should describe the reality in the best way possible. We used a known website in Norway called Proff Forvalt (Proff-Forvalt, 2015) to retrieve lists with company information for our population.

We got 92 responses from 46 companies, which gives us N=92. In the research we reached out to 120 random companies in the population chosen. The response rate was 38 %. This response rate compares favorably with existing research done by conducting questionnaires in business and management (Huang et al., 2014; Im & Rai, 2008; Koberg, Detienne, & Heppard, 2003). We believe this high response rate is related to our method of data collection. See section *3.3 Data Collection*.

3.3 Data Collection

A pre-test was constructed and carried out before the work of collecting data started. The pre-test was sent to two people in the industry working with procurement. They are both familiar with the industry after working several years as purchasers. Both of them also have a good academic insight in the field of study, because they are working as lecturers in the University of Stavanger. The pre-test respondents are both working part time as lecturers in the course

Contract Signing and Review. The pre-test confirmed that the questionnaire was manageable and easy to understand for the respondents. After the confirmation from the pre-test we started the work of collecting data from the population.

For the process of collecting the data needed for this study, we contacted 120 companies and asked if they could answer a questionnaire. Each company was first contacted by telephone to ensure that the questionnaire was sent to the right person, preferably a Purchasing Manager. We believe that this step also helped with the response rate, because the survey was more targeted. All the people contacted got a personal e-mail with a link to the electronic questionnaire. Before they got the email, we had already spoken to several of the respondents personally on the phone. Our impression from this survey is that it is harder for people to ignore our email and our questionnaire, when they had been speaking to us personally in advance. The step of contacting the companies by telephone was a time consuming step, however we experienced that it had a positive effect on the response rate.

The questionnaire consisted of 20 questions, were the respondents first had to assess a supplier that had shown great performance in relation to innovation, and then they had to answer the 20 questions again for a supplier that had shown disappointing performance in relation to innovation. The questionnaire in total took the respondents about 5-10 minutes to answer. All of the questions in the questionnaire were in English. The reason we chose to have the questionnaire in English is because there are many of the purchasing managers in Norway that does not speak Norwegian. Another reason to have the questionnaire in English was because all the measures used were originally written in English. By translating the measures there would be a greater risk of interpreting the questions in a different way than their actual meaning, ending up with having measures that did not measure what they were intended to. The questionnaire was identical for all the asked companies. As previously mentioned, the respondents had to answer the questionnaire in two parts; first to think of a supplier whom they have a good experience with in terms of innovation, and then to answer the questionnaire again for a supplier they had a negative experience with in terms of innovation. In addition to the two parts, the questionnaire included 3 questions about basic company information. The result of the data collection was 92 responses to build the analysis on. The 92 responses was mainly collected from Purchasing Managers and some Purchasers. The respondent profile will be further elaborated in section *4.1.2 Respondent profile*. The questions in the questionnaire had to be answered in a 7 point Likert scale and all the questions were set as mandatory to answer,

meaning that one were not able to submit the questionnaire without answering all questions. Since all the questions were mandatory to answer, we had no 'missing data' in the responses.

3.4 Measures

Based on construct definitions and research precedents we developed multi-item measures. We administrated the questionnaire using measures from theory. The measures for each variable will be presented in this section. The measures will also appear in *Appendix A – Questionnaire*.

To construct measures we started with reviewing literature. When working with section *2. Theory* we found several well-established studies that formed the basis for our measurement development. The measures used are developed based on previous research.

The research model consists of 5 variables that need to be measured; supplier innovativeness, pay-for-performance, close supplier relationship, detailed contract and competition. In order to test our hypotheses we need reliable measures for each variable. Based on our research problem the dependent variable is supplier's innovativeness.

We developed multi-item measures for the different variables. The items were taken from articles in similar field of study. In addition we also constructed 3 new items that were included in the questionnaire to further examine the variables. The items were measured using a 7 point Likert scale.

Supplier innovativeness (Hüttinger, 2011)

The items used to measure the dependent variable, supplier innovativeness, was retrieved from (Hüttinger, 2011). The article by Hüttinger et. al. (2011) was published in the International Journal of Innovation Management. The 4 supplier innovativeness measures are formulated to focus on collaborative innovation. Collaborative innovation is in contrast with innovation that is fully detached from the buyer supplier – relationship. The items therefore focus on the willingness to use technological capability on behalf of the buyer, willingness to share key technological information and the suppliers' initiative to approach the buyer with frequent innovations. We used the items from Huttinger (2011) in their original form without making any changes. The article by Huttinger et al. (2011) is in the same field of study, and hence very suitable for this paper.

The items used for measuring the dependent variable Supplier innovativeness are as follows:

Item 1: The level of technological capability the supplier possesses and is willing to use for our products is high

Item 2: The supplier is willing to share key technological information

Item 3: This supplier is capable of supporting collaborative processes in product development and process improvement

Item 4: This supplier is frequently proactive in approaching us with innovations

Pay-for-Performance (Jaworski, Stathakopoulos, & Krishnan, 1993; Sumo et al., 2014)

To measure the variable Pay-for-Performance we used 3 items adapted from the article by Jaworski et al published in Journal of Marketing 1993. The 3 items are identical to 3 of the 6 items used by Sumo et al. (2014). The items try to measure if the supplier's rewards are linked to the outcome of the service delivered.

The items used to measure the independent variable Pay-for-Performance are as follows:

Item 5: The supplier's rewards are linked to the outcomes of the service delivered

Item 6: We have agreed with our supplier upon performance bonuses on top of the regular payment schemes when performance levels exceeds targets

Item 7: The supplier is financially awarded for developing alternative/new ways of achieving the performance targets

Detailed contract (Wuyts & Geyskens, 2005)

The objective of measuring the variable detailed contract is to describe the level of detail used in the original contract regarding responsibilities, roles, how to handle unplanned events and the expected performance. The 4 items used to measure detailed contract were retrieved from Wuyts & Geyskens (2005). The article by Wuyts and Geyskens were published in Journal of Marketing in 2005. In addition to the 4 items retrieved from Wuyts & Geyskrens (2005) we also constructed a 5^{th} item to measure the level of detailed specification included in the contract.

The items used to measure the independent variable Detailed contract are as follows:

Item 14: In dealing with this supplier, our contract precisely defines the role of each partner.

Item 15: In dealing with this supplier, our contract precisely defines the responsibilities of each partner.

Item 16: In dealing with this supplier, our contract precisely states how each party is to perform.

Item 17: In dealing with this supplier, our contract precisely states what will happen in the case of events occurring that were not planned.

Item 19 (NEW): In dealing with this supplier, our contract includes a detailed specification of the scope of work to be delivered

Competition (Eibe Sørensen, 2009)

We retrieved 3 items from the article by Eibe Sørensen published in European Journal of Marketing in 2009. The items from Eibe Sørensen (2009) was used to measure the intensity of the competition in the suppliers' industry and in the tender process. In addition we added 2 new items that we constructed to measure competition in the tender process.

The items used to measure the independent variable Competition are as follows:

Item 11: Competition in this supplier's industry is intense

Item 12: Price competition is typical in this supplier's industry

Item 13: Anything that this supplier can offer, competitors can match easily

Item 18 (NEW): When a tenderer offer a different solution that stands out from the other received offers, it complicates our evaluation procedure of the bids

Item 20 (NEW): We always have a competitive tendering process before awarding a contract to this supplier

Close Supplier Relationship (Handfield & Bechtel, 2002)

The items measuring close supplier relationship were retrieved from the article by Handfield and Bechtel published in the journal Industrial Marketing Management in 2002. The items were

used to measure how the purchaser would characterize the relationship with their supplier. The items has a focus on the suppliers' investment in the buyer-supplier relationship. For example the items investigates if the supplier has dedicated equipment and reserved personnel to maintain the buyer-supplier relationship.

The items used to measure the independent variable Close Supplier Relationship are as follows:

Item 8: This supplier has dedicated equipment, reserved equipment and reserved capacity specifically to maintain our purchasing relationship

Item 9: This supplier has dedicated personnel to maintain our purchasing relationship

Item 10: This supplier has purchased specialized equipment to meet our need for this key-input material

4. Results

This section will present assessments of data quality and descriptive statistics for the dataset. It will also present the procedures used to verify the measurements of the variables. The objective of carrying out descriptive statistics is to gain better insight of the dataset. To analyze the data collected for our study, we chose to use the software program SPSS. SPSS is a common used software program for analyzing statistics and is a user friendly program.

4.1 Descriptive Statistics

We use descriptive statistics to describe the basic features of the dataset. Descriptive statistics provide simple summaries about the dataset and the measures. The most common outputs in descriptive statistics are mean, variance, skewness and kurtosis(Bacon, 2013). Descriptive statistics form the basis for our further quantitative analysis and will help with understanding and analyzing the results.

4.1.1 Skewness and Kurtosis

Skewness and kurtosis is a measure of the symmetry of a distribution(Hair, 2006). It quantifies how symmetrical the distribution is. If a distribution is perfectly symmetrical, it has a skewness of zero. Multivariate data analysis require that all the variables are close to normally distributed. We have chosen a critical value of ±1.96 on skewness and kurtosis for the distribution. This corresponds with a significance level of 0,05. It is one of the most common used critical values(Hair, 2006). If the numbers from the dataset does not exceed this value, we can conclude with a 95% certainty that the variables are normally distributed. All items in our research have a skewness and kurtosis within the critical value of ±1.96. This means that further multivariate data analysis, like factor analysis and multiple regression, can be done based on normal distribution. From the descriptive statistics we can also see that the dataset has sufficient variation. Table 1 below shows the descriptive statistics for the different items.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Item1	92	1,00	7,00	4,9457	1,48520	-,748	,251	-,337	,498
Item2	92	1,00	7,00	4,6196	1,53238	-,625	,251	-,523	,498
Item3	92	1,00	7,00	4,6739	1,40727	-,558	,251	-,619	,498
Item4	92	1,00	7,00	3,9674	1,66047	-,065	,251	-,609	,498
Item5	92	1,00	7,00	3,7609	1,77510	-,098	,251	-1,098	,498
Item6	92	1,00	7,00	2,4674	1,84838	1,088	,251	-,121	,498
Item7	92	1,00	7,00	2,7500	1,78285	,613	,251	-,978	,498
Item8	92	1,00	7,00	4,0870	1,67498	-,355	,251	-,924	,498
Item9	92	1,00	7,00	4,8804	1,66965	-,661	,251	-,319	,498
Item10	92	1,00	7,00	3,8696	1,77416	-,172	,251	-1,071	,498
Item11	92	1,00	7,00	5,3478	1,50044	-,697	,251	-,272	,498
Item12	92	1,00	7,00	4,9457	1,73119	-,668	,251	-,706	,498
Item13	92	1,00	7,00	4,5761	1,68532	-,332	,251	-,893	,498
Item14	92	2,00	7,00	5,5217	1,31332	-,718	,251	-,478	,498
Item15	92	2,00	7,00	5,5870	1,34370	-1,065	,251	,619	,498
Item16	92	2,00	7,00	5,4130	1,27660	-,692	,251	-,426	,498
Item17	92	1,00	7,00	5,2717	1,43046	-,701	,251	-,050	,498
Item18	92	1,00	7,00	4,6630	1,36902	-,442	,251	-,256	,498
Item19	92	3,00	7,00	5,6957	1,29019	-,571	,251	-,855	,498
Item20	92	1,00	7,00	5,4783	1,55823	-,983	,251	,178	,498
Valid N	92								

Table 1: Descriptive Statistics

4.1.2 Respondent Profile

The sample consist of 92 responses from companies within oil and gas and construction companies in Norway. The data was collected in the time period between the beginning of March until the end of April 2015.

Part 1 in the questionnaire was used to get basic information about the respondents. The questionnaire was electronic and enabled the respondents to be anonymous, but demanded them to give away some basic data of their company; Company name, company size and position within company. The company name was only used to make sure that no double registrations of answers would occur. Figure 4 shows the number of employees in the companies responding. 26% of the companies responding are in the category of 51-200 employees, and 24% are in the category of 501-1000 employees. Based on this data we can conclude that the respondents are mostly large companies. Only 6% of the respondents have under 50 employees.

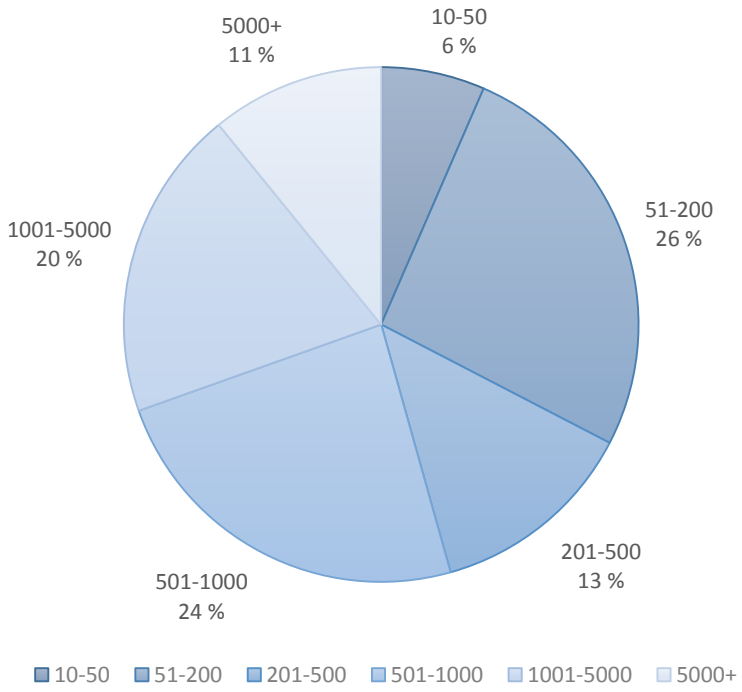

Figure 4 : Respondent Profile - Number of Employees in Company

The job function for the employees' for each company responding is divided into four groups; Purchasing managers, senior purchasers, purchasers, and employees in other management positions. We strived after having most of the answers from either purchasing managers or senior purchasers, because they would be the most qualified to answer the questionnaire. 22 of 46 respondents were purchasing managers. 10 respondents were senior purchasers and 8 respondents were purchasers. Only 6 respondents belonged to the category of other

management positions. The respondents in other management positions were mainly from companies that did not have an employee dedicated to purchasing. Purchasers, senior purchasers, and purchasing managers were the most suitable for answering the questionnaire, because the questionnaire required insight in suppliers, contracts and supplier management. 48% of the respondents are purchasing managers. This percentage indicates that the quality of the responses collected should be high because purchasing managers should be the most suitable to answer the questionnaire. It may lead to a more trustworthy dataset. The respondents in 'other management positions' were typical operations managers, project managers or business managers, which may also be employees that have enough insight and knowledge to give high quality responses. The allocation of the respondents' job function is illustrated in Figure 5 below.

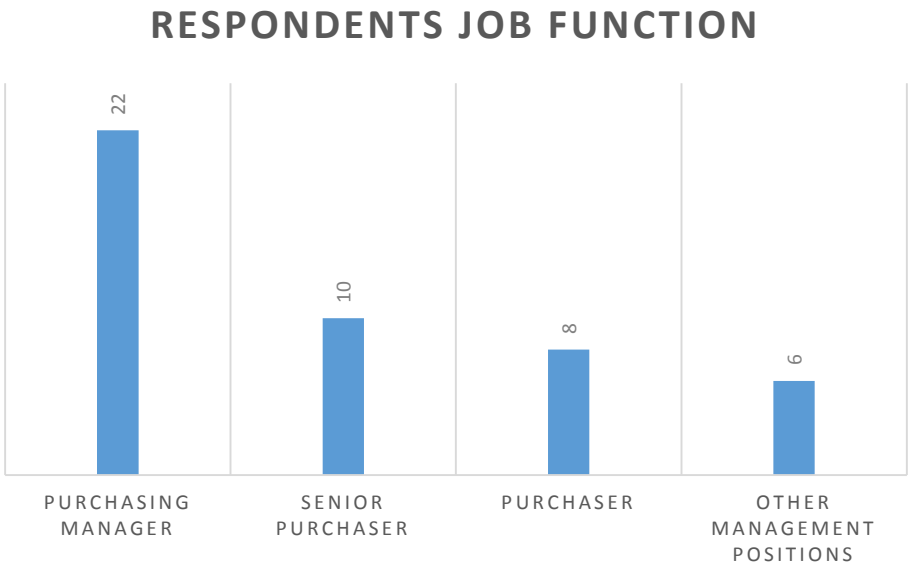

Figure 5: Respondent Profile - Respondents Job Function within Company

4.2 Variable Construction and Validation

From the descriptive statistics we have concluded that we have a dataset that are close to normally distributed with sufficient variation. The next step is to construct valid and reliable variables for our further analysis. The purpose is to reduce the items to a smaller set of variables that are suitable for testing our hypotheses. We want to identify the interrelationships between the items and we do this by conducting a factor analysis. The items used in the survey are adapted from previous research and theory, therefore we have an intuition of how the items should group. We used SPSS to do a factor analysis as the first step to construct the variables.

The first step in the factor analysis is testing communalities. Table 2 below shows the communalities before and after extraction. The communalities in the column to the right reflect the common value in the data structure (Hair, 2006). The communalities should assess whether the variables meet acceptable levels of explanation. As common for many studies we have chosen that about one half of the variance of each variable should be taken into account (Hair, 2006). More specifically we have chosen that 0.45 should be the guideline, which means that variables with communalities below 0.45 does not have sufficient explanation (Hair, 2006). As we can see from table 2 all items are within the defined cut-off limit.

Communalities

	Initial	Extraction
Item1	1,000	,755
Item2	1,000	,729
Item3	1,000	,766
Item4	1,000	,637
Item5	1,000	,496
Item6	1,000	,834
Item7	1,000	,799
Item8	1,000	,746
Item9	1,000	,767
Item10	1,000	,778
Item11	1,000	,691
Item12	1,000	,736
Item14	1,000	,834
Item15	1,000	,859
Item16	1,000	,789
Item17	1,000	,507
Item19	1,000	,462

Extraction Method: Principal Component Analysis.

Table 2: Communalities

The next step in the factor analysis is to analyze the Rotated Component Matrix. In Table 3 shown below is the rotated component matrix. We used this Principal Component with Varimax rotation. Item 13, 18, and 20 did not match with any other items, and were therefore deleted for further analysis.

Rotated Component Matrix[a]

Component	1	2	3	4	5
Item1	,237	**,821**	,142	-,044	-,045
Item2	,398	**,721**	,097	,178	,100
Item3	,086	**,839**	,231	,011	-,032
Item4	,037	**,744**	,183	,212	-,062
Item5	,159	-,277	,230	**,578**	-,083
Item6	-,058	,253	,071	**,855**	,172
Item7	-,003	,202	,003	**,866**	-,089
Item8	,308	,221	**,741**	,192	-,129
Item9	,094	,200	**,833**	-,126	,098
Item10	,109	,201	**,807**	,273	-,017
Item11	,229	-,027	-,035	,029	**,797**
Item12	-,051	-,040	,020	-,020	**,855**
Item14	**,886**	,173	,123	,057	-,019
Item15	**,905**	,161	,110	-,027	,012
Item16	**,873**	,018	,148	-,016	,067
Item17	**,647**	,126	,141	,228	-,009
Item19	**,583**	,163	,006	-,145	,274

Extraction method: Principal component analysis.

Rotationmethod: Varimax with Kaiser Normalization. [a]

a. Rotation converged in 6 iterations

Table 3: Rotated Component Matrix

After the factor analysis we ran a reliability test with a calculation of Cronbach's Alpha for each variable that we constructed. Based on methodology from Hair (2006) we aimed to have variables with an alpha of 0.6 or higher(Hair, 2006). The higher the Cronbach Alpha the more desirable the variable is. The Cronbach's Alpha for each constructed variable is shown below.

Variable 1 – Supplier Innovativeness

This variable consists of item 1-4 and has a Cronbach's Alpha of 0.853 which is well above our cut-off limit. The high Cronbach Alpha makes this variable a good variable. The item statistics for each item grouped in the variable, Supplier Innovativeness is shown in Table 5 below.

Reliability Statistics

Cronbach's Alpha	N of Items
,853	4

Table 4: Reliability Statistics for Supplier Innovativeness

Item Statistics

	Mean	Std. Deviation	N
Item1	4,9457	1,48520	92
Item2	4,6196	1,53238	92
Item3	4,6739	1,40727	92
Item4	3,9674	1,66047	92

Table 5: Item Statistics for Supplier Innovativeness

Variable 2 – Pay-for-Performance

This variable consists of item 5-7 and has a Cronbach's alpha of 0.701 which is well above our cut-off limit. The high Cronbach Alpha makes this variable a good variable. The item statistics for each item grouped in the variable, Pay-for-Perfromance is shown in Table 7 below.

Reliability Statistics

Cronbach's Alpha	N of Items
,701	3

Table 6: Reliability Statistics for Pay-for-Performance

Item Statistics

	Mean	Std. Deviation	N
Item5	3,7609	1,77510	92
Item6	2,4674	1,84838	92
Item7	2,7500	1,78285	92

Table 7: Item Statistics for Pay-for-performance

Variable 3 – Close Supplier Relationships

This variable consists of item 8-10 and has a Cronbach's alpha of 0.810 which is well above our cut-off limit. The high Cronbach Alpha makes this variable a good variable. The item statistics for each item grouped in the variable, Close Supplier Relationship is shown in Table 9 below.

Reliability Statistics

Cronbach's Alpha	N of Items
,810	3

Table 8: Reliability Statistics for Close Supplier Relationship

Item Statistics

	Mean	Std. Deviation	N
Item8	4,0870	1,67498	92
Item9	4,8804	1,66965	92
Item10	3,8696	1,77416	92

Table 9: Item Statistics for Close Supplier Relationship

Variable 4 – Competition

This variable consists of item 11 and item 12, and has a Cronbach's alpha of 0.593. We chose to round 0.593 up to 0.6 in order to be able to use the variable in further analysis. With a Cronbach Alpha of 0.6 this is an acceptable variable. The item statistics for each item grouped in the variable, Competition is shown in Table 11 below.

Reliability Statistics

Cronbach's Alpha	N of Items
,593	2

Table 10: Reliability Statistics for Competition

Item Statistics

	Mean	Std. Deviation	N
Item11	5,3478	1,50044	92
Item12	4,9457	1,73119	92

Table 11: Item Statistics for Competition

Variable 5 – Detailed Contract

This variable consists of item 14-17 and item 19 and has a Cronbach's alpha of 0.863 which is well above our cut-off limit. The high Cronbach Alpha makes this variable a good variable. The item statistics for each item grouped in the variable, Detailed Contract is shown in Table 13 below.

Reliability Statistics

Cronbach's Alpha	N of Items
,863	5

Table 12: Reliability Statistics for Detailed Contract

Item Statistics

	Mean	Std. Deviation	N
Item14	5,5217	1,31332	92
Item15	5,5870	1,34370	92
Item16	5,4130	1,27660	92
Item17	5,2717	1,43046	92
Item19	5,6957	1,29019	92

Table 13: Item Statistics for Detailed Contract

The result for the Cronbach Alpha test was sufficient for further analysis. The variable of competition was borderline to the cut-off limit of 0.6, but in order to keep the variable in the analysis we chose to emphasize the values from the Rotated Component Matrix. Based on the Communality and factor loadings and the Cronbach Alpha test we can conclude that the items grouped together naturally relates to each other.

Descriptive Statistics for the Constructed Factors

Table 14 below shows the descriptive statistic for the constructed factors that will be tested in the multiple regression analysis.

The next analyze done is a new descriptive statistics analyze done for each new variable. Shown in Table 14 we can see the descriptive statistics for Supplier Innovativeness, Pay-for-Performance, Close Suppler Relationship, Competition and Detailed Contract. All the variables have a skewness and kurtosis within the critical value of ±1.96. This means that further multivariate data analysis can be done based on normal distribution. From the descriptive statistics we can also see that the dataset has sufficient variation.

Descriptive Statistics	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Supplier_innovativeness	92	1,00	7,00	4,5516	1,26911	-,612	,251	-,357	,498
Pay_for_performance	92	1,00	6,67	2,9928	1,42623	,634	,251	-,293	,498
Close_supplier_relationship	92	1,00	7,00	4,2790	1,45278	-,437	,251	-,599	,498
Competition	92	2,00	7,00	5,1467	1,36587	-,306	,251	-,802	,498
Detailed_contract	92	3,00	7,00	5,4978	1,07007	-,492	,251	-,519	,498
Valid N (listwise)	92								

Table 14: Descriptive Statistics for the Constructed Variables

Before moving on to regression analysis, the correlation between the variables has to be checked. Analysis of correlations is a method to reveal relationships between the different variables. The correlation matrix is a table showing the interrelationships among the variables(Hair, 2006). The correlation matrix is shown in Table 15 below. From the correlation matrix we see that there are no correlations that are disturbing for our analysis. Disturbingly high correlations have a value between 0.6-0.7 and higher(Hair, 2006). High correlation between variables may indicate that some of the factors measure the same. Since we do not see any high correlation between our variables it indicates that our factors do not overlap.

Correlations

	Supplier_ innovativeness	Pay_for_ performance	Close_ supplier_ relationship	Competition	Detailed_ contract
Supplier_innovativeness	1				
Pay_for_performance	,222*	1			
Close_supplier_relationship	,455**	,270**	1		
Competition	-,019	-,006	-,022	1	
Detailed_contract	,387**	,095	,357**	,152	1

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Table 15: Correlations

4.3 Hypotheses testing

In section *2.4.2 Presentation of Hypotheses* six correlation hypotheses were presented. Four hypotheses were concerning how different contract factors impact suppliers' innovativeness, and two hypotheses were concerning the relationship between the contract factors. This section will present the findings in our study with testing each of the hypotheses in turn. First this section will start with showing the testing procedures and then present the result of the hypotheses testing.

4.3.1 Testing Procedure

Regression analysis were used to test the six correlation hypotheses. We anticipate a linear function, since we do not see reason for there being complex functional relationships. There are many alternative methods for testing the hypotheses, but regression analysis is suitable because we want to see the direction, strength, and the relative importance of the variables. Regression analysis is a versatile dependence technique, and is therefore the most common used analysis method. Multiple regression is a regression model with two or more independent variables(Hair, 2006). Multiple regression analysis is a general statistical method that is used to analyze the relationship between a single dependent variable and several independent variable(Hair, 2006). The study done in this paper includes a dependent variable and several independent variables, which means that a multiple regression method may be suitable for doing the analysis. To test hypotheses 1-4 a multiple regression analysis were used, with supplier innovativeness as the dependent variable. To test hypotheses 5 and 6 another multiple regression analysis were constructed, were the dependent variable was close supplier relationship.

4.3.2 Results of Hypothesis Testing

The study consists of six hypotheses. This section will present the results from the two multiple regression analysis constructed and show the results for each of the six hypotheses tested. The standardized coefficients, the beta, shows the change in the dependent measure for each unit change in the independent variable(Hair, 2006). Hair et al (2006) explains that "comparison between regression coefficients allows for a relative assessment of each variable's importance in the regression model". This means that we can compare the beta for each variable shown in the tables below, and see which variable has the most impact in the analysis. It gives the ability to see the relative importance of the variables, and compare the importance of the variables with

each other. Below is the results from the testing of hypotheses 1-4 shown first, and the results from the testing of hypotheses 5 and 6 shown at the end of this section.

Results from Multiple Regression Analysis 1 - Hypotheses 1-4

In Table 16 below the R-squared for the multiple regression analysis 1 is shown. R-squared is the "percent of variance explained" by the model. This means that R-squared is the fraction by which the variance of the errors is less than the variance of the dependent variable(Hair, 2006). The R-squared for Regression Analysis 1 in this paper is 0.278.

Model Summary Change Statistics

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	,527[a]	,278	,244	1,10321	,278	8,356	4	87	,000

a. Predictors: (Constant), Detailed_contract, Pay_for_performance, Competition, Close_supplier_relationship

Table 16: R Squared for Multiple Regression Analysis 1

Table 17 shows the coefficients for the hypotheses. Pay_for_performance refers to hypothesis 1, Detailed_contract refers to hypothesis 2, Competition refers to hypothesis 3, and Close_supplier_relationship refers to hypothesis 4.

Hypothesis 1 – Pay-for-Performance

H1: Pay-for-performance for the supplier will have a positive impact on supplier innovativeness

As we can see from Table 17, hypothesis 1 is not statistically significant on either 1%, 5 %, or 10 % significance level (t=1,202). Hypothesis 1 is therefore not supported. The result does not show any statistically significant effect of pay-for-performance on supplier innovativeness.

Hypothesis 2 – Close Supplier Relationship

H2: A detailed contract will lead to supplier innovativeness

Hypothesis 2 is statistically significant even on 1% significance level (t=3,183). Hypotheses 2 is therefore supported. The result show a statistically significant effect of close supplier

relationship on supplier innovativeness. The standardized coefficient (Beta) for hypotheses 2 has a value of 0,325 which is the highest beta value in this analysis. It means that close supplier relationship has the highest importance in the regression model.

Hypothesis 3 – Competition

H3: Competition will lead to supplier innovativeness

Hypothesis 3 is not statistically significant on either 1%, 5 %, or 10 % significance level (t=-0,947). Hypothesis 3 is therefore not supported. The result does not show any statistically significant effect of competition on supplier innovativeness.

Hypothesis 4 – Detailed Contract

H4: A close supplier relationship will lead to supplier innovativeness

Hypothesis 4 is statistically significant even on 1% significance level (t=2,712). Hypothesis 4 is therefore supported. The result show that detailed contracting has a statistically significant effect on supplier innovativeness.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1,545	,736		2,101	,039
	Pay_for_performance	,096	,084	,107	1,135	,260
	Close_supplier_relationship	,287	,088	,329	3,252	,002
	Competition	-,048	,086	-,052	-,564	,574
	Detailed_contract	,316	,117	,267	2,694	,008

a. Dependent Variable: Supplier_innovativeness

Table 17: Multiple Regression Analysis 1 - Hypotheses 1-4

Results from Multiple Regression Analysis 2 – Hypotheses 5 and 6

The R squared for multiple regression analysis 2 is 0.277. This is shown in Table 18 below.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,526[a]	,277	,244	1,26347

a. Predictors: (Constant), Detailed_contract, Pay_for_performance, Competition, Supplier_innovativeness

Table 18: R Squared for Multiple Regression Analysis 2

Hypotheses 5 and 6

H5: Competition and close supplier relationships are substitutes

H6: Detailed contracts and close supplier relationships are complements

Hypotheses 5 and 6 were concerning the relationship between close supplier relationship and the variables competition and detailed contracts. Multiple regression analysis were used to test the relationships between these variables. Close supplier relationship was defined as the dependent variable. Table 18 below shows that there is a statistically significant relationship on a 5% significance level between detailed contracting and close supplier relationships (t value= 2,198). The results in table 18 do not show a statistical significant between competition and close supplier relationships. Hypothesis 5 expected a negative relationship between the two variables, which is confirmed by the results, but not on a statistical significant level. It means that we cannot draw a conclusion about the relationship between competition and close supplier relationships. Hypotheses 5 is therefore not supported.

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	1,949	,866		2,250	,027
	Competition	-,083	,106	-,078	-,779	,438
	Detailed_contract	,501	,136	,369	3,698	,000

a. Dependent Variable: Close_supplier_relationship

Table 19: Multiple Regression Analysis 2 – Hypotheses 5 and 6

4.3.3 Summary of Hypotheses Testing

The results from the study are summarized in Table 21 below:

Hypothesis		Results
H1	Pay-for-performance for the supplier will have a positive impact on supplier innovativeness	Not supported
H2	A detailed contract will lead to supplier innovativeness	Supported
H3	Competition will lead to supplier innovativeness	Not supported
H4	A close supplier relationship will lead to supplier innovativeness	Supported
H5	Competition and close supplier relationships are substitutes	Not supported
H6	Detailed contracts and close supplier relationships are complements	Supported

Table 20: Summary of Hypotheses Testing

3 out of 6 hypotheses were supported, and the implications of the findings will be analyzed and discussed in section *5. Discussion and Conclusion* of this paper.

4.3.4 Adjusted Research Model

The findings from the study are illustrated in Figure 6 which shows the adjusted research model. The adjusted research model illustrates the relationships found between the variables pay-for-performance, detailed contracting, competition and close supplier relationships in relation to supplier innovativeness. It also shows the relationship between the variables detailed contract and competition in relation to close supplier relationship. The relationships that was not supported by the results from the study are illustrated with dotted arrows and lines. Where the lines are 'normal', the results from the study underpinned the original research model. The

value of the beta coefficients are presented in parentheses. The statistically significant effects are marked with ** for 5% significance level.

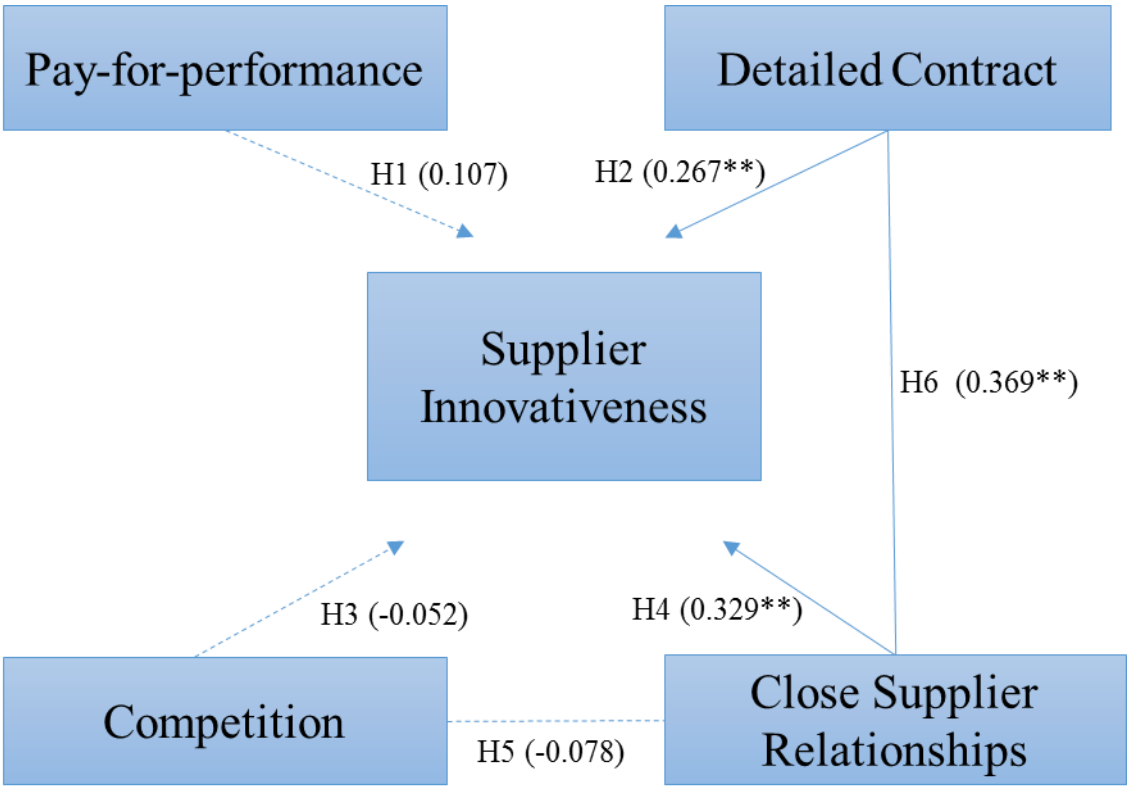

Figure 6: Adjusted Research Model

5. Discussion and Conclusion

This section will cover the implications of the findings for theory and practice. We will discuss and analyze the results presented in Section 4. Based on the results we will try to draw conclusions and raise managerial implications from the findings. The discussion of the results for each hypotheses will be divided in their own sections, before drawing a general conclusion. This section will further look into limitations for the findings and future research opportunities.

5.1 Hypothesis 1 – Pay-for-Performance and Supplier Innovativeness

Hypothesis 1 stated that pay-for-performance for the supplier will have a positive impact on supplier innovativeness, meaning that a performance based contract should lead to the supplier being more innovative. This hypothesis was not supported in our study. We found no significant effect showing that if suppliers are paid in relation to their performance it will lead to more innovation. This is a finding that is contradictory to the findings from the article by Sumo et.al (2014), where they found a correlation between pay-for-performance and both radical and incremental innovation. An earlier article by Sumo et. al (2012) suggested that pay-for-performance in relation to innovation were a relatively unexplored field of study which required more research. Sumo et. al did research this relationship in the article published in 2014, but the field of study is still relatively unexplored. It is interesting that our findings contradict the study by Sumo et. al (2014). Our findings underpin the suggestion by Sumo et. al (2012) that performance based contracts, pay-for-performance and innovation should be further researched in order to achieve generic results. This leads to the theoretical implication from our finding, that one should further research the relationship between performance based contracts and supplier innovativeness. The subject needs more research before one can make statements whether bonuses for the supplier based on performance will lead to the supplier being more innovative or not. Other theory studied have also stated that companies should construct their contracts in order to maximize the incentives for the supplier to be innovative(Domberger, 1998). The findings from our study suggests that performance and reward schemes in the contract may actually not promote the supplier to be more innovative. The findings may indicate that instead of putting much effort into reward schemes for their suppliers, the companies should focus on other areas of supplier management when they want to achieve innovative deliveries. Companies should understand that constructing incentives

based on pay-for-performance may actually not promote the supplier innovativeness as one might think. However, as already stated this subject should be further researched.

5.2 Hypothesis 2 – Detailed Contracts and Supplier Innovativeness

Hypothesis 2 anticipated a positive relationship between formal contracts and supplier innovativeness. More specifically hypothesis 2 stated that a detailed contract will lead to supplier innovativeness. The results from the study supported the hypothesis. The findings show a statistically significant positive effect of detailed contracting on suppliers' innovativeness. These results relates to other theory studying this relationship. A detailed contract forms the foundation for a good and stable relationship with the supplier. A contract is used to avoid uncertainty, and studies show that companies that are more tolerant of power distance in the supply chain show a greater propensity to write detailed contracts(Wuyts & Geyskens, 2005). Poppo and Zenger (2002) found in their study a complementary relationship between formal contracts and relational governance. Our results supports their findings and also indicates that a formal contract may form the basis for a healthy supplier relationship, which will contribute to innovation. Establishing a formal contract may require negotiations where the buyer and supplier meet. Meetings and contract follow-up can promote a closer relationship between the two parties. Our study shows that a detailed contract can increase the probability of achieving innovative deliveries from suppliers. The managerial implication from this is that companies should establish formal contracts with their suppliers for key-deliveries. A detailed contract can promote supplier innovativeness, and form the foundation for a healthy supplier relationship. A formal contract is good for the supplier relationship and innovation, but perhaps only up to a certain point. If the contract has a very detailed specification it will give the suppliers little room for new ideas and alternative solutions. The findings from our study shows that a detailed contract is good for supplier innovativeness, but we did not research if this effect has a turning point where the contract is far too detailed. Purchasers and contract engineers should try to keep a balance, and complex deliveries require a more detailed contract specification. A detailed contract can be a tool for achieving innovative deliveries from suppliers, and companies should therefore establish formal contracts with their key-suppliers in their procurement practice.

5.3 Hypothesis 3 – Competition and Supplier Innovativeness

The expectation for hypothesis 3 was that a high level of competition would foster innovation. Hypothesis 3 stated that competition should lead to suppliers being more innovative. Hypothesis 3 was not supported. The results from the study did not show any statistically significant relationship between the level of competition and suppliers' innovativeness. This means that the study did not find that competition will lead to suppliers being more innovative. The study looked at competition in the suppliers' industry and could not find a significant effect. The basis for this hypothesis was theory stating that competition fosters innovation(Domberger, 1998). This is a statement that we still believe could be correct, but in a buyer-supplier relationship we could not find this effect to be significant. In general it might be correct that a competitive environment enhances the chance for innovation. This is because when there is an environment characterized by competition, it may force companies to think 'outside the box' and come up with new solutions to differentiate from their competitors. However, as already stated, the findings did not show this effect of competition on supplier innovativeness. The subject should be further studied in order to be able to draw any conclusions.

Competition and close supplier relationships are two variables that we expected to be in conflict. The reasoning was that it will be hard for companies to maintain both a high level of competition simultaneously as maintaining a close supplier relationship. Therefore we did not believe there could be a significant positive effect on innovation for both of these factors on innovation. Close supplier relationship will be discussed in the next section, but we can reveal that there was found a positive effect of having a close relationship with the supplier on suppliers' innovativeness. The relationship between competition and close supplier relationship was also tested, and will be further discussed in *Section 5.5 Hypothesis 5*. There was no significant effects found in the relationship between the two variables.

5.4 Hypothesis 4 – Close Supplier Relationships and Supplier Innovativeness

Hypothesis 4 anticipated that having a close relationship with your supplier would lead to the supplier being more innovative. Hypothesis 4 was highly supported. The results showed a strong connection between a close supplier relationship and supplier innovativeness. The results showed a significant effect even on a 1% significance level. The findings shows that it is very important for managers to focus on having a close relationship with suppliers for key-

deliveries. When the relationship between buyer and supplier is close, it leads to the supplier being more involved. The supplier may then be more involved in early phases of new product development which is known to lead to innovative deliveries(Goffre et al., 2005). A close supplier relationship will also lead to the supplier having a better understanding of the needs of the buyer. A close relationship then makes the supplier able to offer new technology that fits the needs of the buyer. The deliveries from a close supplier may be more suitable and targeted for the needs of the buyer. The results from our study shows that a close supplier relationship is what makes the greatest impact on supplier innovativeness. The transfer of knowledge is better between buyers and suppliers that have a close relationship(Domberger, 1998). In a close supplier relationship it might be likely that the company has a somewhat preferred customer status with their supplier. If the company is a 'preferred customer' it is more likely that the suppliers will pay both more attention and loyalty towards the company(Hüttinger, 2011). As already stated, a close relationship with your supplier will lead to a greater exchange of knowledge, which again may provide a basis for inter-organizational innovative capabilities(Hüttinger, 2011). A close supplier relationship was found as the main factor to promote supplier innovativeness in our study. Companies should therefore allocate resources to maintaining a close and healthy relationship with their suppliers for important deliveries. A close supplier relationship can lead to the supplier giving the company more innovative solutions.

5.5 Hypothesis 5 – Competition and Close Supplier Relationships

As previously mentioned, hypothesis 5 expected that the variable competition and the variable close supplier relationship were substitutes for each other. Hypothesis 5 anticipated that having a close supplier relationship would be hard to maintain while also maintaining high levels of competition. This hypothesis was the only hypothesis that were solely based on practical observations, and not theory. The results showed no statistically significant effect of a substitute relationship between the two variables of competition and close supplier relationship, and the hypothesis was therefore not supported. The findings indicate that having high levels of competition will not be a stopper for having a close relationship with your supplier. From the findings we can conclude that companies can have a competitive tender process as well as maintaining a close supplier relationship, which means that it may not reduce the probability of achieving innovative deliveries. It may be worth to mention again that we did not find any positive effect of competition on supplier innovativeness, but it does not mean that competition

reduces supplier innovativeness. Having a competitive tendering process is normal procedure in many companies, and it is good for managers to know that competition is not a variable in conflict with a close supplier relationship. Competition was not found to promote supplier innovativeness, but since it is not in conflict with having close supplier relationships, it means that it is not hurtful for the process of achieving innovation.

5.6 Hypothesis 6 – Detailed contracts and Close Supplier Relationships

Hypothesis 6 anticipated that detailed contracts and close supplier relationship were complements. By being complements it means that having a formal contract may promote a close relationship. The findings in this paper shows a significant positive effect on the relationship between close supplier relationship and detailed contracting. The finding supports the already detected complementary relationship between formal contracts and relational governance found by Poppo and Zenger (2002) in their study. The same result is also found in other theory. Wuyts and Geyskens (2005) found a positive significant effect between detailed contract and close supplier relationship. This relationship is supported by several studies which indicated that having a close relationship with your supplier and having a detailed contract in place is crucial for success.

Having a formal contract may form the basis for developing a close and healthy supplier relationship. A detailed contract sets the guidelines and the expectations between the two parties. Having a detailed formal contract may require work from both parties in negotiations. The parties often have to meet in these contract negotiations which mean that it may create a bound between the two parties already in that phase of the procurement stage. It is our casual observation that most companies have a formal contract established for the suppliers they use often. Having a formal contract means that the terms & conditions of the procurement should be agreed upon, which may make it easier to continue purchasing products or services from that same supplier. Therefore it seems natural that formal contracts and close supplier relationships are complementary, which is supported by the results in this study.

5.7 Theoretical and Managerial Implications

Theoretical implications from this study are among other that performance based contracts and competition need to be further examined before one can conclude on their relation with innovation. The findings in this paper on performance based contracts are contradictory to other

studies. We found no effect of a pay-for-performance scheme on supplier innovativeness. This is contradictory to other studies, which implicates that it is a field of study that needs further examination. Performance based contracts and supplier innovativeness should be further researched before one can draw generic conclusions on the subject. Theoretical, practical and casual observations on competition expected competition to foster supplier innovativeness. However, the results from this paper did not show any statistical effect of competition on innovation. We suggest that the relationship between competition and innovation also should be further researched.

The main managerial implication from this paper is that companies need to focus and put effort into the relationship with their supplier. Our study found that having a close and healthy relationship with your suppliers will increase the chance of achieving innovative deliveries. Managers need to put resources into maintaining a close relationship with their suppliers. Especially suppliers for critical and key-deliveries. Companies should strive for achieving a preferred customer status, which will increase the chance of the supplier being more innovative. This is because a close relationship with your suppliers will make the suppliers more loyal and they will put more effort into your company.

Establishing formal contracts with suppliers will help sustaining ties between company and supplier. The findings from this study shows that a detailed contract can be a tool for achieving supplier innovativeness. It means that managers should establish the process of having detailed formal contracts with their key-suppliers. A formal contract and a close supplier relationship may also make the contracting of services more seamless. For complex deliveries it is especially important to have a detailed contract. Another finding from our research was that detailed contracts and close supplier relationships function as complements. It means that managers do not have to be afraid that detailed contracts can hurt the supplier relationship, because the effect is actually opposite. A detailed contract can strengthen the supplier relationship, and both detailed contracts and close supplier relationships can contribute to suppliers' innovativeness.

5.8 Conclusion

The overall aim has been to examine how companies can facilitate for innovative deliveries from their suppliers. The main purpose has been to look at how contract mechanisms can promote supplier innovativeness. Based on the study conducted in this paper, having a close

supplier relationship stands out as a very important factor for achieving supplier innovativeness. In a close relationship with a supplier, the information exchange and the knowledge exchange is greater than in a poor supplier relationship. When you have a good information exchange it increases the possibility of achieving innovation. A reason for that can be because the supplier better understand the needs of their buyer. Close supplier relationships will contribute to a more seamless production. Studies have shown that an early supplier integration in new product development can foster innovation. Early supplier integration is more likely to happen in a close supplier relationship. A close supplier relationship can lead to the suppliers paying more attention and loyalty towards the company.

Our findings show that having a detailed formal contract also points out as a factor for facilitating for supplier innovativeness. A detailed contract was found to be complementary to a close supplier relationship, which means that one does not exclude the other. Companies can have a close relationship with their supplier and also have a detailed and formal contract in place. The work of establishing a formal contract, requires the parties to come together in negotiations. This work may be a time consuming process, and the parties will automatically develop a relationship. Having a detailed contract will reduce uncertainty in a buyer-supplier relationship, and may contribute to a more healthy relationship between the buyers and suppliers. This is because a contract may be very useful in situations when disagreements occur. A contract may also state that the company should be the preferred customer for the supplier, which will lead the suppliers to having to prioritize the company in some situations. A preferred customer status can lead to the supplier being more focused and loyal towards the company, which again can lead to innovative deliveries. A formal contract forms the foundation for the supplier relationship, and the results from our study show that a detailed contract can contribute to supplier innovativeness.

The study in this paper tried to find a relationship between competition and supplier innovativeness, but did not succeed. There was no significant effect that competition would enhance the chance of suppliers being innovative. It indicates that a close supplier relationship is more important for facilitating for supplier innovativeness. The findings in this study clearly points at close supplier relationship to be the important factor for achieving innovation. Pay-for-performance or performance based contracts were believed to foster innovation, however the study did not find any significant effect. Therefore performance based contracts are not shown to promote innovation, but it does not mean that it will do the opposite. It seems like the incentives made in a contract cannot outdo the importance of a close relationship with the

supplier. Companies should allocate resources and focus on having close relationships and detailed contracts with their key suppliers.

5.9 Limitations

The results in our paper must be interpreted in view of certain limitations. In this section we will discuss the limitations in this paper. The study of this paper is an investigation of how companies can facilitate for innovative deliveries from their suppliers.

There are several limitations in the paper. When we conducted the survey we only asked two industries located in Norway; the oil and gas industry and the construction industry. For the survey to be more complete and the results more suitable for generalizing, more industries could have been included. Perhaps we should also have included companies outside Norway in order to have a broader population. However, having a defined population where the respondents cover a large part, makes a higher internal validity of the findings. This means that we can be more certain of the conclusions drawn for the chosen population; the internal validity is high. This is because in order to get findings that are applicable for the entire population, one should cover as much of the population as possible.

Another limitation of this paper is time. Because of the time limit we could not choose a larger population to study, because then we would not be able to get a dataset that would cover enough of the population. Because of the time limit we also did not have the time to ask all the companies that we intended to ask to participate in our survey. This resulted in having less respondents than what we could have achieved with having a larger timeframe.

The questionnaire was written and sent out to the respondents in English, which may have been another limitation. A lot of companies in Norway are using English as their working language, but not all the companies and all employees. We experienced two companies that had difficulties with the questionnaire being in English, and therefore did not want to respond. These two companies chose to give us feedback on it. There might be other companies as well that did not want to answer the questionnaire, because it was written in English.

In our questionnaire we mostly applied measures from different theory. The items where adapted from (Eibe Sørensen, 2009; Hüttinger, 2011; Sumo et al., 2014; Wuyts & Geyskens, 2005). Adapting the items from different theory is strengthening the reliability of the study. The reliability is supported by the Cronbach alpha test. However, the measures for the variable

competition may have been taken out of context. This could have made the measure of competition irrelevant, which might be why there was no statistically significant effect in the hypotheses where competition was a variable (Hypothesis 3 and 5).

5.10 Future Research

For future research it would be interesting to further investigate the variable of competition. A suggestion would be to look into competition specifically in the tendering process. Because the findings from this study could not find that competition in general foster innovation, it would be interesting to see if competition in the tender process may foster supplier innovativeness. The items used for measuring competition may have been a limitation of this paper, and therefore it would be interesting if others had investigated the subject further.

Another suggestion for future research is to do more research on pay-for-performance. Our hypothesis for pay-for-performance was not supported, and is a finding that is contradictory to the findings from the article by Sumo et.al (2014). They found a correlation between pay-for-performance and innovation. Pay-for-Performance and innovation is a relatively unexplored field of study which required more research. We suggest that one should further study the relationship between performance based contracts and supplier innovativeness in order to draw conclusions.

Detailed contracts is another field of study that would be interesting to further examine. The findings from this paper showed that detailed contracts correlates positively with supplier innovativeness and close supplier relationships. Having a detailed or formal contract seems to foster innovation. For future research we suggest investigating if there may be a point where this trend turns. It would be interesting to look into what would happen if the contract is far too detailed. Will the contract still foster supplier innovativeness or will the detailed specifications prevent new innovations? For future research we suggest investigating where and if there is a point where a detailed contract is far too detailed, that it may be a stopper for supplier innovativeness.

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Appendix A - Questionnaire

Questionnaire

Please fill in your basic company information before answering the questionnaire. The questionnaire has 2 parts consisting of 20 questions each.

Your job title*:

Company name*:

Number of employees*:

- 10-50
- 51-200
- 201-500
- 501-1000
- 1001-5000
- 5000+

PART 1

Think of one particular supplier that has shown excellent performance in product and process innovation when answering this section of the questionnaire.

1. The level of technological capability the supplier possesses and is willing to use for our products is high*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

2. The supplier is willing to share key technological information*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

3. This supplier is capable of supporting collaborative processes in product development and process improvement*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

4. This supplier is frequently proactive in approaching us with innovations*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

5. The supplier's rewards are linked to the outcomes of the service delivered*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

6. We have agreed with our supplier upon performance bonuses on top of the regular payment schemes when performance levels exceeds targets*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

7. The supplier is financially awarded for developing alternative/new ways of achieving the performance targets*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

8. This supplier has dedicated equipment, reserved equipment and reserved capacity specifically to maintain our purchasing relationship*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

9. This supplier has dedicated personnel to maintain our purchasing relationship*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

10. This supplier has purchased specialized equipment to meet our need for this key-input material*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

11. Competition in this supplier's industry is intense*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

12. Price competition is typical in this supplier's industry*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

13. Anything that this supplier can offer, competitors can match easily*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

14. In dealing with this supplier, our contract precisely defines the role of each partner*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

15. In dealing with this supplier, our contract precisely defines the responsibilities of each partner*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

16. In dealing with this supplier, our contract precisely states how each party is to perform*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

17. In dealing with this supplier, our contract precisely states what will happen in the case of events occurring that were not planned*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

18. When a tenderer offer a different solution that stands out from the other received offers , it complicates our evaluation procedure of the bids*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

19. In dealing with this supplier, our contract includes a detailed specification of the scope of work to be delivered*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

20. We always have a competitive tendering process before awarding a contract to this supplier*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

Additional comments (if any):

PART 2

Think of one particular supplier who has exhibited disappointing performance in relation to innovativeness (i.e., a supplier who has failed to contribute according to expectations)

Think of one particular supplier that has shown excellent performance in product and process innovation when answering this section of the questionnaire.

1. The level of technological capability the supplier possesses and is willing to use for our products is high*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

2. The supplier is willing to share key technological information*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

3. This supplier is capable of supporting collaborative processes in product development and process improvement*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

4. This supplier is frequently proactive in approaching us with innovations*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

5. The supplier's rewards are linked to the outcomes of the service delivered*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

6. We have agreed with our supplier upon performance bonuses on top of the regular payment schemes when performance levels exceeds targets*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

7. The supplier is financially awarded for developing alternative/new ways of achieving the performance targets*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

8. This supplier has dedicated equipment, reserved equipment and reserved capacity specifically to maintain our purchasing relationship*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

9. This supplier has dedicated personnel to maintain our purchasing relationship*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

10. This supplier has purchased specialized equipment to meet our need for this key-input material*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

11. Competition in this supplier's industry is intense*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

12. Price competition is typical in this supplier's industry*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

13. Anything that this supplier can offer, competitors can match easily*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

14. In dealing with this supplier, our contract precisely defines the role of each partner*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

15. In dealing with this supplier, our contract precisely defines the responsibilities of each partner*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

16. In dealing with this supplier, our contract precisely states how each party is to perform*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

17. In dealing with this supplier, our contract precisely states what will happen in the case of events occurring that were not planned*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

18. When a tenderer offer a different solution that stands out from the other received offers , it complicates our evaluation procedure of the bids*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

19. In dealing with this supplier, our contract includes a detailed specification of the scope of work to be delivered*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

20. We always have a competitive tendering process before awarding a contract to this supplier*

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

Additional comments (if any):

* This question must be answered.

Appendix B – Descriptive Statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
Item1	92	1,00	7,00	4,9457	1,48520	-,748	,251
Item2	92	1,00	7,00	4,6196	1,53238	-,625	,251
Item3	92	1,00	7,00	4,6739	1,40727	-,558	,251
Item4	92	1,00	7,00	3,9674	1,66047	-,065	,251
Item5	92	1,00	7,00	3,7609	1,77510	-,098	,251
Item6	92	1,00	7,00	2,4674	1,84838	1,088	,251
Item7	92	1,00	7,00	2,7500	1,78285	,613	,251
Item8	92	1,00	7,00	4,0870	1,67498	-,355	,251
Item9	92	1,00	7,00	4,8804	1,66965	-,661	,251
Item10	92	1,00	7,00	3,8696	1,77416	-,172	,251
Item11	92	1,00	7,00	5,3478	1,50044	-,697	,251
Item12	92	1,00	7,00	4,9457	1,73119	-,668	,251
Item13	92	1,00	7,00	4,5761	1,68532	-,332	,251
Item14	92	2,00	7,00	5,5217	1,31332	-,718	,251
Item15	92	2,00	7,00	5,5870	1,34370	-1,065	,251
Item16	92	2,00	7,00	5,4130	1,27660	-,692	,251
Item17	92	1,00	7,00	5,2717	1,43046	-,701	,251
Item18	92	1,00	7,00	4,6630	1,36902	-,442	,251
Item19	92	3,00	7,00	5,6957	1,29019	-,571	,251
Item20	92	1,00	7,00	5,4783	1,55823	-,983	,251
Valid N (listwise)	92						

Appendix C - Factor Analysis

Communalities

	Initial	Extraction
Item1	1,000	,755
Item2	1,000	,729
Item3	1,000	,766
Item4	1,000	,637
Item5	1,000	,496
Item6	1,000	,834
Item7	1,000	,799
Item8	1,000	,746
Item9	1,000	,767
Item10	1,000	,778
Item11	1,000	,691
Item12	1,000	,736
Item14	1,000	,834
Item15	1,000	,859
Item16	1,000	,789
Item17	1,000	,507
Item19	1,000	,462

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5,218	30,693	30,693	5,218	30,693	30,693	3,549	20,878	20,878
2	2,446	14,388	45,081	2,446	14,388	45,081	2,864	16,845	37,723
3	1,721	10,126	55,207	1,721	10,126	55,207	2,138	12,575	50,298
4	1,481	8,710	63,917	1,481	8,710	63,917	2,100	12,352	62,649
5	1,319	7,760	71,677	1,319	7,760	71,677	1,535	9,028	71,677
6	,853	5,015	76,692						
7	,745	4,385	81,077						
8	,596	3,508	84,584						
9	,528	3,105	87,690						
10	,453	2,662	90,352						
11	,399	2,348	92,699						
12	,313	1,839	94,538						
13	,281	1,656	96,194						
14	,216	1,268	97,461						
15	,178	1,048	98,509						
16	,145	,854	99,363						
17	,108	,637	100,000						

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component				
	1	2	3	4	5
Item1	,667	,180	-,472	,172	-,158
Item2	,757	,108	-,183	,271	-,194
Item3	,628	,334	-,470	,187	-,064
Item4	,567	,435	-,279	,180	-,129
Item5	,181	,185	,618	-,214	,029
Item6	,342	,569	,522	,327	-,117
Item7	,311	,574	,521	,113	-,296
Item8	,688	,206	,057	-,335	,339
Item9	,508	,125	-,173	-,199	,651
Item10	,596	,358	,110	-,234	,477
Item11	,165	-,371	,242	,619	,291
Item12	-,013	-,222	,164	,680	,444
Item14	,753	-,445	,126	-,137	-,186
Item15	,735	-,519	,079	-,126	-,164
Item16	,655	-,552	,175	-,143	-,068
Item17	,616	-,212	,235	-,093	-,139
Item19	,460	-,471	-,029	,167	-,015

Extraction Method: Principal Component Analysis.

a. 5 components extracted.

Rotated Component Matrix[a]

	Component				
	1	2	3	4	5
Item1	,237	,821	,142	-,044	-,045
Item2	,398	,721	,097	,178	,100
Item3	,086	,839	,231	,011	-,032
Item4	,037	,744	,183	,212	-,062
Item5	,159	-,277	,230	,578	-,083
Item6	-,058	,253	,071	,855	,172
Item7	-,003	,202	,003	,866	-,089
Item8	,308	,221	,741	,192	-,129
Item9	,094	,200	,833	-,126	,098
Item10	,109	,201	,807	,273	-,017
Item11	,229	-,027	-,035	,029	,797
Item12	-,051	-,040	,020	-,020	,855
Item14	,886	,173	,123	,057	-,019
Item15	,905	,161	,110	-,027	,012
Item16	,873	,018	,148	-,016	,067
Item17	,647	,126	,141	,228	-,009
Item19	,583	,163	,006	-,145	,274

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.[a]

a. Rotation converged in 6 iterations.

Component Transformation Matrix

Component	1	2	3	4	5
1	,666	,560	,431	,234	,045
2	-,651	,379	,248	,544	-,275
3	,211	-,585	,001	,759	,194
4	-,166	,376	-,388	,128	,815
5	-,245	-,244	,776	-,240	,469

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Appendix D - Reliability

Supplier Innovativeness

Case Processing Summary

		N	%
Cases	Valid	92	100,0
	Excluded[a]	0	,0
	Total	92	100,0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
,853	4

Item Statistics

	Mean	Std. Deviation	N
Item1	4,9457	1,48520	92
Item2	4,6196	1,53238	92
Item3	4,6739	1,40727	92
Item4	3,9674	1,66047	92

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item1	13,2609	15,096	,734	,796
Item2	13,5870	15,102	,699	,810
Item3	13,5326	15,636	,733	,799
Item4	14,2391	14,997	,623	,846

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
18,2065	25,770	5,07642	4

Pay for Performance

Case Processing Summary

		N	%
Cases	Valid	92	100,0
	Excluded[a]	0	,0
	Total	92	100,0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
,701	3

Item Statistics

	Mean	Std. Deviation	N
Item5	3,7609	1,77510	92
Item6	2,4674	1,84838	92
Item7	2,7500	1,78285	92

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item5	5,2174	11,623	,292	,865
Item6	6,5109	8,209	,631	,458
Item7	6,2283	8,222	,676	,402

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
8,9783	18,307	4,27869	3

Close Supplier Relationship

Case Processing Summary

		N	%
Cases	Valid	92	100,0
	Excluded[a]	0	,0
	Total	92	100,0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
,810	3

Item Statistics

	Mean	Std. Deviation	N
Item8	4,0870	1,67498	92
Item9	4,8804	1,66965	92
Item10	3,8696	1,77416	92

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item8	8,7500	9,201	,688	,710
Item9	7,9565	9,932	,596	,801
Item10	8,9674	8,603	,696	,700

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
12,8370	18,995	4,35834	3

Competition

Case Processing Summary

		N	%
Cases	Valid	92	100,0
	Excluded[a]	0	,0
	Total	92	100,0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
,593	2

Item Statistics

	Mean	Std. Deviation	N
Item11	5,3478	1,50044	92
Item12	4,9457	1,73119	92

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item11	4,9457	2,997	,426	.
Item12	5,3478	2,251	,426	.

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
10,2935	7,462	2,73173	2

Detailed Contract

Case Processing Summary

		N	%
Cases	Valid	92	100,0
	Excluded[a]	0	,0
	Total	92	100,0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
,863	5

Item Statistics

	Mean	Std. Deviation	N
Item14	5,5217	1,31332	92
Item15	5,5870	1,34370	92
Item16	5,4130	1,27660	92
Item17	5,2717	1,43046	92
Item19	5,6957	1,29019	92

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item14	21,9674	17,768	,825	,797
Item15	21,9022	17,276	,854	,788
Item16	22,0761	18,357	,790	,807
Item17	22,2174	19,930	,521	,877
Item19	21,7935	21,418	,464	,885

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
27,4891	28,626	5,35035	5

Appendix E - Descriptive Statistics for the Constructed Variables

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Supplier_innovativeness	92	1,00	7,00	4,5516	1,26911	-,612	,251	-,357	,498
Pay_for_performance	92	1,00	6,67	2,9928	1,42623	,634	,251	-,293	,498
Close_supplier_relationship	92	1,00	7,00	4,2790	1,45278	-,437	,251	-,599	,498
Competition	92	2,00	7,00	5,1467	1,36587	-,306	,251	-,802	,498
Detailed_contract	92	3,00	7,00	5,4978	1,07007	-,492	,251	-,519	,498
Valid N (listwise)	92								

Appendix F - Correlations

Correlations

		Supplier_innovativeness	Pay_for_performance	Close_supplier_relationship	Competition	Detailed_contract
Supplier_innovativeness	Pearson Correlation	1	,222*	,455**	-,019	,387**
	Sig. (2-tailed)		,034	,000	,854	,000
	N	92	92	92	92	92
Pay_for_performance	Pearson Correlation	,222*	1	,270**	-,006	,095
	Sig. (2-tailed)	,034		,009	,955	,368
	N	92	92	92	92	92
Close_supplier_relationship	Pearson Correlation	,455**	,270**	1	-,022	,357**
	Sig. (2-tailed)	,000	,009		,837	,000
	N	92	92	92	92	92
Competition	Pearson Correlation	-,019	-,006	-,022	1	,152
	Sig. (2-tailed)	,854	,955	,837		,149
	N	92	92	92	92	92
Detailed_contract	Pearson Correlation	,387**	,095	,357**	,152	1
	Sig. (2-tailed)	,000	,368	,000	,149	
	N	92	92	92	92	92

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Appendix G – Multiple Regression Analysis 1

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Detailed_contract, Pay_for_performance, Competition, Close_supplier_relationship[b]	.	Enter

a. Dependent Variable: Supplier_innovativeness

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,527[a]	,278	,244	1,10321	,278	8,356	4	87	,000

a. Predictors: (Constant), Detailed_contract, Pay_for_performance, Competition, Close_supplier_relationship

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	40,681	4	10,170	8,356	,000[b]
	Residual	105,886	87	1,217		
	Total	146,567	91			

a. Dependent Variable: Supplier_innovativeness

b. Predictors: (Constant), Detailed_contract, Pay_for_performance, Competition, Close_supplier_relationship

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,545	,736		2,101	,039
	Pay_for_performance	,096	,084	,107	1,135	,260
	Close_supplier_relationship	,287	,088	,329	3,252	,002
	Competition	-,048	,086	-,052	-,564	,574
	Detailed_contract	,316	,117	,267	2,694	,008

a. Dependent Variable: Supplier_innovativeness

Appendix H – Multiple Regression Analysis 2

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Detailed_contract, Competition[b]	.	Enter

a. Dependent Variable: Close_supplier_relationship

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,365[a]	,133	,114	1,36782	,133	6,828	2	89	,002

a. Predictors: (Constant), Detailed_contract, Competition

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	25,548	2	12,774	6,828	,002[b]
	Residual	166,513	89	1,871		
	Total	192,062	91			

a. Dependent Variable: Close_supplier_relationship

b. Predictors: (Constant), Detailed_contract, Competition

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,051	,958		2,141	,035
	Competition	-,099	,134	-,073	-,738	,462
	Detailed_contract	,497	,135	,366	3,683	,000

a. Dependent Variable: Close_supplier_relationship