



# Master's degree thesis

**LOG950 Logistics**

**Outsourcing of activities related to international transportation of system packages for ships in Havyard**

Jørgen Bang Hovde

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## **Preface**

If the starting point of the present work was when the author first began in collaboration with Havyard to evaluate different possible topics, the work was started late February 2013. Of course it was interrupted by holidays, and also the academic autumn semester of 2013 which was dedicated to intensive one week courses here at Molde University College. The thesis had the author's "exclusive" attention from the beginning of January 2014. It was finished towards the end of May 2014. Its completion marks a milestone for its author.

I would like to thank the informants from Havyard who were patiently being subject to numerous interviews by me. Their willingness to share of their knowledge of the industry and Havyards internal processes was essential for this thesis.

A big "thank you" is also directed to my supervisor Prof. Svein Bråthen for his valuable guidance and feedback.

Jørgen Bang Hovde  
Molde, May 2014

## Summary

This master thesis case study is about outsourcing and the company Havyard. More specifically it concerns Havyards practice of international trading of ships' system packages. In collaboration with Havyard it mapped the activities related to the information and coordination functions of the transportation part this trading practice. The activities were used as a basis for answering the research questions and testing the propositions.

The main research question asked was: In what way, if at all, should further outsourcing of the relevant transportation, information and coordination functions in Havyard take place? In the attempt to answer this three supporting research questions were formulated. 1) What main scenarios related to the demand and expansion of sales of system packages do Havyard believe is plausible for the near future, and how would these affect any need for outsourcing? 2) What are the main considerations facing Havyard in evaluating outsourcing of the mapped activities? and 3) What type of information is needed to be shared with a third party logistics provider (3PL) in order to outsource the mapped activities? Propositions were also formulated, mainly on the basis of Transaction cost economics (TCE). A twist to the classical TCE-propositions was made however, in that "employees' recommendation to outsource/not outsource the activity" was used instead of the activities actual ownership. A reason for this choice was that the trading operations were relative newly started in Havyard, in 2012, and therefore an "adjustment process" could perhaps be expected before the classical TCE-propositions can be tested in a fair way.

The highlights of the findings are:

- Six of the 12 activities required the use of highly sensitive information for execution. Of the remaining six activities five included somewhat sensitive information. Only the activity that was already outsourced did not involve the use of any sensitive information. Highly sensitive information in this context is defined in the propositions section below.
- The need to use highly sensitive information in the mapped activities did not seem to be associated with employees' recommendation "not to outsource" the activity.
- Employees' considerations that clearly excluded the possibility of outsourcing only existed for a minority of the mapped activities.

- It mattered very little for the employees' recommendation to outsource or not if, in 2016, the demand stayed on the same level as in 2012 or if it increased by a lot ("scenario 3" as presented in the case description).
- Eleven of the original twelve activities were applicable to the TCE-propositions. Of these, only in four of the activities was the corresponding TCE-propositions supported by the data. Of these four, one activity was already outsourced.
- Based on these results, activity number 3 and 11 should be seriously considered for outsourcing as both employee recommendation and the TCE-prediction pointed towards outsourcing. Activities number 5 and 8 should probably also be seriously considered for outsourcing as most of the informants recommended that should be (outsourced).
- In three of the 12 activities the Resource-based view (RBV) seemed to have more accurate predictions of the data than the predictions based on TCE.

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## 1.3 Abbreviations.

**Table 1. Abbreviations used in this work.**

TCE	Transaction cost economics
RBV	Resource-based view
NIE	New institutional economics
SCM	Supply chain management
RQ	Research question
LC	Letter of credit
3/4PL	Third/fourth party logistics provider
K+N	Kuehne+Nagel
CPO	Chief procurement officer, Havyard group AS.
PJM	Project manager, Havyard design & solutions AS.
PM	Purchasing manager, Havyard ship technology AS.
SC	Service coordinator, Havyard ship technology AS.

## **2.0 Case description**

### **2.1 Case introduction**

The present thesis deals with the question of what activities related to international transportation of ships' equipment packages that should be outsourced. These packages are partly bought from suppliers and partly manufactured by Havyard, before they are integrated into a bundle and sold to an end customer. Currently the actual physical transportation activities and a certain amount of related information based work are outsourced to a 3PL, Kuehne + Nagel (K+N). Havyard is concerned with the questions of whether a 3PL could take over even more functions.

The term "system package" is in this thesis used to mean all the components Havyard orchestrates and (re)sells to one customer in the timespan of one "sales project" to one final customer. The packages are currently being sold to customers in Spain and China, but expansions are planned.

### **2.2 Research questions**

The main research question (RQ) triggered a long investigation, recorded in the literature survey, on what theoretical material could be helpful to answer it. It is hopefully justified in that it allowed scientifically interesting propositions to be constructed, to facilitate its answer, based on the relevant academic literature. The main RQ was jointly agreed upon by the author of this study, his supervisor, and the main informant from Havyard. In order to assist the building up to a satisfactory answer of the main RQ three additional RQs were constructed. Each of these supporting RQs gave rise to one proposition each. The propositions are treated in a separate section further down.

Main research question (RQ):

1. In what way, if at all, should further outsourcing of the relevant transportation, information and coordination functions in Havyard take place?

Supporting RQs:

1. What main scenarios related to the demand and expansion of sales of system packages do Havyard believe is plausible for the near future, and how would these affect any need for outsourcing?
2. What are the main considerations facing Havyard in evaluating outsourcing of the mapped activities?
3. What type of information is needed to be shared with a 3PL in order to outsource the mapped activities?

### **2.3 About the focal company**

Havyard Group AS is a shipbuilding company established in 2000. It is fully integrated in the sense that it delivers products and services within the complete value chain from vessel design to support of vessels in operation (Halvorsen, 2012). Havyard deliver ship designs, ship equipment, constructs advanced vessels for offshore oil production as well as fishing and fish farming, for shipyards and ship owners in a global context. It aims at having the best competence within all the vital segments of the value chain (Havyard, 2013). The group is divided into the following business units: Havyard design & solutions, Havyard ship technology, Havyard power & systems and MMC. It has about 650 employees worldwide. 550 in Norway, and 100 outside Norway (Havyard, 2013a). The group's head

office is in Fosnavåg, south of Ålesund. The shipyard, Havyard Ship Technology AS, is located about 260 km from the main office, at Leirvik in Sogn (Kvalsvik, 2012). In 2012 the group had revenues of 1600 million kroner before tax. They are among the four biggest shipbuilders in Norway together with Ulstein, Kleven, Vard and Bergen Group (Havyard, 2013b). The group is owned by Havila AS which is also headquartered in Fosnavåg (Havila, 2013).

## 2.4 Financial and technical data:

One system package typically has a value of 60-100 million NOK (Havyard, 2013b). Typical yearly revenue is about 500 million kroner, and a profit margin of 25 to 50 percent is considered very satisfactory, although in 2012 it was less than this. That year Havyard resold four system packages, and paid K+N about 2 million NOK for the transportation related tasks. K+N are paid on a per job basis, which is based on a price list.

**Figure 1: An example of a list of component and batches in a system package.**

P-10200, Havyard 820, Equipment ship no.1 (Yard no. C721). Ship delivery 15.01.2014								
Delivery Terms: CIP Ast Zamakona Pasaia according to INCOTERMS 2010. Place of delivery: Havyard HUB (Bergen or Rotterdam)								
Sfi	Description of equipment	Unit	Qty	Value (NOK)	Supplier origin	Supplier	Agreed delivery time of equipment from Havyard HUB	Delivery Batch no.
401	Rudder Trunk	Set	2		Germany	Becker	01.02.2013	1
403	Steering Gear	Set	2		Germany	Hafapa	01.02.2013	1
404	Tunnel thruster (TT)	Set	1		Norway	Frydenbe / Schottel	01.02.2013	1
404	Retractable thruster (RTR)	Set	1		Norway	Frydenbe / Schottel	01.02.2013	1
<b>Sum Batch 1</b>				<b>6 242 855</b>				
634	Propeller nozzle	Set	2		Norway	Scana Volda	31.05.2013	2
651	Main Generator set	Set	2		Norway	Nogva	31.05.2013	2
667	Shaft generators	Set	2		Norway	NES	31.05.2013	2
437	Shark Jaws and Towing Pins	Set	1		Norway	Triplex	31.05.2013	2
401	Rudder (blade, stock)	Set	2		Germany	Becker	31.05.2013	2
601	Main Engines	Set	2		Germany	MAN	31.05.2013	2
634	Propeller plant	Set	2		Norway	Scana Volda	31.05.2013	2
637	Main Gears	Set	2		Norway	Scana Volda	31.05.2013	2
432	Anchor Windlass, Chain Stoppers and HPP unit	Set	1		Germany	Hafapa	31.05.2013	2
414	Echo Sounder & Speed Log (bottom Equipment)	Set	2		Norway	Havyard	31.05.2013	2
<b>Sum Batch 2</b>				<b>26 204 155</b>				
665	Emergency Generator	Set	1		Norway	Nogva	19.07.2013	3
501	Davit for FRC and towing boom for FRDC	Set	3		Norway	Maritime Partner	19.07.2013	3
41x42x	NAVCOM	Set	1		Norway	Havyard	19.07.2013	3
546	Entertainment (TVRO)	Set	1		Norway	Havyard	19.07.2013	3
791	Bridge and Engine room consoles	Set	1		Norway	Havyard	19.07.2013	3
792	Integrated Automation System (IAS), incl. PMS and tank sounding	Set	1		Norway	Havyard	19.07.2013	3
871	Main Switchboard	Set	1		Norway	NES	19.07.2013	3
872	Emergency Switchboard	Set	1		Norway	NES	19.07.2013	3
404	El motors for thrusters, Y/D starter for TT, Quadro drive for RTR	Set	1		Norway	NES	19.07.2013	3
<b>Sum Batch 3</b>				<b>14 428 385</b>				
331	Rotating Deck Cranes	Set	2		Norway	TTS	18.10.2013	4
501	FRC Mob boat	Set	1		Norway	Maritime Partner	18.10.2013	4
434	Mooring Capstans and Tugger Winches	Set	1		Germany	Hafapa	18.10.2013	4
437	Towing Winch	Set	1		Germany	Hafapa	18.10.2013	4
<b>Sum Batch 4</b>				<b>7 291 885</b>				
Sum value Vessel 1 delivered batches (80% of contract value)				54 167 280				
Advance payment at contract (20% of contract value)				13 547 400				
Sum Vessel 1 (100% of contract value)				67 714 680				

Agreed delivery time of equipment from Havyard HUB based on effective contract between Yard and Havyard 20.06.2012

Figure 1. From Havyard 2013c.

## 2.5 Description of the shipment process

### 2.5.1 Rudimentary description

Normally the customer of Havyard is a shipyard, although in special cases it can be a shipping company (Havyard, 2013b). However, it is the shipping company, and not the shipyard, that usually initiates contact with Havyard. The reason for this is that a shipping company may believe that Havyard can provide a better solution than the end customer shipyard. Havyard normally sells a ship design as well as a system package to this end customer. This thesis is not concerned with the ship design part of the business.

When an order is placed for a system package Havyard instruct its suppliers of the necessary configuration of the components and place its own orders. One system package is typically split into several shipment batches that include several components each. Suppliers may be from all over the world. Examples are Norway, Germany and China. Transport and handling from suppliers to the two storage hubs in Rotterdam and Bergen is the responsibility of the suppliers. The two main arguments for why this is so, according to the purchasing manager (PM), is that such a responsibility would involve more follow-up work and more risk (Havyard, 2014a). He is not sure if it would be beneficial in terms of economy for Havyard to hold such a responsibility, and this master thesis this not look further into that possibility. Another related issue is why suppliers can not be instructed to simply send goods directly to end customer, without stopping at the Havyard hubs. The main reason given was that the current solution is more cost efficient. Further reasons may be that the equipment needs to be controlled for faults, and document replacements have to take place as the end customer purchase from Havyard and not Havyards supplier, before shipment to end customer. The hubs provide a space for such operations. Also, one batch can include equipment from many suppliers.

Transport and handling from one of the two storage hubs to customs station/port of final customer is the responsibility of Havyard. Havyard has outsourced this function to K+N. In the storage hubs consolidation of goods take place. Havyard does not have its own people to receive and inspect the load. K+N do this. If no damage to the goods has been found at these hubs by K+N, then it is deemed free of damages, and it will be the legal responsibility of K+N if damages are registered at a later stage (Havyard, 2014a). One way K+N document their findings is by taking pictures of the goods. The risk for damages and losses is transferred to end customer when K+N start transporting the goods from hub. This is stated in Incoterms (Havyard, 2014b). Because of uncertainty in terms of time and costs of customs in the country of final customer, Havyard only specifies in the contract that they deliver to the boarder/customs/agreed on harbor of the destination country. To do otherwise would be to take on a large risk element (Havyard, 2014b).

**Figure 2: Information and materials flow.**

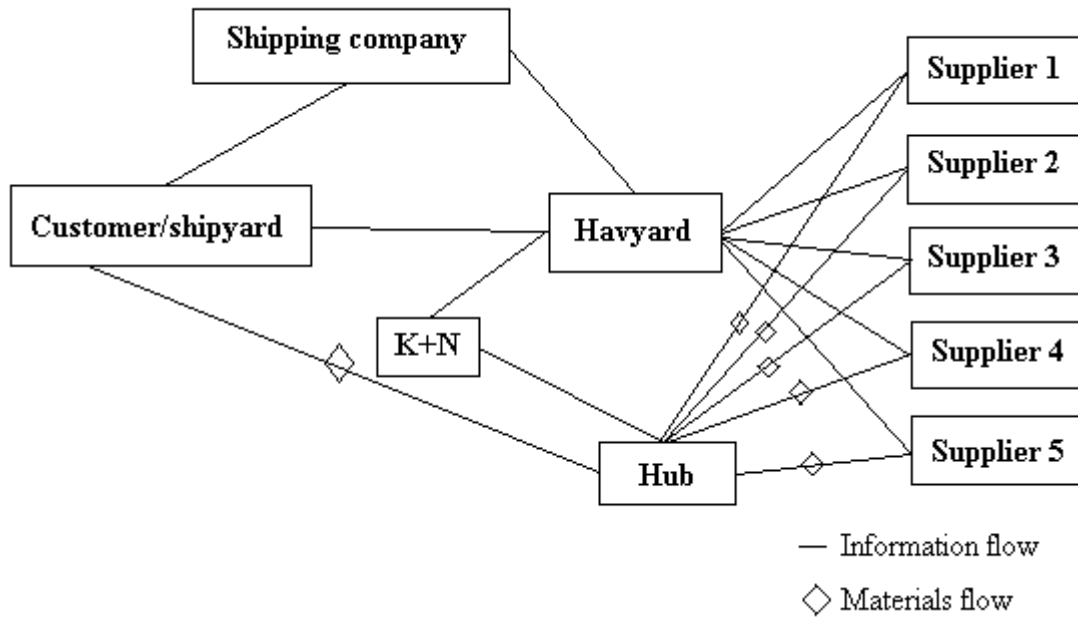


Figure 2. Composed by the author.

### 2.5.2 Note on the shipment method used by K+N:

Goods to China are sent by boat, while trucks are used for Spain. Sea is seen by PM as a possible alternative to road transport to Spain. 90 percent of what is sent to China is shipped in containers. Goods to Spain are not sent in containers. One advantage of this is that there are no container rental costs.

### 2.5.3 Customs and hub-transit procedures:

There are three main stages where customs are involved (Havyard, 2014c). When goods enter the hub in Bergen or Rotterdam, when goods leave the country again, and when goods enter the country of final destination. In the first case dealings with customs is the responsibility of the supplier. In the second case it is the responsibility of Havyard (or K+N). And in the last case it is the responsibility of end customer. It is not quite clear why the responsibilities are not analogous between supplier and Havyard (supplier have the responsibility to deal with customs in end-country, but not Havyard when they themselves operate as a supplier).

The goods are declared to customs as they leave the country of the hubs so that Havyard can get refunded any customs duty paid when goods entered the country. In the Netherlands Havyard own a company that handles most of this for the Rotterdam hub at least. The goods are stored in storage facilities until the paperwork is ok. The document used for this outbound customs declaration is a customs invoice currently made by Havyard. The values on this document are the prices Havyard paid supplier. For this process it is important that the value of the goods have not increased (on paper at least), as this could imply that the goods somehow has been changed so that other custom regulations would apply.

K+N remove all accompanying documents from the shipments from supplier before goods are sent off to final destination. However, the customs invoice is needed under transport in

case of inspections etc. This customs invoice is, PM believes, separated out from any other documents and kept by K+N upon final delivery. End customer use a different document, the commercial invoice, which has as value the price end-customer have paid Havyard for the goods. The commercial invoice is a requirement on the letter of credit (LC).

## **2.5.4 The relevant activities**

### **2.5.4.1 Presentation of the activities currently performed by Havyard**

In the sales phase before the contract with end customer is fully made the transportation costs must be calculated. This is a recurring problem (Havyard, 2014b; Havyard, 2014d). The transportation costs are needed in order to adjust the price in the contract with the end customer. Volume, size and weight on the equipment that is to be sent must be obtained in order to get a price estimate from 3PL.

Currently one staff member from Havyard coordinate almost everything related to the transportation function of system packages. This has not previously been the main job of the employee, but after deals were signed for two system packages in July 2012 the related activities started requiring almost one full time position. Below is a description of activities related to the transportation function performed by the purchasing department in Havyard after the signing of a contract with buyer (Havyard, 2013c):

- Sign contract with suppliers
  - o Back to back contracts are often used, meaning that obligations and liabilities (for instance requirements for documentation various guarantees) in the contract with end customer are passed on to suppliers.
  - o Make sure correct terms and time of delivery is included so that equipment can be merged into larger batches and shipped to final customer.
  - o Obtain documents Havyard need for LC. Other certificates are also needed.
- Obtain delivery times for all batches, documentation (engineering manual, installation manual, instruction manual, drawings, calculations).
- Inform 3PL of planned times for delivery, consolidation, labeling and shipment forwarding.

When all goods are in hub and ready to be shipped to final customer the following tasks must be performed:

- Make sure suppliers deliver on time, contact if necessary. If the batch is not complete, obtain list of goods to come.
- Obtain list of components from suppliers, and merge this into a common list of packages with Havyard logo and send this to end-customer and bank.
- Make customs invoice for outbound customs in country of the relevant Havyard hub
- Make EUR1-document for deliveries from Norway (will be sent to bank for LC).
- Insure the transport and obtain proof of insurance for bank for LC. The chief procurement officer (CPO) points out that to insure a “total policy” is used (Havyard, 2014e). This includes all shipments the company makes for the agreed period (normally one year). However, individual proof of insurance must be sent to bank for LC and must specify value, weight, quantities, and description of goods (Havyard, 2014f)

- Obtain “certificate of origin” if this is necessary for bank for LC.

When one shipment is received by customer, the following must be done:

- Havyard requires that the goods are controlled within a certain time, for instance 14 days. Any deviations from what is ordered should here be discovered. If the goods are simply stored for a longer period before use without being checked first, it is more difficult to control if deviations occurred due to reasons outside of Havyards/3PLs control.

In addition to this the project manager (PJM) opens up the letter of credit from the bank of the buyer to control that it is correct before any delivery of goods are set in motion (Havyard, 2014g). This controlling that funds are secured for the transaction is apparently an important principle in trading of equipment in the ship building industry. The PJM also revises if needed the delivery times, in collaboration with the customer. The purchasing department has the responsibility to keep PJM updated on any deviations from plans. The department further has the full responsibility that the goods are ordered and delivered.

The 3PL handles very little of the contact with buyer. PM states that this is because Havyard want to remain in control of the projects, but also due to issues of core competencies. If the 3PL was to handle all contact with buyer then Havyard would have to make available for the 3PL at least part of the sales contracts, as well as those of the suppliers. This communication handling could have serious commercial consequences. For instance, there can be many possible reasons why deliveries are late, and it is Havyards people who currently hold this information. The CPO does not believe it is a very good idea to outsource much of the communication to customer due to this. Of course, a required practical direct communication between 3PL and buyer currently take place when the goods are on its way.

#### **2.5.4.2 Challenges with todays practice and reasons to improve from Havyards point of view**

- Expected increased demand makes current capacity to coordinate the transportation activities too low.
- CPO believes that more logistics competence is needed in the case of increased demand.
- Recurring problem of difficulties in budgeting transportation costs.
- The service coordinator (SC) (whose job-area is more operative than the other informants) thinks a major area with improvement potential is more control with suppliers: how many batches will there be?, is certificate of origin needed? Etc. Plan of delivery should be included in the contracts (Havyard, 2014h).
- If scenario 3 was to materialize Havyard would probably need to make more fundamental changes to routines due to stricter import regulations of Brazil (Havyard, 2014a).
- Most of the transport related activities are not part of Havyards core competence. The literature refers to these as candidates for outsourcing.



### 2.5.4.3 Possible improvements from Havyards point of view

This section is mostly based on phone interviews with CPO (Havyard, 2013c; Havyard, 2014b). Exceptions are stated in the text. The CPO expects to save money if the points of coordination between Havyard, 3PL, end customer and supplier can be improved. He acknowledges the potential benefits of using the 3PL as a type of consultant in the stage of creating the contract with the customer. The 3PL could then help with issues such as how to avoid charges that later can be returned (Intracomunity trading). On this point there have been a few cases of surprises with regards to customs expenses. 3PL can also be much involved in the documentation process connected to letter of credit.

In the most extreme case, CPO says, Havyard can leave all communication and monitoring of the deliveries of suppliers to the 3PL. In that case an agreement of confidentiality would have to be made between Havyard and the 3PL as the 3PL would need more information from the sensitive contracts between Havyard and suppliers. The PM states a similar opinion in being open to the possibility that the paperwork and the sending of various requests (late shipments, missing parts etc) towards suppliers are possible candidates for sourcing out to a 3PL (Havyard, 2014i).

In the case that demand will be the same in 2016 as it was in 2012 (scenario 1 below), the main improvement CPO mentions to be desirable are various degrees of standardization of processes to increase efficiency and save costs. CPO also mentioned an alternative where a logistics coordination function forms a separate unit and has its own dedicated people from purchasing, engineering, project and so on. This solution was not elaborated on further in this thesis, even though it could have been fruitful.

According to Porter (1985) and Grant (2005) cited in Neves et al. (2013) firms should on a strategic level clearly decide which activities should be considered for outsourcing. Havyard does not have any strategy document on outsourcing (Havyard, 2014j). However, the CPO stated that, “on a general basis, activities that others can do better than us and does not touch our core activity will be evaluated for outsourcing”. According to CPO the logistics and transportation function overall is not part of the core competence of Havyard. However, there might be aspects of it that involves such core competence such as sales and purchasing contracts, risk associated with leaving communication with supplier or end customer to a 3PL.

CPO elaborates on a general vision on the arrangements of the mapped activities:

I think there is a [big] potential to reduce our own logistics follow-up work by outsourcing the transportation function. The idea is that 3PL work in a way integrated with Havyard and has full access to all contracts and contact persons from our suppliers. All follow-up work of delivery of equipment at the planned times and follow-up/delivery of documentation to LC can be outsourced. This would save Havyard for work. The condition is that good communication channels are established so that 3PL rapport to the purchaser responsible for the particular project [one sale of a package with design/equipment to end customer and all it involves is considered one project], who in turn are in contact with our end customer, so that we can follow up our liabilities in the project against end customer with regards to deviations and changes. The responsibility of 3PL would then be to follow up of the physical delivery of goods, and documentation for LC.

The responsibility of Havyard would be to follow up of documentation such as manuals and certificates from 3PL which is to be delivered to end customer.

By outsourcing to a 3PL we will reduce our own logistics follow-up work (which takes much time). In this way our fixed costs (logistics follow-up personnel) is reduced and we will be more flexible for highs and lows in the market (Havyard, 2014e).

### **2.5.5 Havyards justification for using the 3PL K+N:**

Havyard have no intention of being experts on the transportation part of the logistics operations and therefore does not desire to enterprise into this area (Havyard, 2014b). One main reason Havyard use K+N is that they have a sufficiently large global network of staff and therefore do not use subcontractors in carrying out the deliveries. Other important criteria for the 3PL selection were price, shipment time, and risk assessment in terms of loss or damage to goods.

## **2.6 Prognoses and future scenarios**

### **2.6.1 Prognoses**

Together, this and the next section answer the first part of the first supporting RQ: “What main scenarios related to the demand and expansion of sales of system packages do Havyard believe is plausible for the near future, and how would these affect any need for outsourcing?”

Today’s volume can be handled with the current resources of the company. However it is expected that sales of system packages are to be expanded in the near future to Turkey as well as more to China. The companies also look into Brazil. To cope with this increased demand, the CPO envisages a small team of two or three people who can work with the transportation related activities. In addition, due to market fluctuations, there is a need for flexibility from any logistics partner to scale up or down as needed (Havyard, 2014k).

### **2.6.2 Scenarios for 2016**

1. Demand stays the same as in 2012 (four system packages) (China and Spain).
2. Demand increase by three times in China (twelve system packages), and in Turkey by four system packages.
3. Demand increase to twelve system packages in China, in Spain to three, in Turkey to six system packages, and in Brazil to four.

The middle scenario was not used in the interviews, mainly for two reasons. The first was that it was discovered that employees’ considerations of outsourcing did not seem to vary so much with the scenarios. Therefore including only the more extreme scenarios would seem to suffice to obtain an adequate picture of any differences between them. The second reason was that including all the scenarios would make interview even longer than they were all ready, as well as making them unnecessarily repetitive with little or no gains in knowledge. This second reason is also why scenarios are not included in the sections on activity information flows and outsourcing considerations.

## **3.0 Literature survey**

### ***3.1 Introduction***

The primary objectives of the literature survey is to find out what kind of theory could be best applied to the Havyard case in order to facilitate the research questions concerning outsourcing, and to obtain a satisfactory level of understanding of the relevant literature. A secondary objective of the survey is to find industry specific literature. Due to these objectives the surveys is to a large extent explorative, and enquire in some detail into the history, assumptions and concepts of theories that the author find particular relevant to the case; mainly Transaction cost economics (TCE) and the Resource-based view (RBV). This decision is supported by many researchers who seem to have identified that the literature on the outsourcing decision can be said to broadly fall within these two academic traditions (Logan, 2000; Rodriquez and Robaina, 2006; MCIvor, 2009; Williamson, 1999; Madhok, 2002 among others).

The relevant literature for this case study includes the following three main topics: 1) Outsourcing 2) third and fourth party logistics (3/4PL) and general business relationships 3) specific literature to the ship construction- and ships' systems package trade industry. Literature that this survey has found to be relevant to the outsourcing decision is from a wide range of academic disciplines such as logistics, supply chain management (SCM), economics, business strategy, marketing, contract law, and sociology. Literature on outsourcing also exists under the names "the make-or-buy decision", "global sourcing", and "vertical integration". These terms are arguably interchangeable in this context and this study will mostly use the term outsourcing.

The structure of the literature survey is as follows. First it will provide different definitions of the term "outsourcing", and some relevant statistics on the current state of it. Then a section on common motivations behind the decision to outsource follows. A section on third and fourth party logistics and business relationships in general is then offered. A portion on industry specific literature follows. The remaining part of the survey is dedicated to a review of theories and findings dealing with the boundaries of firms. The first part of this gives a presentation of the three main streams of the New Institutional Economics (NIE), transaction cost economics (TCE), agency theory, and property rights theory (PRT). As it was decided during the process of survey that TCE was the most relevant of these, this subsection is much more comprehensive than the other two. The subsection also includes a review of the specific model of TCE that the case study is based on. A section on resource-based theories follows. After this comes a chapter presenting the literature theorizing about the relationship between TCE and resource-based theories. A small chapter on the "tautology criticism" is then included. Network theory, resource-dependence theory, power arguments, marketing-channels are then reviewed, before a section is included on relevant literature that does not belong in any of the above categories. A chapter where some case studies and other prescriptive approaches relevant to the present case study is presented next. At the end a summary of the whole literature survey is included.

### ***3.2 Definitions and some relevant statistical data on outsourcing***

Rodriquez and Robaina (2006) provide a review on the recent literature on outsourcing, and classifies it into two: works that deals with the propensity to outsource, and works that study the relationship between the outsourcing decision and organizational performance. This classification was not adopted in the present survey. They also collected different

definitions of outsourcing, which was also the most relevant and recent source of general outsourcing definitions found after a bit of searching. The table below is adapted to include one newer definition from Caniels et al. (2009):

**Table 2. Different definitions of outsourcing.**

Author(s) (year)	Definition
Harrigan (1985)	A variety of ‘make or buy’ decisions’ to obtain the necessary supplies of materials and services for the production of the organization’s goods and services.
Loh and Venkatraman (1992)	External vendors’ provision of physical and/or human resources associated with the user organization’s information technology infrastructure.
Quinn and Hilmer (1994)	External acquisition of activities, including those traditionally considered an integral part of any firm, provided that they do not form part of the firm’s core capabilities.
Ventura (1995)	Exchange relationships with independent firms with whom stable cooperation agreements can be established.
Lei and Hitt (1995)	The act of trusting in external capabilities and skills for the manufacture of determined production components and other activities that have added value (often capital intensive).
Rothery and Roberson (1996)	The act of turning to an external organization to perform a function previously performed in-house. It entails the transfer of the planning, administration and development of the activity to an independent third party.
Casani et al. (1996)	Long-term link related to the development of determined activities or tasks that are not essential to the firm by specialized professionals, who, in time, become strategic partners.
Blumberg (1998)	Process of making contracts with a third party to handle a part of the client firm’s business.
Sacristán (1999)	Collaboration agreement between different types of firms in which one firm is a specialist in technology and makes a significant contribution to the other by providing physical and/or human resources during a certain period in order to attain a determined objective.
Greaver (1999)	The act of an organization transferring periodic internal activities and decision-taking to external suppliers through

	contracts.
Gilley and Rasheed (2000)	It is the substitution of activities performed in-house by acquiring them externally, although the firm has the necessary management and financial capabilities to develop them internally. It is also an abstention from performing activities in-house.
Campos (2001)	It consists of contracting an external supplier to perform a task previously executed by the organization itself, and may also even involve new activities.
Bailey et al. (2002)	Handing over some or all of that particular activity and related services to a third party management, for the required result.
Quélin and Duhamel (2003)	The operation of shifting a transaction previously governed internally to an external supplier through a long-term contract, and involving the transfer to the vendor.
McCarthy and Anagnostou (2004)	Not only consists of purchasing products or services from external sources, but also transfers the responsibility for business functions and often the associated knowledge (tacit and codified) to the external organization.
Mol et al. (2005)	The procurement of supplies from legally independent entities (suppliers).
Caniels and Roeleveld (2009)	Procuring a good or service from an external third party that was either originally sourced internally or could have been sourced internally notwithstanding the decision to go outside

*Table 2.* Different definitions of outsourcing. Adapted from Espino-Rodríguez et al. (2006).

According to the same paper outsourcing was, at least in 2006, one of the strategic decisions that attract the most interest from professionals and scholars. In 2007, a world wide survey (the annual State of Logistics Outsourcing report) reported that 82 percent of the participating companies used 3PL services (SCDigest.com, 2007), and 83 percent of those companies using 3PL services said they were outsourcing some part of the transportation management functions; the lowest being 77 percent in North America and the highest being 91 percent in Europe. In the 2014- version of the State of Logistics Outsourcing report, 90 percent of 3PL customers report that their relationship with the 3PL generally has been successful. Interestingly a higher percentage, 97, of 3PL reported the equivalent with respect to the 3PL-customer. 47 percent of 3PL customers reported having been involved in so-called gainsharing arrangements with a 3PL, while 60 percent of the 3PLs report the same. Nearly half of shippers, and 61 percent of 3PLs say centralized procurement functions are playing more or much more of a role in the selection process compared with three years ago.

From the definitions above then, one should be able to get a pretty clear idea of what is meant by outsourcing, if it was at all needed. From the statistics it is seen that outsourcing of 3PL services is very common. Further that most of the current experiences are reported to be positive from both sides, all though such figures may be misleading as the partnerships not working very well probably are terminated and so will not be included in that particular statistic.

### **3.3 Drivers for outsourcing**

In order to be able to evaluate the merits of the theories of outsourcing, it is useful to look at what various actors regard as the drivers for outsourcing. The words “drivers” and “motivators” are used interchangeably in this section. Ghodeswar and Vaidyanathan (2008) have composed a list of some major drivers of outsourcing, presumably supposed to hold across industries:

**Table 3. Major drivers for outsourcing.**

Organisational drivers	<ul style="list-style-type: none"> <li>- To achieve a greater focus on core business</li> <li>- To increase flexibility to deal with ever changing business conditions</li> <li>- To gain access to products, services and emerging technologies</li> <li>- To assign operational issues to an outside expert</li> <li>- To have greater thrust on market positioning and new product development</li> <li>- To redirect resources from non-core activities to greater focus in serving the customer</li> </ul>
Improvement drivers	<ul style="list-style-type: none"> <li>- To improve operating performance, quality, timeliness, and productivity</li> <li>- To obtain expertise, skills, and innovative ideas</li> <li>- To obtain technologies which otherwise will not be available</li> <li>- To improve management and control of operational processes including risk management</li> <li>- To improve credibility and image by associating with superior providers</li> <li>- To eliminate the fixed cost of internal staff by moving the function to a supplier</li> <li>- To become more flexible, dynamic to meet the changing opportunities</li> </ul>
Financial and cost drivers	<ul style="list-style-type: none"> <li>- To reduce investment in assets</li> <li>- To reduce the invested capital funds in</li> </ul>

	<p>non-core business functions</p> <ul style="list-style-type: none"> <li>- To expanding its operations into a new geographical region</li> <li>- To reduce or control operating costs</li> <li>- To access an outside provider's lower cost structure</li> <li>- To achieve cost reduction with enhanced performance</li> <li>- To handle varying demand more efficiently because of economies of scale</li> </ul>
Revenue drivers	<ul style="list-style-type: none"> <li>- To achieve aggressive growth objectives by gaining increased market access</li> <li>- To leverage on the service provider's best processes, capacity and systems</li> <li>- To expand capacity to design, test and build new products and services</li> <li>- To stretch its limits in handling the increased volume of business</li> <li>- To manage demand efficiently through outsider's automation, process maturity and the latest technology</li> <li>- To focus on enablers of business growth and strategies to fulfil them</li> </ul>

Table 3. Drivers for outsourcing. From Ghodeswar et al. (2008).

Fill and Visser (2000) also produce table of drivers with a more prescriptive approach:

**Table 4. More drivers for outsourcing.**

Quality	Actual capacity is temporarily insufficient to comply with demand. The quality motive can be subdivided into three aspects: increased quality demands, shortage of qualified personnel, outsourcing as a transition period.
Cost	Outsourcing is a possible solution to control increasing costs and is compatible with a cost leadership strategy. By controlling and decreasing costs a company can increase its competitive position.
Finance	A company has a limited investment budget. The funds must be used for investments in core business activities, which are long-term decisions.
Core-business	Core-business is a primary activity with which an organization generates revenues. To concentrate on core-business activities is

	a strategic decision. All subsequent activities are mainly supportive and should be outsourced.
Cooperation	Cooperation between companies can lead to conflict. In order to avoid such conflict those activities that are produced by both organizations should be subject to total outsourcing.

Table 4. More drivers for outsourcing. From Fill et al. (2000).

Fersht and Snowdon (2013) in a survey called “State of the outsourcing industry 2013: executive findings”, conducted with the support of KPMG, found that cost reduction, greater scale to operations and process standardization to be the main motivators among “IT and business firms”. Among strategic focus the core reasons for outsourcing was found to be accessing better talent, gaining access to better technology, and improving analytical capabilities. Perhaps interesting was that “mid-market enterprises” (\$1bn-\$5-bn) were more motivated by such “strategic” needs than “high-end enterprises” (>\$5-bn). Finally, outsourcing customers were generally satisfied in respect to cost reduction and standard delivery, but less in strategic areas such as improving analytical capabilities, access to talent and achieving innovation.

Kersten et al. (2007) did a survey of literature dealing with motives for outsourcing of logistics services. Out of a sample of twelve papers, the top three motivators mentioned was: cost reduction, improvement of service level/service quality and focus on core business/core competencies. According to Bottani and Rizzi (2006) one of the most frequently claimed drivers for logistics outsourcing is the possibility of focusing on core activities. Other drivers, they say, are typically market expansion due to globalization and deregulation, trade offs between asset specificity and performance measurements, corporate restructuring programs, cost reduction programs geared towards converting fixed costs into variable costs, needs for extra space, and changes occurring in labor related issues. Finally, Anderson et al. (2010) studied what firms look for in their selection of third party logistics providers. They found that the 3PL customers can be usefully classified into three segments based on their different preferences of order qualifiers and order winners such as price, customer interaction, customer service recovery, and supply chain capacity. A common preference for all, however, was reliable performance.

The drivers presented in this section provide a good point of reference for comparison in the section on “arguments for- and against outsourcing, and overall judgment” in the analysis section.

### ***3.4 Third- and fourth party logistics providers, logistics intermediaries, and classifications and properties of business relationships***

#### **3.4.1 3PLs**

Hertz and Alfredsson (2003) use the following definition of 3PL: “An external provider who manages, controls, and delivers logistics activities on behalf of a shipper”. Coyle et al.



(2003, p.425), define 3PL as an external organization “that performs all or part of a company’s logistics functions.”

Marasco (2007) reviewed 152 articles published up to 2006 on the subject of 3PLs. She concludes that despite the growing body of literature on the topic, little effort has been devoted to synthesize the overall state of research on 3PL. Selviaridis et al. (2007) also did a literature review and found that most of the research performed on 3PLs have been empirical-descriptive, and generally lacks a theoretical foundation. It calls for more normative, qualitative and theory driven studies, as well as further empirical research in relation to 3PL design and implementation and fourth party logistics services. Skjoett-Larsen (2000) concluded that third party logistics not only is a tool for cost efficiency, but that it is also is a strategic measure to create competitive advantage through better service and flexibility. He further found that changes in attitudes and investments in human resources were important for the success of such schemes. Marasco (2007) found that organizational culture plays a significant role in the development and maintenance over time of 3PL arrangements, but that attempts to separate different aspects of such culture and its influence on performance has not been given sufficient attention considering the international trend of 3PL outsourcing. He calls for more research on the complexities in behavior arising from the interaction between 3PL and buyer and points to the fact that some scholars have begun to approach 3PL research from a relationship marketing perspective. Soonhong et al. (2005) found that in 3PL collaborative schemes respondents involved reported a “blurring of the lines” instead of an “us vs them” approach. This was expressed in different ways, treating arrangements as if they were both part of the same operation, treating them as co-owned, and employing a new focus on the best common solution. They also found that several outcomes of 3PL collaborations was more efficiency and market positions for the customer firms in the study.

Large (2007) found four factors that potentially had influence on third-party relationship performance: the demanded specificity, the intended performance evaluation, the expected adaptation by the provider and the willingness of the customer to adapt to the provider. It further found that the complexity of service and the amount of existing assets of customers influence the degree of partner-specific adaptations. Tian et al. (2007) found that, based on evidence collected from China, satisfaction of customers in previous interaction with 3PLs, the level of relationship-specific investment from the 3PL, how 3PL handles information sharing, and the reputation of the 3PL are main determinants of the level of trust towards 3PL providers. Further that the level of trust may influence the level of loyal behaviour towards 3PLs. Knemeyer (2003) argues that mistakes can offer opportunities for 3PL to impress customers and so to win their loyalty. He presents a simple model borrowed from relationship marketing theory where efforts in building customer relationships (in this case it would be Havyard) leads to retention of customers which produce referrals, which in turn can increase the likelihood of a favorable recovery process from mistakes. Jayaram et al (2010) identified four factors in a 3PL-customer relationship that were found to be correlated with a firms performance. These were information integration, 3PL selection criteria, performance evaluation, and relationship building. Such results may be useful as it can allow firms to focus their attention on certain issues that often increase firm performance.

### **3.4.2 4PLs**

According to Vivaldini et al. (2008) a 4PL combine the management and operation of supply chain logistics. Win (2008) says that 4PL has emerged as the good alternative to

allows firms to have a single point of accountability across both supply as well as demand networks. Bedeman et al. (2003, p 470) include the following key characteristics of a 4PL “Supply chain (SC) visionary; SC planner and optimizer; deal shaper and maker; SC re-engineers; project management; service, system and information integrator; and continuous innovation”. From all these criteria mentioned it seems that 4PLs can be visualized to exist on a level above 3PLs. Further, several of the mapped activities in the present case study are probably suitable for being candidate activities for 4PLs rather than just 3PLs. To simplify the thesis will use the term 3PL, even though 4PL may in cases be relevant.

### 3.4.3 Logistics intermediary

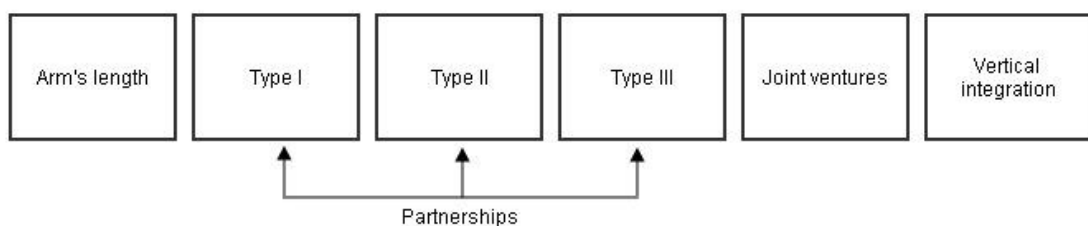
There also exists literature on so called logistics intermediaries. This term seems to be somewhat exchangeable with 3PL and 4PL, exemplified by the definition of businessdictionary.com: “A party who arranges shipping, warehousing, distribution and other goods movement on behalf of goods providers and shipping companies”. Some sources perhaps define it a bit broader than common definitions of 3/4PLs (Song et al., 2001). In any case, due to the similarity the term will not be used further in this thesis.

### 3.4.4 Categorizations and properties of business relationships

In a study on the strategic development of third party logistics providers Hertz and Alfredsson (2003) found that the 3PL firms in her study were all focused on moving into more advanced and complex services such as 4PL without letting their former business strategy hinder them. They also found that the ability to cope with strategic alliances is essential for understanding and developing the business. A main challenge for 3PLs according to them is to balance between high adaptation to particular customers and organizing the systems and business for coordination of several businesses (general problem solving skills). In their view the strategic development of the 3PLs depend on how these two factors are balanced. They also provide a model where 3PLs are classified based on abilities of “general problem solving” on one axis, and customer adaption on the other. A somewhat similar approach is found in “Outsourcing: guidelines for a structured approach” by Franceschini et al. (2003). They develop a model claimed to be based on “total quality management” principles, and categorize the types of relationships between outsourced and outsourcer based on the levels of specificity on one axis, and complexity on the other.

In “Developing and implementing supply chain partnerships” (1996) Lambert et al. develop a model to determine if a partnership is warranted, and if so of what kind it should be. They identify six different types of supply chain relationships.

**Figure 3. Types of supply chain relationships.**



*Figure 3. Types of supply chain relationships. From Lambert et al. (1996).*

This classification can probably be useful as a point of reference for managers, who are outsourcing more or less activities to a 3PL, in order to more easily evaluate if this can have any effect on the main type of business relationship. An example is Havyard and K+N. Due to required limitations in the scope of the study it will not be explicitly used in the analysis section however.

According to Anderson (1995), the main benefits of logistics alliances are better economies of scale and scope, bargaining power, efficiency, range of services, faster learning, increased network with other providers, more knowledge of various kind, faster implementation of new systems, restructuring of the supply chain and decreased investment base. Trust is especially important between firms when there is much at stake (Maltz et al., 1997), such as when one firm has outsourced important logistics functions to a 3PL. For the 3PL, its existing relationships or customers are both a source of restraint and development. Ford et al. (1998) found that there is inertia to change due to conflicts of interests, limited knowledge and the risk involved in changing. However, Bagchi et al. (1998) found that such relationships tend to deepen over time and the number of activities that are increased. More integration between the third party logistics provider and the customer would mean a higher commitment from both parties. This would have effects on both suppliers and other actors close in the supply chain. Such a strategic alliance is naturally also more costly to switch than a relationship with low commitment (Hertz and Alfredsson, 2003).

This section should provide information sufficient for a satisfactory understanding of the concepts of 3- and 4PLs for the purposes of the master thesis, as well as for some of the traditional research efforts that has been undertaken to understand these phenomena. Different kinds of business relationships in general were also touched upon in this section, but this material was not directly used in the analysis part of the thesis.

### ***3.5 Industry-specific literature***

There are some studies of relevance specific to the maritime industries. On Havyard specifically there is Kvalsvik (2012) who dealt with intra-organizational information sharing for purchasing activities in shipbuilding. Høystakli and Skeide (2012) are also of relevance and concentrates on Outsourcing and considerations and experiences in the maritime industry in Møre & Romsdal. In “Partner selection for interfirm collaboration in ship design” Solesvik and Encheva (2010) focus on the criteria used by maritime firms in the evaluation of partners for strategic alliances. Ruska et al. (2012) shows how buyers in shipbuilding projects in the maritime sector tend to prioritize technical, operational and business capabilities over relational and developmental capabilities and that the buyer and its suppliers diverge in their assessments of the suppliers' capabilities, creating potential misunderstandings and false expectations in the buyer–supplier relationships. Shinohara et al. (2005) deals with how incentive schemes can be applied to the maritime shipping industry. Hervik et al. (2012) provides a status report of the maritime sector in Møre og Romsdal.

An attempt was made to locate literature specifically on the practice of international system package reselling. In addition to several attempts at database searching, Havyard,

Innovation Norway, and “Molde kunnskapspark” was contacted for this purpose. No such academic literature could be located.

Finally, the International commercial terms, commonly referred to as Incoterms, was located as a potential relevant text for the thesis. Incoterms is a series of commercial terms published by the International Chamber of Commerce. These are widely used in International commercial transactions or procurement processes. The terms are accepted and implemented by governments, legal authorities and practitioners across the globe. Some of its purpose is to eliminate or reduce uncertainties connected to difference in interpretation of national rules, and for this reason some of the terms are often included in commercial contracts around the world (iccbooks, 2013). In the end, however, it was not really used apart from being referred to in what it said about the ownership of responsibility of international shipments: that such a responsibility is transferred to the recipient as soon as the batch leaves its port of origin. The specific literature mentioned above this was in the end mostly used for inspirational purposes.

### ***3.6 Theories of the New Institutional Economics (NIE)***

This term was coined in the book *Market and Hierarchies* (1975) by Oliver E. Williamson, and refers to some of the most basic parts of the framework used to organizations and the interface within organizations elaborated on in the section of Transaction Cost Economics below. According to Geraldi (2007) there are three main streams in the NIE: TCE, Agency theory and Property rights theory. Out of the three, TCE will be elaborated on the most.

#### **3.6.1 Transaction cost economics (TCE)**

##### **3.6.1.1 Introduction**

The following outline of TCE has a certain level of detail. To make it more reader-friendly the subsections with the most direct relevance to the analysis section of this thesis are identified and located close to the beginning of this chapter. They are probably “critical dimensions for describing transactions” and “a simple contractual schema”.

TCE is usually associated with two main figures; Ronald H. Coase, who received the Nobel prize in economics in 1991, and Oliver E. Williamson, who received the price in 2009 (press release at nobelprize.org). A relatively short introduction to TCE is Williamsons 22 page “Transaction Cost Economics: An Introduction” from 2007.

Williamson (1975, p 4-6, 1981 and 1991b) and Tadelis and Williamson (2010) give an overview of the main academic disciplines and literature that TCE is based on. The antecedent academic disciplines are economics, organization theory, contract law, and business history. Specific antecedent works are Commons (1934), Coase (1937), Barnard (1938), Hayek (1962), Simon (1947; 1962), Chandler (1962), and Arrow (1962; 1969). Williamson (among others 1981; 1991b) seems to give special credit to John R. Commons for proposing in his 1934 paper that the transaction be made the basic unit of economic analysis.

Commons argued that a transaction involved three distinguished social relations: conflict, dependence and order (p. 657). He explains it in the following way:

The parties are involved in a conflict of interest on account of the universal principle of scarcity. Yet, they depend on each other for reciprocal alienation and acquisition of what the other wants but does not own. [...] it actually creates, out of

conflict of interests, a workable mutuality and orderly expectation of property and liberty. (p. 657)

In the same tradition, Williamson writes that “TCE views governance as the means by which to infuse order, thereby to mitigate conflict and realize mutual gains” (2008, p. 14). It is interesting in passing to note a similarity to some aspects of Supply chain management (SCM). Central in Mentzer et al.’s (2007) article on how to define SCM are aspects of mutuality and conflict resolution. An institution, or organization presumably, Commons defined as “collective action in control, liberation and expansion of individual action” (p. 648). Commons relevance to TCE is summarized by Williamson (1981):

He recognized that there were a variety of governance structures with which to mediate the exchange of goods or services between technologically separable entities. Assessing the capacities of different structures to harmonize relations between parties and recognizing that new structures arose in the service of these harmonizing purposes were central to the study of institutional economics as he conceived it. (p. 550)

TCE was pioneered Coase by in his much cited article from 1937, “The nature of the firm”. In it he asked the question: “[...] having regard to the fact that if production is regulated by price movements, production could be carried on without any organization at all, well might we ask, why is there any organization?” (p. 388). His main answer was that there is a cost involved in organizing production using the price mechanism – the transaction costs, and that such costs could be minimized by internalizing. He argues that “a firm becomes larger as additional transactions (which could be exchange transactions coordinated through the price mechanism) are organized by the entrepreneur and becomes smaller as he abandons the organization of such transactions” (p. 393). The theory was further developed by Oliver E. Williamson (1971, 1975 and so on). Williamson has defined transaction costs as the cost of running the economic system (Berghuis et al., 2013). In the *Institutions of Capitalism* (1985) Williamson states that it is the economic equivalent of friction in physical systems. To the proposition that transaction costs are a negligible part of economic activity, Williamson (1979) responds by arguing that if that is so then “the organization of economic activity is irrelevant, since any advantages one mode of organization appears to hold over another will simply be eliminated by costless contracting.” The theory’s relevance to outsourcing can be exemplified by the fact that Williamsons very first transaction cost article from 1971 dealt with the problem of vertical integration, which, he said, turned out to be a prototypical problem (Williamson, 1999). Williamson (2008) said that the make-or-buy decision is the canonical transaction for TCE.

### **3.6.1.2 Limits to the growth of firms:**

Coase (1937, p.394) asks the question “[...] why, if by organizing one can eliminate certain costs and in fact reduce the cost of production, are there any market transactions at all? Why is not all production carried on by one big firm?” His main answer was that there are diminishing returns to management. As a firm becomes larger, the costs of organizing additional transactions within the firms may rise. A point is reached then where the costs of organizing an extra transaction within the firm are equal to the costs involved in carrying out the transaction in the open market (or by another entrepreneur). According to Staffan Canback (2002) Williamson (1975, p. 126-130) suggested four limiting factors to the growth of the firm (or diseconomies of scale etc.): Atmospheric consequence,

Bureaucratic insularity, Incentive limits of the employment relation, communication distortion due to bounded rationality. Canback studied empirically these effects, and found that these four sources of diseconomies of scale are consistent with the theoretical and empirical economics and sociology literature.

### **3.6.1.3 Critical dimensions for describing transactions**

Williamson (1979; 1981) specifies three main attributes for describing transactions. They are asset specificity, uncertainty and frequency of transactions.

Asset specificity: This is the most important dimension for describing transactions according to Williamson (1981). It is meant to measure the degree investments are specialized to a particular transaction. If this is high the transaction is referred to as idiosyncratic. The alternative use of such investment should the transaction in question be interrupted is much lower than if the relation was sustained. The “supplier is ‘locked into’ the transaction to a significant degree” (p.555). However, this is symmetrical in that “the buyer cannot turn to alternative sources of supply and obtain the item on favorable terms, since the cost of supply from unspecialized capital is presumably great” (p.555). Asset specificity can be broken down into four components:

- Site specificity (things can be located close to each other to economize on transportation and inventory costs). According to Williamson (1981, p. 555-557) transactions involving some degree of “core technology” will often be picked up by this measure. On the predictive power on firm’s boundaries of core technology, however, Williamson says that “the common ownership of some stations – the core – is sufficiently obvious that a careful, comparative assessment is unneeded” (p. 557).
- Physical asset specificity: For instance when special instruments are needed to produce a component.
- Human asset specificity: This arises from learning by doing.
- Dedicated asset, as added in Williamson (1983;1985): This is “[...] a discrete investment in plant. Although these assets add to the firm’s generalized (as contrasted with special purpose) production capability, the investment would not be undertaken but for the prospect of selling a significant amount of product to a specific customer (1983, p. 526). As with other types of asset specificity, dedicated assets lose value if put to alternative use (or alternative users).
- Temporal specificity, as acknowledged by Williamson (1991), can be thought of as a type of site specificity where acceptable time responsiveness by on-site human assets is important. The concept is similar to technological nonseparability.

Uncertainty: According to Williamson (1985) the influence of uncertainty on economic organization is conditional on especially asset specificity. If assets are non-specific, continuity has little value, and uncertainty becomes less relevant as market transactions would apply. However

Whenever assets are specific in nontrivial degree, increasing the degree of uncertainty makes it more imperative that the parties devise a machinery to "work things out"-since contractual gaps will be larger and the occasions for sequential adaptations will increase in number and importance as the degree of uncertainty increases (p. 60).

Environmental/state contingent/exogenous and behavioral uncertainty is distinguished (Williamson, 1985). Rindfleisch and Heide (1997) state that environmental and behavioral uncertainty give rise to the adaption problem and performance evaluation problem respectively. Sandvik (2008) decompose behavioral uncertainty into relevant subcategories in an article on risk and supply chains.

Frequency: Williamson (1985) describes the basic proposition for the effect of frequency:

Specialized governance structures are more sensitively attuned to the governance needs of nonstandard transactions than are unspecialized structures, *ceteris paribus*. But specialized structures come at a great cost, and the question is whether the costs can be justified. This varies with the benefits on the one hand and the degree of utilization on the other.

The benefits of specialized governance structures are greatest for transactions supported by considerable investment in transaction-specific assets. The reasons are those described previously. Whether the volume of transactions processed through a specialized governance structure utilizes it to capacity is then the remaining issue. The cost of specialized governance structures will be easier to recover for large transactions of a recurring kind. (p. 60)

Still, the net effect of frequency on predicted governance depends on the particulars, and is relevant due to both reputation effects and setup costs (Williamson, 2008, p. 8). Due to the implicated difficulty in determining its net effect, the case study interviews will not ask questions trying to estimate this variable.

Ivanaj and Franzil (2006) provides some discussion on each of the three main dimensions of a transaction in light of logistics outsourcing, which will not be described here.

#### **3.6.1.4 Forms of transaction costs**

According to Dahlman (1979) transaction costs can be divided into three main categories:

- Search and information costs: Are costs incurred in finding out the relevant prices, that the good is in the market and so on.
- Bargaining and decision costs: These are costs required to come to an acceptable agreement with the other party in the transaction, making a feasible contract etc.
- Policing and enforcement costs: are the costs of making sure the parties sticks to the terms of the contract, and taking appropriate action if this turns out not to be the case.

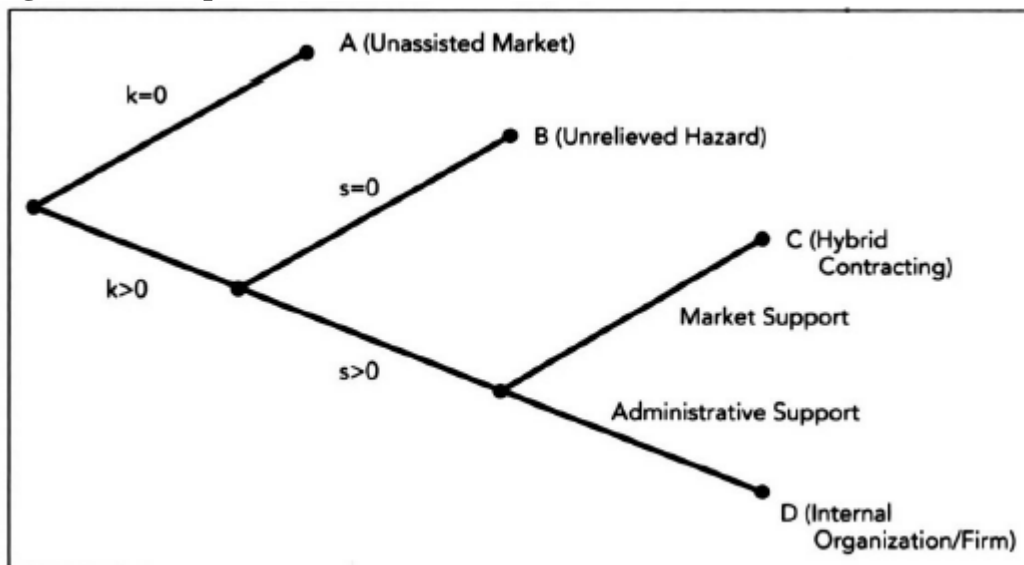
#### **3.6.1.5 A “simple contractual schema” – model of the current case study**

A presentation of the model that the present case study will be based on follows in this section. It is presented in Williamson (2008), but first developed in Williamson (2002), and is coined a “simple contractual schema”.  $K$  is a measure of asset specificity, while  $s$  is a measure of the level of efforts to safeguard specific investments which can include penalties, verification procedures, information disclosure, arbitration mechanisms and, in the limit, unified ownership. The schema illustrates a tendency to take transactions out of the market as asset specificity increase. With the increase of safeguards,  $k$ , there are

bureaucratic costs (transaction costs) and so internal organization can be thought of as the organization form of last resort. In the model, if asset specificity is high and inadequate safeguards are provided, then farsighted players will reflect such risk in the price bid. On this account interfirm trade may be discouraged.

On the conditions necessary for a stable outsourcing relationship Williamson (2008) writes: “The viability of the hybrid turns crucially on the efficacy of credible commitments (penalties for premature termination, information-disclosure and verification mechanisms, specialized dispute settlement and the like), the cost-effectiveness of which varies with the attributes of transactions.” (p. 8-9). Thus, even if asset specificity and uncertainty are not low, outsourcing may still be feasible if costliness of implementing satisfying contractual safeguards, in order to protect specialized investments and make possible sequential adaptations, is low. He makes the clarification that outsourcing properly includes outside procurement both for generic goods and services as well as more complex transactions. In other words all the nodes A, B and C may be potential outsourcing alternatives. However, for the purpose of his paper as well as this thesis only outsourcing of type C is considered. He also makes the point that for the hybrid alternative continuity has value.

**Figure 4. A simple contractual schema.**



*Figure 4. A simple contractual schema. From Williamson (2008).*

Williamson (2008) identifies three main styles for dealing with the contractual interface for hybrid transactions (transactions where investments in specific assets are required):

**Muscular:** Is that one of the parties, usually the buyer, deals with one of the parties in a peremptory way. Tend to “use up” suppliers and discard them. For transactions where asset specific investments are involved it is short sighted, as supplier will price in the risk that they face should something go wrong and hence buyer will pay for this regardless.

**Benign:** This approach assumes that there will be the appropriate measure of cooperation to deal with unforeseen contingencies, so that continuity and mutual gains can be realized. Defection can be expected when the “lawful” gains to be had from the insistence on the literal terms of the contract exceed the discounted value of continuing the exchange relationship, then defection from the spirit of the contract can be projected.



**Credible:** This style differ from benign contracting in that it does not project benign behaviors when temptations to defect are present, and from muscular contracting in that it is not mean spirited. This style recognizes that all complex contracts are incomplete and therefore pose adaptation needs to unforeseen circumstances. The parties look ahead, uncover potential hazards, work out the mechanisms to cope and put this into the contract. As a result, credible commitments are introduced to lower the risks of various hazards. With this style there exists a risk that a too calculative approach will develop and threaten the relationship.

#### **3.6.1.6 Rudiments of contract law in TCE and derived propositions:**

One of the antecedents of TCE is, as stated above, contract law. Being an important component of the framework, some of its rudiments will be presented here. Williamson (1979), based on Macneil, identifies three main types of contracts.

**Classical contract law:** This corresponds to what in economic terms would be called contingent-claims contracting. It involves comprehensive contracting where all relevant future contingencies regarding the supply of goods or services are described and discounted for. Third-party involvement is not encouraged in this kind of contract. Emphasis is on legal rules, formal documents, and transactions that are fast to pay off.

**Neoclassical contract law:** Long term contracts under circumstances of uncertainty would be too costly to impossible to make. A recognition that the world is not simple, that agreements are not complete, and that some contracts will never be agreed on unless the parties involved have some trust in the settlement apparatus characterize this tradition of contract-law. The contractual relation then may include an additional governance structure, such as an arbitrator, which can facilitate adaptations to unforeseen circumstances and evaluate performance. One reason why the latter is so relevant is due to the observation that litigation more frequently lead to break-down of relationships than do arbitration.

**Relational contracting:** This type responds to pressures to sustain ongoing relations. It has similarities to “a minisociety with a vast array of norms beyond those centered on the exchange and its immediate processes.” (Macneil as cited in Williamson 1979, p 238). Where the reference point for making adaptations in the neoclassical scheme is the original agreement, the reference points in the relational scheme is the entire relation as it has developed through time, which may or may not include an original agreement. Williamson (1979) illustrates below which governance structures and contract schemes are most suited to the different types of transactions. It is based on two properties of the transaction; investment characteristics and frequency. It should be noted that Williamson (2008) says that frequency is relevant in both reputation effects and setup costs and depend on the particulars. It seems that in the model below only the latter is taken into account.

**Figure 5. Governance structures and contract schemes.**

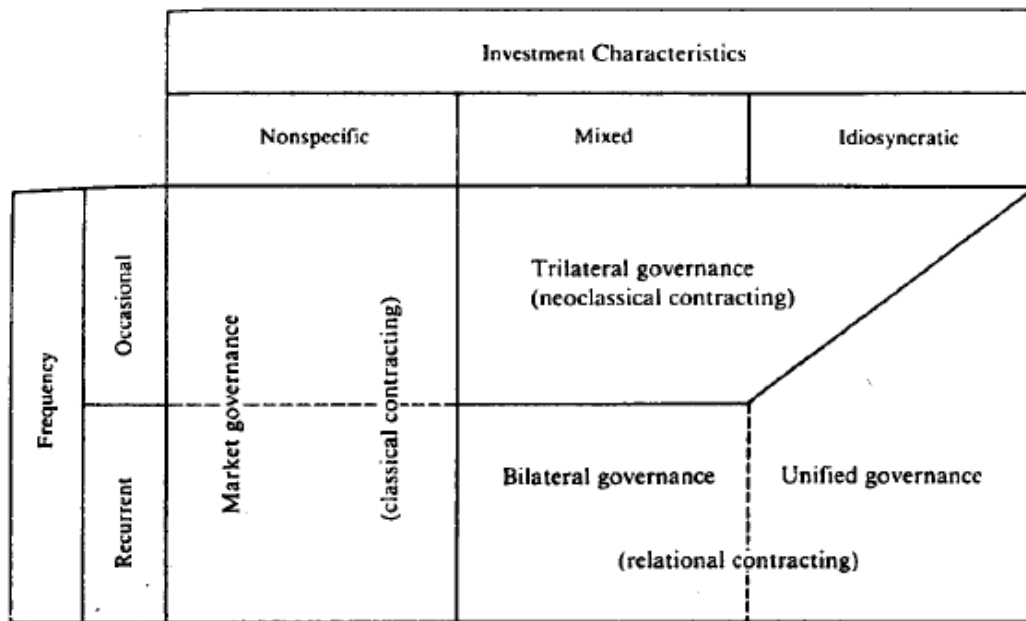
		Investment Characteristics		
		Nonspecific	Mixed	Idiosyncratic
Frequency	Occasional	Trilateral Governance (Neoclassical Contracting)		
	Recurrent	Market Governance (Classical Contracting)	Bilateral Governance (Relational Contracting)	Unified Governance

*Figure 5.* Governance structures and contract schemes most suited to the different types of transactions. From Williamson (1979).

Where investment characteristics are not specific there is no risk of such an investment losing value should the agreement be abruptly terminated. Hence market governance and classical contracting works well. Where there is mixed or a high level of transaction specific investments and only occasional frequency there are strong incentives to see the contract through to completion. As frequency is only occasional it may make it more difficult to recover the set up costs. Neoclassical contracting and trilateral governance, involving an arbitrator, are desirable here. If investments are more than nontrivially idiosyncratic, then the more uncertainty that surrounds the transactions, the more important it becomes that the parties have agreed upon methods of arbitration as gaps in the contracts will be larger, and the number and importance of sequential adaptations will increase. Specialized governance structures (unified or bilateral governance), and the relational contract scheme, are ideal for transactions where the frequency is recurrent and investments are mixed or idiosyncratic. Market transactions would here be hazardous due to the transaction specific investment. The recurrent frequency allows fast recovery of set up costs.

In Williamson (1985, p. 79) the same figure as above is included with a small modification, reflecting the prediction that, even if frequency is only occasional, very high levels of idiosyncratic investments may call for unified governance.

**Figure 6. Updated version of governance structures and contract schemes.**



*Figure 6. Updated version of governance structures and contract schemes most suited to the different types of transactions. From Williamson (1985).*

At the end of his 1979 paper, Williamson draws certain refutable implications for the organization of transactions. The most relevant are cited below (p. 259-60):

**General:**

1. Nonspecific transactions, either occasional or recurrent, are efficiently organized by markets.
2. Occasional transactions that are non-standardized stand most to benefit from adjudication.
3. A transaction-specific governance structure is more fully developed where transactions are 1) recurrent, 2) entail idiosyncratic investment, and 3) are executed under greater uncertainty.

**Commercial transactions:**

1. Optimization of commercial transactions requires simultaneous attention to (1) production economies, (2) transaction-cost economies, and (3) component design.
2. The reason why Macaulay observes so few litigated cases in business is because markets work well for nonspecific transactions, while recurrent, nonstandard transactions are governed by bilateral or unified structures.
3. As uncertainty increases, the obligational market-contracting mode will not be used for recurrent transactions with mixed investment features. Such transactions will either be standardized, and shifted to the market, or organized internally.
4. As uncertainty increases, the obligational market-contracting mode will not be used for recurrent transactions with mixed investment features. Such transactions will either be standardized, and shifted to the market, or organized internally.
5. Where inventory and related flow-process economies are great, site-specific supply and transaction-specific governance (commonly vertical integration) will be observed. Generic demand here has little bearing.

6. The organization of the interface between manufacturing and distribution reflects similar investment considerations: goods and services that can be sold without incurring transaction-specific investment will be distributed through conventional marketing channels while those where such investments are great will be supported by specialized-mainly bilateral (for ex-ample, franchising) or unified (forward integration)-governance structures.
7. The governance of technical change poses special difficulties. The frequently noted limits of markets often give way to more complex governance relations, again for the same general reasons and along the same general lines as are set out here.

### 3.6.1.7 Main differences between modes of governance

Williamson (2003) summarized the important differences for TCE between three main forms of governance, market, hybrid and hierarchy, in the following table:

**Table 5. Attributes of leading generic modes of governance.**

Governance attributes	Governance modes		
	Market	Hybrid	Hierarchy
Incentives	High-powered	Less high-powered	Low-powered
Administrative support by bureaucracy	Nil	Some	Much
Contract law regime	Legalistic	Contract as framework	Firm as own court of ultimate appeal (fiat)

*Table 5.* From Williamson (2003).

Markets are characterized by high powered incentives, while hierarchy is low. Firms have the burden and benefits of more administrative rules and procedures than markets. Markets relies more on courts for solving disputes than do hierarchy, which can settle many disputes internally by fiat. For hybrid modes this depends on the contract. The contract may dictate that arbitration should be used in case of disputes. In addition to these three attributes, a fourth one is mentioned in Williamson (1998), which is that of adaption to unforeseen circumstances. He explains: “markets enjoy the advantage in effecting autonomous adaption in response to changes in relative prices, but the advantage accrues to firms as more cooperative adaptations are needed.” (p. 37)

### 3.6.1.8 Operationalization

According to Williamson (2010 handbook) TCE was made operational in three steps.

First, it took the transaction to be the basic unit of analysis and named the key attributes across which transactions differ. Second, it described the properties of alternative modes of governance. Last, the analysis was completed by applying the ‘discriminating alignment’ hypothesis: different kinds of transactions are more efficiently governed by different modes of governance. (p. 9)

Williamson (1979, p. 246) says that governance structures are regarded as part of the optimization problem. The “discriminating alignment hypothesis” is described in greater detail in Williamson (1999). In it he says that TCE works out of this hypothesis. The hypothesis is that transactions, which differ in their characteristics, are aligned with governance structures, which are different in cost and competence, in order to obtain an economizing result.

### **3.6.1.9 Formalizing TCE:**

Efforts have been made to create fully formalized models of the transaction cost approach. However, this is a work in progress (Williamson, 2010). Williamson says that the TCE have, like many other theories, undergone a natural progression from informal (1930-1970), to pre-formal (1970's), to semi-formal (1980s and later), where full formalization is the last step.

Berghuis et al. (2013) claim, in a case study on firms in the Netherlands, that what these authors call transaction management has become a major entrepreneurial skill there. It found however, that transaction costs currently are only intuitively dealt with in organizing production, in contrast to the use of formalized methods.

### **3.6.1.10 Empirical support:**

The main lessons of this section are that the empirical work on TCE is substantial and overall on the supportive side, that measurement problems and lack of testing for interaction effects is an issue, and that the theory has interdisciplinary applicability as variations on a theme, the latter also being mentioned in Williamson (1979; 2008). According to the economist Paul Joskow (2005), TCE has attracted considerable empirical study, much more than other traditional theories of vertical integration or the more recent property right theory. For this development he mainly credits scholars of TCE who has produced testable hypotheses as well as provided guidance for empirical researchers. Further he states that the empirical results of TCA are much more supportive than is the case with other theories of vertical integration.

Shelanski and Klein (1995) did a review and assessment of the empirical research on TCE and concluded that they believed the “[...] empirical literature, on the whole, is remarkably consistent with the predictions of TCE – more so than is typically the case in economics”. Aubert et al. (1996) made a study on outsourcing behavior on ten large organizations and concluded that the results “support the basic principles of transaction cost and incomplete contract theories” (p. 51).

David and Han (2004) undertook a statistical meta-analysis of 63 articles containing empirical evidence. They assessed both the empirical support for the theory, and also the degree of paradigm consensus in the empirical literature. Mixed results were found. They found support in some areas such as asset specificity. For uncertainty and performance however they found relatively little support. They further found extensive disagreement on how to operationalize some of the central constructs and propositions of the theory.

Geyskens et al. (2006) also conducted a quantitative meta-analysis of empirical studies of the TCE's predictive power on the make, buy or ally decision. They mostly found it to have strong support. However, they did not find support for the claim that asset specificity had stronger predictive power than uncertainty.

Lafontaine and Slade (2007) reviewed the empirical evidence of papers that have examined different theories about vertical integration and firm boundaries and concluded that “The large body of empirical research in the area has found considerable support for the notion, derived from TCE, that specific investments are economically and statistically important when it comes to the decision to organize the production of a given input internally or externally” (p. 24). In general they found the other main dimensions of TCE also to have predictive power. They note that the measurement of concepts such as asset

specificity can be problematic in that publicly available data rarely contain useful information regarding things like specificity or complexity. As a result, they claim, most researchers rely on qualitative data obtained directly from inspection, interviews, or questionnaires.

Macher and Richman (2008) provide a comprehensive review of the empirical literature across academic disciplines involving those of the social sciences and business fields. They observed that TCE was increasingly being used in fields outside business related ones, for instance public policy, agriculture and health. They found that there was “[...] considerable support of many of the central tenets of TCE, but we also observe a number of lingering theoretical and empirical issues that needs to be addressed” (p. 2). Of these issues they emphasized measurement issues, especially with regards to asset specificity and opportunism. They also observe that “surprisingly few studies explore the interaction effects among transaction cost variables and between these variables and other potentially relevant factors” (p.43). Finally they conclude that the interdisciplinary breadth and volume of empirical work on TCE illustrates that the theory holds predictive power across disciplines.

According to Nisticò (2008) most of the empirical studies on make or buy decisions are connected with TCE. She claims that the relationship between vertical integration and asset specificity is the most studied area. She concludes that most these studies confirm the prediction that asset specificity makes vertical integration more likely.

Of relevance to this master thesis case study is also the empirical finding of Buvik and Andersen (2002), in analyzing data from 177 relationships involving manufacturing firms in Norway, that ex post transaction cost reductions were higher in international buyer-seller relationships than domestic ones when vertical coordination was increased and substantial asset specificity was present. The main reason given for these findings was that the Norwegian business environment is characterized by higher levels of transparent trade conditions “in which reputation effects might attenuate trading hazards to some degree” (p.18) than the international arena.

Finally, Berghuis et al. (2013) claim to have demonstrated that international fragmentation of production is followed by a rise in transaction and orchestration activities. They claim that standardization (of components or procedures) plays a major role in lowering transaction costs. It decreases the likelihood of miscommunication and makes drafting of, and negotiating contracts easier. Tasks are outsourced (to those places in the world) where the lower production costs outweigh the additional transaction costs. It claims that, as long as the transaction costs associated with orchestration and coordination are lower than the revenues arising from the fragmentation of production the process of specialization of production will continue world wide. It emphasizes the importance of finding a good balance between orchestration skills (or trade) and technological development.

### **3.6.1.11 Extension of TCE:**

Gifford (2004) extend the transaction cost approach of Coase (1937) and Williamson (1985) by considering endogenous transaction costs, or opportunity costs of making a new transaction. It assumes that the entrepreneur has a limited amount of attention to spend on activities. Therefore opportunity costs of negotiating and writing new contracts arises, as the entrepreneurs attention is directed away from internal contracts to external ones or vice versa. The decision of a company to make or buy therefore depends on the evaluation of

the optimal allocation of the attention of the decision maker. This in turn depends on the entrepreneurs core competencies as well as how complete contracts in the internal and external markets are.

Boundreau et al. (2007) argues that in addition to transaction costs, there are also transaction benefits that should be taken into account, particularly in knowledge intense firms. They suggest four additional transaction dimensions likely to yield “transaction benefits”. These are: intensity of knowledge, segmentation of knowledge, dispersion of knowledge, and scarcity of knowledge. They suggest that some firms today mix governance modes so they can use hierarchies to manage transaction costs and communities to drive innovation, and create a model to attempt to show this.

Sandvik and Bråthen (2007) studied the relationship between TCE and Supply chain management (SCM). They produce a table where SCM is compared to the classical TCE forms of governance in several aspects. This is perhaps especially interesting because SCM may not traditionally have been thought of as a form of governance comparable to the ones mentioned in the TCE literature. The paper found that attributes used to describe traditional governance forms of TCE could also usefully be applied to SCM. The paper also introduces an additional form of governance given the name “contingent hybrid governance”. This form is located on the scale between (discreet) market governance and hybrid governance. To describe it an analogy is made to the infinite prisoners’ dilemma game where the participants are playing a “tit-for-tat” strategy. In this strategy one player would, after playing cooperate initially, replicate the move of the other player. In this way transgressions are made unprofitable in the standard set-up of the game. This governance form therefore is “[...] called contingent hybrid governance because its stability can give the impression of a hybrid relationship, while in reality it is mainly contingent on cost considerations (p. 22)”.

### **3.6.1.12 Assumptions and basic concepts of the TCE framework**

This section is an overview of the main assumptions and some of the basic concepts of the TCE-theory and may be skipped without much loss of continuity to the rest of the thesis.

#### **3.6.1.12.1 *Uncertainty and small-numbers exchange relations, bounded rationality and opportunism***

Williamson sets out the fundamental assumption of his framework in “Market and Hierarchies” from 1975. In it the cause of market failure (and hence the reason to take a transaction out of the market) is the coming together of certain *environmental* and *human factors* (p. 9). The environmental ones are uncertainty and small-numbers exchange relations, and the human ones are bounded rationality and opportunism. Williamson quotes Herbert Simon on the pairing of bounded rationality with uncertainty: “The capacity of the human mind for formulating and solving complex problems is very small compared with the size of the problems whose solution is required for objectively rational behavior in the real world.” (p. 9). Opportunism is defined as a “lack of candor or honesty in transactions, to include self-interest seeking with guile.” (p.9) He goes on to state that opportunist inclinations pose little risk “as long as competitive (large-numbers) exchange relations obtain.” (p. 9). However, “although a large-numbers exchange condition obtains at the outset, it is transformed during contract execution into a small-numbers exchange relation on account of 1) idiosyncratic experience associated with contract execution, and 2) failures in the human and nonhuman capital markets” (p. 29).

It is specified that bounds on rationality are interesting only to the extent that these bounds are reached, which is under conditions of uncertainty and/or complexity. When this is the case the entire decision tree cannot, or is too difficult, to draw (p. 22). Williamson quotes Herbert in making the point that the distinction between uncertainty and sufficient complexity becomes irrelevant to the problem:

What may be referred to as ‘uncertainty’ in chess is ‘uncertainty introduced into a perfectly certain environment by inability – computational inability – to ascertain the structure of the environment. But the result of the uncertainty, whatever its source, is the same: approximation must replace exactness in reaching a decision. (p.23).

If everything in the environment was known and simple then contracts could be formulated for all exchange relations. But this is not so. Therefore:

In consideration of the problems that both long- and short-term contracts are subject to – by reasons of bounded rationality and uncertainty in the first instance and the pairing of opportunism with small-numbers relations in the second – internal organization may arise instead. (p. 10)

Williamson further assumes that opportunism in internal supply relations does not pose the same difficulties as it does across a market because 1) profit is more nearly joint maximized and 2) incentive and control mechanisms is much more extensive and refined than what is the case with exchanges in the market. Williamson (2008) states that transaction costs would vanish were it not for bounded rationality and contingent opportunism. The former give rise to incomplete contracts, the latter to defection.

### **3.6.1.12.2 Information impactedness**

According to Williamson (1975) this condition arises mainly due to uncertainty and opportunism, but bounded rationality is also involved. “It exists when true underlying circumstances relevant to the transaction, or related set of transactions, are known to one or more parties but cannot be costlessly discerned by or displayed for others.” (p.31). Thus this concept describes not merely information asymmetry, even though both can be a source of hazards in economic exchange. As Williamson argues:

1) It is not merely asymmetry alone but asymmetry coupled with a) the high costs of achieving information parity and b) the proclivity of parties to behave opportunistically that poses the problem; 2) information problems can develop even when parties have identical information and, a fortiori, if information differences exist; and 3) the distribution of information between the parties is of special concern in small-numbers bargaining contexts. (p.31)

An example of how this may affect the form of governance is given below in the case of first-mover advantages:

Winners of initial contracts acquire, in a learning-by-doing fashion, non-trivial information advantages over nonwinners. Consequently, even though large-numbers competition may have been feasible at the time the initial award was made, parity no longer holds at the contract renewal interval. The information acquired through experience is impacted in the sense that 1) original winners may



refuse to disclose it (which is a manifestation of opportunism) or 2) they may be unable, despite best efforts, to disclose it (because of bounded rationality of the language impeded variety). (p. 35)

Small numbers bargaining situations thus evolve in this way, and markets frequently give way to hierarchies on this account.

### **3.6.1.12.3 Atmosphere**

Williamson states that the power of economics is to a large extent to be traced back to its focus on net benefit analysis. However, he warns that care must be taken not to construct problems too narrowly, which can occur if net benefits are calculated in transaction-specific terms, when “interaction effects” should be taken into account. He emphasizes that “technological separability does not imply attitudinal separability. References to atmosphere is intended to make allowance for attitudinal interactions and the systems consequences that are associated therewith.” (p.37) On page 38 he argues that sometimes it might be more accurate to regard the exchange process itself as an object of value instead of something strictly instrumental to the individuals involved. Satisfying exchange relations is therefore made part of the economic problem.

### **3.6.1.12.4 Production- and transaction costs, and component design**

The purpose of this section is mainly to explore what TCE has to say about the relation between production- and transaction costs, and component design. But also to enquire into how “logistics costs” fit in with this theory. The main motivation for the first bit of the investigation are the objections that “TCE only focus on transaction cost, and should focus more on production costs” and the wish to obtain clarity on this matter. A concluding part of a section on the antecedents of TCE, Williamson (1981) is instructive:

Finally, although transaction cost economizing is an important and greatly neglected topic, such economizing cannot proceed regardless of the production cost ramifications. Put differently, transaction cost economizing needs to be located within a larger economizing framework and the relevant tradeoffs need to be recognized. (p. 552)

Williamson (1979) says that at some general level the economizing problem includes choice between a special-purpose and a general-purpose good or service. He elaborates:

A general-purpose item affords all of the advantages of market procurement, but possibly at the sacrifice of valued design or performance characteristics. A special-purpose item has the opposite features: valued differences are realized but market procurement here may pose hazards. (p.245)

This is reflected in one of the concluding propositions he draws on page 259 that optimization of commercial transactions requires simultaneous attention to 1) production economies, 2) transaction-cost economies, and 3) component design.

For purposes of that particular paper (p. 245), and perhaps to some extent operationalization, Williamson (1979) assumes that the criterion for organizing commercial transactions is the strictly instrumental one of economizing on costs, essentially, production and transaction. He elaborates:

To the degree that transaction costs are negligible, buying rather than making will normally be the most cost-effective means of procurement. [...] Since external procurement avoids many of the bureaucratic hazards of internal procurement (which hazards, however, are themselves of a transaction-cost kind), external procurement is evidently warranted.

As indicated, however, the object is to economize on the sum of production and transaction costs. To the degree production-cost economies of external procurement are small and/or the transaction costs associated with external procurement are great, alternative supply arrangements deserve serious consideration. Economizing on transaction costs essentially reduces to economizing on bounded rationality while simultaneously safeguarding the transactions in question against the hazards of opportunism. Holding the governance structure constant, these two objectives are in tension, since a reduction in one commonly results in an increase in the other. (p. 245-46)

According to Armbrüster (2006, p. 12) production costs include logistics costs. He further states that the make-or-buy decision is based on a comparison of the sum of production and transaction costs. Rindfleisch and Heide (1997) summarizes the relationship between production and transaction costs in the framework like this:

The basic premise of TCA is that if adaptation, performance evaluation, and safeguarding costs are absent or low, economic actors will favor market governance. If these costs are high enough to exceed the production cost advantages of the market, firms will favor internal organization. The logic behind this argument is based on certain a priori assumptions about the properties of internal organization and its ability to minimize transaction costs. (p.32)

### **3.6.1.13 Critique of TCE**

Barney (2012) argues that the quest for capabilities is not captured well by the TCA. He makes the example that in order to gain access to capabilities, firms may prefer nonhierarchical (market or bilateral) governance even though transaction specific investments have been made and this form of governance may increase the threat of opportunism. This is because it may be costly for some firms to develop certain capabilities on their own and also costly to acquire another firm that already possesses these capabilities. Using market or intermediate forms of governance may therefore in certain cases become an attractive alternative. He discusses the conditions where capability considerations are of importance, and argues that those occur most frequently in fast evolving high-tech industries. Finally he posits that, whenever such capability access is important, the cost of using nonhierarchical governance versus hierarchical governance to gain access to these capabilities must be compared.

Ghoshal and Moran (1996) criticize the transaction cost approach and claim that it does not take into account organizations “unique advantage for governing certain kind of economic activities through a logic that is very different from that of the market.”

They warn that the focus on opportunism may create a self-fulfilling prophecy. The argument is summarized like this:

As the increased use of rational controls a) increases the organizations dependency on those controls, b) shifts voluntary compliance and extra role behavior to compulsory compliance and work-to-rule, and c) encourages more difficult to detect opportunistic behavior, the cost of removing these controls will grow until it is no longer an option for the organization. Management's options for responding to opportunistic behavior will narrow to one of more controls that would serve only to increase opportunistic behavior. (p. 27).

They further contend that firms caught in such a cycle will gravitate to business areas that are more suitable for governance through "rational control". Allegedly such areas are areas where markets will have superior efficiency characteristics and will ultimately prevail.

Another, at least interesting speculation that could be made, is that the theory may have gone from being descriptive or predictive to becoming prescriptive. At least firms, consultants and so on may treat it in a prescriptive way today. This line of thinking may use parts of the argument of Ghoshal and Moran (1996), but is also implying that organizations will be more aware of potential small-number bargaining situations developing, the tension between customization and standardization and so on than they would be likely to had they not been familiar with TCE. As a side point, Milton Friedman (1953) in his essay on methodology speaks of a to-some-degree similar relationship between positive and normative economics.

Johansson and Mattsson (1987) of the Network theory sums up some of the critique made against TCE. They claim that it can be used as an argument for horizontal and vertical integration, as the use of hierarchies instead of markets for coordination of interdependent activities may economize on transaction costs. Further, they refer to critics such as Perrow (1986) and Kogut (1985) that claim that the transaction cost concept is vague and even badly defined and that there is little, if any, empirical evidence that economizing on transaction costs is a good explanation or even a dominating motive for vertical integration.

Further, Johansson and Mattsson refer to claims that Williamson makes unrealistic assumptions about the differences between hierarchies and markets. Within firms there is also opportunism and organizations are not necessarily able to economize on bounded rationality. Markets can also be characterized by asymmetrical power relations, such as being controlled by fiat etc. One final issue is in the application of TCE, more specifically the limitation of the systems to be compared. TCE analyze a dyadic relation performing a transaction, but the industrial system is made up of many such relations that are interdependent to various degrees. If the institutional form will be changed in one of those dyads, for instance through vertical integration, this may affect other dyads.

### **3.6.2 Agency theory**

Logan (2000) proposes to use agency theory to design successful outsourcing relationships. She addresses some of the failed ones and suggests two possible solutions to the problem: 1) diagnose the relationship from both sides of the contract. 2) The second one is to use agency theory to aid designing the type of contract and relationship.

Principal-agent theory has been used in different fields such as the political sciences, law and economics (Eisenhardt, 1989). The model proposes that there is a conflict of interest between a principal and an agent. In a work situation, the principal is the employer of the

agent. For the agent the fulfillments of the working requirements are costly to him, and so he has some incentive to shirk. The problem then is centered on how to align the interests of the agent with the interest of the principal. In monitoring the agent the principal face the challenge of incomplete and asymmetry of information, and risk with regards to what degree of a contract the agent has completed (Investopedia 2013).

The use of agency terminology and general logic is used in analysis section of this thesis in the investigations of the main information flows between activities and agents, and attempts to find if there is a relationship between the security classification of this information and employees recommendation for outsourcing.

### **3.6.3 Property rights theory/new property right theory**

As specified in the introduction this section is used only to facilitate the primary objective of this literature study. The theory was eventually rejected for other theories that seemed both better defined and suited for the purpose. The property rights theory revolves around the idea that the firm can be conceived on the basis of the definition and distribution of property rights (Garrouste in Elgar, 2004). In his article Garrouste gives a survey of its developers, which is beyond the scope of this section to include. According to Kim and Mahoney (2005), the Property rights theory has common antecedents with TCE and agency theory. Yet it is distinct from these.

According to Gooroochurn and Hanley (2007) the property rights theory (PRT) is especially relevant to outsourcing where knowledge transfer and product innovation has a major role (while TCE is more important to explain process innovation). It thus is more limited in its applicability than TCE. They further claims that PRT and TCE is not mutually exclusive, but that while the emphasis in TCE is on costs/benefits, in the PRT case it is on revenue maximization and protection/appropriation environments. The PRT predicts that products either should be innovative enough to have patent protection, or that their returns are uncertain so that opportunism by partners are made less feasible.

The result of adding contractual incompleteness to theory is sometimes called the New property right theory (Foss et al., 2000; Chen, 2005). Incomplete in this context means that not all the economic aspects and the benefits for the parties involved are specified ex ante. An additional contractual problem is that the actions of the parties are not observable or verifiable (Nisticò, 2008). This theory tries to shed light on what effect the ownership of assets has on incentives of two parties (such as a buyer and a seller) to invest ex ante in non-contractible assets, knowing that after the event has taken place they will both share any payoffs that their investment from the investment (Colombatto, 2004). Factors in this theory that makes a contract incomplete is that knowledge about certain futures of the world may only become available ex post, the cost of specifying ex ante the different possible states of the world might be too high to be worth it, and actions of the parties involved may not be verifiable by even a third party (Nisticò, 2008).

### **3.7 Resource-based theories**

This section will deal with the origin and contents of theories of the firm which emphasize capabilities, competence, dynamic capabilities, knowledge, learning, routines, or resources. Although in many respects these theories differ, it can be useful for analysis to group them together.

Madhok (2002) provide a justification for this and points out that “[...] ultimately they are all interested in the similar question of performance differences between firms” (p. 536). In this article he uses the term “resource-based” for such theories. This literature review will do the same. Williamson (1999) offers a seemingly different, perhaps simply broader, main similarity between these theories: “[...] the capabilities/competence perspective has distinguished antecedents, the overarching theme of which is the importance of process” (p. 1093). According to him much of this work can be traced to draw inspiration from Joseph Schumpeter’s *Capitalism, Socialism, and Democracy* (1942). Grant (2001) says the interest of such theories...

reflect dissatisfaction with the static, equilibrium framework of industrial organization economics that has dominated much contemporary thinking about business strategy and has renewed interest in older theories of profit and competition associated with the writings of David Ricardo, Joseph Schumpeter, and Edith Penrose (p.114).

According to Foss (1997) and Mills et al. (2003) Philip Selznick (1957) was also a key contributor to the resource-based view in that he introduced the idea that companies possess “distinctive competences”. Argyres and Zenger (2009) mention Richardson (1972) as one of the originators of the competence view. Still, it seems that Edith Penrose and her 1959 book named “*The theory of the growth of the firm*” is most commonly mentioned in the literature as the main source of influence for resource-based theories (Williamson, 1999; Langlois, 1996; Neves et al., 2013; Grant, 2001). Two prominent papers that take a synthetic view on resource-based theories are Williamson (1999) and Madhok (2002). According to McIvor (2009) such theories are important to the study of outsourcing “[...] as superior performance achieved in organizational activities relative to competitors would explain why such activities are performed internally” (p. 46). Argyres and Zenger (2007) explains is thus: “[...]capabilities logic explains the choice to internalize (or the persistence of this choice) as a reflection of superior capability to perform the activity within the firm relative to the capabilities of external providers” (p. 3). Several other authors have proposed that comparative capabilities of firms play an important role in defining boundaries (see Argyres and Zenger, 2009, for a collection of authors).

Apart from facilitating the main objectives for this literature survey mentioned above, this section also has a direct bearing on the analysis part of this thesis in that it provides the main basis for which alternatives theories are tested against the data.

### **3.7.1 Main ideas**

Outlines of the theory in the form common today is given in several papers (Wernerfelt, 1984; Barney, 1991; Grant, 1991; Dosi and Teece, 1998; Williamson, 1999; Cousins 2005). Due to the central position of Penrose in this stream of thought, two relevant quotes are here given. The following from Penrose (1959) is illustrative on the relationship between resources, capabilities and the distinctiveness of firms:

The services yielded by resources are a function of the way in which they are used – exactly the same resource when used for different purposes or in different ways and in combination with different types or amounts of other resources provides a different service or set of services. The important distinction between resources and services is not their relative durability; rather it lies in the fact that resources consists of a bundle of potential services and can, for the most part, be defined

independently of their use, while services cannot be so defined, the very word 'service' implying a function, an activity. As we shall see, it is largely in this distinction that we find the source of the uniqueness of each individual firm. (p.22)

Presumably the word "capability" has to a large extent replaced "service" in the modern literature. Penrose (1959) offers the following explanation of the contents of her theory:

A theory of the growth of firms is essentially an examination of the changing productive opportunity of firms; in order to find a limit to growth, or a restriction on the rate of growth, the productive opportunity of a firm must be shown to be limited in any period. (p. 28-29).

According to Cousins (2005), the resource-based view considers the firm as a bundle of resources and capabilities which, when combined become sources of economic rents and sustainable competitive advantage. By varying, combining and recombining these resources firms can change themselves in a variety of ways. Dosi and Teece (1998) describes distinctive competence in the theory like this:

... a firm's *distinctive competence* needs to be understood as a reflection of distinctive organizational capabilities to coordinate and to learn. By 'organizational capabilities' we mean the capabilities of an enterprise to organize, manage, coordinate, or govern sets of activities. The set of activities that a firm can organize and coordinate better than other firms is its distinctive competencies. Posed differently, a distinctive competence is a differentiated set of skills, complementary assets, and organization routines which together allow a firm to coordinate a particular set of activities in a way that provides the basis for competitive advantage in a particular market or markets." (p. 284)

Barney (1991) suggests that sources of sustained competitive advantage resources of a firm that are valuable, rare, imperfectly imitable, and non-substitutionable. He adds that in addition to these sources sustained competitive advantage is dependent on the role of management. Further he adds that implicit in the model is the assumption that managers have a limited ability in manipulating the attributes of the firm. Williamson (1999) argues that competence include coordination and learning, and is based on skill, assets, and routines. Some of the theories which may arguably be viewed as outgrowths of the RBV are briefly described below.

### **3.7.2 Capabilities as organizational routines**

Grant (1991) refers to Nelson and Winter's (1982) concept of "organizational routine". The concept is explained by Grant thus:

Such routines are regular and predictable patterns of activity which are made up of a sequence of coordinated actions by individuals. A capability is, in essence, a routine, or a number of interacting routines. The organization itself is a huge network of routines. (p. 122)

He compares the concept of routines with the human concept of skill. Nelson and Winter (1982, p.14) compares it to biological genes. Williamson (1999) comments on this latter hypothesis by saying that if the analogy holds, "[...] then we are evidently onto something very basic" (p. 1095).

### 3.7.3 Knowledge based theory of the firm

Grant (1996) argues for a knowledge-based theory of the firm. Within this approach, the firm as a knowledge producing and knowledge absorbing entity is distinguished. He argues that the vertical and horizontal boundaries of the firm may be analysed in terms of relative efficiency of knowledge utilization. It assumes that markets transfer products in an efficient manner, but knowledge in an inefficient manner. Integration will then occur between stage A and B of production if stage B require access to the knowledge in stage A. To the author of this thesis this sounds like the argument for technological nonseparability that Williamson (1975) attempted to show was not the only determinant for vertical integration. Kogut and Zander (1992) has also presented a much cited investigation into the relationship between firm knowledge, capabilities, technology and the make-or-buy decision.

### 3.7.4 Learning based theories

Several authors have argued that firms may be usefully viewed as institutions for learning. Madhok (2002) refers to Teece, 1990; Kogut and Zander, 1992; Ghoshal and Moran, 1996; Madhok, 1996, 1997). Cohen and Levinthal (1990) and Levinthal and March (1993) are some of the most cited papers that explore the various aspects of organizational learning. Incorporating such learning views, governance structures may not only serve to align transaction and governance characteristics, but also have the function of managing skills and knowledge. Advantages of integration include under this approach include facilitating the learning required in capability formation (Argyres and Zenger, 2007 p. 7).

### 3.8 *The relationship between TCE and resource-based theories:*

A number of scholars have in recent years made attempts at clarifying the relationship between the TCE and the RBV and what is similar and different in how the two theories relate to the make-or-buy decision. Several authors claim that the two theories are complementary (e.g. Williamson, 1999; Langlois and Foss, 1996; Neves et al., 2013; see McIvor, 2009 for other authors). And some have attempted to create a synthesis of the two theories (e.g. Argyres and Zenger, 2009; Tsang 2000). This section will first present a table that include the relevant papers that has been reviewed for the purposes of this section in the literature survey, then a section literature commenting on the difference of the theories will follow, before a section on the complementariness of the theories.. A section on studies that has compared the theories empirically will then follow. At the end a short summary is provided.

**Table 6. Relevant papers reviewed for the purposes of this section in the literature survey.**

Author(s) (year)	Title	Type of study	Purpose and/or key finding
Argyres, N., & Zenger, T. (2007)	Are capability-based theories of firm boundaries really distinct from transaction cost theory?	Conceptual.	Argue that capabilities and transaction cost determinants interact with other dynamically, and that the two theories of the firm cannot be conceptually distinguished.
Argyres, N., & Zenger, T. (2009)	Capabilities, transaction costs, and firm boundaries: A dynamic	Conceptual.	Same as above. In addition sets out to articulate an integrated perspective that incorporates both capabilities and transaction cost logic.

	perspective and integration.		
Combs, J. G., & Ketchen, D. J. (1999)	Explaining interfirm cooperation and performance: toward a reconciliation of predictions from the resource-based view and organizational economics.	Empirical.	Attempts to reconcile differing predictions of the two theories by positing that firms place resource-based concerns in front of consideration from organizational economics when deciding whether or not to engage in interfirm cooperation. Empirical results supports what they call their integrated view.
Conner, K. R., & Prahalad, C. K. (1996)	A resource-based theory of the firm: Knowledge versus opportunism.	Conceptual.	Attempts to develop a resource and knowledge based theory of the firm. Allegedly have predictive power in the make-or-buy decision. Compares this with TCE.
Cousins, P. D. (2005)	The alignment of appropriate firm and supply strategies for competitive advantage.	Empirical.	Tests the hypothesis that a firm's perception of the strategic nature of supply depends on how it defines its competitive advantage (CA). Finds that views its CA as cost-focused will generally consider supply as merely having a cost reduction role (passive and supportive), while the other group will see it as a distinctive capability (strategic).
Das, T. K., & Teng, B. S. (2000)	A resource-based theory of strategic alliances.	Conceptual.	By examining the role of firm resources in strategic alliances, the paper attempt to put forward a general resource-based theory of strategic alliances by synthesizing the various findings in the literature on alliances from a resource-based view.
Espino-Rodríguez, T. F., & Padrón-Robaina, V. (2006)	A review of outsourcing from the resource-based view of the firm.	Conceptual.	Contributes with a review of the principal works that address outsourcing from the RBV. Analyze main differences between treatments of outsourcing from RBV and TCE. Propose a framework based on RBV and capabilities.
Foss, K., & Foss, N. J. (2004)	The next step in the evolution of the RBV: Integration with transaction cost economics.	Conceptual	Addresses the role of transaction cost economics (TCE) in advancing the resource-based view. In particular, it is argued that TCE has the potential to remedy a number of weak spots in the RBV, such as the absence of attention in the RBV to the



			interaction between value creation and value appropriation
Holcomb, T. R., & Hitt, M. A. (2007)	Toward a model of strategic outsourcing.	Conceptual.	Claim that although research in supply chain management has expanded substantially, only limited applications of TCE and the RBV are available, especially in the field of operations management. Attempts to extend both perspectives to explain conditions leading to strategic outsourcing.
Jacobides, M. G. (2008)	How capability differences, transaction costs, and learning curves interact to shape vertical scope.	Conceptual using analytical and computational methods.	By varying the level of transaction costs and changing the structure of the correlation between upstream-downstream capabilities in the industry, as well as economies of scale; learning curves; and the way in which profitability leads to capability improvement in the upstream and downstream segments, numerical results are generated to explain how vertical integration evolves over time.
Jacobides, M. G., & Billinger, S. (2006)	Designing the boundaries of the firm: From “make, buy, or ally” to the dynamic benefits of vertical architecture.	Conceptual and empirical.	Longitudinal study of a major European manufacturer Suggests that to understand how firm boundaries are set and what their impacts are, it is needed to complement microanalytic focus on transactions with a systemic analysis at firm level. Also claims to show how, over and above transactional alignment, decisions about boundaries and vertical architectures can transform a firm’s strategic and productive capabilities and prospects.
Jacobides, M. G., & Hitt, L. M. (2005)	Losing sight of the forest for the trees? Productive capabilities and gains from trade as drivers of vertical scope.	Conceptual and empirical.	Considers how productive capability differences shape vertical scope through gains from trade. Find this to be a key determinant in the make-or-buy decision. Conclude that the distribution of productive capabilities along the value chain, catalyzed by transaction costs, ultimately drives scope.
Jacobides, M. G.,	The co-evolution of	Conceptual.	Propose that transaction costs and

<p>&amp; Winter, S. G. (2005)</p>	<p>capabilities and transaction costs: Explaining the institutional structure of production.</p>		<p>capabilities are fundamentally intertwined in the determination of vertical scope. Attempts to identify the key mechanisms of a co-evolution.</p>
<p>Jacobides, M. G., &amp; Winter, S. G. (2010)</p>	<p>Understanding Capabilities: Structure, Agency and Evolution.</p>	<p>Conceptual. Reviews existing empirical results.</p>	<p>It assesses recent progress toward an integration of the capabilities and transaction cost approaches. Finds that progress has been substantial and that key elements of a promising dynamic synthesis have been identified.</p>
<p>Jain, A., &amp; Thietart, R. A. (2013)</p>	<p>Capabilities as shift parameters for the outsourcing decision.</p>	<p>Empirical.</p>	<p>Argue that the effect of capabilities on the outsourcing dilemma integrates seamlessly into transaction cost reasoning if capabilities are regarded as shift parameters. The result of such a process is that the frontier at which market governance gives way to firm governance shifts.</p>
<p>Langlois, R. N. (1992)</p>	<p>Transaction-cost economics in real time.</p>	<p>Conceptual.</p>	<p>Attempts to place, as it says, "the theory of the boundaries of the firm within the context of the passage of time". Introduce the concept of "dynamic transaction costs".</p>
<p>Langlois, R. N., &amp; Foss, N. J. (1999)</p>	<p>Capabilities and governance: the rebirth of production in the theory of economic organization.</p>	<p>Conceptual.</p>	<p>Argues that competing and complementary theories of TCE are emerging. These theories are founded on economizing on bounded rationality but pay more attention to changing technology and to evolutionary considerations. Surveys and synthesize a developing perspective that they label the "capabilities" view.</p>
<p>Madhok, A. (2002)</p>	<p>Reassessing the fundamentals and beyond: Ronald Coase, the transaction cost and resource-based theories of the firm and the institutional structure of production.</p>	<p>Conceptual.</p>	<p>Argues that Coase foresaw many of the questions that RBV is concerned with today, that RBV play a more critical explanatory role than many RBV scholars recognize, and lastly, that a more complete understanding of the organization of economic activity require a greater sensitivity to the interdependence of production and exchange relations. Calls for a triangular alignment between governance structure, transaction, and resource characteristics.</p>

Mayer, K. J., & Salomon, R. M. (2006)	Capabilities, contractual hazards, and governance: Integrating resource-based and transaction cost perspectives.	Empirical.	Address independent and joint effects of contractual hazards and technological capabilities on governance, arguing that strong technological capabilities improve a firm's ability to govern transactions, making outsourcing feasible despite certain contractual hazards.
McIvor, R. (2009)	How the transaction cost and resource-based theories of the firm inform outsourcing evaluation.	Conceptual and empirical (case study).	Argues that neither TCE nor RBV alone can fully explain the complexities of outsourcing. Finds that the theories should be applied with caution due to contradictory prescriptions in some instances.
Poppo, L., & Zenger, T. (1998)	Testing alternative theories of the firm: transaction cost, knowledge-based, and measurement explanations for make-or-buy decisions in information services.	Conceptual and empirical.	Develops and tests a model of comparative institutional performance (rather than institutional choice). Examine the degree of support for competing explanations of boundary choice. Results suggest that a theory of the firm and a theory of boundary choice is likely to be complex, requiring integration of transaction cost, knowledge-based, and measurement reasoning.
Silverman, B. S. (1999)	Technological resources and the direction of corporate diversification: Toward an integration of the resource-based view and transaction cost economics.	Empirical.	Considers how firms resource base affects the choice of industries that the firm diversifies into. Findings point to circumstances where resources can be and are exploited through contracting rather than through diversification.
Tsang, E. W. (2000)	Transaction cost and resource-based explanations of joint ventures: A comparison and synthesis.	Conceptual.	Attempts to explain the formation of joint ventures from the RBV and to compare this perspective with TCE, make synthesis of the two theories which take both costs and benefits into account.
Williamson, O. E. (1999)	Strategy research: governance and competence perspectives.	Conceptual.	Apply the lenses of governance and competence to the study of strategy. Finds that research challenges posed by the competence view such as dynamic TC, learning, and the need to push beyond generic governance

			to respond to challenges faced by particular firms can and should be responded to by the governance perspective.
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Table 6. Composed by the author.

### 3.8.1 Difference between theories

This section will survey some of what has been said about the difference between the theories. Cousins (2005) summarize the main difference between Transaction cost economics and the RBV in the following way:

The fundamental difference between TCT and RBV is that TCT is a theory based on the transaction process of firms, and sees the firm operating in a cost driven environment. RBV, however, sees the firm as a basis for competitive advantage and attempts to understand how the firm can achieve this through the combining of its capabilities and resources. It would appear that firms operating under a RBV perspective would tend to see themselves as market differentiators, whereas those operating under a TCT focus would tend to see competitive advantage coming from a cost focus strategy. (p. 408)

Rodriguez and Robaina (2006) composed a table showing the main differences between the TCE and RBV:

**Table 7. Comparison of TCE and RBV 1:**

	Transaction cost economics	RBV
Unit of analysis	- Transactions	- Resources and capabilities.
Behavioral assumptions	- Opportunism and limited rationality	- Limited rationality (the firm does not master everything; it will do what is determined by its organizational routines)
Analysis for outsourcing	- Specific assets and the small numbers related to the transaction. - Only individual analysis of the transactions. - Frequency of the transaction	- Specific resources. - Analysis of the resources as a whole. - Skills and capabilities. - Experience of suppliers. - Analysis of complementary capabilities.
Criterion for outsourcing	- Minimizing the transaction and production costs - Efficiency. - Better economic strategy. - Tactical and operational decision.	- Observe the creation of value.
Desired effect on the organization	- Dependence on supplier. - Hidden costs.	- Competitive advantage. - Strategic decision. - Development of capabilities across organizational boundaries.
Risks	- Post-contractual threat.	- Loss of critical skills and

		capabilities. - Service provider's lack of necessary capabilities.
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Table 7. Main differences between TCE and RBV. From Espino-Rodríguez et al. (2006).

Madhok (2002) give the following description of the claimed limitations of TCE: “The TC theory of why firms exist (i.e., why firms in general would/should organize a particular activity internally) does *not* fully explain why a *particular* firm will/should (or would/should not) organize that activity hierarchically within its boundaries” (p. 541). He produces a table with a comparison of the theories:

**Table 8. Comparison of TCE and RBV 2.**

	Transaction cost theory	Resource-based theory
Broad theoretical arena	Theory of <i>the</i> firm	Theory of <i>a</i> firm
Primary theoretical question	Why do firms exist?	Why do firms differ?
Primary driver	Search for efficient governance structure	Search for competitive advantage
Primary domain of interest	Exchange and the transaction	Production and firm resources/capabilities
Primary focus of analysis	Transaction attributes (e.g., asset specificity)	Resource attributes (e.g. value, stickiness)
Primary emphasis	(Transaction) Costs.	Firm resources, skills, knowledge, routines

Table 8. Comparison of TCE and RBV. From Madhok (2002).

McIvor (2009) compared the outsourcing positions of RBV and the TCA based on two variables: resource position, and potential for opportunism. He found that some of the predictions were contradictory and came up with a table summarizing the differences. Watjatrakul (2005) also identified cases where TCA and RBV differ in its predictions, summarized in a table. The table is reproduced in the data analysis section of this case study. According to Watjatrakul an asset/resource can be strategic and/or specific. Specific assets under TCT cannot be redeployed or transferred to other uses without a significant reduction in value and lead to a hold-up problem. Strategic resources in the Resource-based view yield sustainable competitive advantage by exploiting opportunities in the market or neutralizing threats from competitors.

Conner and Prahalad (1996) make a distinguishing factor of TCE out to be the emphasis on opportunism, and contrast this to a resource-based approach that does not emphasize opportunism. They suggest that the focus on either of these two elements is the main reason for why the choice of organizational mode may differ between the two theories.

### 3.8.2 Complementariness of theories

Langlois and Foss (1996) observes that these two traditions (the TCE and RBV) are regularly viewed as addressing the same phenomena; namely the existence, boundaries and internal organization of firms, and while they therefore be viewed as competing theories, Langlois and Foss emphasize the complementary aspects between the theories and the need for integrative effort. The same is done by several other authors (e.g. Neves et al., 2013; Williamson, 1999, see McIvor, 2007 for more). Langlois and Foss (1996) concedes that TCA has been more operationalized of the two and has the more rigorous vocabulary, the capability view, they argues, have more *plausible* explanation mechanisms. Langlois

and Foss (1996) notes that Williamson changed his basic TCA formula to include competencies/capabilities in a 1991 paper: “Align transactions, which differ in their attributes, with governance structures, which differ in their costs and competencies in a discriminating (mainly, transaction cost economizing) way” (Williamson, 1991a, p.79). Langlois states that: “the notion of the firm as a bundle of capabilities may harmonize with key ideas of the post-Coase literature.”

The paper “Strategy research: governance and competence perspective” (1999) by Williamson is dedicated to precisely the issue of the relationship between the two schools. In it he suggest that one possible way of viewing the relationship between the theories is that TCE informs the *generic* decision to outsource, while the RBV/competence perspective bring in *particulars*. Clusters of transactions and process considerations such as learning, path dependencies, technological opportunities, selection and complementary assets need to figure more prominently Williamson concedes, while at the same time urging operationalization of such features. He comes up with the following table as a guideline in extending the make-or-buy calculus to include such factors:

**Table 9. Levels of TCE and strategy.**

Level 1	Generic: How do alternative generic modes (markets, hybrids, firms, bureaus) compare for purposes of organizing transaction X?
Level 2	Particular: How should firm A, with its pre-existing strengths and weaknesses (core competencies and disabilities), organize transaction X?
Level 3	Fixed niche: How do the pre-existing strengths and weaknesses of firm A compare with those of its extant rivals with respect to market niche $\alpha_1$ ?
Level 4	Variable niche: How do the pre-existing strengths and weaknesses of firm A compare with those of its extant and potential rivals with respect to niches described by $(\alpha_1, \alpha_2; \beta_1, \beta_2, \beta_3; \gamma)$ ?
Level 5	Repositioning: How should firm A, with its pre-existing strengths and weaknesses, reposition for the future in relation to the strategic situation (actual and potential rivalry; actual and potential market niches) of which it is a part or to which it can relate?
Level 6	Strategizing: If firm A possesses monopoly power, how can it best deter and discipline actual and potential rivals?

Table 9. From Williamson (1999).

In the table above, he explains, that TCE traditionally have worked on level 1: “what is the best generic mode (market, hybrid, firm, or bureau) to organize X?”. By incorporating into the calculus aspects of the RBV it could instead operate on level 2: “How should firm A – which has pre-existing strengths *and* weaknesses (core competences and disabilities) – organize X?”.

Langlois and Robertson (2002) provides some insight into how the outsourcing decision is based on capabilities, production cost, and transaction cost considerations: “Depending on its own capabilities relative to those of others, a particular firm may decide that combined production and transaction costs for any given input justify either internalization or outsourcing” (p.202)

Cousins (2005) are of the opinion that, even though the two approaches may seem opposite to each other, this is not the case, and that any strategic approach to supply management should combine both of the approaches with a greater emphasis on either of the theories.

Neves et al (2013) concludes in a case study that the TCA and RBV, if one of them is used in isolation, may lead to wrong outsourcing decisions. They argue that the two theories should be used in a complementary way.

Madhok (2002) calls for a shift away from a bilateral alignment (a focus on transaction- and governance structure particulars) toward a triangular alignment between governance structure, transaction, and resource attributes, and attempts in his paper to demonstrate how the identity as well as strategy of one particular company influence the way its resources interact with the transaction, as well as how the firm chooses to govern it. His then takes a broader focus to include not just cost, but also skills and knowledge in the context of interfirm collaborative relations. The interdependence between cost and skills in the determination of firm boundaries by choice and “nature” is then treated. In the article he argues that Coase foresaw a need to discover the reasons why there is a different cost in organizing particular activities among different firms.

Below is how Madhok (2002) illustrates his “triangular alignment hypothesis”:

**Figure 7. The “triangular alignment hypothesis”.**

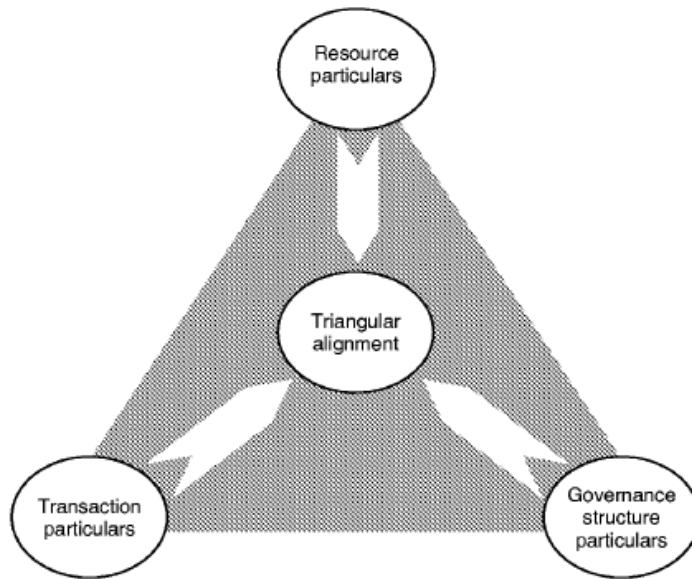


Figure 7. Madhok's "triangular alignment hypothesis". From Madhok (2002).

In the paper Madhok also refers to authors that points out that a firm can be viewed as being both a collection of resources as and a collectivity of transactions (Ulrich and Barney, 1984; Winter 1988). Williamson (1999) observes that the firm can also be viewed as a bundle of routines (from the evolutionary perspective).

Argyres and Zenger (2007; 2009) set out to prove that the tendency in the existing literature to treat comparative capabilities as determinants that are dependent on transaction costs are mistaken. They argue that instead, capabilities and transaction cost determinants interact with each other dynamically, and that there are difficulties in conceptually distinguishing the two theories. The following passages are illustrative (2007):

We contend that these concepts of specific asset investment and appropriable quasi rents are very closely related to, if not synonymous with, the resource-based concepts of firm specific capability and their associated rents. In theory, a firm-specific capability can reside either within the boundaries of a focal firm or within the boundaries of a supplier. (p. 9)

In summary, therefore, transaction cost logic can be understood to argue that efforts to generate unique capability through exchange with an outside supplier produce hazardous exchange conditions that promote integration. Thus, the desire to generate unique capability drives the decision to integrate (p. 11)

The following citation seemingly directly addresses the question of the relationship of TCE and RBV:

The distribution of specialized capabilities across firms and their buyers and suppliers at a particular point in time reflects a series of *past* decisions by these firms to either develop or not to develop capabilities internally. Thus, the possession of a capability today reflects a choice to internally develop (or purchase) that capability yesterday. These decisions, we argue, were likely driven



by comparative governance or transaction cost considerations. Consider the following example. A firm decides to internalize an activity at time 1 because performing this activity with the desired level of capability requires highly idiosyncratic investments—investments that suppliers are reluctant to make in the absence of carefully crafted safeguards. Due to the high costs of contractually creating and enforcing these safeguards, the firm chooses to integrate this capability development. As these specific investments are made over time, the firm develops the desired, superior capability to perform the activity, so that by time 2, the capability is fully developed, leaving no outside supplier with a comparable capability. Thereafter, the firm continues to be integrated (p. 12).

Based on a consideration from both the TCE and RBV, Argyres and Zenger (2009) distinguish between four asset types which have implications for the make-or-buy decision. They produce the table below to illustrate:

**Table 10. Predicting integration.**

State of asset or activity	Generic	Unique (actual or potential)
Complimentary with other bundle elements	Outsource	Acquire/develop
Non-complimentary with other bundle elements	Outsource	Outsource

*Table 10.* From Argyres et al. (2009):

Finally, Jain and Thietart (2013) argue that the effect of capabilities on the outsourcing dilemma integrates seamlessly into transaction cost reasoning if capabilities are regarded as shift parameters. Two effects of capabilities are distinguished: a change in production costs and a change in governance costs of the firm relative to the market. The result of such a process is that the frontier at which market governance gives way to firm governance shifts. This argument was allegedly demonstrated empirically.

### **3.8.3 Empirical comparisons:**

Poppo and Zenger (1998) conducted statistical tests comparing the explanatory power of TCA, “measurement costs” and the knowledge based view in the make or buy decision in information services and came to the conclusion that a theory of the firm as well as a theory of boundary choice is likely to be complex, and will need integration from the traditions of TCE, the “knowledge-based view”, and measurement-cost explanations (the consideration that accurate measurements are costly to perform, and that internalizing an activity can avoid such costs).

Barthélemy et al. (2006) used the transaction cost approach as well as the resource based view to empirically study outsourcing agreements. It developed an original approach of contract complexity and analyzed the links between contractual hazards (specificity and environmental uncertainty), the contractual aspect of outsourcing (control, incentives, penalties, price and flexibility clauses) and ex post transaction costs. It uses three measurements to assess the strategic importance of an outsourced activity: proximity to core business, switching costs and adaption costs. It claims the findings extend TCE’s validity for outsourcing of activities with strategic value.

### **3.8.4 Summary**

As seen in this section there is a whole genre of literature dealing with the relationship between RBV-theories and TCE. Most of them seem to call for an alignment of them, summed up in what Madhok (2002) calls the “triangular alignment hypothesis”. The relationship between the two traditions is treated in the clearest way, it seems, in Williamson (1999), and given a clever time-related explanation by Argyres and Zenger (2007), summed up in the citation above. Some have produced tables with the differences between the outsourcing-predictions of TCE and RBV, such as Watjatrakuls (2005). The insight from this table will be used in the analysis section of this thesis in order to test the data against other theories than TCE.

### **3.9 Tautology criticism**

Both TCE and RBT have been subject to the criticism that the theories are tautological (Williamson, 1999, Barney, 2001). The tautology argument is that the assertions made by the theories are true by definition and hence not subject to empirical tests.

Barney (2001) makes the point that parts of many theories can be reduced to tautologies. For instance the so-called Coasian tautology: “hierarchical forms of governance will replace market forms of governance when the costs of market governance are greater than the cost of hierarchical governance” (p. 42). Barney argues that being able to restate a theory a way that make it tautological can always be done, the issue however, is whether at least some of the elements of that theory have been parameterized in a way that makes it possible to generate testable empirical assertions. The TCE for instance has parameterized the main characteristics of a transaction that enable the theory to hold predictions about the conditions where market governance is more expensive than hierarchy, which can be tested empirically.

Penrose (1959) includes a comment on tautology and her *theory of the Growth of the firm* (p. 6). Two concerns Williamson (1999) pose to the competence perspective (or RBT presumably) are “obscure and often tautological definitions of key terms; and failures of operationalization” (p. 1093).

This section on tautology was useful for the rest of the thesis to make the present researcher more aware of its dangers and the importance of being able to derive refutable propositions.

### **3.10 Network theory**

The Network theory was developed by Swedish researchers in industrial marketing and international business (Johanson & Mattsson 1987). It may explain some of the dynamics in third party agreements. It states that the existence of firms to some degree is interdependent. Therefore activities need to be coordinated. This takes place through firms in a network. Price is just one of several influencing factors here. To gain access to external resources and make it possible to sell products exchange relationships must be established with other firms. Such relationships can take time and efforts to establish and develop. The need for adjustments in the amount and type of products and services exchanged, as well as planning times for the exchange requires some form of coordination through either joint planning, or some sort of power exercised by one party over the other. Network position is a relevant concept in the theory as it describes the firm’s relationship with other firms. The network position is regarded as a market asset. The theory places much emphasis on the various interactive elements that the firms make in order to

facilitate the other firms in its network, such as exchange and adaption processes. The former being about testing how well the parties fit each other. This is not only a learning process, but also an adaption process.

**Figure 8. Network approach.**

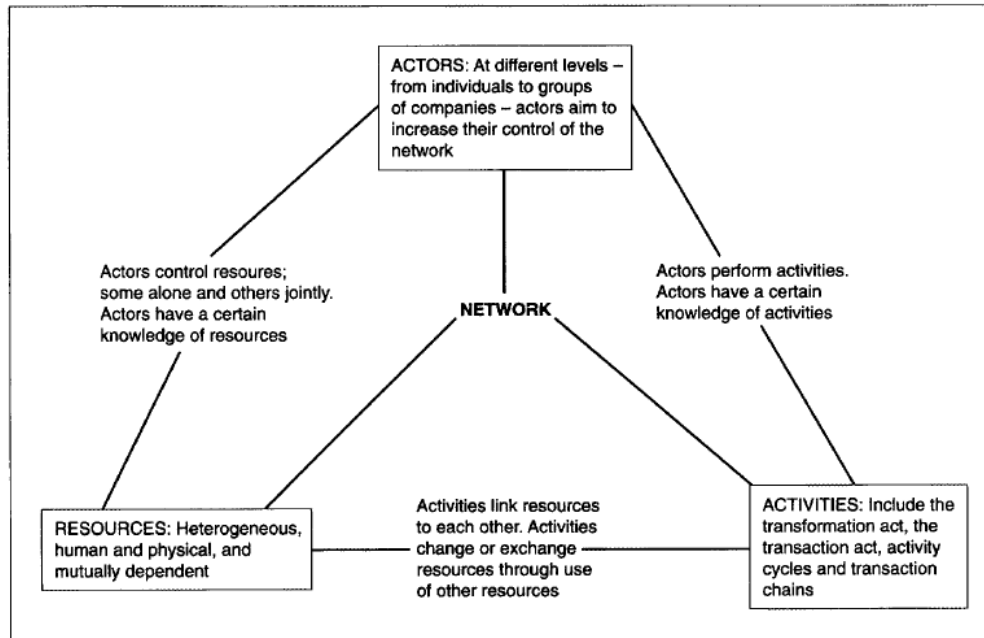


Figure 8. From Håkansson (1987).

### 3.11 Social exchange and Resource-dependence theory

Power may be a relevant variable in evaluating the desirability of outsourcing. Often considered the founder of social exchange theory, George C. Homans, made a call in a 1958 article to make sociology more rigorous and view it as an economy. On power relations between parties, Richard M. Emerson, one of the major contributors to social exchange theory formalized a relationship which stated that power a has over b must be equal to the dependence of b over a in 1962. Stolte and Emerson wrote in 1977 about power as a function of position in a network. They also elaborated on more intricate dependence relations. Very similar methodologies have been applied in the study of firms as an article titled “Supply chains and power regimes: Toward an analytic framework for managing extended networks of buyer and Supplier Relationships” by Cox et al. from 2001 is an example of.

A business organizations theory which makes use of the concept of power view is the resource-dependence theory of Pfeffer and Salancik presented in “The External Control of Organizations: A Resource Dependence Perspective” (1978). Its basic arguments have been summarized as follow: “Organizations depend on resources → These resources ultimately originate from an organization's environment--> The environment, to a considerable extent, contains other organizations, →The resources one organization needs are thus often in the hand of other organizations. → Resources are a basis of power. → Legally independent organizations can therefore depend on each other. → Power and resource dependence are directly linked: Organization A's power over organization B is equal to organization B's dependence on organization A's resources. → Power is therefore

relational, situational and potentially mutual. A tradeoff it predicts is therefore between access to resources, and the risk of being victim of power abuse. The theory also predicts that customers are the ultimate resource that companies depend on. According to Shook et al. (2009, p. 15) Resource dependence theory could “prescribe the best means for obtaining such resources [resources that are critical to long-term organizational performance], and for managing the dependence relationships with supplier firms.”

### **3.11.1 Critique against power-arguments**

The two theories immediately above, and to some extent the Network theory rely on a type of arguments involving the concept of power. Williamson (1991b) contains comments on the use of power arguments (see also Williamson 1981 and 1993). The following quote is illustrative: “power of two kinds is usefully distinguished within the strategy arena: market power and resource dependency. Transaction cost economics cautions against the over-use of power arguments of both kinds.” (p. 80). Part of the argument is the following:

[...] strategizing is relevant principally to firms that possess market power – which are a small fraction of the total (ephemeral market advantages ignored). More importantly, I maintain that a strategizing effort will rarely prevail if a program is burdened by significant cost excesses in production, distribution, or organization. (p. 75)

Another reason is that

the standard transaction cost economics assumption that parties to a transaction adopt a relatively far-sighted approach (or quickly learn from mistakes, including the mistakes of others) has power-mitigating/vitiating effects. Such parties anticipate potential dependency conditions and organize with respect to them from the outset. Accordingly, dependencies that come as a surprise to unwitting victims under a resource dependency setup are priced out and elicit safeguards and related organizational responses under an approach in which the contracting process is examined in its entirety. (p.81)

## **3.12 Marketing channels**

Heide (1994) conducted a review of the literature in the marketing channels tradition and found that its traditional research paradigm involved particular functions that are considered candidates for contracting out, or “functional spin-offs”. According to him the economic models in at least part of the literature involves a choice between internal and external governance and to some extent parallels the approach of TCE, although different types of costs are used as explanatory mechanisms. According to the American marketing association marketing channels are:

A set of institutions necessary to transfer the title to goods and to move goods from the point of production to the point of consumption and, as such, which consists of all the institutions and all the marketing activities in the marketing process.

A closely related, or alternative term, is “distribution channel” (Armstrong, 2009). Knemeyer and Murphy (2004) use a relationship marketing perspective, presumably also closely related, to study perceived performance of third-party logistics arrangements. In particular the effect of eleven relationship marketing factors on perceived 3PL performance was studied. It was found that six of these that were statistically significant.

Highlights were that opportunistic behavior was negatively correlated to trust, while prior satisfaction and 3PL reputation was positively so. Trust and communication was positively correlated to operations performance. According to Knemeyer and Murphy (2005) communication with the provider emerged as the one characteristic that had a statistically significant relationship with all four factors tested for; customer retention, customer referrals, service recovery, and operational performance improvements of a sample size of 388 users.

Any particular piece of the theory on Marketing channels will not be included in the methods or analysis section of this thesis due to its to some extent parallel approach to TCE, as stated by Heide (1994).

### ***3.13 Other relevant literature***

This section will attempt to briefly outline some of theories and findings that do not obviously fit into any of the above categories, but which claims to explain at least part of the outsourcing decision. The section is divided into three parts. Theories, empirical findings, and summarizing remarks.

#### **3.13.1 Theories**

Of these the post contractual opportunism theory is one. It focus on quasi-rents made from the transaction (Nisticò, 2008). Quasi-rents are differs from economic rents in that they are a temporary phenomena. This theory focuses on opportunistic behavior arising from contractual incompleteness. This leads to something that is termed a hold up problem. Due to a fear of being in a weak bargaining position ex post agents might prefer to underinvest to avoid being tied to bad investments. When asset specificity should be high for the sum of the payoffs to be optimal this is particularly a problem as this may cause firms to underinvest. The hold up effect can be diminished by vertical integration.

There are also specific theories concerning international outsourcing and the make or buy decision. Antras (2003) combines the property rights theory of Grossman and Hart (1986) with the Helpman-Krugman (1985) model of international trade and tries to explain the empirical shown fact that intermediate capital-intensive goods are often transacted within the boundaries of multinational firms, whereas labor-intensive goods more often are kept at closer proximity. He attempts to show that the residual rights of control may not suffice to induce suppliers to undertake desired levels of investment. Final good producers may therefore find it helpful to alleviate underinvestment their usual suppliers by contributing to relationship-specific investment. If such an investment is large enough it may be efficient to vertically integrate. Vertical increase its attractiveness if the capital intensity of intermediate input production increases. Antras and Helpman (2004) build on this model by considering two sectors with respectively high and low headquarter intensity which are different in productivity rates. The aim of that study is to investigate the effects of productivity differences on international trade, foreign direct investments and firms' organizational choices. There are two countries in the model, the North where final as well as intermediate good producers are localized and wages are higher, and the South where there are lower wages and intermediate-good producers only. The model therefore gives the following trade-off for the producer of the final good with regards to the organizational form: between lower wages in the South and the benefits of lower fixed organizational costs such as quality control, supervision, marketing and so on in the North. The theory predicts that sectors that exhibits low headquarter intensity should not integrate because outsourcing means both lower fixed organization costs than would be the case with vertical

integration, and the advantage of not lowering the investment incentives of the supplier. It further states that only high productivity firms should vertically integrate with suppliers of intermediate inputs in the South, due to high productivity firms' higher revenues and the possibility of facing higher organizational costs. Low productivity firms should outsource to the North, in the model.

The adaption theory of the firm holds has as one of its central areas the impossibility of creating complete contracts due to uncertainty. The idea that adaption is an important part of organizations was launched by Simon in 1951 analyzing the employer-employee relationship. It says that there are two strategies the parties' can choose under uncertainty: to negotiate a decision before uncertainty is resolved or to delegate decisional authority to a self interested agent who takes decisions when situations occur and uncertainty is resolved. These alternatives then imply a trade off between flexibility and opportunism. Mandar Dabhilkar (2010) argues that there often seems to be a tradeoff in outsourcing decisions between cost and flexibility, and backs up the claim using statistical data.

Pirrong (1993) concentrate on the loss that parties in a transaction could suffer as consequence of delivery delays and other contractual hazards. They consider that these could be reasons for integration even in the absence of asset specificity. Dahlstrom and Nygaard (1999) from a marketing perspective made a theoretical model where opportunism is a determinant of transaction costs and where cooperation and formalization alleviate opportunism. They reportedly found that opportunistic behavior increases transaction costs, cooperative interaction limits bargaining costs, and that formalization reduces opportunism. Heide (1994) developed a typology of three different forms of governance and postulates therefore that there three main ways of organizing interfirm relationships; market governance, and "hard/unilateral/hierarcical" and "soft/bilateral" nonmarket governance, where the latter is much dependent on mutuality of interests.

Achrol (1997) argues that in the 21<sup>st</sup> century the trend is no longer huge, multidivisional, vertically integrated, companies, but rather leaner firms that specialize on one or a few areas of core competence. These leaner firms have to compete in a world based on large networks of closely knit alliances and partnerships with other highly specialized organizations. These large inter organizational clusters are more than the sum of their parts and may be referred to as network organizations. Aas et al. (2008) argues that the evolution of gradually more complex supply chains makes the logistics outsourcing decision more difficult and that a main reason for this is the increased number of interorganisational links that appear in complex supply chains. Hence dyadic approaches commonly used in the outsourcing literature do not provide adequate decision support in outsourcing decisions, they suggest.

Vlaar et al (2007) developed a framework of how to analyze the tradeoffs in formalization in inter-organizational relationships apparently using the concept of dialectics. In the framework, formalization is presented as a duality, involving tradeoffs and eventuating in tensions which managers have to cope.

**Figure 9. Framework for formalization in inter-organizational relationships “based on dialectics”.**

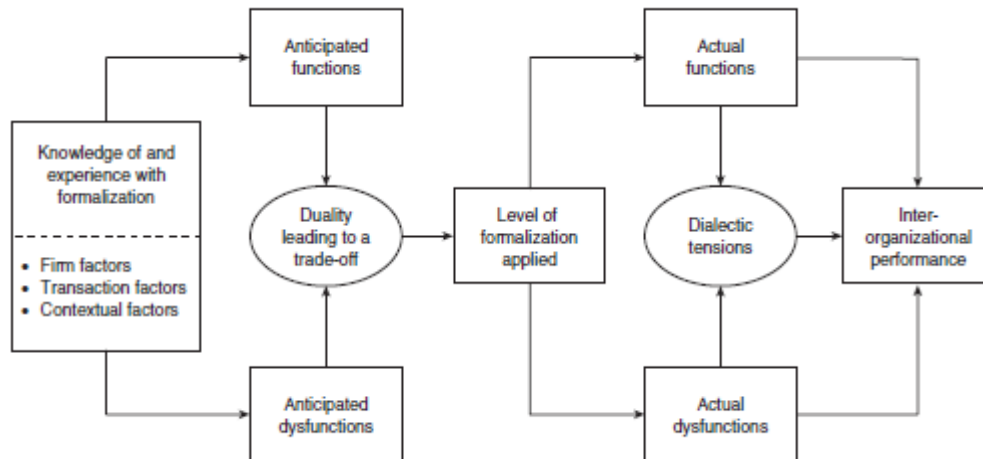


Figure 9. From Vlaar et al. (2007).

The article emphasize that formalization creates contradictory forces that are present simultaneously and should be recognized and managed. For instance, when managers apply formalization in order to control their partners, this may introduce rigidity in decision-making as well as making the other parties more likely to cover themselves against risk. It provides a discussion of different effects of formalizing business relationships. This theory may not explicitly claim to explain part of the outsourcing decision, but it seems nevertheless to be of such an obvious relevance to it that it is included in this survey.

### 3.13.2 Empirical findings

Of the global sourcing literature there is Trent and Monczka (2005). The paper found seven characteristics of companies that have achieved what they call global sourcing excellence; that is being particularly effective at global sourcing. These are: executive commitment to global sourcing, rigorous and well-defined processes, availability of needed resources, integration through information technology, supportive organizational design, structured approaches to communication, and methodologies for measuring savings. It was stated in the study that few, if any, organizations demonstrate all the features presented above.

Carson et al. (2006) found indications that showed that formal and relational contracts each have advantages and disadvantages and are not simply substitutes, and that relational contracts are not resistant to opportunism. Audi et al (2010) found five coordination mechanisms that contribute to enhanced information sharing, coordinated logistics activities, and shared benefits. Akbar et al (2005) found a correlation between the level of interorganizational trust and exchange performance.

### 3.13.3 Summarizing remarks

Clearly there are many theories explaining elements of the outsourcing decision. Nisticò (2008) speculates that the analysis of firms has developed along two different lines, one concerning the factors affecting the firms' boundaries, and the other one relating to the internal structure of the firm. She claims that a grand unified theory is commonly considered not to exist. Further, among the various theories it is often difficult to distinguish which elements are similar in essence but goes under different names, or which

elements are different. One common characteristic which is easy to distinguish and is common to many of the theories are uncertain environments. Other common features are incomplete contracts and opportunistic behavior. Nisticò (2008) refers to authors such as Gibbon (2005), Garrouste and Saussier (2005), and Bolton and Scharfstein (1998) who have called for a unified and formalized model by pointing to the many theories out there covering various aspects of a firm.

### ***3.14 Case studies and prescriptive approaches of relevance to this master thesis:***

#### **3.14.1 Descriptive, predictive and prescriptive properties**

An issue which sometimes appeared in the process of surveying theories dealing with the boundaries of firms was the distinction between descriptive, prescriptive and predictive theories. Even though the original function of a theory, such as TCE, may have been to describe and predict these boundaries, as the theory's popularity in business grew, functions of the theory is transformed to also include a prescriptive aspect. Further, this may reinforce its predictive value. The distinction between descriptive, prescriptive and predictive values may therefore in some cases be complex. As this issue is on the margin of this study, no further attempts was made to pursue this.

#### **3.14.2 Case studies**

The author had some trouble finding relevant case studies from any of the major traditions on the boundaries of the firm to use as a basis or a point of reference for the present one, despite serious attempts at database searching and communication with some relevant people. The only relevant case studies found was "Outsourcing from the perspectives of TCE and RBV: a multiple case study" by Neves et al. (2013) and "Offshore outsourcing of professional services: A transaction cost economics perspective" by Ellram et al. from 2008, "The outsourcing dilemma: a composite approach to the make or buy decision" by Fill and Visser (2000) and a multiple case study by Jaswa (2010) relating to software development and using a customized framework of the one in Williamson (2002; 2008) was found. This latter case study was made at UC Berkeley and advised directly by Williamson, and, out of the case studies mentioned, provided the best illustration on how certain things could be done. There were too many differences in the case(s) however (it was a multiple case study) for it to serve as a model for the present case study. The procedure that Fill and Visser suggests for outsourcing evaluation is based on Beulen et al. (1994) overall outsourcing model and consists of asking several questions covering the three areas contextual factors, strategy and structure, and costs. Cost evaluation was supported by Williamsons 1979 framework. The results are then judged qualitatively and as a whole. The framework was used "as a means to encourage managers to appraise the range and complexity that needs to be considered when making decisions about outsourcing" (p. 49).

The present master thesis case study is using the framework described in Williamson (2002; 2008) in order to test its propositions as it hopefully can produce clear refutable hypotheses and hence does not have the very high degrees of freedom which may arise from other more "managerial" methods such as described in the paragraph above.



### **3.14.3 Non-case study prescriptive approaches**

In an article from 2000 entitled “New dimensions of outsourcing: a combination of transaction cost economics and the core competencies concept” Ulli Arnold makes an attempt at combining TCE and the core competencies approach. In this scheme, a firm should answer three questions before making the outsourcing decision (p. 26-27):

- 1) Is the activity highly specific?
- 2) Is the activity strategically important? (Sometimes it is not helpful to outsource activities with low specificity because they are very important for a company's ability to survive).
- 3) Is the activity a core competence, a central part of competitive advantage?

This approach was not taken for the following reasons: if an activity involves a core competence, it is probably sufficiently obvious for management that they should not outsource this, and it does not take into account uncertainty or the ease at which contract can be implemented. On the other hand one could probably have derived three testable propositions from these three questions, supported by the literature. In any case it was chosen not to do this as such a construction of propositions would have meant a more eclectic mix of core theories than the ones presently used (Williamson 2002; 2008).

Other approaches are “Outsourcing: guidelines for a structured approach” (2003) by Franceschini et al and McIvor’s “A practical framework for understanding the outsourcing process” (2000). A central element in both of these is to compare internal with external capabilities, much like a SWOT analysis. Neither was adopted as main framework for this thesis as they are prescriptive. This means that they are more geared towards making managers conscious about complex decisions and only contains propositions in an implicit way. Further, such propositions are in most cases borrowed from “core theory” such as TCE and RBV.

### **3.15 Summary**

This literature survey has attempted to cover the essential insights from the academic fields relevant to this case study. This form was chosen due to the surveys main objectives given in the introduction: to find out what kind of theory could be best applied to the Havyard case in order to facilitate the research questions concerning outsourcing, and to obtain a satisfactory level of understanding of the relevant literature. It also attempted to find industry specific literature.

After the introduction there was a section on definitions and relevant statistics on outsourcing. This was useful for the research as a whole as background knowledge, even though it may not have been used directly in the method or analysis sections. Then a section on the drivers for outsourcing followed, which was usefully used as a reference point in the analysis section which attempted to answer research question “2: What are the main considerations facing Havyard in evaluating outsourcing of the mapped activities?”. A section on 3/4PLs, intermediaries, and categorizations and properties of business relationships followed. These first two subsections were included as they were basic concepts describing phenomena involved in the thesis case. This also applies to the third of these, even though a potential use of some of these models was identified that goes beyond the scope of the thesis. Industry specific literature was then identified, even though in the end, this literature had little direct implications for the method or analysis sections.

The rest of the literature survey then dealt with theories and findings which claims or appears to have implications for the outsourcing question, or more generally the boundaries of the firm. An attempt at a summary of the three schools commonly grouped under the name of the “New institutional economics” followed. The first subsection, on TCE, attempted to cover all the main elements in this theory. There were two main reasons for this. The first was so that the author could become well familiar with the theory which became gradually clearer was to be one of the cornerstones of the case study. The other reason was to connect what seemed to be the main insights with the relevant references for the benefit of any interested reader. As the whole section became perhaps unjustifiably long as a result of this, it was arranged so that it started with the most relevant subsections for the case study as a whole. A section on agency theory then followed. This piece had some relevance to the study of information flows in the analysis section. The subsequent part on property rights theory did not have any such relevance, and the explanation for its inclusion is to facilitate the main objectives of the survey.

The next chapter was on RBV-related theories. These theories were soon considered the strongest contestants to TCE in being the main theoretical foundation of the case study. For this reason some details of the origins, content and offshoots are covered, the main result being an addition to the total understanding of the matter. Some of the core predictions of the RBV-theory were used to compare the data with an alternative theory. The basis for these predictions were mainly codified in the table of Watjatrakul (2005), reproduced in the next chapter on the relationship between TCE and theories in the RBV-tradition. The material in this chapter was essential to increase the authors understanding of this relationship, and hence how to relate to the two theories in the case study. A short chapter then follows which attempt to illustrate the criticism both TCE and RBV have faced about the theories being tautological. The section is arguably about an important concept in research, and also served a useful purpose in making the present researcher more aware of the importance of being able to derive refutable propositions from theories, as well as testing these.

A chapter on Social exchange theory and Resource-dependence theory followed, which is relevant to the case as it codifies power aspects of trade relationships. In the course of the research it was discovered that TCE take much of the same power arguments into account in terms such as “small numbers bargaining relations”, and assumptions such as “relative far-sightedness”. The findings from the next section on Marketing channels were not included in the methods or analyses section as they to some extent parallel the approach of TCE, as stated by Heide (1994). The next section on “other relevant literature” contains all those theories and empirical findings relevant to the surveys objectives that did not fit in under any of the sections before it. Among other models, one based on dialectics developed by Vlaar et al (2007) was presented here, and was seriously considered for use in the analysis section in order to identify the main forces to be reckoned with arising from hypothetical situations of outsourcing different variations of the mapped activities. In the end it was decided against this due the need to define the limits boundaries of the study. The last section deals with specific works which are case studies or prescriptive approaches and which were found to be relevant to this case study. For each of them, their main approaches are discussed, as well as why it was decided not to use any of them as a model for the present case study.

## 4.0 Propositions

1. High asset specificity, high uncertainty, and high costliness of implementing sufficient contractual safeguards are strongly associated with employees' recommendation\* for internal governance.\*<sup>2</sup>
2. Low asset specificity, low uncertainty, and low costliness of implementing sufficient contractual safeguards are strongly associated with employees' recommendation for outsourcing.
3. High asset specificity, low uncertainty, and high costliness of implementing sufficient contractual safeguards are strongly associated with employees' recommendation for internal governance.
4. Low asset specificity, high uncertainty, and low costliness of implementing sufficient contractual safeguards are moderately associated with employees' recommendation for outsourcing.
5. High asset specificity, low uncertainty, and low costliness of implementing sufficient contractual safeguards are moderately associated with employees' recommendation for outsourcing.
6. High asset specificity, high uncertainty, and low costliness of implementing sufficient contractual safeguards are moderately associated with employees' recommendation for internal governance.
7. Low asset specificity, low uncertainty, and high costliness of implementing sufficient contractual safeguards give ambiguous employees' recommendation.
8. Low asset specificity, high uncertainty, and high costliness of implementing sufficient contractual safeguards give ambiguous employees' recommendation.
9. Employees' recommendations will in general be more favorable to outsourcing in the high demand future scenario.
10. The need to use highly sensitive information \*<sup>3</sup> in the mapped activities is associated with employees' recommendation not to outsource.
11. Considerations that clearly exclude the possibility of outsourcing exist for only a minority of the mapped activities.

\* "Employees' recommendation" are based on employees' reported belief of whether the outsourcing of a particular activity will be long run cost saving for Havyard or not.

\*<sup>2</sup> Note that the propositional forms involving these three variables have not explicitly been found in Williamsons works, but are inferred mainly from Williamson (2002; 2008). The use of "employees' recommendation" instead of the current state of ownership of the activity (which in this study in all but one case belongs to Havyard) may be original.

\*<sup>3</sup> "Highly sensitive information" refers to information that, in the hands of competitors, may reveal aspects of Havyards core competence that may be exploited by competitors and cause significant damage (including loss of advantage) to Havyard.

On the basis of the research questions (given in the case description) eleven propositions was constructed. The first eight of these have their basis in the framework presented in Williamson (2002; 2008). From the literature survey it appeared that this framework was the most complete and well defined for the problem of the case. A consideration to keep in mind in testing these propositions is that the classical TCE-predictions may not have been

realized yet as operations are relatively new. This should have no effect on the test of the form of the propositions in this case study, as these are testing the “employees’ recommendations” and not the actual ownership of the activity. However, any potential delays in a change of the ownership of the activities due to the recent start up of operations may be significantly reflected in the recommendations given by the employees if individual inertia is present in a significant degree. If this is the case then it could perhaps account for some cases where the recommendations are “not to outsource” when TCE- would predict “outsource”.

The remaining three propositions do not have specific origins in the literature, and is based mostly upon theorizing by the author of this thesis presented below. Proposition 9 is meant to facilitate the “supporting research question” number 1. Its basis is the suspicion that a large increase in demand and activity will make the outsourcing option more desirable. Such an increase in demand may for instance reduce any potential effort of individuals in defending individual job positions during outsourcing transition, as favorable compensation schemes are more likely. As a result, individuals may be more likely to answer “recommend outsourcing” in this scenario. That these operations are new (from 2012) and if Havyard initially outsourced less than what would be optimal for a risk neutral agent (so for instance, if operations started small and a lot of unknown customization was needed in the beginning so that outsourcing would require relatively high set-up costs) may further enhance the effect that a large increase in demand will make the outsourcing option more desirable

As a side note, one could perhaps also argue that because these operations in Havyard are relatively new, the effect would be the opposite: that many activities would be outsourced in the start-up phase if the firm is risk averse in an attempt to limit sunk cost. Proposition 10 is meant to facilitate the “supporting research question” number 3. Its theoretical basis has similarities to proposition 8. Proposition 9 might be true because Havyards operation is relatively new, and therefore one of the factors contributing to the decision to have activities internally is because Havyard does not like the added risk of information disclosure in involving 3PLs where it should not obviously do so. Proposition 11 is meant to facilitate the “supporting research question” number 2. It has similar theoretical background as proposition 9 and 10.

## **5.0 Research method**

### **5.1 Introduction**

In addition to following formal procedures suggested from written material, the method(s) employed as well as the order of their implementation was to a large extent dictated by the research questions (RQs) given in the introduction. The thesis followed several of the guidelines suggested in the book *Case Study Research: Design and Methods* by Robert K. Yin (2003; 2014), as well as some elements of pragmatic methodology presented in Williamson (2007; 2008). These are presented over the rest of this chapter.

Yin defines a case study as “an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident.” (Yin, 2003, p. 13). He mentions five different steps in the case study research process:

1. Designing case studies.
2. Conducting case studies: preparing for data collection.
3. Conducting case studies: collecting the evidence.
4. Analyzing case study evidence.
5. Reporting case studies.

One of the priorities in the initial stages of this study is to obtain a good understanding of the case. The main efforts will therefore be spent on this aspect before the application of relevant theories can be decided on. Understanding the case involves data gathering. The initial stages must also include a mapping of all the transportation related activities in order to map the candidates for outsourcing.

### **5.2 Method of the literature survey**

The author did not have prior knowledge of literature on the outsourcing decision and therefore attempted to cover a large area in order to accumulate a basic theoretical knowledge and increase the probability that the most relevant theory or theories was being applied to the case problem. Some theories were not evaluated in as much detail as perhaps desirable, while others perhaps too much.

While the relevant industry-specific literature was found to be of modest scale, the volume of literature on both outsourcing and 3- and 4PL's is very large and the literature survey above does not pretend to be a rigorously methodical review of any of the fields. Relevant literature was found mostly using different combinations of the techniques below.

- 1) performing search on Google scholar or directly in academic databases such as ProQuest or ScienceDirect and informally judging their relevance based on a combination of title and abstract, number of citations, and/or author,
- 2) reading about the reference in other authoritative papers, or
- 3) learning about the reference from people.

### **5.3 Research design:**

Yin (2014, p 28) defines a research design as “a logical plan from getting from the initial set of questions to be answered to some set of conclusions about these answers”. A

research design is more than a work plan as its purpose is to avoid ending up in a situation where the data evidence collected does not address the research questions. The design therefore solves a logical and not a logistical problem.

This case study will use the five components Yin provides as a basis for a research design (p. 29):

1. A case study's questions: Some of the initial tasks are to clarify the research questions. It is important to make sure that the same questions are not already well covered in previous studies. An area worked on simultaneously with this point is attempting to precisely describing the relevant internal processes, in order to narrow down the set of possible research questions. This was originally decided by the author to be done by January, but in reality refinements were not finished until some time after this.

The question arises from whose point of view should it be evaluated if more outsourcing should take place? What is good for Havyard may be different from what is good for the supply chain as a whole, what is good in the short run may be less good in the long run. The author will try to mention whenever this problem is present (it turned out to be none). Due to the short history of this type of trading there is little historical data present, and perhaps little point in trying to quantify such operational measures in evaluating if outsourcing should take place. There is also the problem of how to measure the desirability of outsourcing the various activities may have to be decided upon. Long term lower costs, increased revenue or perhaps increased profits long term? In this thesis "long run economization on cost" was chosen.

2. Identify the study propositions: For some time it was questioned whether propositions should be included in the study. The author thought perhaps it was less interesting to test the propositions commonly used in testing TCE as only one firm was included in the study so that generalizability could therefore not be implied based on statistical methods.
3. Unit of analysis – the "case": This involves at least two different points: defining the case, and bounding the case. Bounding the case refers to temporal, spatial and other concrete boundaries. The temporal boundaries for the study are from approximately September 2013 to June 2014. Other specific boundaries for the case are the three scenarios of demand in 2016, of which only two was used in the interviews. The unit of analysis will be the transactions between Havyard and the (most favorable for Havyard) 3PL involved in governing the mapped activities. Point 3 helps distinguish data about the case or the phenomena from data external to the case or the context.
4. The logic linking the data to propositions: Basically how to analyze the data. More on this below under "analyzing the data".
5. The criteria for interpreting the findings. This is mostly relevant for quantitative studies where a significance level needs to be set. In case studies an alternative strategy is to identify and address rival explanations to the findings. The most relevant candidate alternative theories seem to be the ones associated with the Resource-based view.

#### ***5.4 Four principles of data collection:***

Yin (2014) describes four principles behind collecting data. These are:

1. Use multiple sources of evidence: A study on case study methods found that the case studies where different sources of evidence were used were rated higher for overall quality than the single source studies (COSMOS Corporation, 1983, referred to on p. 119 in Yin, 2014). Yin gives the analogy of navigation to explain why multiple sources

of evidence is important; a more precise location of an object is found by looking at the intersection of various reference points (Yardley, 2009). Such data triangulation help strengthen the construct validity of the study.

2. Create a case study database. Most of the database will be stored on a computer during the study. To increase the reliability of the study, field notes taken in a scrap-book may be scanned into the database at the end of the study period. The same applies to case study documents collected throughout the study.. A bibliography was also planned to be continuously updated into a text document for easy overview as well as chronology in the collecting of material.
3. Maintain a chain of evidence. This is done to increase the reliability of the information in a case study. It means that the reader of the case should be able to trace all the steps from research questions to conclusions as well as from the conclusions to research questions. It implies that no original evidence shall be lost.
4. Exercise care when using data from electronic sources. This point refers to being time conscious about how much time to spend finding and probing such sources, how much to cross-check sources used, how to relate to social media sites such as Facebook or Twitter. For the latter, a caution is that ownership claims may not necessarily be accurate.

The study will be largely based on interviews, but also other data collected from Havyard. It was considered whether speaking to the 3PL K+N was a good idea, but it was decided against it as only one of the mapped activities today is outsourced, and therefore K+N do not have intimate knowledge of the other activities.

A variety of data sources will be used in order to ensure triangulation:

**Table 11. Data sources used in case study.**

	<b>Sources of data</b>	
<b>Data collection</b>	<b>Internal</b>	<b>External (to the firm)</b>
<b>Primary</b>	<ul style="list-style-type: none"> <li>- Interviews with four employees from across the company: Chief procurement officer (CPO) in Havyard group AS, Purchasing manager (PM) in Havyard ship technology AS, Project manager (PJM) in Havyard design &amp; solutions AS, and Service coordinator (SC) in Havyard ship technology AS.</li> <li>- Observation in the Havyard Group (Fosnavaag-offices) during the initial phases</li> </ul>	<ul style="list-style-type: none"> <li>- Considered interview with Kuehne+Nagel, but did not do as they would have no knowledge of the relevant activities they were not involved in.</li> <li>- Obtain understanding of constraints imposed by states customs and Incoterms.</li> </ul>

	of the study.	
<b>Secondary</b>	<ul style="list-style-type: none"> <li>- Outsourcing strategy documents and similar.</li> <li>- Planned: historical data of how many such packages have been sent, their origin and destination location and firm, their weights, size, fragility, value, true and promised delivery times, how handling and transportation was organized in each of these instances, if there is any recurring hold ups. This information was instead provided in interviews.</li> <li>- Example of batch-list.</li> <li>- Example of Certificate of insurance from insurance company.</li> <li>- Example of LC-letter from bank.</li> </ul>	<ul style="list-style-type: none"> <li>- Relevant theory (TCE, RBV, industry specific, Incoterms.)</li> </ul>

*Table 11.* Composed by the author.

The key informants were, as stated in the table above, the CPO, PM, PJM and SC. In addition to sporadic contact with the informants via e-mail and telephone, including the review of key tables and information, four main rounds of interviews were done. The first one was semi-structured and face-to-face at Havyards main office in Fosnavåg with both the CPO of Havyard group and the PM in Havyard Ship Technology present simultaneously (Havyard 2013b). It was aimed at getting a good initial understanding of the case.

The second one was a semi structured phone interview with the same two subjects as well as the most relevant operative employee. The interviews were initially prepared to be implemented in a structured way using a questionnaire and Likert scale, but it became apparent during the interviews that a less structured approach worked better (Havyard 2014h, Havyard 2014i). It was geared towards a deeper understanding of the processes as well as the views on outsourcing of the activities.

The third round was structured around the specific model that it had been decided would be the cornerstone of the study. The questions asking if they believed outsourcing would be cost saving for Havyard in the longer run was asked at the very end to avoid



interference with the questions feeding the TCE model (Havyard 2014l; Havyard 2014m; Havyard 2014n; Havyard 2014o).

The fourth round was a questionnaire-table sent out and returned by e-mail were CPO and PJM was asked to rate on a five point Likert scale the degree of sensitivity of the various information used in the mapped activities, as well as providing comments (Havyard 2014p; Havyard 2014r). A follow-up to this questionnaire was performed in order to see if convergence of answers between the two participants would take place if they were told about the discrepancies and asked to reevaluate the answers (Havyard 2014s; Havyard 2014t). The information flow table was reviewed by PM and then CPO (Havyard 2014g; Havyard 2014u).

There may be difficulties present in extracting knowledge from subjects via interviews. For instance, one of the phone interviews took about one and a half hour, and naturally the interviewee will to some extent grow tired. An obvious solution is to scatter out the interviews, and be very well prepared in terms of what to hope to achieve with the interview.

## **5.5 Analyzing the data**

### **5.5.1 General strategies**

According to Yin (2014) this can be especially difficult because the techniques still have not been well defined. It describes four general strategies for analyzing the data especially useful if no priorities for what to analyze and why is established by other means (p. 132). The strategy followed in conducting the present study does not correspond perfectly with either, but is a mixture of all:

- a. Relying on theoretical propositions. “[...] the propositions would have shaped your data collection plan and therefore would have yielded analytic priorities” (p, 136): In the beginning phases of this case study only research questions, not theoretical propositions had been formed. These research questions guided the author to map the various activities, and to the idea that of considering these activities in the light of the most suitable candidate in the pre existing literature. When it became apparent that this candidate theory was TCE, theoretical propositions were also included.
- b. Working your data from the “ground up”. This strategy emphasis “playing with the data” and noticing patterns and seeing if the data suggests any useful concepts.
- c. Developing a case description: This one emphasizes describing the case in a good way. Although this is not the main goal in itself for the current thesis, such as some, especially perhaps sociological studies, it is a big part of it.
- d. Examine rival explanations.

### **5.5.2 Criteria for interpreting a case study’s findings.**

Finding and evaluating rival explanations or solutions to the findings are of relevance here. The reason why it is included in the research design is that one all ready in the design phase will start anticipating these alternative explanations and can include data gathering to also cater for these. In addition Yin describes five specific techniques that can be used with any of the general strategies above. These are:

1. Pattern matching. Compares an empirically based pattern with predicted ones made before data was collected.
2. Explanation building. A special type of pattern matching. The goal is to analyze the case study data by building an explanation about the case.
3. Time-series analysis. Less relevant.
4. Logic models. Less relevant.
5. Cross-case synthesis. Less relevant.

Of these, the analysis in this case study will mostly make use of the pattern matching and explanation building techniques. An important point is made by Yin: “Throughout, a persistent challenge is to produce high-quality analyses, which require attending to *all* the evidence collected, displaying and presenting the evidence apart from any interpretation, and considering alternative interpretations.” (p. 132) In testing the TCE-propositions, there was a danger of being inaccurate when translating the input to the model. It may be a place where researcher bias can arise if not careful.

### **5.5.3 Four principles for a high-quality analysis:**

Yin (2014, p. 187) claim that no matter what analytic strategy or technique one use, there are at least four principles of analysis that underlie all good social science research. They are the following:

1. One’s analysis should demonstrate that one attended to all the evidence. The analysis should show how you sought to use as much evidence as was available, and the interpretation should account for all this evidence and leave no loose ends.
2. The analysis should, if possible, address all plausible rival explanations.
3. The analysis should address the most significant aspect of your case study (avoiding excessive dwelling on irrelevant issues).
4. Use one’s own prior, expert knowledge in the case study. Demonstrate awareness of current thinking and discourse about the topic to be studied.

### **5.6 *Criteria for judging the quality of research designs:***

Yin (2014) says that four tests are commonly used to establish the quality of empirical social research. They are listed below together with some of the means I have used to ensure their success:

- Construct validity: This means that the correct operational measures for the concepts being studied should be identified. To ensure that this is satisfied I will use multiple sources of evidence, established a good chain of evidence, and have key informants review parts of the thesis.
- Internal validity: Means having good explanations for casual relationships. Not trying to conceal that there are other factors that influence the matter studied, or failing in trying to exhaust the list of possible influential factors. This criterion is not used for descriptive or exploratory studies where such explanations are not needed. Such explanations are given in the concluding chapters.
- External validity: Is about defining the domain where the studies findings can be generalized. Also given in the concluding sections.
- Reliability: Demonstrating that the data collection procedures or other operations of a study can be repeated with the same results. To address this I will store all my

data in a case study database, as well as making sure the text makes it clear where data is collected from.

### **5.7 Reporting case studies**

Yin (2014, p. 176) identifies six alternative compositional structures for the reporting of case studies used for illustrative purposes. They are linear analytic, comparative, chronological, theory building, suspense, unsequenced structures.

Out of these, the present case study report will identify the most with the first one which allegedly is the most common one. Three procedures for composing a case study report is suggested (p. 195):

1. When and how to start composing. This refers to an advice to start composing the report in the earlier stages of the case study mainly due to a claimed high risk of writers block due to the high level of freedom in customizing the report.
2. Case identities: real or anonymous? The general advice here is that the most desirable option is to disclose the identities of both the case and the individuals, within the constraints of protecting human subjects.
3. Reviewing the draft case study: a validating procedure. This refers to an advice to have the draft report reviewed by not just peers, but also informants and participants of the study. This can strengthen construct validity.

In addition the need to orientate a case study report for the intended audience is emphasized.

### **5.8 Pragmatic methodology**

The present research will subscribe to four considerations associated with pragmatic methodology and presented in Williamson (2007; 2008). These are:

1. Keeping it simple, which involves stripping away inessentials and focusing on first order effects. In time, qualifications, refinements and extensions can be introduced. Attempting to keep it simple requires the student of complexity to prioritize. Milton Friedman (1997, p. 196) said: “most phenomena are driven by a very few central forces. What a good theory does is to simplify, it pulls out the central forces and gets rid of the rest”.
2. Getting it right. This involves working out the logic involved and accurately translating it into mathematics, diagrams, or words etc.
3. Make it plausible. This involves preserving contact with the phenomena and keep away from fanciful constructions.
4. Derive refutable implications where the relevant data are put to good use.

## 6.0 Data analysis

### 6.1 Introduction

This section is divided into five main chapters. The first one, “Information flows in activities”, aims to test proposition 10 and answer the supporting RQ3. The second one, “Considerations of outsourcing in the activities”, is meant to test proposition 11 and attempts to answer the supporting RQ2. The third chapter is the TCE-propositions. This section tests proposition 1 through 8, and attempts to answer the main research question. The fourth chapter is “Proposition about present vs. future scenario” and is testing proposition 9, and also attempts to answer the last part of the supporting RQ1. The last chapter, “Comparison with RBV-predictions”, explores the data in the light of what is here considered the main alternative theory.

### 6.2 Information flows in activities

This section aims to test proposition 10: “The need to use highly sensitive information in the activities is associated with employees' recommendation not to outsource”. It also attempts to answer the supporting RQ3: “What type of information is needed to be shared with a 3PL in order to outsource the mapped activities?”

#### 6.2.1 Sensitivity of information

An understanding of how sensitive each bit of information is considered to be is required to test this proposition. For this purpose attempts were made at identifying and isolating the various information segments used in the relevant processes. Then on the basis of this a questionnaire was made where participant were to rate and comment on the degree of sensitivity of the information. The questionnaire used a five point Likert scale ranging from “not sensitive at all” to “highly sensitive information”, where the definition used of the latter is given on the propositions page at the top. The questionnaire also asked whether there were any relevant pieces of information missing from the main table. It was sent and returned by e-mail. Two employees, CPO and PJM were separately asked to fill it out. The results are given in the table below.

\* x is answer of CPO. + is for PJM.

**Table 12. Sensitivity of information.**

Piece of information	(1) Not sensitive at all	(2)	(3) Somewhat sensitive information	(4)	(5) Highly sensitive information	Discrepancy	Comments
Knowledge of what is being sent in an individual batch (packing lists/delivery notes)	x*				+	Large discrepancy	CPO: Very project specific and risk of copying is minimal. Standard equipment and no firm-secrets associated with this. PJM: No change from me in this one. What is included in

							Havyard scope of supply is sensitive information in connection with official prices etc.
Individual batch measurements (volume, size, and weight of goods in batch)	x +						
Both of the above at the same time (for the same batch)	x				+	Large discrepancy	
The price of the goods in individual batches that Havyard pay suppliers					x+		
The price of the goods in individual batches that end customer pays Havyard					x+		
Both of the above at the same time (same batch)					x+		
The delivery times and places for individual batches from one supplier (going to Havyards reloading hub(s))		x	+				
The delivery times and places for individual batches to end-customer pickup location		x	+				
Both of the above at the same time (same batch)		x	+				
Knowledge of what in total is being sent from each supplier during what Havyard defines as one "project"				x	+		
The prices Havyard pays suppliers for each and all of the goods purchased during what Havyard defines as one "project"					x+		
The delivery times and places for all the batches from		x	+				

one supplier during one "project"							
Prices end customer pay Havyard for shipment costs					x+		
The other terms and conditions with a supplier (the rest of the contract)					x+		
Any potential adaptations/changes in delivery times and/or places with supplier	x		+			Some discrepancy	CPO: No competitor can utilize this information in any way.
Knowledge of what in total is being sent to end customer during what Havyard defines as one "project"				x	+		CPO: What is delivered in total (design and equipment) have a certain copy-risk. Changed this answer some.
The price end customer pays Havyard for all the goods purchased in what Havyard defines as one "project"					x+		
The delivery times and places for all the batches to one end-customer during one "project"			x+				
The corresponding other terms and conditions (the rest of the contract)					x+		
Any potential adaptations/changes in delivery times and/or places with end customer	x		+			Some discrepancy	CPO: Not sensitive at all.
LC/"Advis av eksportremburs"-document from bank governing the payment from end customer to Havyard					x+		

Table 12. Composed by the author.

Documents commonly needed for the LC governing the payment from end customer to Havyard:

**Table 13. Sensitivity of information 2.**

Piece of information	(1) Not sensitive at all	(2)	(3) Somewhat sensitive information	(4)	(5) Highly sensitive information	Discrepancy	Comments
Commercial invoice			x		+	Some discrepancy	CPO: May show sensitive prices, but little of use to competitors.
Certificate of origin	x		+			Some discrepancy	CPO: Not sensitive.
EUR1 document	x				+	Large discrepancy	Not sensitive, this is a transport document.
Insurance policy	x				+	Large discrepancy	CPO: Insurance is a total insurance policy and have no value for our competitors.

Table 13. Composed by the author.

**Table 14. Sensitivity of information 3.**

Piece of information	(1) Not sensitive at all	(2)	(3) Somewhat sensitive information	(4)	(5) Highly sensitive information	Discrepancy	Comments
Suppliers' documentation such as engineering manual, installation manual, instruction manual, various drawings and calculations	x				+	Large discrepancy	CPO: This is project-specific information and have little value for competitors. PJM: This information is also contractually not allowed to share with third party.
Lists of goods that suppliers did not manage to include in current batch, and therefore will be included in a future batch	x				+	Large discrepancy	CPO: It has no value for competitors to know this.
Country of origin	x		+			Some discrepancy	CPO: Publicly available information.
Shipping prices Havyard pay 3PL					x+		
Other terms and conditions of the shipment contract with 3PL					x+		

Cost of insurance of goods			x		+	Some discrepancy	CPO: Somewhat sensitive, but not highly sensitive.
Other terms and conditions of insurance of goods			x		+	Some discrepancy	CPO: Somewhat sensitive, but not highly sensitive.

*Table 14.* Composed by the author.

As can be seen in the 19 of the 32 pieces of information used in the questionnaire, the participants were in close agreement on the level of sensitivity. In the remaining 13 however there are discrepancies. Of these six were of only some magnitude, while seven were of a large magnitude. In all the cases of discrepancies in the answers the CPO answered that information was less sensitive than what the PJM did. A new questionnaire was sent to the participants containing only the pieces of information containing the discrepancies, in an attempt to hopefully achieve a convergence of opinion. The main gains of this follow-up questionnaire were that more comments were gathered. Only one placement on the Likert scale was changed.

Speculating about the reasons behind some of the discrepancies, one possible explanation may be that CPO did to a lesser extent that PJM took into account the informational side of the contractual obligations with suppliers, and hence thought more in terms of any direct harm that could come to Havyard from information disclosure. The comments given by the informants support such an explanation. It would not seem to account for all the discrepancies however.

According to PM (Havyard 2014a), K+N do in principle have access to both the price paid by Havyard to suppliers, and the prices paid by end customer to Havyard. If K+N wanted to see the former they could look at the customs invoice when they receive the goods at consolidation hub. However, most often the goods are not delivered in full in the same batch, and therefore it is difficult to know the correct (total) price(s) for each supplier. When Havyard has added invoice with the prices end customer pay, a batch may include goods from one to five different suppliers, which also often are not delivered in full. The true underlying buying and selling prices are then difficult for a 3PL to gain knowledge of. In aggregating these results for use in the table on information flows below, as attempts to achieve consensus failed, I will for practical reasons use a simple average as a rough approximation of the true sensitivity of information where discrepancies are present.

### **6.2.2 Main information- and information flows involved in activities as they exists today**

Relevant to test proposition 10 is the possibility that because Havyards involvement in international sales of system packages is relatively new (from 2012) and much internalized, more sensitive information than is strictly necessary is sent to and from the various activities. The third column from the right in the table below addresses this issue.



**Table 15. Main information and information flows involved in activities as they exist today.**

Activity (shaded are already outsourced)	Main information currently used for completion of activity	Main information flows between activity as it exist today, and other agents	If the activity was to be outsourced to 3PL, main information required to perform the activity could be reduced on the following points.	Corresponding grade of sensitive information. Highest in <b>bold</b> .	Employees recommendation (scenario 1 only)
1. Calculation of the transportation costs (including obtaining measurements for batches).	- Knowledge of what is to be sent. - Batch measurements (volume, size, weight). - Price offer from 3PL	- Suppliers: Obtain batch measurements (volume, size, weight). - 3PL: Obtain price offer.	- No significant reduction possible.	- <b>Highly sensitive (-)</b> - Not sensitive at all - Not sensitive at all	CPO, PM: Yes. PJM: Uncertain. SC: No.
2. Make sure terms of delivery and delivery times are correct, and obtain documents Havyard need for LC.	- Purchasing contracts with suppliers. -End customer sales contract. - Documents for LC (Example: Signed and stamped commercial invoice, certificate of origin or EUR1 document, insurance policy, signed and stamped packing list).	- Suppliers: Purchasing contract. - End customer: Sales contract. - Insurance company: Documents for LC. - Bank: Documents for LC. - 3PL: Documents for LC.	- Parts of contracts including only terms of delivery and delivery times.	- <b>Highly sensitive (but may be reduced)</b> - <b>Highly sensitive (but may be reduced)</b> - Somewhat sensitive/highly sensitive	CPO, PJM: Yes. SC, PM: No
3. Obtain delivery times for all batches.	- The delivery times.	- Suppliers. - 3PL: must be continuously informed to be able to receive goods in hub etc.	- No significant reduction possible.	- <b>Somewhat sensitive (-)</b>	CPO, PJM: Yes. PM: Uncertain/yes. SC: No
4. Obtain delivery times for suppliers' documentation such as engineering manual, installation manual, instruction manual, various	- The relevant documentation.	- End customer informs about when they want the relevant documentation delivered. - Suppliers.	- No significant reduction possible.	- <b>Somewhat sensitive.</b>	CPO, PJM, SC: No. PM: Uncertain/yes.

drawings and calculations) as well as this documentation itself					
5. Make sure suppliers deliver on time, contact them if necessary. If the batch is not complete, obtain list of goods to come.	- The list(s) and some technical knowledge of what should be included in a particular batch.	- Suppliers. - 3PL.	- No significant reduction possible.	- <b>Somewhat sensitive information.</b>	CPO, PJM: yes, PM: uncertain/yes. SC: no.
6. Revisions of delivery times if necessary.	- The corresponding relevant shipping and/or procurement prices, terms and conditions.	- Suppliers - End customer - 3PL	- No significant reduction possible.	- <b>Highly sensitive.</b>	No (PM: no/uncertain, the rest no)
7. Obtain list of components from suppliers, and merge this into a common list of packages with Havyard logo and send this to end-customer and bank.	- Packing lists/delivery notes.	- Suppliers: List of components including gross and net measurements. - 3PL - End customer - Insurance company: Value of goods. - Bank: Common list of components is sent to bank.	- No significant reduction possible.	- <b>Somewhat sensitive.</b>	CPO, PJM: yes, PM: uncertain, SC: No.
8. Make customs invoice for outbound customs in country of the relevant Havyard hub	- Prices Havyard paid for components. - Place of delivery	- 3PL receive customs invoice from Havyard. - Bank receive commercial invoice.	- No significant reduction possible.	- <b>Highly sensitive.</b> - Somewhat sensitive (-).	CPO, PJM, SC: yes, PM: no/uncertain.
9. Make EUR1-document for deliveries from Norway (are sent to bank for LC).	- Quantity, weight, country of origin. - Type of equipment	- Suppliers: Quantity, weight, country of origin. - Havyard. - Bank	- 3PL does this today (in the majority of cases). Havyard can in some cases make certificate of origin, to be used instead of EUR1.	- Not sensitive. - Not sensitive.	Yes
10. Insure the transport and obtain proof of	- Quantity and value (the price end customer	- Insurance company. - 3PL: Activity	- (Insurance company would likely	- <b>Highly sensitive.</b> - Highly	CPO, PM, SC: no. PJM: yes

insurance for bank for letter of credit.	pay) - LC-document (instructs what the insurance should cover).	need to know places of pick-up and final delivery.	not accept that a 3PL do this. If they do, more involvement from an insurance agent than is the case today is likely.) - Instead of LC-document in full, only the part of if that says what insurance should cover.	sensitive (but may be reduced)	
11. Obtain “certificate of origin” where this is necessary (also sent to bank for LC).	- LC (in order to know if such a certificate is needed, with or without original stamps etc) - The certificate of origin.	- Bank: Instructions on requirement for LC comes through them. - Suppliers: “Certificate of origin” comes through them.	- Instead of LC-document in full, only the relevant part(s).	- <b>Highly sensitive (but may be reduced).</b> - Somewhat sensitive (-)	SC, PM: uncertain. CPO, PJM: yes.
12. Be in continuous contact with customer to update them about status on shipment.	- Planned delivery times and terms of delivery. - List of goods in each batch. - Updates on status on shipments.	- Suppliers - End customer.	- 3PL would perhaps not need to be able to communicate with suppliers for updates on shipments (between supplier and Havyard hub). Instead, whenever such information was necessary 3PL could contact Havyard to obtain it.	- <b>Somewhat sensitive.</b> - <b>Somewhat sensitive.</b> - Not sensitive.	CPO: yes. PM: uncertain. SC, PJM: No.

Table 15. Composed by the author.

The following table sums up what the results relevant for proposition 10: The need to use highly sensitive information in the activities is associated with employees' recommendation not to outsource.

**Table 16. Summary of results relevant for proposition 10.**

Activities where proposition holds true	6, 10
Activities where proposition is untrue	1, 8, (11)
Activity where truth of proposition is	2

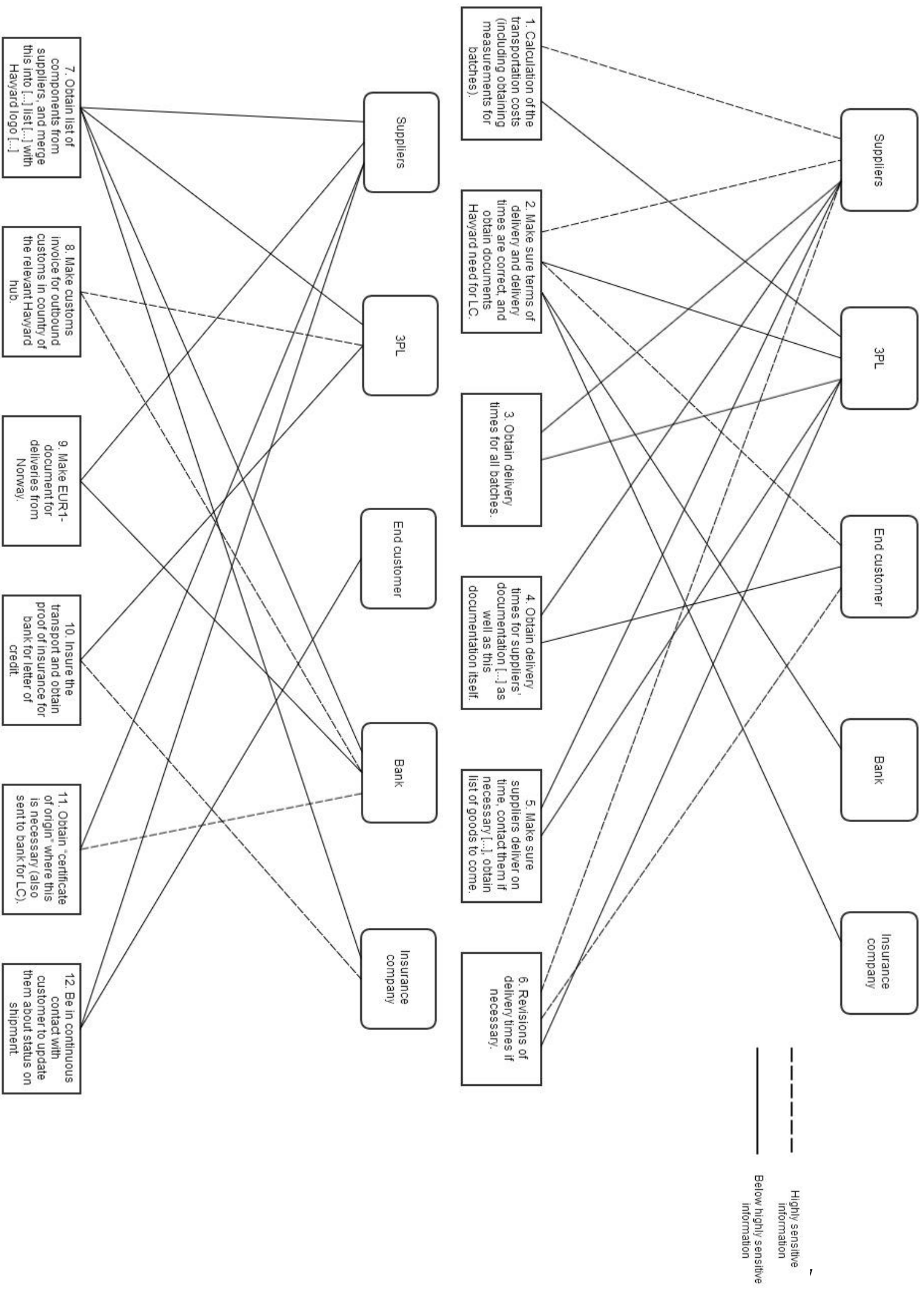
ambiguous	
Activities not making use of highly sensitive information (proposition not applicable)	3, 4, 5, 7, 9, 12.

For activity 11, the proposition is not as clearly refuted as in the case of the other two activities, 1 and 8. This is because, for activity 11, the information deemed highly sensitive may be reduced if a 3PL was to take over the activity. Therefore a lower security grade may be the result, and then the proposition would not be applicable for this activity.

Activity 2 have highly sensitive information, but the recommendation to outsource is split 50-50 between the extremes (yes and no), so that the verdict on the proposition for this activity is ambiguous. Activity 12 clearly has important considerations other than information disclosure for recommending outsourcing. This primarily include, as stated in the table below on considerations for/against outsourcing and the section testing the TCE-propositions, the concern over the quality of information given by 3PL to end customer if activity is outsourced.

Overall then the evidence suggest that it cannot be stated that the data support this proposition. But it can also not be stated that the data indicates that the proposition is untrue.

**Figure 10. Information flows between present state of activities and other agents (next page)**



### 6.3 Considerations in outsourcing of the activities

The relevant proposition that is tested here is number 11: Considerations that clearly exclude the possibility of outsourcing exist for only a minority of the mapped activities. It also attempts to answer the supporting RQ2.

It should be stated that most of the arguments in the table are collected from informants who were not made particularly prepared for the questions and therefore may not have had on the top of their heads all the relevant considerations it involved. PJM stated that in general, specific information gathering was problematic to outsource as 3PL may lack knowledge of particulars in much of the matter handled and tacit relationship skills with many of the agents involved.

As can be seen from the table below the proposition is supported by the data. The table is based on interviews from round 2, with the exceptions of the ones marked with \*, which is from interview round 3, and \*<sup>2</sup> which is from CPO (Havyard 2014e).

**Table 17. Main arguments for and against outsourcing and overall initial verdict.**

Activity (shaded are already outsourced)	Reported main reasons to outsource	Reported main reasons not to outsource	Overall initial verdict
1. Calculation of the transportation costs (including obtaining measurements for batches).	PM: - Will save time. Advantage in planning as it will free resources.	PM/SC:: - 3PL can easier inflate price. - Less possibility to check prices /terms of other 3PLs. Then choice of 3PL is set. PM: - They may experience problems getting hold of correct person at suppliers. - 3PL get access to sensitive information they don't need for job performance, such as supplier's prices. - Havyard loose some knowledge of reliability of suppliers. Less communication with supplier may be good for Havyard to have such a communication. - If something unexpected happens Havyard may end up spending lot of time to sort it. - Loss of competence. - Havyard may be more flexible than 3PL. - Safer to do it internally.	PM: Would keep it internally. (But then change to opposite in third question round)* CPO: Should be kept internally (But then change to opposite in third question round)*
2. Make sure terms of delivery and delivery times	Problem due to way question was specified		CPO: Could be outsourced.*

are correct, and obtain documents Havyard need for LC.	(also make contract).		
3. Obtain delivery times for all batches.	PM: A lot of nagging on suppliers, not always positively charged conversations. Little value creation. SC: Activity not so complicated.	PM: Would loose knowledge of reliability of suppliers.	CPO: Here 3PL could have a bigger role in direct contact/follow-up against suppliers and rapport to Havyard. * <sup>2</sup> PM: May perhaps be outsourced if good price. SC: Should be possible to outsource.
4. Obtain delivery times for suppliers' documentation such as engineering manual, installation manual, instruction manual, various drawings and calculations) as well as this documentation itself	PM: A lot of nagging on suppliers, not always positively charged conversations. Little value creation.	PM: Would loose knowledge of reliability of suppliers. If 3PL take this job then they would be involved with the delivery times, not check the contents of the documentation. It could be nice to not have to do this, but it would be a challenge to get suppliers to respond to a party they do not have a direct contract with. It could be included in the contract with suppliers, but I think it still may be difficult to achieve in practice. SC: Risk is that 3PL will loose or send information too late. They may also not have high knowledge of various manuals, suppliers etc. CPO: Part of project management and important to keep internal.* PJM*: Difficult to get a 3PL to collect [such] documentation from a supplier. They would have no knowledge of this, and cannot tell when some documentation contains errors. I would guess that they would not know what to ask about. In this case there is little help having lots of knowledge of logistics, what is needed is some knowledge of the machines etc.	PM: May perhaps be outsourced if good price. CPO: Should absolutely not be outsourced. * * <sup>2</sup>
5. Make sure suppliers	PM: There is no need to	PM: Would loose amount	PM: Could be

deliver on time, contact if necessary. If the batch is not complete, obtain list of goods to come.	do this ourselves.	of communication and some knowledge of reliability of suppliers. SC: Variations in contracts. Knowledge about equipment may be low with 3PL. Havyards people know better how to deal with suppliers when things are not well enough packed etc.	outsourced. CPO: Could be outsourced.* * <sup>2</sup> SC: The first projects are more difficult to outsource, but if much similarity in upcoming projects then less problematic. (Answered “no” to both scenarios in round 3 however)
6. Revisions of delivery times if necessary.	PM: Would save time and resources.	PM: Loss of knowledge about suppliers’ flexibility and hence potential future costs. PJM*: 3PL must then be in close dialog with Havyard, as such revisions must be accepted by all parts involved. I don’t think Havyard would allow that a 3PL can revise such dates without permission in each case. I think this is an untraditional area for a 3PL to be involved in.	PM: Typical activity that would not be outsourced, but would not be a very big deal if it was. (Later clarified (e-mail 28.04.14): all changes in contracts MUST be done by Havyard/contractual party.
7. Obtain list of components from suppliers, and merge this into a common list of packages with Havyard logo and send this to end-customer and bank.	PM: Will save time and resources. SC: Not complicated. 3PL know mostly what kind of information they need.	PM: Would loose some control with bank connection. SC: 3PL may have low knowledge of equipment.	PM: Could be possible to outsource. SC: Said “no” on interview round 3. CPO: Could be done by 3PL. * <sup>2</sup>
8. Make customs invoice for outbound customs in country of the relevant Havyard hub		SC: 3PL would need information on component costs from suppliers.	PM: 3PL could to this. SC: 3PL could do this. CPO: Could be done by 3PL. * <sup>2</sup>
9. Make EUR1-document for deliveries from Norway (will be sent to bank for LC).	PM: Difficult for Havyard to do.		Performed in almost all cases by 3PL today.
10. Insure the transport and obtain proof of insurance for bank for letter of credit.		PM: Loss of control with bank connection. SC: Probably insurance company would not accept outsourcing this. An insurance agent could alternatively do it, as was done previously, but this resulted in many errors. Documents were sent in return from the bank due to not in line with LC requirements.	PM: 3PL could do this (changed to “no” and “uncertain” for the two scenarios respectively in the third round).
11. Obtain “certificate of	PM: It would save time.	PM: Is connected to	PM: Havyard



origin” where this is necessary (also sent to bank for LC).	SC: Much “nagging” in this process.	contracts and purchasing. Suppliers need to know that he has to obtain this from their own suppliers. SC: 3PL lack knowledge perhaps.	should do it as it should be done at the purchasing stage. (But if set as standards then....) CPO: 3PL can do this.* <sup>2</sup>
12. Be in continuous contact with customer to update them about status on shipment.		SC: Must know that 3PL will not misuse information.	SC: 3PL could do this provided information disclosure safety. CPO: Should go through Havyard which is the contractual party for end customer. May perhaps be outsourced in the future when routines are well established, but always with a copy to Havyard of any communication.* <sup>2</sup>

Table 17. Composed by the author.

### 6.3.1 Comparison of Havyard-drivers and the ones listed in the literature review

Comparing the above table with the typical drivers for outsourcing presented in the literature review, it can be seen that, if the above comments are “standardized” to the same format as the drivers, the following drivers are some of the ones relevant in the Havyard case: “focusing on core activities”, “reducing costs”, “to achieve cost reduction with enhanced performance”, “to achieve cost reduction with enhanced performance”. “Eliminate the fixed cost of internal staff by moving the function to a supplier” and “increased flexibility for highs and lows in the market” was also mentioned in general previously (see section on “possible improvements from Havyards point of view”). This list of drivers is probably not exhaustive. A driver mentioned in the table above and not in the literature review was the opinion that the parts of the activity (activity number 4) could distract from a good relationship with suppliers.

### 6.4 TCE-propositions

The relevant propositions to be tested here are number 1 through 8: --- asset specificity, --- uncertainty, and --- costliness of implementing sufficient contractual safeguards are --- associated with employees’ recommendation for ---.

The SC did not answer the two questions on behavioral uncertainty and contractual safeguards for each activity, as the person felt it was outside the SCs area of competence. CPO and SC gave different answers in many cases to the TCE-variables measured between scenario 1 and 3. PM and PJM gave similar answers to the two scenarios. CPO and PJM answered the same for the recommendations-questions in both scenarios. SC also did this, with the exception of activity 5 where “uncertain” was answered in scenario 1 and “no” in scenario 3, and activity 8 where “no” was, perhaps surprisingly answered for scenario 3. PM had in most cases different recommendation the scenarios, with the general tendency being a move from not recommending outsourcing in scenario 1 to recommending it in

scenario 3. In almost all of the activities site and physical specificity was low, while learning-by-doing often was medium or high. Physical specificity increased slightly in scenario 2 (due to answers of SC).

It was kept in mind that learning-by-doing should carry a high weight in the TCE-scheme for jobs in Europe and especially Norway due to high labor cost.

Environmental uncertainty was clarified in the questionnaire in the following way (but in Norwegian): “Is it probably that unpredicted circumstances of considerable importance occur in connection with the activity?” Behavioral uncertainty was also clarified: “Is it costly to measure/control the performance of those responsible for the execution of the activity?”

#### **6.4.1 Criteria for accepting the TCE-hypotheses**

One of the advantages of qualitative over quantitative studies is the ability to investigate the data in a more detailed and flexible way. For instance, in attempts to better see the different properties of large amounts of quantitative data one commonly make use of measurements such as mean, mode, median, standard deviation and so on. With a smaller sample size there is often no need to calculate this, as it can be instantly estimated just by looking at the raw data. However, this does not have to mean that numerical criteria for judging whether the hypothesis is proven right or wrong are not useful in qualitative studies. For clarity and as a point of reference the following is the criteria for judging whether the proposition(s) relevant for each of the activities are supported: That at least two interviewees have the same value on the 5 point Likert scale as what the proposition is suggesting, in addition that at least one interviewee is within one point up or down, and that no more than one interviewee is within two points up or down. In some of the cases exceptions will be made from this rule due to aspects of the data not well captured by it.

Wherever a mixture of two propositions with somewhat differing predictions just below and above “uncertain” are relevant, such as 5 and 6, the predicted outcome are so ambiguous that I consider it to be three “correct” placements on the Likert scale that will determine if the data support the propositions: 2 (no/uncertain), 3 (uncertain) and 4 (yes/uncertain). Where there is a mixture of two propositions with predictions both leaning towards the lower or upper scale, such as a mixture of proposition 2 and 5 which strongly and moderately, respectively, predicts recommendation for outsourcing, then the main “support zone” on the Likert scale are simply the corresponding two alternatives (yes and uncertain/yes).

As the difference in answers by the informants changed very little from scenario 1 to scenario 3, the TCE-hypotheses will only be tested for the information provided for scenario 1.

#### **6.4.2 Testing the TCE-hypotheses**

Activity 1: Calculation of the transportation costs (including obtaining measurements for batches).

Scenario 1:

**Table 18. Activity 1, scenario 1.**

Asset specificity	Medium/High. Idiosyncratic skills only.
Environmental uncertainty	Medium: heterogeneity in answers
Behavioral uncertainty	Medium: heterogeneity
Costliness of satisfactory contractual safeguards	Low
Employees recommendation	CPO, PM: Yes. PJM: Uncertain. SC: No.

Three reported medium to high environmental uncertainty, while only the PM reported low. A similar thing happened with the behavioral uncertainty. For contractual safeguards only PJM answered medium.

Employee's recommendation: CPO and PM clear yes to outsource. They were, however, interviewed before the line "including obtaining measurements for batches" was added to the questionnaire, but an assumption is made that their answer would remain the same. SC recommended outsourcing if such obtaining was not to be included in the activity description, but did not think outsourcing was a good idea if it was included. PJM answered uncertain.

Difference between scenario 1 and 3:

No difference.

Relevant proposition:

This situation corresponds most closely with a mix of proposition 6: High asset specificity, high uncertainty, and low costliness of implementing sufficient contractual safeguards are moderately associated with employees' recommendation for internal governance and 5. High asset specificity, low uncertainty, and low costliness of implementing sufficient contractual safeguards are moderately associated with employees' recommendation for outsourcing.

This is a case where there are three correct placements on the Likert scale for the mix of propositions to be deemed supported in this case. It can be seen that the spread of answers are too large for the proposition to be supported, and only one informant is in the "supported" zone.

Verdict: propositions not supported by this case.

Activity 2: Make sure terms of delivery and delivery times are correct, and obtain documents Havyard need for LC.

Scenario 1:

**Table 19. Activity 2, scenario 1.**

Asset specificity	Medium/High. Idiosyncratic skills. only
Environmental uncertainty	Medium/high
Behavioral uncertainty	Low/medium.
Costliness of satisfactory contractual safeguards	Low+
Employees recommendation	CPO, PJM: Yes. PM, SC: No.

Three gave medium environmental uncertainty, while PJM gave high as there are “lots of thing that can go wrong: a supplier may be delayed, something may be wrong with equipment etc.” Two gave medium behavioral uncertainty, while PJM gave low. CPO commented that “it would be important to establish good information channels in case of outsourcing. Only PJM said it could be costly with the contractual safeguards. CPO and PJM though it would be a good idea to outsource this activity, while the other two recommended against it.

Difference between scenario 1 and 3:

**Table 20. Activity 2: difference between scenario 1 and 3:**

Asset specificity	- CPO note for this activity that some increase in learning-by-doing as a mixture of sea and land transport is likely to be the result of the increase in volume. - SC predicts some increase in physical specificity.
Environmental uncertainty	CPO also projects that both types of uncertainty will increase for the same reason.
Behavioral uncertainty	See preceding row.
Costliness of satisfactory contractual safeguards	-
Employees recommendation	-

No difference in recommendation to outsource.

Relevant proposition(s):

A mixture of 5: High asset specificity, low uncertainty, and low costliness of implementing sufficient contractual safeguards are moderately associated with employees’ recommendation for outsourcing and 6: High asset specificity, high uncertainty, and low costliness of implementing sufficient contractual safeguards are moderately associated with employees’ recommendation for internal governance.

Same verdict as for the last activity, but with a higher certainty that the propositions are not supported as no informants are in the “supported zone”.

Verdict: propositions not supported by this case.

Activity 3: Obtain delivery times for all batches.

Scenario 1:

**Table 21. Activity3, scenario 1.**

Asset specificity	Medium. idiosyncratic skills only
Environmental uncertainty	Low
Behavioral uncertainty	Low
Costliness of satisfactory contractual safeguards	Low

Employees recommendation	CPO, PJM: Yes. PM: Uncertain/yes. SC: No
--------------------------	--

The answers collected for this activity are subject to some disturbance as this activity was grouped together with the next activity (“4. Obtain delivery times for suppliers’ documentation such as engineering manual, installation manual, instruction manual, various drawings and calculations as well as this documentation itself”) up until and including the third round of data collection (the one which measured the TCE-variables). The original reason for this was that this form is how it had been suggested originally by Havyard. For the answering of the third round of the questionnaire, the CPO said that the activities should be separated, and that he had different answers to them if they were. It was kept as one activity intentionally for the remaining three interviewees to see if they would comment on this point. Only PJM did, possibly due to suggestion made by the interviewer on the phone.

Difference between scenario 1 and 3:

**Table 22. Activity 3: difference between scenario 1 and 3:**

Asset specificity	-
Environmental uncertainty	-
Behavioral uncertainty	-
Costliness of satisfactory contractual safeguards	-
Employees recommendation	PM went from uncertain/yes to yes.

The rest stayed the same.

Relevant proposition(s):

A mixture of 5: High asset specificity, low uncertainty, and low costliness of implementing sufficient contractual safeguards are moderately associated with employees’ recommendation for outsourcing and 2: Low asset specificity, low uncertainty, and low costliness of implementing sufficient contractual safeguards are strongly associated with employees’ recommendation for outsourcing.

Even though this activity does not fit the proposition verification rule outlined above, and even through there is an outlier in the wrong end of the spectrum, it seems justified to make an exception and say that the propositions are supported. The reason for this is that three out of four informants have recommendations that are in line with the predictions of the propositions in question.

Verdict: Proposition supported by the case.

Activity 4: Obtain delivery times for suppliers’ documentation such as engineering manual, installation manual, instruction manual, various drawings and calculations) as well as this documentation itself.

Scenario 1:

**Table 23: Activity 4, scenario 1.**

Asset specificity	High. Idiosyncratic skills. Some site specificity.
Environmental uncertainty	High
Behavioral uncertainty	High
Costliness of satisfactory contractual safeguards	Medium. Some differing answers.
Employees recommendation	CPO, PJM, SC: No. PM: uncertain/yes.

The disturbances in interpretation of the answers for activity 3 above hold true for this one as well. The reason some site specificity is included here is that this information is important to know when contracts are written according to PM. It may further be inferred that it would be beneficial to perform such a job in close proximity of staff involved in the project management of the sale as they would presumably have a good idea of the customer's valuation of the various suppliers' documentation. For contractual safeguards CPO answered high, PM medium, and PJM answered low. The recommendation was not to outsource by all, except PM who answered uncertain/yes.

Difference between scenario 1 and 3:

**Table 24. Activity 4: difference between scenario 1 and 3:**

Asset specificity	-
Environmental uncertainty	-
Behavioral uncertainty	-
Costliness of satisfactory contractual safeguards	-
Employees recommendation	PM went from uncertain/yes to yes

No change with the rest.

Relevant proposition:

1: High asset specificity, high uncertainty, and high costliness of implementing sufficient contractual safeguards are strongly associated with employees' recommendation\* for internal governance.

Here again an exception is made to the decision rule because three of the four informants answered in line with the prediction of the relevant proposition. Also, the rule requirements are almost satisfied.

Verdict: Proposition supported by the case.

Activity 5: Make sure suppliers deliver on time, contact if necessary. If the batch is not complete, obtain list of goods to come.

Scenario 1:

**Table 25. Activity 5, scenario 1.**

Asset specificity	Medium. Idiosyncratic skills. Some site specificity.
Environmental uncertainty	High.
Behavioral uncertainty	Medium
Costliness of satisfactory contractual safeguards	Low/medium
Employees recommendation	CPO, PJM: yes, PM: uncertain/yes. SC: no*

The reason why some site specificity is included here is that according to CPO this activity must either be done in the offices of Havyard or 3PL as it is important to collect this data close to the rest of project management. Environmental uncertainty is high due to the risk of deliveries being delayed or damaged, according to PJM. Behavioral uncertainty was characterized as low by CPO, but higher by the rest. PJM stated that it was ok to measure the delivery time precision, and that it was possible to ask to be sent a copy of the e-mail every time the 3PL needed to prompt the supplier. SC stated a belief that if this activity was outsourced Havyard

would lose necessary control and the important contact with the suppliers. Further, several of the shipments are interdependent. Suppliers may for instance deliver some of the equipment to Havyard for installation in complementary equipment, while the rest is to be delivered to hub. Havyard will then not be able to send their own equipment before we have all the components from other suppliers. (Havyard, 2014r)

\*SC changed the given recommendation for this activity, as well as for activity 8 (Havyard 2014v): “Make customs invoice for outbound customs in country of the relevant Havyard hub”, after I sent a mail containing the changed/refined description of activity 8 and a question to explain seemingly odd answers. For activity 5 (this one) SC had previously answered “uncertain” for scenario 1 and “no” for scenario 2, while for activity 8 SC had previously given “yes” and “no”, respectively. The same answers were changed to “no” and “no”, and “yes” and “yes”. It should be said that the description of activity 8 had been changed perhaps substantially so that a change of answer for this activity may have been justified on the basis of this alone.

Difference between scenario 1 and 3:

**Table 26. Activity 5: difference between scenario 1 and 3:**

Asset specificity	-
Environmental uncertainty	CPO answered that both types of uncertainty will increase.
Behavioral uncertainty	See preceding row.
Costliness of satisfactory contractual safeguards	-
Employees recommendation	PM went from Uncertain/yes to yes.

SC believed that for this scenario the activity will be even more complex and too expensive to outsource.

Relevant proposition:

6: High asset specificity, high uncertainty, and low costliness of implementing sufficient contractual safeguards are moderately associated with employees' recommendation for internal governance.

In this case it seems clear that the proposition not supported. Only one informant recommended internal governance, and this was a strong, not moderate, recommendation.

Verdict: Proposition not supported by the case.

Activity 6: Revision of delivery times if necessary.

Scenario 1:

**Table 27. Activity 6, scenario 1.**

Asset specificity	Medium. Idiosyncratic skills only.
Environmental uncertainty	Medium +
Behavioral uncertainty	Medium
Costliness of satisfactory contractual safeguards	Medium
Employees recommendation	No

A reason why environmental uncertainty is present is that, if a revision of dates is taking place, which may for instance be due to holidays and/or closed customs office, the customer may say that they do not want the product, according to PJM. If a 3PL is given such power of attorney then it may also be difficult to know that they do it well. CPO thinks that the information disclosure part of contractual safeguards may be important in this activity. Recommendation was unanimously no, with PM being less certain than the rest with a no/uncertain.

Difference between scenario 1 and 3:

**Table 28. Activity 6: difference between scenario 1 and 3:**

Asset specificity	-
Environmental uncertainty	-
Behavioral uncertainty	-
Costliness of satisfactory contractual safeguards	-
Employees recommendation	PM changed from no/uncertain to uncertain.

No change in TCE-variables. PM changed to uncertain in scenario 3. The rest stayed the same.

Relevant proposition:

This would correspond to a mixture of all, so there is no proposition to test.

Activity 7: Obtain list of components from suppliers, and merge this into a common list of packages with Havyard logo and send this to end customer and bank.

Scenario 1:



**Table 29. Activity 7, scenario 1.**

Asset specificity	Medium. Idiosyncratic skills only.
Environmental uncertainty	Low/medium
Behavioral uncertainty	Low +
Costliness of satisfactory contractual safeguards	Low+
Employees recommendation	CPO, PJM: Yes. PM: Uncertain. SC: No

According to CPO, one source of environmental uncertainty here is if lists of goods to come are missing from the components list from suppliers. CPO and PM both answered medium, while the two others answered low. For behavioral uncertainty only CPO answered medium, while the two others who answered this question answered low. Only PM answered medium for contractual safeguards, while the two others answered low. CPO and PJM recommended yes, PM uncertain, and SC no.

Difference between scenario 1 and 3:

**Table 30. Activity 7: difference between scenario 1 and 3:**

Asset specificity	SC increased estimate of physical specificity from low to medium as “3PL probably would not be interested in doing such a job manually, if volume was to increase that much”.
Environmental uncertainty	-
Behavioral uncertainty	-
Costliness of satisfactory contractual safeguards	-
Employees recommendation	PM changed from uncertain to uncertain/yes.

Relevant proposition:

1: High asset specificity, low uncertainty, and low costliness of implementing sufficient contractual safeguards are moderately associated with employees’ recommendation for outsourcing.

The proposition would be very close to being supported if averages were taken of the employees’ recommendation (almost uncertain/yes). However, this is not the decision criteria for evaluating the proposition. None of the informants moderately recommended outsourcing, even though PM moved in that direction for scenario 2. And one informant answered no.

Verdict: Proposition not supported by the case.

Activity 8: Make customs invoice for outbound customs in country of Havyard hub.  
Scenario 1:

**Table 31. Activity 8, scenario 1.**

Asset specificity	Medium. Idiosyncratic skills only.
Environmental uncertainty	Low/medium
Behavioral uncertainty	Low +

Costliness of satisfactory contractual safeguards	Low +
Employees recommendation	Yes, with one exception.

PJM states that for this activity it is important to have some knowledge about the customs declarations requirements in the county SC and PJM points out that there is some environmental uncertainty as the bank sometimes notices small errors in the documents for LC. However, PM later specified that most often this customs invoice is not used for LC (Havyard 2014w). Only PM answered medium behavioral uncertainty and medium contractual safeguards.

All recommended yes, apart from PM who said no/uncertain. The main reason for this by PM was that “as we use the same values for this as on the invoice from supplier it is best that Havyard perform this activity” (Havyard 2014w). SC commented (Havyard 2014f) that as customs invoice are not sent to the bank, 3PLs probably have the best knowledge of what is important in the relevant countries.

Difference between scenario 1 and 3:

**Table 32. Activity 8: difference between scenario 1 and 3:**

Asset specificity	SC increase physical specificity to medium for the same reasons as the activity above (she though that at least if Havyard was to perform the activity then expansions of the software solutions would need to be made if volume increase).
Environmental uncertainty	SC changed environmental uncertainty to high.
Behavioral uncertainty	-
Costliness of satisfactory contractual safeguards	-
Employees recommendation	PM changed to uncertain/yes.

Relevant proposition:

5: High asset specificity, low uncertainty, and low costliness of implementing sufficient contractual safeguards are moderately associated with employees’ recommendation for outsourcing.

Again if simple averages were taken the proposition would be close to being supported by the case (slightly above uncertain/yes). However, the spread of the answers seem too high towards the extremes to justify a supported proposition.

Verdict: proposition not supported by the case.

Activity 9: Make EUR1-document for deliveries from Norway (will be sent to bank for LC).

Scenario 1:

**Table 33. Activity 9, scenario 1.**

Asset specificity	Low/Medium. Idiosyncratic skills only.
Environmental uncertainty	Low
Behavioral uncertainty	Low
Costliness of satisfactory contractual safeguards	Low+
Employees recommendation	Yes

All answered that site and physical specificity was low. However, for learning-by-doing: CPO: low, PJM: low (with comment that he does not have that much knowledge about this activity), PM: medium, SC: high. For environmental uncertainty PJM commented that this activity differed from customs invoice as documentation requirements does not differ from country to country. PM commented that contractual safeguards implied some difficulties here, but the overall answers were “low”.

Difference between scenario 1 and 3:

No difference.

Relevant proposition:

1. Low asset specificity, low uncertainty, and low costliness of implementing sufficient contractual safeguards are strongly associated with employees’ recommendation for outsourcing.

This activity is all ready outsourced.

Verdict: Proposition supported in this case.

Activity 10: Insure the transport and obtain proof of insurance for bank for letter of credit.

Scenario 1:

**Table 34. Activity 10, scenario 1.**

Asset specificity	Medium. Idiosyncratic skills only.
Environmental uncertainty	Low
Behavioral uncertainty	Low
Costliness of satisfactory contractual safeguards	Low/medium
Employees recommendation	CPO, PM, SC: no. PJM: yes

SC commented for this activity that she believes the insurance company would not let a 3PL do this. CPO says that this activity is no so complicated, but that there might be some learning-by-doing in knowing what the values are and minimize the insurance expenses. The main issue with contractual safeguards is according to CPO and PJM to get 3PL to take responsibility that the values of the goods are insured at their proper value. CPO further said that if this activity was outsourced, then Havyard would inform the 3PL to about the values to insure. Only PM answered medium here. All recommended no to outsourcing, except PJM who said yes.

Difference between scenario 1 and 3:

No difference.

Relevant proposition:

2: Low asset specificity, low uncertainty, and low costliness of implementing sufficient contractual safeguards are strongly associated with employees' recommendation for outsourcing.

Here the proposition is clearly not supported.

Verdict: Proposition not supported by the case.

Activity 11: Obtain "certificate of origin" where this is necessary (also sent to bank for LC).

Scenario 1:

**Table 35. Activity 11, scenario 1.**

Asset specificity	Medium. Idiosyncratic skills only.
Environmental uncertainty	Medium+. Differing answers.
Behavioral uncertainty	Low+
Costliness of satisfactory contractual safeguards	Low
Employees recommendation	SC, PM: uncertain. CPO, PJM: yes.

For environmental uncertainty CPO and PJM answered low/medium, while PM and SC: high. Maybe underestimated by non-operative personnel? SC commented that 3PL would then need to send the certificate to the bank of the customer for LC. On goods made outsource of Europe there are often mistakes in the certificate of origin according to customer requirements.

Difference between scenario 1 and 3:

**Table 36. Activity 11: difference between scenario 1 and 3:**

Asset specificity	-
Environmental uncertainty	-
Behavioral uncertainty	-
Costliness of satisfactory contractual safeguards	-
Employees recommendation	PM changed from uncertain to uncertain/yes. No change for the others.

Relevant proposition:

A mixture of 5: High asset specificity, low uncertainty, and low costliness of implementing sufficient contractual safeguards are moderately associated with employees' recommendation for outsourcing and 4: Low asset specificity, high uncertainty, and low costliness of implementing sufficient contractual safeguards are moderately associated with employees' recommendation for outsourcing.

Here a simple average give that the proposition is supported. It may be justified in this case to pay attention to this measurement as the spread of the answers are not so great and symmetrically distributed around the predicted answer of the propositions. An exception is again made to the main decision rule.

Verdict: Propositions supported by the case.

Activity 12: Be in continuous contact with customer to update them about status on shipment.

**Table 37. Activity 12, scenario 1.**

Asset specificity	Medium+. Idiosyncratic skills only. Differing answers.
Environmental uncertainty	Med/high
Behavioral uncertainty	Medium
Costliness of satisfactory contractual safeguards	Low/med
Employees recommendation	CPO: yes. PM: uncertain. SC, PJM: No.

For learning-by-doing CPO and SC answered high, PM: low/med, PJM low (and also commented that it should not be outsourced as Havyard “must have control with what we sell ourselves”). CPO and PJM commented in connection with environmental uncertainty that much can happen with the transport. For behavioral uncertainty PJM commented that it would be difficult to control the quality of the communication. End customer may be annoyed. Also may start talking about the contract, which the 3PL initially does not have access to. If it was to be outsourced the 3PL much be very integrated into Havyard, a bit in the way K+N did when they got their own office in Rolls Royce Ulsteinvik when these closed down their logistics/transport department. A lesson was apparently that personnel in this office varied too much to ensure optimal continuity in competences etc. For contractual safeguards CPO commented that there is an aspect of information disclosure here, for the reason mentioned in paragraph above presumably.

Recommendation: CPO: yes, PM: uncertain, SC, PJM: No.

Difference between scenario 1 and 3:

**Table 38. Activity 12: difference between scenario 1 and 3:**

Asset specificity	SC commented in regards to physical specificity that as communication today is by e-mail and if demand was to increase, perhaps some investments would need to be done. SC still chose to answer low for physical specificity however.
Environmental uncertainty	-
Behavioral uncertainty	-
Costliness of satisfactory contractual safeguards	-
Employees recommendation	PM changed from uncertain to uncertain/yes.

Relevant proposition:

6: High asset specificity, high uncertainty, and low costliness of implementing sufficient contractual safeguards are moderately associated with employees' recommendation for internal governance.

Here the proposition is quite clearly not supported as the spread seems to be too great, and none of the answers were exactly that of the propositions prediction.

Verdict: proposition not supported by the case.

**Table 39. Summary table for scenario 1 (based on a 5-point Likert scale where 1 is a lesser degree than 5)**

Activity	Asset specificity			Uncertainty		*	* <sup>2</sup>	* <sup>3</sup>
	Site spec.	Physical spec.	Human spec.	Env. u.	Behav.u.			
1.	1	1	4	3	3	1	CPO, PM: Yes. PJM: Uncertain. SC: No.	Mixture of 6 and 5 not supported.
2.	1	1	4	4	2	1+	CPO, PJM: Yes. SC, PM: No	Mixture of 6 and 5 not supported
3.	1	1	3	1	1	1	CPO, PJM: Yes. PM: Uncertain/yes. SC: No	Mixture of 5 and 2 supported.
4.	2	1	5	5	5	3	CPO, PJM, SC: No. PM: uncertain/yes.	1 supported.
5.	2	1	3	5	3	2	CPO, PJM: Yes, PM: uncertain/yes. SC: No.	6 not supported.
6.	1	1	3	3+	3	3	No (PM: no/uncertain. CPO, PJM, SC: no)	No proposition to test (mixture of all)
7.	1	1	3	2	1+	1+	CPO and PJM: yes, PM: uncertain, SC: No.	1 not supported.
8.	1	1	3	2	1+	1+	CPO, PJM, SC: yes, PM: no/uncertain.	5 not supported.
9.	1	1	2	1	1	1+	Yes	1 supported.
10.	1	1	3	1	1	2	CPO, PM, SC: no. PJM: yes	2 not supported.
11.	1	1	3	3+	1+	1	SC, PM: uncertain. CPO, PJM: yes.	Mixture of 5 and 4 supported.
12.	1	1	3+	4	3	2	CPO: yes, PM: uncertain, SC, PJM: No.	6 not supported.

Abbreviations:

Spec.= Specificity

Env. u.= Environmental uncertainty

Behav.u.= Behavioural uncertainty

- \*Costliness of satisfactory contractual safeguards
- \*<sup>2</sup> Employee recommendation (scenario 1)
- \*<sup>3</sup> Relevant proposition(s) supported/not supported

In total then four activities out of the 11 that fitted the description of particular propositions supported the relevant propositions, while seven did not. The propositions supported were the following: a mixture of 5 and 2, 1, mixture of 5 and 4. Number 1 was supported twice. The propositions “not supported” were: a mixture of 6 and 5, 6, 1, 5, 2, mixture of 5 and 4. The mixture of 6 and 5, as well as number 6, was “not supported” twice. The propositions that were both supported and not supported were a mixture of 5 and 4, and 1. However, number 1 was supported twice. The only propositions which was supported without any cases of “not supported” was a mixture of 5 and 2. Proposition 3, 7, and 8, as well as all the remaining combinations of propositions did not get to be tested.

### 6.5 Proposition about present vs future scenario

The relevant proposition to be tested in this section is number 9: Employees’ recommendations will in general be more favorable to outsourcing in the high demand future scenario. It attempts to answer the last part of the supporting RQ1

**Table 40. Summary of the difference in recommendations between scenario 1 and 3.**

Activity	Employees recommendation	
	Scenario 1	Scenario 3
1. Calculation of the transportation costs (including obtaining measurements for batches).	CPO, PM: Yes. PJM: Uncertain. SC: No.	No difference (-)
2. Make sure terms of delivery and delivery times are correct, and obtain documents Havyard need for LC.	CPO, PJM: Yes. SC, PM: No	-
3. Obtain delivery times for all batches. (in the older questionnaires the next activity was included in this)	CPO, PJM: Yes. PM: Uncertain/yes. SC: No	PM went from uncertain/yes to yes.
4. Obtain delivery times for suppliers’ documentation such as engineering manual, installation manual, instruction manual, various drawings and calculations) as well as this documentation itself	CPO, PJM, SC: No. PM: uncertain/yes.	PM went form uncertain/yes to yes.
5. Make sure suppliers deliver on time, contact if necessary. If the batch is not complete, obtain list of goods to come.	CPO, PJM: Yes, PM: uncertain/yes. SC: No.	PM went from Uncertain/yes to yes.
6. Revise delivery times if necessary	No (PM: no/uncertain. CPO, PJM, SC: no)	PM changed from no/uncertain to uncertain.
7. Obtain list of components from suppliers, and merge this into a common list of packages with Havyard logo and send this to end-customer and bank.	CPO and PJM: yes, PM: uncertain, SC: No.	PM changed from uncertain to uncertain/yes.
8. Make customs invoice for outbound customs in country of the relevant Havyard hub.	CPO, PJM, SC: yes, PM: no/uncertain.	PM changed to uncertain/yes.
9. Make EUR1-document for deliveries from Norway (will be sent to bank for LC).	Yes	-
10. Insure the transport and obtain proof of insurance for bank for letter of credit.	CPO, PM, SC: no. PJM: yes	-
11. Obtain “certificate of origin” where this is necessary (also sent to bank for LC).	SC, PM: uncertain. CPO, PJM: yes.	PM changed from uncertain to uncertain/yes
12. Be in continuous contact with customer to update them about status on shipment.	CPO: yes, PM: uncertain, SC, PJM: No.	PM changed from uncertain to uncertain/yes.

Cases where outsourcing clearly is not favored more in scenario 2 than 1: Activity 1, 2, 9, and 10. 4/12. Cases in doubt: 3, 4, 5, 6, 7, 8, 11 and 12. 8/12. Even though the change of recommendation for outsourcing in these cases may not seem so large, they represent one person which is 25 percent of the total interviewees. The proposition then may perhaps be said to be weakly true.

## 6.6 Comparison with RBV-predictions

In this section Watjatrakuls table (2005) is used to briefly compare the results above with the results obtained if the data with the predictions of the RBV. This is in line with Yins (2014) advice to identify and address rival explanations to the findings in order to ensure good research design, as described in that section above. In using the table below it is assumed that all the relevant resources are non-strategic, even though no interview was conducted on this point. The concept of strategic asset is defined in the relevant part of the literature review.

**Table 41. Summary of cases where the predictions of TCE and RBV differ.**

		Behavioural or environmental uncertainty	
		Low	High
Low-specificity, non-strategic resource	TCT	Outsourcing	Insourcing
	RBV	Outsourcing	Outsourcing
Low-specificity, strategic resource	TCT	Outsourcing	Insourcing
	RBV	Insourcing	Insourcing
High-specificity, non-strategic resource	TCT	Insourcing	Insourcing
	RBV	Outsourcing	Outsourcing
High-specificity, strategic resource	TCT	Insourcing	Insourcing
	RBV	Insourcing	Insourcing

Table 41. Adapted from Watjatrakul (2005).

The table below summarizes the comparison. The tendencies in the uncertainties and specificities may be exaggerated some in order to find the closest prediction in the table above:

**Table 42. Summary of test to see if RBV predictions better fit the data than TCE predictions.**

Activity	Comments	Does the RBV-prediction have a better fit with the data than the TCE-prediction?
1	For the first activity combined uncertainty was neither low nor high. It is therefore difficult to conclude anything using this table.	Nothing to test (-).
2	For the second activity the same applies.	-
3	The third has low combined uncertainty, and pretty low specificity. From the table above this gives outsourcing, which in this case is the same prediction that TCE would give in the table.	-
4	Here the activity has a high combined uncertainty, and high-ish specificity. This gives outsourcing, which is the opposite of what TCE give.	Clearly no (from looking at employees recommendations)
5	Same as above.	To much variation in employees recommendations to say definitely yes, but



		it is not so far away from being yes.
6	Combined uncertainty is neither low nor high, so difficult to place.	-
7	Uncertainty is low, but specificity is high-ish. This give outsourcing, the opposite of what TCE give.	Same answer as in number 5.
8	Same as above.	Very close to being yes. Only one employee answered no/uncertain to outsourcing.
9	Both uncertainty and specificity is low. This gives outsourcing, the same as TCE.	-
10	Same as above.	-
11	Specificity is low-ish, and uncertainty is high-ish. This give outsourcing, the opposite of TCE.	Here the TCE-prediction of the table above conflicts some with the main TCE-propositions used in the thesis, which are more nuanced. The propositions predicted “moderately employees’ recommendation for outsourcing”. The answers indicate just this, so here the RBV prediction is close to fitting the data.
12	High uncertainty and high specificity give outsourcing, the opposite of TCE.	Here the answer is definitely no.

To sum up then there are three cases where the RBV seem to predict the employees recommendation better than the TCE. Further enquires into this is beyond the scope of this thesis, but would be an interesting direction for further research. Three potential sources of potential disturbances to these results are immediately spotted: 1) Employees recommendations are used as proxies for the actual ownership of the activities as they would materialize in the near future. Perhaps this is not a good solution. 2) Watjatrakuls table above is too simplistic to capture the nuances of the data. In this respect the main propositions used in this case study (where combinations of them were sometimes used) are superior. 3) The assumption of non-strategic asset made in the first paragraph in this section may be unrealistic, even though it is likely not the case.

## **7.0 Limitations and future directions, generalizability to the industry, summary and concluding remarks**

### ***7.1 Limitations and future directions***

One issue which turned out to be somewhat time consuming was that the author had to change several of the activity descriptions, and in one case split one activity into two, a few times during the study as weaknesses were spotted in them, either by me, or by some of the informants. For instance, activity 2 had until “data collection round 3” included in the description “make contract with suppliers”. In round 3 however it was insisted upon by CPO that it was definitely not an alternative to outsource the making of contracts with suppliers. The activity involving outsourcing obtaining technical documentation was originally part of another activity description, but had to be separated, as it was apparent that for two of the informants’ questions measuring TCE-variables would differ between two parts of what was originally one activity. Inaccurate description of the activities which may leave room for different interpretations was also felt to be a problem a few times. To avoid or minimize problems relating to the logical separation as well as description of the activities in similar future studies, one should be even more specific about what each activity includes before starting the interviews based on the TCE-framework. One should also ask other informants, not just one, to check and revise the codified list of activities before such interviews.

Another limitation is the trend study to rely less on “hard data” and more on “soft data” such as interviews. This may have some advantages such as perhaps easier data collection. In addition interviews may make it easier to roughly map the bigger picture as follow-up questions can immediately be asked and participants can more freely associate around questions. The study’s reliability on information held by subjects was large, and with potential for errors and misunderstandings, which was uncovered some times for instance in connection with the codifying of the activities as well as the interviews that was based on them. One way to get the best of both worlds in a potential future study could be to initiate the study using interviews (generally less structured in the beginning than the end, as was also done in the present study), and then find some standardized proxies for the TCE-variables which can be measured independent of the informants’ opinions. This option was considered in the present study, but it was concluded that such an undertaking would be too difficult as such proxies would be hard to obtain in most of the cases (the hypotheses being phrased: “if activity was to be outsourced...”). Further there is the problem that the TCE-propositions are too “coarse” in the way that it is not specified what is low and what is high. Again, this problem would be reduced if standardized “objectively” measured proxies were used as one would be able to compare the values of the different activities against each other and in this way obtain an understanding of “low” and “high”. A related argument of the possibility of “undervaluing” the asset specificity variable in selecting the correct proposition is included in the summary and concluding remarks section below.

Another issue is that some of the participants changed some of their answers, mainly from round 2 to round 3 and from the “yes”-to-outsourcing-end of the spectrum towards “no”. This phenomena took place to a higher degree in operative personnel involved in the

relevant activities which may suggest any, or a combination, of the following explanations: 1) There is generally a lesser focus on strategic issues and a higher one on operative issues, so that consistency in outsourcing recommendations given with some time interval may be less consistent than the case with employees daily phasing strategic issues. 2) Issues of job security were more determining for answers in round 3. 3) Detailed concrete knowledge of operations are held by operative personnel and taken more fully into account in in round 3 than in round 2. When I inquired by e-mail into a related topic, I wanted a reason why it was answered that recommendation was “yes” for scenario 1 and then “no” for scenario 2, a side comment given was that it was easier to answer in writing. This may imply a lack of internal consistency (and hence a need to cross-check with ones own earlier answers) in the matter as suggested by explanation 1 above. No further inquires were made into this, but the general topic could perhaps be fruitful as a future study.

Perhaps the sameness of the answers of the TCE-variables and recommendations to outsource in the two very different future scenarios is a source of limitation to the study. Considerable enquiries into why most of the answers were the same was not performed in the study, but one speculation is that a contributing factor was that informants started feeling time conscious about the questionnaires and interviews by the time the section on scenario 3 was reached and so was a little more inclined to say that the answers would not change for this scenario.

A point worth stating is that the study does not really address whether or not the chosen TCE framework is a good prescriptive framework in this case. It only checks if the employee’s recommendation are in line with the TCE-predictions, not whether the business would actually save money if the prediction were followed. In other words: Employees recommendations are used as proxies for the actual ownership of the activities in the near future. How good this solution is may perhaps be argued.

There were three cases where the RBV seem to predict the employees’ recommendation better than the TCE. Further enquires into why this was the case would perhaps be interesting work for future research. Three potential sources of disturbances to these results were identified: 1) Employees’ recommendations are used as proxies for the actual ownership of the activities. 2) Watjatrakuls table is too simplistic to capture the nuances of the data. 3) The present author’s assumption of non-strategic asset may not be justifiable.

More specifically to the Havyard case, the CPO mentioned an alternative where a logistics coordination function forms a separate unit and has its own dedicated people from purchasing, engineering, project and so on. This alternative could possible have been made a starting point for a fruitful study, although it was not done in this one. One last direction that was not followed in this study are to use the categorizations of business relationships reviewed in the literature survey and attempt to categorize the current ones, as well as hypothetical ones should various combinations of the mapped activities be outsourced. The purpose could for instance be to investigate to what degree the character of the relationships would change as outsourcing was introduced.

## ***7.2 Generalizability to the industry***

Other shipyards are participating in the international trading of ships’ system packages, and the results obtained in this study are in different degrees generalizable to them as well. Probably the tables covering the information classification is generalizable to some extent to them. If the results of the relationship between “highly sensitive information” and

outsourcing recommendation are generalizable is more difficult to say. Perhaps the sameness of the answers of the TCE-variables and recommendations to outsource in the two different future scenarios are a generalizable feature, but to be more certain one should really have a better understanding of why these answers were largely the same (see limitation section above). Insofar as activities are similar in other firms, the results obtained from the tables covering the required information and the information flows, as well as the results obtained in testing the TCE-propositions, may also be generalizable.

The literature review, especially the part covering the relationship between competence view and TCE is obviously generalizable to other firms.

### ***7.3 Summary and concluding remarks***

The structure of this master thesis case study was as follows: it began with a general introduction of the focal company; it then proceeded to describe the problem that the author and mainly CPO had agreed would be suitable for the thesis. This descriptive section also includes sections of the firm's challenges with today's practice and areas that could be improved. Then prognoses and three different future scenarios for 2016 followed. The scenarios answered the first part of the first supporting research question.

The literature review followed, with the main emphasis being the section on TCE and the section on the relationship between TCE and RBV. Its main aim was to find the most suitable method for determining the desirability of outsourcing. This was found to be TCE. Although complex tools such as numerical optimization procedures and perhaps computer simulation may advantageously be used for the same purpose, which may involve hybrid solutions between TCE and RBV, it was decided to not include it in the thesis due to a stronger preference for a realistic comprehension of the large body of theory, as well as the case, in the timespan available. Then a section on the propositions used followed. The TCE-propositions were adapted to the case as it changed its propositions to be based on employee's recommendation rather than the current ownership of the relevant activity. Another perhaps unconventional aspect of the use of TCE in this thesis was that the thesis incorporated the TCE-proposition into only one supporting method, together with the other propositions and supporting RQs, for answering a main RQ. A section on method came after this.

In the data analysis section a table isolating the bits of information used in the activities was offered with a grading of the sensitivity of information, along with comments, given by two informants. This information was then used in another table linking together the activities, the information used for completion of the activities, any possible reduction in information used if the activity was to be outsourced, the corresponding grades of sensitivity of information, and the employees' recommendation of whether to outsource or not. The purpose was to answer proposition number 10. Even though there were six activities that involved the use of highly sensitive information, it was found that the data could not really support this proposition. A possible reason for this may be, as other interviews gathered, that in most of the cases it would be relatively easy to alleviate risk arising from such information sharing through added contractual safeguards. A graphical illustration of the information flows and their highest grade of sensitive information were also included. This section also answers the supporting RQ number 3. Six of the 12 activities involved the use of highly sensitive information for completion. Of the remaining six activities five included somewhat sensitive information. Only the activity that was already outsourced to K+N did not involve the use of any sensitive information.

Next, in order to test proposition 11 and answer the supporting RQ number 2 a table was made showing the activities and some of the main corresponding arguments for and against outsourcing, as well as some of the informants overall verdict. Common arguments for outsourcing included saving time and freeing up own resources, while arguments against often involved loss of control if 3PL were to take over communication with mainly supplier, but also end-customer. This loss of control involved not issues immediately solvable by contractual means, but included concerns which were relational or reputational (3PL could damage Havyards reputation in the view of other agents, but also that Havyard would have less change to directly assess the reliability other agents), including a worry that a 3PL might not hold the necessary technical competence. As a side comment, this may look as if it point to a more RBV or capability view based explanation for why outsourcing may not be desirable. However, the author finds Argyres and Zenger (2007; 2009) view, which is referred to in the literature review above, that the classical TCE variables are accounting for capability factors in its “asset specificity”, convincing. Perhaps, however, in some cases this variable was “undervalued” by the author in selecting which proposition that corresponded to the activities, so that propositions moderately predicting “outsourcing” were wrongfully selected instead of those moderately predicting “not outsourcing”. If this is the case, and it had been corrected, more of the propositions would probably have been supported by the data. Another possible explanation for the failure of several of the TCE-propositions to hold was that operations were relatively new (from 2012) and so the predictions may not have been materialized yet. This lack of materialization may be reflected in the recommendations given by the employees if inertia is present in significant degree.

A section was then dedicated to see if RBV gave more accurate predictions of the employees’ recommendations than TCE. Out of the twelve activities there were three where the RBV seem to give better predictions than the TCE. Serious attempts to identify the reasons for this were not pursued as it was outside the scope of this study.

A comparison of the drivers given by Havyard employees to the ones found in the literature was then made. This found that “focusing on core activities” and “reducing costs” was of the most common ones to both. Further it was found that there seemed to be only one driver present not listed in the literature reviewed.

The last section of the data analysis were meant to answer proposition 1 though 9, the second part of the first supporting RQ, as well as being the main source of input for answering the main RQ. It found that it mattered very little for the outsourcing assessment made by the employees whether scenario 1 (same demand as today) or 3 (very high demand) would materialize in 2016. But it can not be said to be entirely a matter of indifference as one of the informants had slightly different recommendations between the two scenarios in eight out of the twelve activities. Most of the TCE-propositions could not be said to be supported by the data, and the only ones to be supported (and which was not “not supported” in some other activity), was a mixture of proposition 5 and 2. In total it was found that the relevant propositions were supported in only four out of the 11 activities that corresponded to particular propositions. Out of these four, one activity was all ready outsourced. Further, activity number 4 should probably not be outsourced as the TCE-prediction as well as employee recommendation was negative. Activity number 3 and 11 however should be seriously considered for outsourcing as both employee recommendation and the TCE-prediction pointed towards outsourcing, although in a moderate degree. Activities number 5 and 8 should probably also be seriously considered due to the recommendation to outsource held by the majority of the informants. Some of

the reasons why most of the TCE-predictions might have failed are discussed in this section above and in the section on the limitations of the study.

This concluding section as a whole, and particularly the paragraph immediately above, sums up the findings collected towards answering the main research question. The study's contribution to the academic literature are probably mainly the section in the literature review on the relationship between TCE and RBV, the lessons learnt in isolating and mapping candidate activities for outsourcing, the study of the relationship between the sensitivity of information and recommendation to outsource, the finding of the informants apparent indifference between the future scenarios for the questions asked, the finding that for most of the activities there were no consideration that clearly excluded the possibility of outsourcing, and finally the study's adaption and application of classical TCE-propositions and the results obtained.

## 8.0 Appendix

### 8.1 Questionnaire used in interview round 3

The following questionnaire was sent by mail to the respondents in order for them to be able to see and read the questions, and the answers were taken over the phone. The exception was in the case of PM who answered in writing. What is included below is the questions for one activity and one scenario only (in Norwegian language).

Scenario x: ---

Aktivitet y: ---

Dersom aktiviteten hadde blitt satt ut til speditør:

<b>Asset specificity</b> (Investeringer spesielt tilpasset aktiviteten, som vil synke vesentlig i verdi dersom kontrakten mellom Havyard og 3PL brått avbrytes)	(nesten ikke)		(noe)		(i stor grad)
<b>Site specificity</b> (Er det viktig at aktiviteten foregår på en spesifikk geografisk/fysisk posisjon?)					
<b>Physical specificity</b> (I hvilken grad må Havyard eller speditør gjøre aktivitetsspesifikke investeringer i fysiske eiendeler?)					
<b>Human specificity</b> (Er aktivitetsspesifikk learning-by-doing involvert?)					

Dersom aktiviteten hadde blitt satt ut til speditør:

<b>Uncertainty (Usikkerhet)</b>	(nesten ikke)		(noe)		(i stor grad)
<b>Environmental uncertainty</b> (Er det sannsynlig at uforutsette omstendigheter av vesentlig betydning inntreffer i forbindelse med aktiviteten?)					
<b>Behavioral uncertainty</b> (Er det kostbart å måle/kontrollere ytelsen til de som er ansvarlige for utførelsen av aktiviteten?)					

<b>Contractual safeguards (Kontraktmessige sikkerhetsmekanismer)</b>	(nesten ikke)		(noe)		(i stor grad)
Hvor kostbart er det å designe og implementere tilfredsstillende kontraktmessige sikkerhetsmekanismer dersom aktiviteten settes ut? (dagbøter, bøter for for tidlig terminering av kontrakt, sanksjonering, informasjonssikring, verifikasjonsprosedyrer, spesialiserte konflikt/meglingsråd osv.)					

The section after this contained questions as the one cited below for only one activity and scenario:

	Nei		Usikker		Ja
Tror du det vil være kostnadsbesparende for Havyard på sikt dersom aktiviteten settes ut?					

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