

# Managing the Relationship Dissolution Following a Divestment A Case Study of Volvo Cars Master of Science Thesis in the Management and Economics of Innovation Programme

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#### MASTER'S THESIS E 2014:078

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Department of Technology Management and Economics Division of Innovation Engineering and Management CHALMERS UNIVERSITY OF TECHNOLOGY Gothenburg, Sweden 2014 Managing the Relationship Dissolution Following a Divestment Simon Hermansson & John Renulf

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Master's Thesis E 2014:078

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Chalmers Reproservice Gothenburg, Sweden 2014

## Abstract

This thesis explores the characteristics of dissolving post-divestment exchange relationships and identifies and explains the effects of these dissolving relationships on the divested party. This is done through a qualitative approach by conducting a case study at Volvo Cars, where its post-divestment relationship with Ford is investigated. A theoretical framework has been developed to examine the characteristics of such a relationship, the effects of the dissolution and how to assess these effects for the divested actor. A conceptual model is developed as part of the theoretical framework of the post-divestment relationship dissolution process. Complemented by transaction cost economics theory, effects and consequences for the divested party were evaluated and identified. The results show that in this case such relationships are formed around resource ties and that successful relationship dissolution mainly depends on how well these ties are able to be broken prior to activity links and actor bonds between the actors in the relationship. Further research is encouraged within the area of exchange relationship dissolution, specifically in relation to post-divestment relationships, to improve the conceptual model developed within this thesis.

Keywords: Divestment, Post-divestment Relationship Dissolution, Dissolution Process, Conceptual Relationship Dissolution Model, Transaction Cost Economics.

## Acknowledgements

This master's thesis project was initiated by Volvo Cars and conducted during the spring of 2014, as the final part of the master's program Management and Economics of Innovation. The thesis was written within the Department of Technology Management and Economics at Chalmers University of Technology.

First we would like to thank our supervisors Adam Phillips and Thomas Appelgren at Volvo Cars for providing us with the opportunity to conduct this project. They have supported us throughout the whole project and provided us with valuable inputs and advice along the way, as well as made us feel appreciated and as part of the organization.

Secondly we are very grateful for the support and encouragement during the project from our Chalmers supervisor Marcus Holgersson. He has been very committed in providing guidance and helping to enhance the quality of the thesis.

We would also like to express our gratitude towards all Volvo Cars employees that we have been in contact with. They have been very accommodating and it has been a pleasure to work with them.

Gothenburg, Sweden, June 2014.

Simon Hermansson

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## **1. Introduction**

Facing a trend of consolidation in the passenger car industry, AB Volvo decided to exit the industry and divest its automotive division, the Volvo Car Corporation (VCC), to the Ford Motor Company (Ford) in 1999 (AB Volvo, 1999). Due to increased competition within the passenger car industry AB Volvo chose to focus on other business areas while other larger car manufacturers sought to reduce costs by capitalizing on greater economies of scale within development and manufacturing, among other areas. After the acquisition by Ford, this led to that VCC became integrated into the Ford organization over the years, sharing common technology (Granstrand & Holgersson, 2013). VCC cars were built on Ford platforms and were running on Ford engines. However, a few years later Ford was struggling with financial loss and explored the possibility to divest some of its non-core assets (Ford Motor Company, 2008).

In 2010, after eleven years of being a part of Ford, VCC was acquired by the Zhejiang Geely Holding Group Co. Ltd. (Geely) (Volvo Car Corporation, 2010). In the deal, the VCC-developed technologies Scalable Product Architecture (SPA) and Volvo Engine Architecture (VEA) were not transferred or licensed back to Ford, as was done with most other intellectual property, and therefore became VCC-unique (Granstrand & Holgersson, 2013). After being acquired by Geely, VCC has focused on migrating to these architectures and moved away from Ford technology with the goal of becoming independent from Ford after a transition period (Volvo Car Corporation, 2012). This study examines VCC's relationship with Ford following the divestment and how VCC might be affected by the dissolution of the relationship.

### 1.1. Background

The discourse on mergers and acquisitions (M&A) is rich, multi-disciplinary and goes back over 30 years (Cartwright & Schoenberg, 2006). Divestment is one of the central areas of M&A research and concerns the separation of business units. However, research that concerns divestments seldom focuses on the unit being subject to divestment, and instead takes the perspective of the divesting or acquiring party (Moschieri & Mair, 2008). In addition, most divestment literature concerns divestment strategy (e.g. Bettauer, 1967; Lindgren & Spångberg, 1981; Riviezzo, 2013), reasons for divesting (e.g. Boddewyn, 1979; Wright, 1985; Hopkins, 1991), and the potentially positive or negative effects that such a process will spawn (e.g. Ahuja & Katila, 2001; Bertrand, 2009; Makri, Hitt & Lane, 2010). Some literature does discuss the disintegration between the divested unit and the divesting party (e.g. Granstrand & Holgersson, 2013) and how to separate the two as smoothly and efficiently as possible but mainly deals with intellectual property and does not directly regard securing continued operational ability or supply access.

This study focuses on Ford's divestment of VCC and on VCC as the divested party. Currently VCC is in a transition period from being a part of Ford to becoming independent, which

started with Geely's acquisition of VCC. Under what conditions this transition period will end will be established as part of the case study. From the perspective of the divested party, the end of the transition period following a divestment is typically also the end of cooperation with the divesting party and the dissolution of a relationship. How it will end and how the ending process unfolds is affected by the nature of the relationship prior to it ending, the state of the relationship and the history between the parties (Tähtinen, Blois, & Mittilä, 2007). As such, the level of turbulence the divested party will experience depends on such factors as the climate between the parties, how integrated they were prior to the divestment, the dependency of the divested party on the divesting party as well as how the separation is planned and carried out (Halinen & Tähtinen, 2002). For example, becoming independent from the divesting party may result in access to previously shared resources becoming limited, information access and knowledge sharing being restricted, communication ceasing, and decreasing in frequency. These types of issues need to be considered and mitigated in order to reduce the level of turbulence. Issues such as these arise from conducting cooperative activities, e.g. sharing information and resources, with emphasis on sharing. These activities are carried out during an exchange relationship and therefore need to be approached from such a perspective. An exchange relationship is defined as a business relationship where the parties are integrated to some degree, e.g. in terms of joint activities and IP sharing.

An exchange relationship between two actors in a parent-subsidiary relationship changes in character and becomes a post-divestment relationship after the parent company decides to divest the subsidiary company. This new type of relationship is meant to be dissolved and the actors to become independent from each other. However, exchanges in terms of integration between the actors do not cease immediately, but instead decrease over time during a transition period until an eventual dissolution is achieved. A simple illustration of the post-divestment relationship between two actors approaching dissolution is presented in *Figure 1*.



Figure 1 – The post-divestment relationship dissolution process. Source: Authors.

The stream of research within the area of exchange relationship dissolution can be characterized as emergent (Tidström & Åhman, 2006) and include for instance research in personal relationship dissolution (Hocutt, 1998), communication in relationship dissolution (Pressey & Mathews, 2003), successful relationship termination (Alajoutsijärvi, Möller & Tähtinen, 2000), development of relationship dissolution models (Giller & Matear, 2001;

Halinen & Tähtinen, 2002; Tähtinen, 2004; Tidström & Åhman, 2006; Tähtinen *et al.*, 2007), and categorization of relationship dissolution research (Tähtinen & Halinen, 2002). Exchange relationship dissolution is acknowledged to be an important topic (Pressey & Mathews, 2003), however these researchers focus mainly on the process and stages of the dissolution of relationships and not much is written on what consequences and effects that may arise for the parties involved in the relationships. There is also a lack of research that takes the perspective of a divested party, regarding the dissolution of a relationship following a divestment, in both M&A and exchange relationship dissolution literature (Halinen & Tähtinen, 2002; Tähtinen *et al.*, 2007) and hence there is a need to explore this area further.

### 1.2. Purpose

In light of the background, the purpose of this thesis is to explore the characteristics of dissolving post-divestment exchange relationships and identify and explain the effects of these dissolving relationships on the divested party. The research on relationship dissolution is still in its early phases and many aspects are uncovered (Tähtinen, Blois, & Mittilä, 2007). There are some models presented in academia, concerning the stages of the ending process but these remain on a generic level. By conducting a case study of the situation between VCC and Ford a specific instance of where to apply these models is provided. By applying these models, an outcome of the thesis is a more practically utilizable tool. In addition, this report will complement M&A divestment literature with research on exchange relationship dissolution and transaction cost economics by applying it to a divestment context, from the perspective of the divested party. As a result of this, the purpose is also to provide recommendations for VCC on how to handle the situation with a dissolving exchange relationship with Ford, which ultimately is the outcome of the case study.

### 1.3. Research questions

In order to achieve the purpose of the thesis, it needs to be broken down and assessed. This was done during the first phase of the project, where a literature review of relevant research areas gave rise to the formulation of research questions that will guide the research. The questions are interlinked and range from descriptive to more explorative nature. First an understanding is needed of what the situation looks like between actors in a post-divestment exchange relationship and hence the first question is presented as follows.

RQ 1. What characterizes the relationship between actors in an exchange relationship following a divestment?

Previous literature, presenting frameworks and models for exchange relationship dissolution, is used to describe these characteristics and the case study provides the thesis with the empirical example of what this can look like. Further, this serves as a foundation for the following questions. Building on the first question, the second research question aims to identify effects that the dissolution of the exchange relationship will have on the divested party.

RQ 2. What effects arise during the dissolution of an exchange relationship and how do they affect a divested actor?

The empirical findings mostly serve as the basis for answering this question, while the terminology and theoretical findings are used to assess the identified effects. The third research question closely relates to this and especially considers the empirical findings, analysis, and recommendations in the case study. Hence, how a divested party should consider the identified effects is the essence of the third research question.

RQ 3. How should a divested actor mitigate and handle these effects?

The answer to this question aims to provide ways to assess how the effects should be considered and strategically handled from the divested party's point of view. Based on the answers to the previous research questions, the answer to this question is arguably mostly considering managerial implications and thus covered in the case study, but also have a degree of theoretical implications that are presented in the final discussion and conclusions.

## 1.4. Disposition

Presented below follows the disposition of the thesis, where each chapter is described and considered in terms of main content and interrelations between them.

1. Introduction

This chapter introduces the research subject and the theoretical discourse of the thesis, as well as a presentation of the purpose and research questions. This positions the thesis in relation to previous research and explains the intended theoretical contributions and hence which questions that are to be answered throughout the report.

2. Method

In this chapter the method of the thesis is presented, including the work process, research design, choices of methods for data collection and a critical assessment of the thesis. The choices that have been made are motivated and supported by recognized research in business research methods.

#### *3. Theoretical framework*

This chapter provides a framework that is derived from exchange relationship dissolution literature in combination with transaction cost economics theory. A conceptual model is developed from the exchange relationship dissolution literature to serve as a tool for describing the dissolution process and transaction cost economics provide the analytical power to assess effects arising from the post-divestment relationship dissolution.

4. The exchange relationship dissolution between VCC and Ford

This chapter considers the case study of the relationship dissolution between VCC and Ford and provides the empirical instance of the thesis. The empirical data is presented and analyzed using the theoretical framework and followed by recommendations for how VCC should handle the effects that arise from the situation.

#### 5. Concluding discussion

In this chapter the managerial and theoretical implications of the thesis are discussed and summarized. The research questions are answered and suggestions for further research are presented.

## 2. Method

This chapter describes the study in terms of the work process, layout, and research design, including data collection and analysis. Further, an assessment of the research quality of the study is provided, where issues of trustworthiness are discussed and the study is critically evaluated.

### 2.1. Project process

In order to gain an understanding of how the project was carried out the process is described and visualized in three phases; orientation, investigation and conclusions and documentation.

**Orientation.** In the first phase of the project a literature screening was made in order to assess different research areas in relation to the study and then narrow it down based on relevance for the thesis. A deeper literature review was conducted in the areas of exchange relationship dissolution and transaction cost economics theory, which provided the foundation for the theoretical framework of the thesis. During this phase the purpose of the study was established and an understanding of the situation regarding the case was gained.

**Investigation.** The theoretical framework was created and data was collected. Sources for the data collection included VCC technical databases and documents in combination with interviews conducted with staff with different roles from different departments within VCC.

The nature of the technical interrelatedness between VCC and Ford is very complex and is an important matter to consider in order to address the first two research questions, i.e. to describe the characteristics of the relationship and identify which effects that arise from this situation. A technology mapping process was carried out to examine this technical dependency in the relationship. This constituted the practical part of the project and demanded a considerable amount of understanding of the investigated technologies, which was gained in meetings with technical experts at VCC and constituted a large portion of the mapping process.

Then followed the collation of the gathered data and using the theoretical framework as a basis, the analysis was made and subsequently the recommendations in the case study were formed.

**Conclusions and documentation.** The last phase entailed writing the report. The results were documented and finally a discussion with focus on theoretical implications was made and conclusions of the study were drawn. Below is a visualization of the work process of the project, see *Figure 2*.



Figure 2 – The work process of the study, divided into three phases. Source: Authors.

#### 2.2. Research design

This study aims to explore the characteristics of dissolving post-divestment exchange relationships and identify and explain the consequences of these dissolving relationships. The study regards one case of dissolution of one relationship following a divestment with focus on one of the parties. Studying VCC and Ford's relationship following the acquisition of VCC by Geely in 2010 will provide an instance of where potential effects can be investigated.

The research questions were formulated after the literature screening and during the literature review, as explained previously, in accordance with Bryman and Bell's (2011, p82) criteria for research questions. Thus they are designed to be clear, researchable, interlinked and relate to relevant theory. Investigating the research questions is a complex task that needs to be broken up and approached in a structured manner. The investigation is both practice and theory oriented in that an understanding of the situation needs to be gained before theories and models can be used to explain the consequences of the situation. To understand the situation regarding the relationship between VCC and Ford, some delimitations first need to be established. The situation is delimited to a single event being observed, the dissolution of the relationship between VCC and Ford following the divestment. Observation is delimited in that the investigation is focused on VCC, which is suitable since the effects of a divestment on the divested party are of particular interest. The goal is to understand and describe the complexity and particular nature of this situation and under these conditions a case study research design is the most suitable (Bryman & Bell, 2011, p59).

The case study is a widely used design in business research and emphasizes the examination of a bounded situation (Bryman & Bell, 2011, p59). This particular case of the relationship dissolution between VCC and Ford provides the opportunity to observe and analyze an event that is fairly common but does not occur to every organization. The opportunity to approach and investigate this event from within VCC presented itself to the authors while conducting a four-month project at VCC. This provided a type of access seldom readily available to researchers, due to the sensitivity and strategic importance of information regarding these types of events. This is explained by Tidström & Åhman (2006, p281) who state that "managers are usually more interested in telling success stories than talking about more

potentially problematic issues such as a business relationship ending", which makes accessibility to empirical data concerning it problematic.

To understand the situation regarding the relationship between VCC and Ford, an understanding of how the relationship is formalized had to be gained, which was done through an assessment of VCC's internal documents. In addition, employees' and management's understanding and view of the current and future status of the relationship also had to be understood. These prerequisites demand an in-depth, exploratory and inductive approach in order to create a thorough description of the relationship to analyze in later stages. The generation of theory and emphasis on individuals' interpretation of their social world is the preoccupation of qualitative research, which promotes the importance of words and the idea of social reality as a constantly shifting property of individuals' creation (Bryman & Bell, 2011, p386). The view of the relationship between theory and research in qualitative research is an inductive one, meaning that research generates theory. The qualitative research methods used to help form the description of the relationship were the study of documents, interviews, and technology mapping. These will be described further in section 2.4.2 Data collection. VCC's technology was mapped in order to establish to what degree VCC depends on Ford's technology and this process is described in-depth in section 2.4.1 Technology mapping.

The data collected with these methods was then analyzed by applying theories and models from the M&A, exchange relationship dissolution and transaction cost economics literature, presented in section *3. Theoretical framework*, in order to establish how the end of the relationship with Ford will affect VCC. The analysis resulted in the identification of a number of risk and opportunity areas that are discussed. The outcome of the case study provides suggestions for how to handle the risks and opportunities as well as recommendations for VCC on how to proceed.

#### **2.3.** Phase one – orientation

The aim of the orientation was to gain an overview of the situation, in regards of which literature to use and what technical areas that needed to be grasped and understood. Therefore a literature screening was first conducted, in parallel with familiarization of terminology and technology at VCC.

#### 2.3.1. Familiarization of the situation

There was a threshold regarding technical understanding and terminology used at the focal company in the beginning, after the project had been initiated. In this case it was especially prominent, because of the technical complexity that characterizes the automotive industry. Therefore there was a need to cooperate with staff and build an understanding of work processes and technology. Bryman and Bell (2011, p414) explain this situation in terms of gaps between researchers and employees, considering company specific information such as

history, key events and jargon. To address this, much time was spent attending meetings and observing and having two tutors supporting the process. This then provided the basis for the technology mapping, explained more in depth in *2.4.2. Technology mapping*.

#### 2.3.2. Literature screening and review

The literature screening, or narrative review as described by Bryman and Bell (2011, p101), has a broader scope than systematic reviews, which are more focused. Hence, the literature screening was wide-ranging and explorative and involved searching for literature in fields possibly relating to the case study of the relationship between VCC and Ford. Consequently, the areas that were first considered were M&A, transaction cost economics, exchange relationship dissolution, intellectual property, and contract management. Out of these, M&A, transaction cost economics and exchange relationship dissolution were deemed most relevant for the study, due to the fact that contracts and ownership regulations already had been established and the dissolution process remained to be explored. Hence, these areas were selected for the succeeding deeper literature review.

The literature review was primarily done through searching online databases. Online databases make a vast amount of literature easily accessible and are vital for finding literature (Bryman & Bell, 2011, p104). Such databases used for the search for literature included for instance Web of Science, Emerald and Proquest and were accessed through using the library of Chalmers University of Technology. Keywords and phrases that were used included mainly 'mergers and acquisitions', 'divestments', 'transaction cost economics', 'buyer-supplier relationship dissolution' and 'exchange relationship dissolution' and variations thereof. Searches for 'dissolution' were for instance also made by using the words 'ending', 'exit', 'termination' and 'fading' interchangeably. The relevant outcome of the literature review was then synthesized and put together into the theoretical framework of the thesis, presented in section *3. Theoretical framework*.

The literature that was acquired was primarily in the form of peer reviewed academic articles from recognized journals, to ensure drawing on reliable research. To some extent, also widely cited books from well-known researchers were used, which were considered as trustworthy sources of information.

The bibliography in the end of articles is a useful tool for finding additional, often related material (Bryman & Bell, 2011, p103). Relevant articles were identified and then accordingly their bibliographies were backtracked to find further research within the same fields. This proved very useful and helped to enhance the depth of the literature review.

#### 2.4. Phase two – investigation

The collection of data included different methods and sources in line with the qualitative approach in relation to the chosen research design. The activities include study of documents,

interviews, and technology mapping, which are described below. These are all based on primary sources of data.

#### 2.4.1. Data collection

Contracts and agreements, henceforth referred to as 'the contract', between the actors in the relationship were explained by contacts within VCC in order to establish current and post-contractual conditions. This information was acquired through meetings with staff knowledgeable within the field. When no new available information could be gathered in further meetings, all information necessary was deemed to be acquired.

Semi-structured interviews were used to be able to receive the interviewee's perspective on the situation, in accordance with the qualitative nature of the case study (Bryman & Bell, 2011, p466). This is also because the aim is to obtain rich and detailed answers, which is easier if the questions are open rather than closed.

Bryman and Bell (2011, p475) present a process for interviews that was followed prior to and during the interviews, in order to assure that the interviews were performed in a professional and controlled manner. The main interview guide was accordingly constructed through decomposition of the research questions of the study, in combination with using theory from the literature review to provide areas to cover with the interview questions. When the interview guide had been developed, including questions and prompts, it was pre-tested on the supervisor at VCC. This is commonly done to ensure the functionality of the research instrument (Bryman & Bell, 2011, p262), i.e. to ensure that the questions were interpreted as intended and of relevance to the respondents, but also to see if additional areas of interest would emerge that should be added to the interview guide. Because the interviewees hade somewhat different roles and responsibilities, the main interview guide was slightly altered in order to address the interviewees correctly. However, the main themes and areas to cover remained the same. An example of the interview guide used for interviews with senior managers with strategy focus is presented in the Appendix, in *7.1. Interview guide*.

The interviews were conducted with personnel at VCC within different departments, to be able to attain the various views of people with different roles and responsibilities. The sample constituted 15 persons that were interviewed and for this a non-probabilistic sampling method was used, in order to interview people relating to the research area. Hence the common denominator was that all interviewees were involved in the cooperation, and thus the relationship, with Ford. Snowball sampling was also used when the first contact was made with the interviewees. It provides the opportunity to get in contact with relevant others, as it enables the interviewees to propose other possible interviewees to be suitable for answering the questions for the interview (Bryman & Bell, 2011, p192).

All interviews but one were conducted in person and one via telephone. Both researchers participated in all the interviews, where one led the interviews, asking questions and probing, while the other one took notes and also had the chance to ask clarifying questions when needed. All interviews were recorded, with the permission from the interviewees, and this

made the management of the interview data more efficient and reliable because of the possibility to go back and listen to the interviews whenever necessary. When referring to the interviewees later in the case study, the numbers following the statements represent the interviewees as presented below in *Table 1*.

#	Department	Responsibility	Date	Approx. time
1	Chassis	Change management	2014-04-24	30 min
2	Powertrain Engineering	Coordination	2014-04-24	30 min
3	Powertrain Engineering	Change management	2014-04-15	30 min
4	Powertrain Engineering	Verification	2014-04-23	30 min
5	Powertrain Engineering	Verification	2014-04-16	40 min
6	Powertrain Engineering	Project manager	2014-04-16	80 min
7	Powertrain Engineering	Quality	2014-04-17	40 min
8	Product Development	Liaison	2014-04-29	40 min
9	Product Development	Change order coordinator	2014-04-15	30 min
10	Product Development	Change order coordinator	2014-04-22	40 min
11	Product Development	Change order coordinator	2014-04-22	30 min
12	Purchasing	Powertrain	2014-05-13	40 min
13	Strategy and Vehicle concepts	R&D Liaison	2014-04-23	30 min
14	Strategy and Vehicle concepts	Business analyst	2014-04-25	50 min
15	Volvo Cars Customer Service	Purchase planning	2014-04-25	20 min

Table 1 – Overview of the interviewees that were part of the data collection. Source: Authors.

The majority of the interviewees were senior members of the R&D department, in Powertrain engineering, Product development, Strategy and vehicle concepts, and Chassis. One interviewee was from Volvo cars customer service (VCCS) and one represented the Purchasing department. The interviews ranged from 30 minutes to 80 minutes and lasted for approximately 40 minutes on average.

#### 2.4.2. Technology mapping

In order to assess the technical dependencies having developed between VCC and Ford during the relationship period between 1999 and 2010, technical data needed to be gathered, structured and presented and this was done through a technology mapping process. This information was not possible to acquire through for instance interviews and for the mapping process the qualitative data from interviews and documents instead served as support, which assisted the interpretation of the results and to draw conclusions. VCC internal documents and databases, in addition to contractual conditions as explained by VCC staff, served as means to clarify ownership issues and obligations of VCC and Ford, in relation to the technical aspects of the relationship.

The technical data, in the form of components not owned by VCC, was clustered and mapped through a secondary data analysis. The components were mapped along different parameters, e.g. production and service needs, to create categories in order to weight them according to criticality and determine the technical effects of the dissolution on VCC, in terms of access to parts in production and service parts as well as issues of post-contractual communication and change management.

The mapping was conducted on lists of components in the form of delivery units and their sub-parts on a platform-by-platform basis. A delivery unit is the part acquired from a supplier and can include a varying number of sub-parts. Throughout this report delivery units and subparts are both referred to as components. The platforms that were mapped included shared platforms used by VCC, as well as the VCC-developed SPA platform, see section 4.3.3. Technical dependencies for further explanation. The lists were acquired from VCC's IT system by coordinators specialized in different car technology areas and contained a huge amount of components. The lists included data on the description of the component, any underlying components, what platform it was used in, in what car model or other part it was used in connection with, as well as for what period of time it was going to be used. In total the amount of data points numbered in the millions. Out of these components, it was of interest to identify those delivery units that were not owned by VCC, or had any connection with Ford by having sub-parts that were not owned by VCC, since these were the ones potentially being impacted by the relationship dissolution with Ford. In particular, those delivery units with any Ford connection that were going to be used after the end of the relationship dissolution needed to be investigated since these potentially risked to interrupt VCC's production if any problems were to be caused by changes made to these components by Ford.

Which components that would be in use in production and/or as spare parts was established by complementing the lists with information from VCC's life cycle plan, i.e. data on end of production for the platform, car model or engine to which components were related. The coordinators also reviewed the components for which they were individually responsible to ensure that the lists only contained components that remained in use. In cooperation with the purchasing and aftermarket departments the need and usage of individual components were then established, based on consumption in production and for spare parts as well as purchasing history. This was done in order to help determine the level of criticality for individual components. In addition, asset specificity, the level of standardization of components and corresponding tools, was assessed. If not standardized, an investigation at VCC was initiated to determine if the component needed to be replaced by a new or existing component.

#### 2.4.3. Data analysis

The analysis of the empirical data was conducted and influenced by the grounded theory approach, described by Strauss and Corbin (1998, p12) as a method where "data collection, analysis and eventual theory stand in close relationship to one another" (Bryman & Bell, 2011, p576). Hence, the theoretical framework was developed from exchange relationship dissolution literature and in combination with transaction cost economics theory it was applied to the empirical data, in order to develop a framework for exchange relationship dissolution where emphasis is put on the effects that this process has on the divested party.

#### 2.5. Phase three – conclusions and documentation

In phase three, the results of the study were compiled and reported and a discussion was made considering theoretical and managerial implications of the thesis. Conclusions were drawn and the report was formed.

### 2.6. Assessment of research quality

Bryman and Bell (2011, p395) denote that there is a difference in relation to quality criteria between quantitative and qualitative research. An example of this is measurement validity in quantitative research, which is more concerned about measurements and absolute terms whereas qualitative research puts more emphasis on interpretation and a qualitative assessment of the collected data. However, the trustworthiness of the study is still very important to consider and this can be done by examining credibility, transferability, dependability and confirmability (Bryman & Bell, 2011, p395).

Credibility is linked to internal validity and is referring to the degree to which the researchers' interpretation of the social reality in the research is acceptable to others (Bryman & Bell, 2011, p396). This was considered partly by learning the corporate language and terminology used at the focal company and thus ensuring that the interviewees were understood correctly, but also by using the tutors to confirm that the understanding of the social world was correct. This is what Bryman and Bell (2011, p396) refers to as respondent or member validation.

Transferability is in qualitative research the counterpart to external validity (Bryman & Bell, 2011, p395). Because of the depth in qualitative research, the social context that is studied commonly has a degree of uniqueness to it. The question then is whether the results from the

study can be applied or transferred to other social contexts (Bryman & Bell, 2011, p398). Thus, a way to consider this is to provide what is called a thick description, of the case study in this instance, which is an exhaustive explanation and account of the social context. This has been done in the case study and by being transparent and detailed others are able to assess the degree of transferability to other settings.

Regarding the choice of case study as research design, the main strength of a case study is particularization rather than generalization (Bryman & Bell, 2011, p61). Therefore the analysis should focus on the uniqueness of the case and the goal of the analysis should be to develop deep understanding of its complexity. However, while case study generalizability is low and it is difficult to apply the research in other firms or settings, the method and models used to analyze the case can be applied elsewhere. By applying the method and models in other similar situations of dissolving exchange relationships a certain degree of generalizability can be achieved from the case. For the case study to be able to provide the basis for generalizability the situation must be studied and described in-depth in order to understand its nature and complexity. Qualitative research, with its focus on in-depth understanding in small samples, is suitable for facilitating this type of studies (Bryman & Bell, 2011, p61).

Dependability is tightly linked to the reliability of the study and considers the way the research has been carried out and that it has been done in accordance with proper practices (Bryman & Bell, 2011, p398), so that the results of the study would be similar if other researchers were to conduct the study. Ideally, all records relating to method choices in the study should be saved to be able to retrieve them easily. In this study all these parts are presented in this chapter, which aims to make the method process and choices as clear as possible.

Confirmability relates to the objectivity of the study and is important because of the possibility of personal influences from the researchers in the study (Bryman & Bell, 2011, p398). In qualitative research it is argued to be impossible to reach complete objectivity, but it should be strived for or the findings may be deemed biased. The data collection, analysis and conclusions of the research are the parts where extra care has been taken in order to mitigate subjectivity. Both the researchers attended all the interviews and read all the empirical material in order to secure that the data was interpreted and treated correctly. Regarding the interviewees there is always a possibility for subjectivity and this may have effects in a few instances. As the qualitative approach with semi-structured interviewes entails the views from the different interviewees this is something that is considered difficult to avoid. However, by distinguishing what are facts and what are speculations from the interviewees to internal databases and documents.

Triangulation is commonly recommended to improve research quality. It refers to the use of multiple methods or sources of data in a study (Bryman & Bell, 2011, p397). In this study, two different theoretical perspectives were used for the theoretical framework; exchange relationship dissolution and transaction cost economics, which formed the basis for the

investigation primarily of research question one and two. Then the analysis of the empirical data resulted in answers in the form of recommendations and conclusions for research question three. In addition, different research methods for collecting empirical data were used, as previously described, to reduce the uncertainty of the data. This also resulted in the use of different data sources; interviewees, internal documents, and internal databases, for each research question, which aimed to make the results more reliable.

## **3. Theoretical framework**

This section provides a framework to be used as a theoretical foundation for the forthcoming case study. First, general concepts of business relationships are defined. Theoretical models and frameworks from exchange relationship dissolution literature are then brought forward and synthesized, followed by characteristics of business relationships and reasons and influencing factors for relationship dissolution. Successively, this then results in the development of the conceptual model of the thesis, which is presented and explained in 3.1.5. *Conceptual mode for exchange relationship dissolution*.

In the second part of the section, transaction cost economics theory is defined and explained on a general level and put into a larger context, before going deeper and highlighting core concepts and key implications of the theory that are useful for its application in the context of this thesis.

### 3.1. Exchange relationship dissolution

In the field of business relationships there is a significant variation in terminology that different researchers choose to use when studying relationships (Tähtinen & Halinen, 2002). First, there is a difference in which types of relationships researchers study. Some focus on more general areas, e.g. personal relationships and business relationships, while others choose to study more specific forms of relationships, e.g. exchange relationships, buyer-supplier relationships. Secondly, there is a mix of terminology when describing the ending of relationships. Tähtinen and Halinen (2002) discuss in their research this range of terminology and some of the words that are frequently used include dissolution, termination, ending, exit, divorce and fading. Some of these are broader, e.g. ending and exit, while others are more specific, e.g. dissolution, termination, divorce and fading (Tidström & Åhman, 2006).

The concepts that will be used in this paper are exchange relationship and dissolution. Exchange relationship is more specific than business relationship but less so than buyer-seller relationship and may include transfer of both tangibles and intangibles, e.g. physical products, knowledge and services (Dwyer, Schurr, & Oh, 1987). Dissolution is more specific than fading, but not as definitive and strong as termination or ending, which implies no further contact between parties in a relationship.

To get an understanding of the dissolution of exchange relationships, the fundamentals of business relationships must first be defined and comprehended. This is because these fundamentals provide the foundation on which relationships rely and thus affect the outcome of when two actors go separate ways.

#### 3.1.1. Characteristics of business relationships

When studying intercompany interaction, the concepts of mutual orientation, commitment and interdependence arise when taking the relationship perspective (Håkansson & Snehota, 1995, p25). Interdependence can be both positive and negative for the parties in the relationship and develops over time, by interactions between the parties. Håkansson and Snehota (1995, p26) describe that these interactions can be broken down into three substantive dimensions, which are activity links, resource ties, and actor bonds, see *Figure 3*. As Tähtinen and Halinen-Kaila (1997, p8) denote, these dimensions "build up a relational infrastructure including personal relationships, technological bonds, interfirm knowledge, contracts, norms, and interfirm roles". The more connections these dimensions involve, the more complex the relationship and thus more difficult to grasp (Håkansson & Snehota, 1995, p26). They need to be assessed in order to investigate, predict or describe the characteristics of a business relationship (Håkansson and Snehota, 1995, p27) and thus are also critical to consider when assessing an eventual dissolution.



Figure 3 – The substance of exchange relationships. Source: Håkansson & Snehota (1995).

Activity links. These links between companies in a relationship include activities such as technical, administrative and commercial and typically increase as the relationship develops (Håkansson & Snehota, 1995, p26). An important note on this dimension is that even though it is exists in all business relationships, "its importance can vary both with the ambitions that the two companies have in the relationship and with the complexity of their own activity structures" (Håkansson & Snehota, 1995, p28). These structures usually need to change in order to fit the new ways of carrying out activities together (Håkansson & Snehota, 1995, p28) and this consequently has effects on the activities if the relationship was to dissolve. When assessing the dimension of activity links the most important factors to consider are the type and strength of the links.

Actor bonds. When two parties become involved in a business relationship, actors of the different parties connect and form bonds (Håkansson & Snehota, 1995, p26). This follows

naturally from the mutual commitment that emerges when the formation of the relationship takes place and the parties show interest for one another (Håkansson & Snehota, 1995, p28). Actor bonds take the form of commitments and thus include specific norms of how to behave in a relationship. They are best considered by assessing their nature and strength.

**Resource ties.** These ties function as connections between companies in a relationship and thus link resources such as technological, material and knowledge of the parties together (Håkansson & Snehota, 1995, p26). This is common for business relationships and apart from linkages in the form of exchange of resources there is also the possibility for combining and forming new resources from previously separate ones (Håkansson & Snehota, 1995, p28). As with activity links, this also tends to increase as the relationship develops and thus has consequences on complexity.

The three dimensions described above are not independent, but affect each other in different ways (Håkansson & Snehota, 1995, p35). For instance, activities require resources in order to function and are thus limited by the resources available for the parties. In turn, activities and resources demand actor bonds to be able to be performed and exchanged. This is referred to as 'interplay' between the dimensions (Håkansson & Snehota, 1995, p35).

Apart from these three dimensions, some degree of continuity also has to exist between the parties in a relationship, which take the form of relational bonds; attraction, trust and commitment (Tähtinen & Halinen-Kaila, 1997). This is because of the need to also consider temporal aspects and thus how the relationship develops over time, which is done in 3.1.3. *The relationship and factors influencing its dissolution.* 

### **3.1.2.** Categories of exchange relationship dissolution factors and events

Advancing to relationship dissolution, three broad categories have been highlighted, in which specific factors and reasons for relationship dissolution can be placed. These are predisposing factors, attenuating factors and events, and precipitating events (Halinen & Tähtinen, 2002), see *Table 2*. These factors and events are considered to affect the decisions of managers during the dissolution process (Tähtinen & Halinen, 2002). Predisposing factors and precipitating events have a direct positive relation to relationship ending, while attenuating factors and events have an indirect and mediating role between the two.

Categories	Notion
Predisposing factors	Factors existing prior to the formation of the relationship
Precipitating events	Events triggering the decision to dissolve the relationship

Categories influencing	relationship dissolution.	Source: Halinen &	Tähtinen (2002).
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**Predisposing factors.** This category includes factors that exist prior to the formation of a relationship, for the involved actors, and may have positive or negative effects on the relationship (Halinen & Tähtinen, 2002). Included factors are commonly underlying in their nature and static, pertaining to tasks or actors, which the relationship involves, and dyads or networks, in which the relationship exists. An example of an actor-related predisposing factor is poor company performance for one of the actors in a relationship, which typically exists before the relationship is formed and has a negative effect on the relationship between the actors (Halinen & Tähtinen, 2002).

**Precipitating events.** This group includes events that may trigger decisions to bring the relationship between actors to an end (Halinen & Tähtinen, 2002). Thus they have a changing effect on the relationship and commonly with the result of speeding up relationship dissolution (Tidström & Åhman, 2006). This concept is also described as a trigger event for relationship dissolution and the dissolution decision typically is a consequence of "the interaction between the trigger event and the current state of the relationship" (Giller & Matear, 2001, p.94). An example of a precipitating event is change in ownership of a company in a relationship, which consequently may bring about the decision to eventually dissolve the relationship (Tähtinen & Halinen, 2002).

Attenuating factors and events. This category plays a moderating role (Tidström & Åhman, 2006) and commonly weakens the effects of the predisposing factors and precipitating events (Halinen & Tähtinen, 2002). Personal relationships, trust and commitment are examples of factors that normally fall under this category, i.e. exit costs, or barriers to exit, in the relationship (Tähtinen & Halinen, 2002). Similarly, attenuating events are incidents that increase exit barriers, which may prolong the relationship. Hence these factors and events make it more difficult to separate for the parties in a relationship and hinder the dissolution.

#### 3.1.3. The relationship and factors influencing its dissolution

In regards to the dissolution of an exchange relationship, there are generally two ways to approach the process for each of the involved parties; the preferred way and the appropriate way (Tähtinen, Blois & Mittilä, 2007). The difference between the two lies in the amount of rationality and how much the interests of the other party are taken into consideration when deciding the terms of the dissolution. The preferred way is for one party the rational approach, typically economically based, which speaks in favor of the interests of the party in question (Tähtinen *et al.*, 2007). On the other end of the scale is the appropriate way, which also takes the other party's interests into account and thereby look at the situation with a longer-term perspective. The interests of the parties may be more or less aligned and depending on this the appropriate and preferred way may be more or less similar correspondingly.

When assessing a relationship dissolution situation, the involved parties must see to their own best, but also consider to which degree others' interests should be accounted for *(Tähtinen et al.*, 2007). This consideration is depending on what the relationship between the parties look like and Tähtinen *et al.* (2007) identified in their research factors that can be used to assess this, see *Table 3*. These factors are used to gain a comprehensive picture of what characterizes exchange relationships and are argued to have an effect on for instance the speed, cost, complexity and structure of the dissolution process (Halinen & Tähtinen, 2002).

Five factors	Degree	Result
Interdependency between	High	Complicated and slow end
actors	Low	Simple and quick end
Power balance between	Balanced or equal	Beautiful dissolution
actors	Unbalanced or skewed	Unsatisfactory dissolution
Structure of relationship	One actor	Simple and quick end
-	Multiple actors	Complicated and slow end
Formality of relationship	Formal	By-the-book end
	Informal	Flexible yet stressing
Continuity of relationship	Continuous	Chosen, forced or natural end
	Terminal	Desired end (unless chosen or forced)
	Episodic	Predetermined end

	Table 3 – Five factors influencir	g relationship	dissolution.	Source:	Tähtinen	et al.	(2007).
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**Interdependency between actors.** This concept refers to when the actors in a relationship are mutually dependent on each other (Tähtinen *et al.*, 2007). It is thus a situation where power is involved and the actors' actions have consequences for each other's outcomes. For instance, where high interdependence between actors in an exchange relationship has been reached, the actors have come to be difficult to replace without risking hurting themselves. Subsequently, if there is high interdependence between the actors in a relationship, the dissolution process is deemed to be complex and take time to finalize and vice versa.

**Power balance between actors.** The dependency situation described above may however not be in balance and one actor is typically the more powerful one in the relationship (Tähtinen *et al.*, 2007). It can also be described as relative dependence (Hocutt, 1998). Power in this case can be for instance one actor's control of proprietary rights of vital products. The other actor then has less power in that case and is in turn more dependent, which gives rise to power asymmetry in the relationship. This usually comes with the result of an unsatisfactory

dissolution, where one or both the parties suffer damages. In contrast, when both parties are satisfied with the dissolution and minimal damages occur, a 'beautiful exit' is the result (Alajoutsijärvi, Möller, & Tähtinen, 2000).

**Structure of relationship.** This factor considers mainly the number of actors involved in the relationship by either party (Tähtinen *et al.*, 2007) and thus have an effect on actor bonds between the parties. Tähtinen *et al.* (2007) argues that fewer involved actors lead to a more nimble and fast dissolution process and vice versa. Interconnectedness in the form of technological ties is mentioned as having a reducing effect on the number of parties involved, hence this also needs to be taken into consideration to not risk missing a potentially large part of the equation.

**Formality of relationship.** This considers the degree of formality that exists between the parties in a relationship prior to, or in relation to, the dissolution. Typically this takes the form of a contract that is established to control the dissolution process (Tähtinen *et al.*, 2007). Where these contracts are present, the dissolution process is argued to be governed and completed 'by the book', whereas it is considered to be more open and flexible in absence of such contracts.

**Continuity of relationships.** There are mainly three different relationship types, which are depending on what expectations, goals, time frames, and types of endings that characterize the relationship between actors (Halinen & Tähtinen, 2002). These are continuous, terminal and episodic relationships, as illustrated in *Table 3*. A relationship can be dynamic in the way it changes over time and can for instance begin as episodic and over time transform into a continuous relationship. This is depending on which perceptions of the relationship the actors have and they may not be the same (Halinen & Tähtinen, 2002).

In continuous relationships, the parties are in a relationship with each other on an undecided time frame and are typically not expecting the relationship to cease (Halinen & Tähtinen, 2002). There are generally three ending characteristics of these relationships; chosen, forced or natural. Chosen ending is the scenario where either one or both the parties deliberately chose to end or dissolve the relationship. In contrast, forced ending is when one or both of the parties have no choice but to end the relationship, for instance if an external event makes the relationship futile (Halinen & Tähtinen, 2002). The third scenario is a natural ending where natural causes make the relationship adverse for the parties, for instance when there is no longer any need for exchanges from either party.

The terminal type of relationship is existing between parties even though there is a lack of motivation to uphold the relationship (Halinen & Tähtinen, 2002). In this scenario, the parties commonly desire to end the relationship, but are unable to do so because the circumstances hinder them. This scenario is thus characterized by desired ending.

The episodic type of relationship is based on a certain time frame or goal to be fulfilled and is then planned to end (Halinen & Tähtinen, 2002). Its ending is thus characterized to be predetermined, unless it is chosen or forced to end prior to the ending criteria by one or both of the involved parties. An episodic relationship is typically associated with a project-based way of working and especially regarding services.

#### 3.1.4. Stages of the dissolution process

Halinen & Tähtinen (2002) present the relationship dissolution process in seven stages, i.e. the assessment stage, decision making stage, dyadic communication stage, disengagement stage, aftermath stage, restoration of relationship stage and network communication stage. However, the first three of these are not considered as part of the actual dissolution, as this study focuses on the post-divestment relationship between the actors in a relationship. The same reasoning applies to the relationship restoration stage and instead the possibility continuously exists for the parties to jointly decide to restore the relationship and thus abort the relationship dissolution process. Further, as the relationship focus in this thesis is dyadic, the network communication stage is also deemed redundant in this case and remaining are the disengagement stage and the aftermath stage. Tähtinen (2002) made some additions to this framework, especially in the form of an enabling stage preceding the disengagement stage, which aims at making the transition toward disengagement more fluent and smooth. This is added to the dissolution process and the stages are presented and summarized in *Table 3* below.

Stages of the relationship dissolution process	Purpose
Enabling stage	Decrease exit barriers
Disengagement stage	Manage dissolution process
Aftermath stage	Finalize the dissolution

 Table 4 – Stages of the relationship dissolution. Source: Authors.

**The enabling stage.** In this stage the goal is to decrease the exit barriers in order to prepare for the disengagement stage and make the relationship dissolution possible (Tähtinen, 2002). During this stage, efforts are made to mitigate the attenuating factors, which also make the dissolution process more likely to succeed.

**The disengagement stage.** The parties within the exchange relationship enter this stage when a decision to dissolve the relationship has been made (Halinen & Tähtinen, 2002). The beginning of this stage is characterized by decreasing business exchanges and thus also a tendency of weakening resource ties. There is typically an increased demand for interaction, in order to manage the process of negotiating, e.g. contracts and agreements and proprietary rights. This may be a complex process and "require a great deal of time and considerable adaptations on the part of both parties" (Halinen & Tähtinen, 2002, p174), depending on the level of integration between the parties. For instance, bonds in the form of financial, legal,

technical and administrative nature are difficult to break and make the situation more complex (Giller & Matear, 2001).

The aftermath stage. In this stage the dissolution process is finalizing, in terms of ceasing business activities and broken resource ties and actor bonds (Halinen & Tähtinen, 2002). However, as Giller and Matear (2001) highlight, relationship dissolution may eventuate to different degrees and does not have to be absolute. There is always room for the parties to jointly decide to continue with or reinstate the relationship, maybe in another more limited way, which makes way for the next stage. Even if the parties have made the decision to dissolve the relationship, there is still a chance for an eventual restoration (Halinen & Tähtinen, 2002). This can happen during the dissolution process and thus the dissolution process may be terminated or postponed.

#### 3.1.5. Conceptual model for exchange relationship dissolution

Previous frameworks and models have been developed mostly from a process or stage based perspective, which provides the opportunity to describe the dissolution process from a time perspective. This is supported by Tähtinen and Halinen-Kaila (1997), who state that the dissolution or ending of a relationship ultimately depends on time, with the definition of "if, at a certain point in time, a relationship can be considered to have ended and the parties have no mutual expectations of its future reactivation, the relationship is dissolved" (Tähtinen & Halinen-Kaila, 1997, p9).

Below in *Figure 4* the conceptual model is presented, which is a combination of the different models and frameworks mentioned previously. It aims to project a more complete image of what characterizes an exchange relationship, dimensions of dissolution effects, and phases of the dissolution process.



Figure 4 – Conceptual model of the relationship dissolution process. Source: Authors.

In the model, the level of integration between the actors in a relationship is constituted by the fundamental elements of business relationships; activity links, actor bonds, and resource ties, as described by Håkansson and Snehota (1995). These are categorized as attenuating factors, in line with the research by Halinen and Tähtinen (2002), and serve as the exit barriers that hinder the relationship to dissolve (Tähtinen, 2002).

The timeline gives an indication of the elapsed time during and between the different stages of the dissolution process. It is not absolute and may vary depending on for instance the level of integration between the actors and hence the complexity of the relationship. This also applies for the different stages in the model, which relations are not fixed but an example of what it may look like.

Previous stages and predisposing factors comprise all stages prior to the dissolution decision and features of the actors entering the relationship, building on the research by Halinen and Tähtinen (2002). These are not considered to be part of the actual dissolution process, but serve as means to see what has happened leading up to the decision for dissolving a relationship. Thus they set the conditions and boundaries that exist when the decision is made, from one or both the actors, and the dissolution process starts. This is covered by the factors presented by Tähtinen *et al.* (2007), i.e. interdependency between actors, power balance between actors, structure of relationship, formality of relationship, and continuity of relationship. By identifying and examining these factors for actors in a relationship, an understanding can be gained of what the dissolution process might look like and hence which consequences that may arise for the actors, depending on which positions they are in. The precipitating event triggers the decision to dissolve the relationship and is illustrated in the figure to be the separating incident between previous stages and the enabling stage. Examples of such events are ownership changes of a company or a company ceasing its business in the relationship (Tähtinen & Halinen, 2002).

In the enabling stage, the aim is to plan and prepare for the forthcoming decrease of attenuating factors, i.e. activity links, actors bonds, and resource ties. This involves actions to make the relationship dissolution process possible, without risking to suffer sizeable losses or disturbances in important company processes (Tähtinen, 2002). An example of such a precluding action is to secure a replacement for the other actor in the relationship by developing a relationship with a new partner.

In the disengagement stage, the attenuating factors should decrease, as a natural result of declining business exchanges between the actors in the relationship (Tähtinen, 2002), following the planning and preparations in the enabling stage. The substance and thus the very reason for the relationship to exist, in terms of joint activities and planning between the actors, diminish. This process can vary greatly in time and resources spent, depending on the nature of the relationship (Halinen & Tähtinen, 2002). The level of integration may be high between the actors and then the disengagement is typically complex and requires a thorough process with sufficient time and resources. Attenuating events may occur in this stage, leading to an increase in the activity links, actor bonds or resource ties and thus may result in the need for prolonging the relationship between the actors.

The aftermath stage aims to finalize the dissolution process and thus make the actors in the relationship go separate ways (Halinen & Tähtinen, 2002). Depending on the interests and negotiations between the actors and how the dissolution process unfolds, the relationship may in this stage either dissolve completely or still remain to some degree (Giller & Matear, 2001). There is constantly room for renegotiations and if a restoring decision should be made between the actors, the relationship may be upheld and the dissolution process aborted. This may happen at any time during the dissolution process and is hence not to be seen as fixed in the end of the process, as seen in the model.

### **3.2. Managing transaction costs in relationships**

In transaction cost economics the transaction is the basic unit of analysis (Williamson, 1985, p41). Transactions costs can be described as the equivalence of friction in physical systems (Williamson, 1985, p19) and any problem that can be posed as a contracting problem, directly or indirectly, is usefully investigated in terms of such costs (Williamson, 1985, p41). This qualifies and includes every exchange relation that is subject to such problems, making the potential and actual scope of transaction cost economics very broad (Williamson, 1985, p17). Complex systems and phenomena such as these are usefully studied from several points of view (Williamson, 1985, p43) and transaction cost economics should therefore often be used in addition to, and complement, other approaches (Williamson, 1985, p18).

Transaction cost economics is based on the assumption that economic transactions alone constitute the social life between individuals and firms and is essentially a reflection of neoclassical contract thinking (Paulin, Perrien & Ferguson, 1997). The emphasis of transaction cost economics is efficiency and utility maximization and the minimization of cost of interfirm coordination. By identifying the sources of transaction costs that make an exchange between the market and the firm too expensive or problematic the best mechanism of governing to maximize the exchange can be specified. In other words, transaction cost economics strives to ascertain what efficiency factors determine if a good or service is outsourced by a firm or produced within the organization (Williamson, 2010, p673).

Transaction cost economics rests on the assumptions that economic actors are boundedly rational and opportunistic (Krzeminska, 2008, p31). Furthermore, it is argued that the efficiency of an organization's arrangement to minimize transaction costs depends on three determinants of the underlying transaction: asset specificity, uncertainty, and frequency of transaction. These assumptions and determinants are explained more in-depth under sections 3.2.1. Assumptions in transaction cost economics and 3.2.2. Determinants of transaction costs. The type of governance of transaction can range from hierarchy to market exchange (Krzeminska, 2008, p31). If asset specificity, uncertainty, and frequency of transaction are high, hierarchy is considered to be the efficient organizational arrangement. It follows that if a transaction concerns assets with low or no asset specificity, with low uncertainty and low frequency market exchange is the more suitable arrangement. These are the two extremes. However, "an intermediate specific, but frequently repeated transaction shall be organized in a hybrid form such as a cooperation or strategic alliance to accomplish the transaction cost minimizing and hence most efficient organizational mode" (Krzeminska, 2008, p31). Parties engaged in such an endeavor, supported by investments in transaction-specific assets, are then effectively operating in a bilateral relation with each other (Williamson, 1985, p30). In that case, the economic value lies in increasing the shared understanding of desires, rights, and obligations between the parties, as well as harmonizing the contractual interface, in order to reduce uncertainty, reduce the risk of opportunism, increase adaptability and promote continuity.

#### **3.2.1.** Assumptions in transaction cost economics

Transaction cost economics relies on a few assumptions. These assumptions are postulations of human behavior and how people as economic actors are liable to act. *Table 5* below provides a brief summary of assumptions and to what notion they refer. These assumptions will then be expanded upon.

Assumption	Notion
Bounded rationality	Economic actors act as rationally as possible with limited information

Table 5 – Summary of assumptions of transaction cost economics. Source: Authors.

#### **Opportunism**

**Bounded rationality.** Transaction cost economics relies on a cognitive assumption called bounded rationality (Williamson, 1985, p45). This perspective in transaction cost economics assumes that economic actors act as rational as they can while limited by their cognitive competence, or as formulated in a popular definition; "economic actors are assumed to be "*intendedly* rational, but only limitedly so" (Simon, 1961, p. xxiv)." (Williamson, 1985, p45). In other words, economic actors are unable to anticipate and supervise all eventualities (Krzeminska, 2008, p32). Therefore contracts are unable to be complete since contingencies for all currently relevant and future potential eventualities cannot be incorporated (Krzeminska, 2008, p33). Bounded rationality establishes that people cannot and do not optimize and seeks to complement traditional neoclassical economy, that relies heavily on the idea of optimization, with this idea (Etzioni, 2010). The argument behind that people do not optimize is that when they are 'satisficed' they stop searching for better options. An example by Amitai Etzioni (2010, p377-378) illustrates the idea well:

"Faced with a long menu, after a long day's work, I stop searching once I find a dish I basically like. My wife, after an equally onerous day, will work quite a bit further down the menu, looking for the best the given restaurant has to offer. And my energetic daughter-in-law will go a step further, asking the waiter how various dishes are prepared, all in the quest for the best dish. I am at best a satisficer; my daughter-in-law is a classical optimizer."

The reason for a person to stop searching and elect for a sub-optimal choice is optimal once information costs are considered (Etzioni, 2010). This is because the costs from continuing the search are larger than the benefits, making satisficing the optimal choice. Neoclassical economics originally assumed information to be instantly accessed, absorbed and processed. Rational conclusions could then be drawn at no cost of searching or processing information, which allows for easy optimization. While optimizing is often clearly defined and easy to measure it is, however, not a descriptive concept of human behavior. Unbounded rational optimization is unfeasible since it is impossible for people to make optimal choices due to cognitive limitations. Optimizing under the constraints of bounded rationality would require assigning unknown information a value in order to decide to stop searching for additional information and would require having to know the unknown, a difficult feat to say the least. However, bounded rationality does not imply irrationality. On the contrary, people usually have reasons for what they do and a person acted rationally if he intended to do so, regardless of the result.

People are often far away from making optimal choices due to human cognitive and emotional architecture despite being goal oriented and adaptive. The reason behind this is that information cannot be processed in ways that come even close to what optimization presumes. However, it does not mean that there are no patterns to how people think. Take instead the approach of thinking in degrees of rationality determined by the access to relevant information pertaining to the particular decision. Most people then act on a low level of rationality most of the time and are closer to acting non-rational than to be optimizing. Since all economic actors cannot possess all information about the nature of other economic actors and their performance, ambiguity and information asymmetry problems arise (Krzeminska, 2008, p77). Exposed to these problems of bounded rationality economic actors need to consider the costs of planning, adapting and monitoring transactions (Williamson, 1985, p46). The question posed is how to utilize their limited competence to best advantage and organize accordingly (Williamson, 1985, p47). Based on bounded rationality, ability to adapt to changing circumstances in a flexible manner should be promoted in the face of the impossibility of determining all potential future contingencies (Krzeminska, 2008, p81).

**Opportunism.** The basis for all transaction cost economics arguments is the risk of opportunism (Krzeminska, 2008, p33). It is defined as "self-interest seeking with guile" (Williamson, 1985, p47) and refers to distorted or incomplete disclosure of information. In particular it refers to the propensity of economic actors to engage in subtle forms of deceit such as attempts to confuse, mislead, obfuscate, disguise or distort. However, opportunism is not limited only to subtle forms of deceit. It also includes actors' propensity to engage in more obvious untrustworthy behavior such as lying, stealing and cheating, though such activities are less frequently engaged in.

Opportunism is a troublesome source of behavioral uncertainty in economic transactions and arises from people not being completely honest or fully open with their intentions, in particular with respect to efforts to realize individual advantage (Williamson, 1985, p49). Opportunistic types of activities are responsible for conditions of information asymmetry and create problems for governance (Williamson, 1985, p47). It is expensive and troublesome to realize that your transaction partner has a tendency to act opportunistically after you have entered into an agreement with them (Krzeminska, 2008, p33). Therefore, it is beneficial if transactions that risk being subject to this type of opportunism have precautions and contingencies devised before entering into a partnership (Williamson, 1985, p48).

If not for the tendency of people to occasionally behave opportunistically there wouldn't be any significant transaction costs caused by behavioral uncertainty, and the need for implementing safeguards wouldn't exist to the same extent. However, people do have a tendency to act opportunistically on occasion if the benefits are significant enough. The problem is that the tendency of people to act opportunistically, and to what extent they are prone to do so, varies among the population and gives rise to uncertainty about the trustworthiness of potential partners.

There are those that maintain that opportunism is an unfair and unjust assumption about human behavior (Williamson, 1985, p64). However, opportunism does not imply that all economic actors are consistently opportunistic. But since a number of actors do have a penchant for acting in such a manner, there is the need to safeguard for such activities since the cost of screening every single potential partner is too costly. Not only that, but organizations that presume trustworthiness are easily taken advantage of by actors prone to opportunism. There is, in other terms, no room for idealism and those who wish to conduct transactions or be part of a cooperation at all must plan for the possibility of opportunistic behavior.

#### 3.2.2. Determinants of transaction costs

While the assumptions of transaction cost economics provide the basis for transaction cost issues, the determinants provide characteristics of transactions that depending on in which degree they occur will give rise to high or low transaction costs. *Table 6* briefly describes the determinants, after which they are thoroughly explained.

Determinant	Description
Asset specificity	The degree to which an asset or investment can be used in another application. Low redeployment cost corresponds to low asset specificity.
Uncertainty (behavioral)	The risk of an economic actor behaving opportunistically.
Frequency of transaction	How often a transaction is carried out.

Table 6 – Summary of determinants of transaction cost economics. Source: Authors.

Asset specificity. The main predictive variable of transaction cost is considered to be asset specificity (Krzeminska, 2008, p37). There are different types of asset specificity: physical asset specificity, human asset specificity and dedicated assets (Williamson, 1985, p55). Asset specificity refers to significant long-lasting investments supporting specific transactions, investments which alternative use value is much lower than for the particular transaction for which they were made. Specificity can be described as the opposite of level of standardization and is the extent to which a resource or asset can be used in another manner or application (Krzeminska, 2008, p37). An asset has high specificity if it cannot be redeployed without significant decrease in value. For example, a custom component that only has one area of application due to licensing or use restrictions but has some scrap value has high asset specificity. Asset specificity can also be interpreted as quasi-rent since with high asset specificity a form of monopoly-use and supplier dependency situation can arise.

Exchanges of transaction-specific assets are "neither faceless nor instantaneous" (Williamson, 1985, p56). Instead they are prone to be conducted under some form of cooperation and in support of these types of circumstances, organizational and contractual precautions are developed (Williamson, 2985, p55). This is in order to better ensure the continued access to asset specific assets. However, this type of arrangement gives rise to lock-in effects if transactions are supported by investments in transaction-specific assets (Williamson, 1985, p53). As a party in this type of situation it is then pertinent to be aware that you can risk being subjected to hold-up behavior (Krzeminska, 2008, p37).
While asset specificity only becomes important when combined with bounded rationality, opportunism and uncertainty it is difficult to exaggerate its importance to transaction cost economics (Williamson, 1985, p56). If not for asset specificity contracting would be significantly less difficult, but with it a plethora of different practices emerge. The difficulties pertaining to opportunism and rent appropriation in transaction cost economics are strongly influenced by the logic that specific assets are restricted in portability (Krzeminska, 2008, p38). The choice then stands between standardized general-purpose investments or asset specific special purpose investments (Williamson, 1985, p54). Generic investments are safer than more specialized ones since they do not entail the same risks due to not being subject to the same difficulties. Specialized investments are risky due to those assets not being able to be redeployed without loss of value. Therefore it has to be considered and evaluated if these strategic risks are justified by the potential cost savings afforded by investments in specific assets and what the tradeoffs are.

**Uncertainty.** There is uncertainty that arises from lack of knowledge about the state of the world, including regulatory and technological uncertainty (Krzeminska, 2008, p42). There is also uncertainty that arises from a lack of knowledge about the innocuous actions of other economic actors in general, such as suppliers, competitors, and customers. These are referred to as environmental uncertainty, are seen as innocent and non-strategic and have no origin in opportunism. However, there does exist uncertainty that is grounded in opportunistic behavior. It is referred to as behavioral uncertainty and is important in order to understand transaction cost economic issues (Williamson, 1985, p57). It involves and arises from strategic attempts to disguise, distort, or withhold information: active decisions to supply false and misleading information.

An increase in uncertainty regarding non-specific transactions is of limited consequence (Williamson, 1985, p59). New suppliers for standardized products can often readily be identified and new channels established. For non-specific transactions behavioral uncertainty is therefore less important. However, if assets in contrast have high asset specificity it is important that it is formalized how to handle issues within the relationship (Williamson, 1985, p60). It will become necessary to readily mitigate contractual gaps that will increase in scope, number and importance in time with increasing degree of uncertainty.

In transaction cost economics, behavioral uncertainty is central to all transaction cost arguments (Krzeminska, 2008, p43). It represents the risk for opportunistic actions and is the most important uncertainty type in transaction cost economics. Without behavioral uncertainty as the direct consequence of opportunism there would not be any transaction cost economics logic and explanations on specificity would be obsolete (Krzeminska, 2008, p44). Behavioral uncertainty is the result of the interaction between opportunism and bounded rationality (Krzeminska, 2008, p45). Take into the considerations of asset specificity and it is explained why assets are internalized. If assets are vertically integrated it becomes less costly and risky to adapt contracts, thereby reducing opportunism and consequently behavioral uncertainty (Krzeminska, 2008, p44).

**Frequency of transactions.** In transaction cost economics frequency of transactions represents the rate at which transactions have occurred in a particular period of time (Krzeminska, 2008, p54). It means that transactions have taken place repeatedly in the past, will take place in the future, or both. Because the costs of specialized governance structures, organized governance other than market governance, are easier to recover for large transactions that re-occur, frequent transactions are more efficiently organized inside a firm's hierarchy. However, observe that investments made to achieve economies of scale and scope to divide costs over repeated transactions entails path dependency. Therefore, it has to be considered if asset specificity is high enough to warrant specialized governance. Specialized governance is costly, and is only warranted if those costs can be justified (Williamson, 1985, p60). This justification varies depending on the benefits and degree of utilization of non-standard transactions. The benefits are then the greatest for specialized governance structures when there have been considerable investment in transaction-specific assets in order to support recurrent transactions.

#### 3.2.3. Governance and transaction costs

The type of governance is determined by the relation between the frequency of the transaction and the characteristics of the investments (Williamson, 1979). Or in other words, special needs of a transaction require the arrangement of highly specific governance structures. Williamson (1979) provides a framework for determining suitable governance arrangements based on frequency of transaction and asset specificity, which is shown in *Figure 5* below. Frequency can be regarded as one-time, occasional, or recurrent and investments' asset specificity is characterized as non-specific, mixed, or specific, or idiosyncratic as Williamson (1979) calls it. A one-time transaction does not incur any form of investment by either a provider or an acquirer and is therefore omitted from the framework.





As previously mentioned the investment characteristics and the frequency of transaction determine the suitable governance structure any uncertainties pertaining to a transaction. Consequently the efficiency of a governance structure depends on the asset specificity, uncertainty and frequency of transaction of the underlying transaction (Krzeminska, 2008, p31).

As shown in *Figure 5*, the types of organized governance span between "discrete market exchange and centralized hierarchical organization" (Williamson, 1985, p16). Non-specific transactions do not support specialized governance structure due to being highly specialized (Williamson, 1979). Specialized governance, i.e. bilateral and unified governance, structures are on the contrary only required by recurrent transactions of mixed or specific character.

There are four types of governance structures corresponding to three schools of contracting (Williamson, 1979). For non-specific transactions market exchange is the best form of governance as long as uncertainty is not high (Krzeminska, 2008, p31). Since transactions are standardized, alternative purchase and supply arrangements are normally easy to work out and classical contracting is therefore suitable regardless of the frequency of the transaction (Williamson, 1979). If transactions are non-standard but only made occasionally trilateral governance and neoclassical contracting is warranted. This is what we think of as traditional contracting, which is supported by a third party, normally a legal system. Once such a transaction has been formalized in contract the incentives to follow through to completion are strong. Not only have resources been sunk into specialized investments, but if these assets were to be attempted to be transferred it would entail a great deal of difficulty in valuating them.

Relational contracting is only justified if the frequency of transaction instead is recurrent. If the transaction is intermediate specific, a strategic alliance, cooperation or some other form of bilateral governance is the most efficient governance structure and should be organized to minimize transaction cost (Krzeminska, 2008, p31). For more asset specific transactions the most efficient governance is internalizing actions into the organization through vertical integration. As transactions become more asset specific, incentives for trading decrease and activities are better carried out within an organization (Williamson, 1979). This is because specialized human and physical assets become less transferable as specialization increases.

Specialized governance is justified only if the costs can be recovered by recurrent nonspecific transactions (Williamson, 1979). For occasional transactions classical contract law is limited in sustaining such transaction-specific governance structures since the cost in comparison is prohibitive. It is also worth noting that in small markets there is no room for specialized governance (Williamson, 1985, p60). Specialized production techniques and such require large markets to be able to recover the costs. Another requirement to motivate special governance is the volume of processed transactions. If the specialized governance cannot be used to sufficient capacity costs cannot be recovered either. Should it be the case that the need for specialized governance is great despite low frequency of transactions, aggregating demand for similar but independent transactions under the same governance is recommended. Following these guidelines, the most optimal governance mechanism can be specified to maximize efficiency and utility of inter-firm coordination and the exchange between the firm and the market (Paulin *et al.*, 1997).

In small markets there is no room for specialized governance (Williamson, 1985, p60). Specialized production techniques and such require large markets to be able to recover the costs. Another requirement to motivate special governance is the volume of processed transactions. If the specialized governance cannot be used to sufficient capacity costs cannot be recovered either. Should it be the case that the need for specialized governance is great, despite low frequency of transactions, aggregating demand for similar but independent transactions under the same governance is recommended.

Given the premises of transaction costs, and that a form of governance has been organized correctly, the approach should logically be applicable in reverse. By investigating any governance's layout and organization the levels of asset specificity, uncertainty, and frequency of transactions and how these are governed can be determined. Having identified the levels and governance of these determinants, and supposing that the governance has been designed to minimize the cost of inter-firm coordination and maximizing efficiency and utility, they themselves establish the sources of transaction costs. *Ceteris paribus*, if the form of governance would be dissolved the sources of transaction costs would be unsuppressed and would be the source of turbulence between the two parties.

# 4. The exchange relationship dissolution between VCC and Ford

In this chapter, the case is first introduced and outlined. Then follows a brief overview of the background of the industry in which VCC and Ford operate, before going into the specifics of the case study. The empirical data is introduced and followed by the analysis, where the theoretical framework is applied. Finally, the chapter ends with an identification of risks and opportunities for VCC and recommendations on how to proceed.

# 4.1. Case introduction

VCC will within a few years be facing expiring contracts with Ford as a step towards becoming independent, following the acquisition of VCC by Geely in 2010. This raises questions regarding continued securement of certain products and parts. Hence, there is a need to understand and review the effects within VCC of the dissolution, after contractual agreements cease. Herein, the current relationship between VCC and Ford is presented and the effects on VCC, stemming from ceasing contractual relationship with Ford, are described in terms of technical dependencies, the change management process, governance, and aspects of relationship dissolution.

In relation to exchange relationship dissolution, primarily a dyadic relationship focus is taken in this case, emphasizing the relationship between two actors, i.e. VCC and Ford. Thereby the relationship with other actors in the external network will not be considered. Further, the case study only concerns the divested party, i.e. VCC, and thus not the perspective of the exchange partner. This is due to the sensitive nature and uncertainty of the forthcoming postcontract relationship of the parties. The primary focus is on the major supplier's obligations after end of production and VCC's continued ability to operate unimpeded.

Confidentiality issues affect the level of detail of the empirical data and thus sensitive and some very specific information concerning the relationship between VCC and Ford is not revealed. However, this does not affect the theoretical or managerial implications of the thesis, only the level of abstraction of the empirical data, analysis and the recommendations in the case study.

# 4.2. Industry background

The automotive industry is essentially controlled by a few global firms (Sturgeon, Memedovic, Van Biesebroeck & Gereffi, 2009). In the 1990s the global scope of these leading firms and large suppliers was enhanced by a plurality of alliances, mergers, and acquisitions. Examples of such are the acquisition of Saab Automobile by General Motors in 1990, the merger of Daimler-Benz and Chrysler in 1998, the alliance between Renault and Nissan in 1999, and the acquisition of VCC by Ford from AB Volvo in 1999 (Feast, 2003). To be successful in the automotive industry a firm needs to be large in order to negotiate

favorable deals with suppliers based on economies of scale and deal with significant model development and launch costs (Institute for Prospective Technological Studies, 2013). Therefore consolidations were deemed necessary in order to preserve industry profitability. Alternatively, an automotive firm can try to distinguish itself as a small niche player in exclusive cars. This has led to an extremely concentrated firm structure, which is part of what distinguishes the automotive industry (Sturgeon *et al.*, 2009).

While having become more globally integrated since the mid-1980s, the automotive industry also features a strong regional-scale structure (Sturgeon *et al.*, 2009). This can be explained by vehicle assembly, and plenty of parts production, having been largely kept close to end markets due to market variation, technical necessity and political sensitivities, such as protectionism on the national level as a result of e.g. large-scale employment and perceived status of motor vehicles. A further explanation is the concentration of design work near the headquarters of firms responsible for the development of components and for changing components if necessary. For example, such changes could occur due to quality issues or changes in legislation. Firms responsible for these activities are called lead firms. In addition, parts and subsystems are seldom generic and tend to be specific to particular vehicle models. Hence, there is a lack of open industry standards for many components. Often parts only have a sole supplier, which gives rise to the need for collaboration between lead firms and suppliers, creating clusters.

The dearth of open industry standards that provides the basis for these clusters also prevents value chain modularity and results in close or captive relationships between lead firms and suppliers. These close interactions, the lack of value chain modularity, as well as part and sub-system specificity, incur transaction costs that have contributed to high costs for variation. This has led to car manufacturers adopting a platform model for design and production. Variation and economies of scope is then made possible by basing several car models on the same platform, allowing many of the same components to be used across car models along with the tools for manufacturing those components. According to the Institute for Prospective Technological Studies (2013), which is a part of the European Commission's Joint Research Centre, it is this product differentiation and cost-minimization that drives R&D in the automotive industry, along with increasingly strict vehicle emissions and fuel consumption standards. While steps are taken at VCC to improve product differentiation and cost-minimization by using scalable platforms, primarily through VCC's scalable product architecture (SPA), to produce car models of significantly different sizes on the same platform, this study primarily concerns the older type of platforms owned by Ford and still in use at VCC.

# 4.3. Empirical data

In this section, an overview of the relationship between VCC and Ford is first presented to give a picture of how it has developed and what it looks like today. Then follows technical dependencies, which aims to explain the technical aspects of the relationship and hence the results of the technology mapping. The change management process, which concerns dealing

with problems arising from technical dependencies, is then described, before addressing governance structure and finally different aspects of relationship dissolution. The numbers following statements in the empirical data and analysis refer to the corresponding interviewees as presented in section 2.4.1. Data collection.

### 4.3.1. Overview of the relationship between VCC and Ford

The relationship between VCC and Ford needs to be seen in the light of Geely's acquisition of VCC in 2010, following more than ten years of VCC having been a part of Ford. However, VCC's ties with Ford were not cut instantaneously at the time of the deal and independence was to be achieved during a transition period. To ensure a smooth separation, Ford has committed to provide engineering support, information technology, access to tooling for common components as well as continued supply of powertrains, stampings and other components for different periods of time (Ford Motor Company, 2010). Following the divestment, VCC is still utilizing Ford components but is striving to replace Ford platforms and engines with ones developed in-house (Gibbs, 2013). For parts used in production VCC expects to be free of all Ford-related components by 2016 (Young, 2013). In addition, the arrangements with Ford will end naturally before the end of the decade according to former VCC CEO Stefan Jacoby (Horell, 2012). Until then, agreements between Ford and Geely have been established to govern the use of intellectual property allowing both VCC and Ford to continue their business while protecting against misuse (Ford Motor Company, 2010).

In order to protect both VCC and Ford, the boundaries and obligations of the relationship between them are formalized in detail and documented in agreements (8). At the moment the cooperation is considered to be rather efficient and runs smoothly, according to one interviewee (8). Another interviewee states that both parties have followed the agreements to the letter, which has led to a well-organized relationship (13). Several interviewees express that the relationship and cooperation between Ford and VCC has worked well (12, 13, 14). Interviewee 13 stressed that Ford has supported VCC both before the divestment to Geely and during the transition period, and that without Ford's support in all areas of cooperation VCC would not have been able to continue its business. Considering the level of VCC's integrations the transition so far has worked surprisingly well (14). There is a particular close cooperation with Ford in regards to change management (5), since VCC for the moment remains highly dependent on Ford regarding shared parts (1).

However, Ford availability and helpfulness have decreased since the split in 2010 (5, 11) along with the number of change concerns (2, 5). It is perceived that Ford spends equivalent engineering efforts in accordance with their contractual obligations as required by VCC (2). E.g. getting Ford to share information requires a significant amount and effort, but once the information is provided it is of good quality (11). Previous to the divestment VCC had a lot more access to Ford information systems (5). After the divestment VCC has been reliant on Ford for information about shared components and when Ford makes a change VCC has to consider if they are affected and should go along with the change or go unique (11). This

means that VCC is reliant on information provided by Ford to determine what actions need to be taken. Ford and VCC no longer share common interests and the best case for VCC may therefore not always be in alignment with the best case for Ford (1). Going unique is always expensive due to having pay for new tools since the ownership of tools for virtually all common components remained with Ford after the separation (1). Even if Ford no longer uses some tools for producing components of their own it is not certain that VCC can buy them back (1). This is partly due to Ford's obligation to supply service parts to VCC, but also due to Ford possibly having similar obligations to other car manufacturers (1, 8). However, to decide this a long process is needed, where tooling usage is fully investigated.

The relationship with Ford has obviously changed since the divestment, and has needed to change, and both parties are open about it and are set for further change (14). VCC expects and prepares for a further decrease in the amount of work in connection with Ford following the end of the cooperation (2) and both Ford and VCC eventually want the cooperation to be minimal going forward (1, 12, 15).

One of the first things that was done in preparation for the end of cooperation with Ford was to investigate and establish the ownership of tooling, intellectual property and shared components between Ford and VCC (1, 4, 5, 11), but this can sometimes still be unclear (5), due to complexity of ownership and tooling usage (2). Additionally, in 2011-2012 an independence investigation took place and a process was initiated with the task to affect out Ford owned components in time before the end of the cooperation (8, 9, 11, 13, 14). Since then there has been an ongoing process at VCC to reduce the amount of Ford components included in cars in production and replace them with non-Ford components (14). As a result the dependency on Ford components and tools is expected to be small after the end of the cooperation as well as investigated the decrease in Ford related work in order to project a trend for further decline (2).

#### 4.3.2. Governance

Due to previous divestments, Ford was very experienced in managing the IP issues and was able to take a structured approach, utilizing previous models for managing the same type of problem when divesting VCC (13). As described by Granstrand and Holgersson (2013), the technologies and IP relating to the acquisition of VCC by Ford were transferred to Ford and thus a part of the deal. This placed VCC in a dependency position already in the beginning of the relationship, which eventually developed into the present situation.

The separation agreements between VCC and Ford were formed prior to the acquisition of VCC by Geely in 2010 and outlines the conditions for the change of ownership between the parties (Granstrand & Holgersson, 2013). This represents the major part of the governance structure that regulates the boundaries for the range in which the parties can operate. Hence, there is a high degree of formalization in this structured approach and the governance is very well documented (8). One interviewee states that the contract, along with the information

systems, serve as means to examine ownership of components as part of the work routines (2). This means that VCC staff bear in mind the ownership of components as part of their daily work based on the established conditions of the relationship with the support of VCC's information systems. It is also important to distinguish who owns the tools and has the lead position for shared components, i.e. who has responsibility for development and hence for making changes to those components (11). Ownership information can also be accessed by VCC from both their own and Ford's information systems, as well as ownership being outlined in the contracts (11).

#### 4.3.3. Technical dependencies

Previously, there have been substantial technical dependencies between VCC and Ford, i.e. in relation to R&D and shared parts, and efforts have been made to decrease these over time (1, 13). It is important to distinguish between the different technologies that VCC uses, e.g. the shared platforms between VCC and Ford and the VCC unique platform SPA that was previously developed by VCC alone as well as the range of engines used in these platforms (3). The unique VCC platform, i.e. SPA, was deemed of no importance to Ford and the ownership was transferred back to VCC with no license back to Ford, while the shared platforms were of core importance and thus categorized as limited license technologies (Granstrand and Holgersson, 2013). The same reasoning applied to the engines and the ownership of the new engines, i.e. VEA, developed by VCC was kept within the company, while VCC received limited licenses for the Ford engines they used. In order to not remain reliant on Ford after the end of the cooperation agreement, and remain in accordance with the contract, it is of utmost importance to not include components shared with or owned by Ford in VCC unique platforms and engines (3).

Focusing on the shared engines and platforms, Ford owns almost all IP rights to the shared parts and thus VCC is dependent on Ford when using these parts (1). Despite the dependence reducing efforts, this integration is still very difficult to grasp as it relates to shared platforms and engines, involving parts that in turn involves sub-parts in different levels, giving rise to an immense complexity (14).

In order to assess the problem of technical dependencies, a systematic approach where all components involving non-VCC owned parts were mapped needed to be taken (2). This way, uncertainties concerning the extent of the technical dependencies could be addressed resulting in more control over the situation, both for parts in production and service parts. The access to data on these issues has enabled the technology mapping process to take place, as described in section 2.4.2. Technology mapping.

The mapping identified those delivery units that were going to be used in production and as spare parts in the shared platforms at VCC, after the contract with Ford has expired. Out of these, the delivery units that were either wholly owned by Ford, or were owned by VCC or a third-party but included Ford-owned sub-parts, were also identified. These represented only a small part of all delivery units to be used after the end of the contract but still constituted a

significant number of components. The groups responsible for the different technical areas, to which components belonged, e.g. chassis, powertrain, and body and trim, conducted the assessment of the level of criticality of individual components. The work was delegated to these groups since they possessed the technical expertise and ability to assess each individual component in detail. The assessment was based on a component's importance for functionality and how difficult it would be to replace. Standardized components are easy to replace, as they are practically commodities, in contrast to specialized components, which are customized for certain applications and restricted in use due to IP rights and agreements.

In particular, powertrain components are more important than those in other technical areas (5), being what generates the power in an automobile and delivers it to the road. This is because where high speeds or high temperatures are involved, components are critical and cannot be replaced (5). These conditions occur primarily in engines, which therefore typically cannot be modified (5). Components within powertrain also differ in level of criticality depending on if they are included in Engine As Shipped (EAS) or Driveline Installation (DLI), which together make up Powertrain As Installed (PTAI). EAS refers to the engine as it is delivered from the engine plant, including components making up the engine such as pistons, engine block, and crankshaft. DLI refers to the rest of the components that make up PTAI, e.g. transmission, drive shafts, differentials, and final drive.

For the powertrain delivery units flagged as owned by Ford in the databases, information about supplier and purchasing history was acquired from VCC's purchasing and aftermarket departments. Quantities varied greatly between delivery units but had remained steady for years. Interestingly, only a few of these were supplied directly from Ford, and then only from FCSD, the vast majority instead being supplied from second tier suppliers. This means that Ford's contracted suppliers deliver directly to VCC.

Apart from mapping the actual technical dependencies between VCC and Ford, the effects that follow from these dependencies need to be managed. This is done by the change management process, which deals with the consequences of these technical dependencies (1, 5), as well as the major part of the contact and communication towards Ford. The change management process therefore constitutes a central part in describing the relationship.

Changes by Ford may either have effects on parts in production or service parts. Parts in production require much more attention partly because of the large supply volumes needed, but most importantly because of the sensitivity of ensuring supply and quality of the components (8). For instance if the supply of a certain component is not secured and deficiency follows, the car production is affected and worst case means that the assembly plant halts. This should be avoided as it entails huge costs for every minute the assembly plant stands still (7).

For service parts, the effects are not deemed as critical. However, it is still important to see to this because of obligations of supplying service parts for the after market (15). Estimations and calculations of future needs of service parts serve as the base for purchasing the required volumes for the service period (4). Changes from Ford may still affect these service parts, but

it is considered sufficient with less engineering contact and investigation for these parts than for parts in production (8). These changes are managed by the change management process carried out within VCC. Hence this process is critical to address in order to attain which effects that may arise from this during the relationship dissolution process and how they can be mitigated.

#### 4.3.4. The change management process

According to several of the interviewees, one of the main activities in relation to Ford is the change management process (1, 3, 4, 5, 6, 9, 10, 11), which involves dealing with all changes from Ford and other parties relating to the shared parts between VCC and Ford (5). As long as the shared parts are in production for at least one of the involved parties, all other parties that use the parts either in production or as service parts may be affected by any eventual changes on the parts. This is very important, since these changes may affect large portions of VCC's product portfolio and need to be investigated thoroughly (1, 5, 10, 11). E.g. if changes are made to the transmission by a supplier, the car manufacturer must investigate the effects this has on its product range. This involves several dimensions and engineers must for instance be involved in order to review the technical effects that in turn affect costs etc.

Depending on if the changes concern parts in production or parts that have been phased out, the magnitude of the effects tend to differ (5). For parts in production the effects have the potential to be more critical, because of the need to ensure that the production plants are running. Service parts on the other hand are not as critical, as they only need to be secured for the after market and thus involve much lower part volumes. There are many areas that can be affected in such a complex product as a car, ranging from critical components that need to be kept exactly according to specifications to standard components that can be exchanged if necessary. The change management process needs to be able to deal with all these potential effects and is therefore composed of multiple steps to secure that all dimensions are covered.

The first step involves taking care of the running changes that are instigated by Ford and making an assessment of if any, and in that case what products and parts that are affected (1, 9, 10, 11). Approximately 80–90 % of the changes do not affect VCC significantly. These changes still need to be assessed by engineering, however based on information from Ford they can be quickly determined as not applicable (2). The remaining changes are however important and needs further investigation. This is done by the change order coordinators, who prepare concerns that include all necessary information and then direct them to the relevant persons responsible for running changes, within the departments of the areas that are affected. This information is acquired from Ford R&D and the information exchange is part of the current cooperation.

The second step concerns investigating the running changes more thoroughly and these responsibilities are divided within the powertrain division based on engine families (3, 5, 6, 7). An engine family being a group of engines of different generations from the same owner based on the same architecture with only slight differences, such as cylinder volume. To

handle the incoming changes, a consequence evaluation is first made to see the magnitude of change of the affected parts (1, 3). It is important to see to VCC's own interests and not suffer unnecessary costs.

The third step regards making the decision to either follow the change by Ford or reject it (3). A substantial amount of information is typically needed before being able to make this type of decision and includes questioning and probing (5). A follow decision is the most common and means that VCC agrees to change and quality assures eventual consequences (2).

There is also a process that VCC initiates when quality issues are detected on parts that are supplied by Ford (7). This involves keeping contact with Ford and following up on problems that have been discovered internally. One interviewee explains that the problem is that Ford decides whether it is a problem or not, which usually depends on if Ford experiences the same problem (7). If that is not the case VCC consequently has to deal with the problem by itself.

Within VCC, the powertrain department has taken most of the responsibility for leading the work towards Ford, since it covers the vast majority of all changes that affect VCC (2). This means that fewer resources need to be utilized in the rest of the organization.

The contact with Ford occurs on different levels depending on which activities that are involved and how critical they are. There is an escalation procedure, which means that issues are first considered and handled in operational levels and if needed they are escalated to the next level and so forth, even up to top management if necessary (2, 14). In relation to this, the frequency of these contacts are daily on an operational level and generally lower in the managerial levels, e.g. on a weekly basis and more often if needed (14).

Patterns of different perspectives and perceptions of the cooperation and communication with Ford have emerged, which is reflected by the answers of the interviewees. On a higher managerial level the perception is generally that the cooperation process has worked very well and that Ford has been and is very collaborative and supportive (8, 12, 13). This has enabled an open climate where joint efforts have been made towards an eventual independence of the parties.

However, on an operational level there are more limitations in the work process than before, which affect how the collaboration is perceived. Since the split in 2010, the number of change concerns has declined significantly (5, 9, 10), due to the efforts that were and are continuously made to decrease the dependencies of Ford part involvement in production. Hence, it has become more and more difficult to get access to all necessary information in the change management process. The information that is needed from Ford is often difficult to obtain and one interviewee states that much time is spent on trying to get the right information (11). This is due to that the secrecy has become more and more careful regarding the handling of information and this results in more bureaucracy and hierarchy (10). Managers are for instance involved earlier when uncertainties emerge and this takes more time than when the contact persons directly have mandate to make decisions.

The relationship and subsequently the collaboration are perceived as more problematic than before and continue to diminish. One interviewee explains that previously problems that occurred were solved together with joint efforts between VCC and Ford and now it instead approaching a state of minimum efforts towards each other and focus more on internal work (1). Another interviewee states that people that he used to collaborate with have changed positions within Ford and that it complicates the work process, but that the contact with those people remains and will always remain to some extent (11). Thus, relationships with earlier contacts that have developed during the time when Ford owned VCC still remain to some degree and will continue to do so (11, 13).

#### 4.3.5. Aspects of the relationship dissolution

The perception of when the relationship with Ford will end differs throughout the VCC organization. It depends on the horizon of which the interviewees consider the cooperation and is a reflection of the type of work they are involved in. All interviewees stated that the cooperation in its current form ends with the expiration of the current agreement within a few years and are in agreement of the formal time of expiration. However, a majority of the interviewees (1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 14, 15) further problematized the dissolution and presented a more nuanced picture of the end of the relationship. The end of the relationship with Ford seemingly ends at different points in time for different business units while everyone agrees on the formal end of the cooperation.

There are several years, sometimes decades, between the points in time when last contact will be for Production, Spare parts supply and Change management. The engines purchased from Ford, along with engine related parts, go out of production at VCC at roughly the same time as the cooperation agreement expires along with the different forums that have existed to handle any issues between Ford and VCC regarding components (15). However, for other powertrain components as well as from body, chassis, and electric's point of view, the relationship with Ford ends when the last Ford platform goes out of production at VCC, years later (8).

For spare parts supply in particular the relationship will have to continue in some shape or form due to Ford's obligation to provide service parts for VCC for a significant period of time following the end of production (6, 11). Even if Ford no longer uses some tools for producing components of their own it is not certain that VCC can buy them back (1). Partly due to Ford's obligation to supply service parts to VCC, but also due to Ford possibly having similar obligations to other car manufacturers (1, 8). It is possible that Ford can and will be handled as any other OEM for that period of time (13). In that case, contact would then be the responsibility of Volvo Cars Customer Service (VCCS) and not the liaison office (6). Neither would the point of contact be Ford R&D but Ford Customer Service Division (FCSD) (2). For service parts there will then be a continuous cooperation until the end of the supply period (15) and as long as Ford supplies service parts there is a need for contact, the question is what type of contact (9, 10). There should not be any problems concerning the supply of service parts (15) and according to interviewee 1 most likely no formalized cooperation is

needed during this time. However, while the cooperation as is might end, any quality issues still need to be handled by change management, which is not a responsibility of VCCS and need to be handled within VCC R&D (4). Within VCC R&D, continuous work with Ford does not end until all Ford components have been affected out (5), i.e. having actively been taken out of production, despite the fact that the cooperation agreement expires. This is because the responsibility for parts in production remains within the individual technology groups, e.g. powertrain, chassis, and electrics. There is a possibility to prolong the current agreement (1, 2), which could be warranted if there is a significant enough amount of components not yet affected out that risk being subject to changes after the cooperation ends.

There are also different views on the need for a continued relationship. These views differ due to different people within the organization having different understandings and perceptions from being involved in different facets of the relationship (14). The relationship with Ford is incredibly complex with platform dependencies and dependencies within VCC product architecture with components that are owned by Ford (14). Separation following a cross-brand cooperation such as this can be problematic with separation of components and brands being one thing and service parts being another (14).

One interviewee stated that VCC continuously strives for independence (10). This is added to by another interviewee who believed that VCC prefers to become independent from Ford as soon as possible by not extending the cooperation, with the benefit of VCC becoming more flexible through independence (1). Some interviewees (13, 14) also had this preference and believed that it is also in Ford's interest to terminate the relationship. Interviewee 14 elaborated that the idea is that VCC and Ford go their separate ways while avoiding any major costs or damages. In addition, interviewee 13 maintained that there is no interest in extending the relationship for either party and it only needs to be ensured that the dissolution is carried out in an orderly fashion.

However, the current agreement can be prolonged for a time (1, 2, 8). There are fears that not prolonging the agreement opens for the risk that Ford might do whatever they please since they would no longer have any obligations to ensure functionality in VCC products and VCC would have no contractual leverage to say otherwise (8). Any decision to prolong the agreement would have to be based on considerations depending on the Ford common components that remain (2) and as long as Ford parts are used in production any lack of a relationship with Ford would be a problem (8). The number of common components have been reduced, will continue to be phased out and will decrease further over time (14). While there is preference to terminate the relationship with Ford at the end of the agreement there might be a need to maintain some form of relationship. Interviewee 8 touched on this stating that as long as any components common with Ford are still in production any different type of cooperation than the current one would expose VCC to unnecessary risk.

Those who take this stance emphasize that it is important to understand that change management must be upheld or it can become very costly to have to rely on the other party to be able to deliver, or to take other measures (8). Interviewee 3 maintained that after the agreement expires there would be no option to agree to a change or not since VCC no longer

would have the option to keep the unchanged design. VCC's options would then be to go along with the change, make an all-time-buy of the concerned component, develop a new tool and component, or source it elsewhere (3). One interviewee (6) added that the potential risks of such an arrangement would gradually decrease as he expects the number of changes also will decrease gradually as more and more components reach end of production, as the incentives for component manufacturers to change out-of-production components are low (6). However, interviewee 2 maintained that some kind of work process and agreement would be needed of how to handle quality issues with Ford. In the absence of such an agreement it would have to be cleared with Ford that VCC would be allowed to enter agreements with suppliers directly to acquire components and be informed of changes that Ford makes (1, 2).

One interviewee (8) maintained that such a case-by-case arrangement of handling quality issues would risk being too expensive and insecure, and thinks it best for VCC to continue with the current setup by extending the existing agreement. Another interviewee (1) also had a preference to prolong the cooperation, not necessarily to the same extent but would like to have some kind of helpdesk at Ford to support with particularly tricky issues. Interviewee 8 argued that the current processes and agreement should continue for as long as the Ford platforms are still in production at VCC, at least for those platforms Ford still has in production and develop new generations of. Such developments risk giving rise to changes on shared components, thereby risking to upset VCC production (8).

After the platforms have reached end of production at VCC components for those platforms would then only be required as service parts. One interviewee (5) explained that at that point in time FCSD will become point of contact for those components and only contact with FCSD would be necessary only for these. Interviewee 8 added that in this case there would not be the same need for cooperation, and a lack of close cooperation with Ford would be less of an issue. Some interviewees (3, 10) stated that at the very least some kind of communication needs to be maintained for aftermarket purposes, since these dependencies will remain. For parts in production, according to interviewee 2, a new agreement might have to be negotiated, but in that case with reduced service and scope. However, interviewee 1 added that it is uncertain if Ford is interested in extending the relationship even with reduced contractual scope. According to interviewee 2, the most likely scenario remains case-by-case contact regarding quality issues without any new cooperation agreement where VCC would pay for Ford expertise on an issue-by-issue basis.

# 4.4. Analysis

In this section, the empirical data is analyzed using the theoretical framework. The exchange relationship dissolution conceptual model is used to visualize the dissolving relationship between VCC and Ford, in terms of the substance of the relationship and stages of the dissolution process. Further, this will serve as a foundation for the analysis from a transaction cost perspective.

#### 4.4.1. Approaching the relationship dissolution between VCC and Ford

The substance of the relationship consists of the attenuating factors of activity link, actor bonds, and resource ties. In this case the activity links are mainly represented by the change management process and quality work process, as well as governance procedures, between VCC and Ford. Cross-organizational actor bonds have been developed and remain to certain degrees in these activities, even if efforts have been and are made to decrease these bonds. The main resource ties are constituted by the technical dependencies between the organizations, the majority stemming from the shared platforms and engines and their underlying components, as well as tooling ownership.

The resource ties are in this case considered to be the core of the remaining relationship between the organizations. Thus, these ties give rise to the subsequent activity links and actor bonds constituting the relationship and if they were to be phased out the other would also naturally diminish. See *Figure 6* for an illustration of what the substance of the relationship between VCC and Ford looks like.



Figure 6 – The substance of the relationship between VCC and Ford. Source: Authors.

After having established the substance of the relationship, the instigating stages and factors that have been developed prior to the relationship dissolution process need to be defined.

The predisposing factors and previous stages cover the features and conditions of VCC and Ford entering the relationship and hence the process leading up to the dissolution decision, as mentioned previously. Interdependency between actors has been very high throughout the tight relationship when VCC was part of Ford. Previous common interests and goals made the integration close, in terms of joint R&D projects and shared parts, comprising the technical interdependencies between the organizations. This implies a complicated and slow dissolution process, following the logic of the research by Tähtinen *et al.* (2007).

The power balance between the actors is considered to be highly skewed in Ford's favor. Because Ford owns the intellectual property rights and tools for almost all shared components, VCC is more dependent on Ford than vice versa. Moreover, Ford is a considerably larger organization than VCC and hence can benefit from its size and financial power. This may give rise to the problem of an unsatisfactory dissolution (Tähtinen *et al.*, 2007).

The structure of the relationship deals with the number of actors involved in connection between VCC and Ford. Throughout the relationship many actors have been involved, in accordance with how the integration of the relationship developed. Thus, a large number of actors implies a complicated and slow dissolution process (Tähtinen *et al.*, 2007).

The formality of the relationship is considered to be high, due to Ford's structured approach when forming the contract and agreements with Geely, prior to the divestment in 2010. The thorough documentation and formal governance structure in detail outline the conditions and boundaries for the actors. This implies that the dissolution process is of the by-the-book type (Tähtinen *et al.*, 2007), and hence follows a strictly organized plan.

The continuity of the relationship has shifted throughout the course of how the relationship has developed between VCC and Ford. Before, there was a stable relationship that was continuous in its nature, with an undecided time frame and there were no expectations that the relationship should cease. This leads up to the precipitating event that triggered the decision to dissolve the relationship and strive for independence. The relationship between VCC and Ford has been very strong and of an ownership nature, i.e. Ford has been the owner of VCC for approximately eleven years. The precipitating event was the strategic decision by Ford to divest VCC and hence the relationship dissolution process was initiated. When the chosen end of Ford making the decision to dissolve the relationship occurred, the relationship changed its nature to one of terminal type. Then both parties strived to become independent and there was a lack of motivation to uphold the relationship. Because of the integration between the actors, the dissolution process takes time and is characterized by desired ending. The relationship situation prior to the decision to dissolve the relationship was characterized by strong integration and interdependency, skewed power balance, large number of actors involved and continuous with a chosen ending, as summarized in *Table 7*.

Characteristics	Degree	Result
Interdependency between actors	High	Complicated and slow end
Power balance between actors	Skewed	Unsatisfactory dissolution
Structure of relationship	Multiple actors	Complicated and slow end
Formality of relationship	Formal	By-the-book end
Continuity of relationship	Continuous Terminal	Chosen end Desired end

#### Table 7 – Characteristics of the relationship between VCC and Ford. Source: Authors.

As a consequence of the long period of close cooperation and integration between VCC and Ford, most of the factors indicate that the dissolution process was going to be problematic in more than one sense. However, the governance structure in this case has shown to be very effective in handling some of these problems. The fact that Ford has extensive experience in managing this type of process made way for the formal and structured approach, which has been beneficial for both VCC and Ford in terms of mutual goals of becoming independent but not with the consequences of hurting each other, e.g. regarding disrupted production or service supply. The process is still very complicated and relatively slow but both parties strive for a satisfactory dissolution, implying that there is potential for a successful relationship dissolution.

**The precipitating event** is in this case considered to be the decision by Ford to divest VCC and hence giving rise to the post-divestment relationship that is investigated in this study. After this decision was made, the relationship changed in nature, from an exchange relationship where the actors had common processes and goals to a post-divestment relationship with the aim of dissolution.

#### 4.4.2. Stages of the dissolution process

The enabling stage. Ford's previous experience in managing the divestment process made way for a structured approach and in this stage the first major efforts were made to prepare for the end of the cooperation. Contracts and agreements were formed between Ford and Geely to govern the process and cover obligations and responsibilities of the parties. This included investigation and establishing of ownership of tooling, intellectual property and shared components, i.e. technical dependencies in the form of resource ties, between VCC and Ford (1, 4, 5, 11). This was done in order to decrease the exit barriers when proceeding in the relationship dissolution process, in line with the research by Tähtinen (2002) as described previously. However, there are still uncertainties regarding these dependencies because of the complexity of ownership and tooling usage (2, 5) and hence opens for further investigation in the disengagement stage. Without having control over this, risks of having Ford-owned components in production, especially in the VCC unique SPA platforms and VEA engines, but also in the shared platforms and engines, could have severe consequences in terms of not complying to the contracts and agreements.

When most of the technical dependencies were established and deemed under control in this stage, activity links mainly in the form of the change management process and quality work between VCC and Ford began to decrease as a consequence.

**The disengagement stage.** Because of the previously high level of integration between VCC and Ford, the disengagement stage is and has been requiring much time and resources. These have mainly taken the form of continuous negotiations and the efforts to affect out non-VCC owned components to strive for independence.

After VCC and Ford entered this stage the independence investigation took place in 2012 and then continuous efforts started to be made from VCC towards actively affecting out Ford

components (8, 9, 11, 13, 14) and replacing them mostly with components developed inhouse (14). This was done especially in regards to the VCC unique platforms and engines, but also to the shared platforms. This meant decreasing the resource ties in terms of technical dependencies and in turn decreasing the change concerns in the change management process, stemming from the Ford components in production. Thus, by decreasing the resource ties this also has indirect effects in the form of a decrease in workload for the change management process and as such the major part of the remaining activity links between the organizations.

When it comes to actor bonds they have remained strong in the management level, while they have weakened in the operational level. This is due to more bureaucracy and secrecy from Ford's side in line with the strive to become independent, in combination with people that used to be involved in the change management process switching positions. Thus it is more difficult for the change management process to run smoothly when actor bonds are eventually phased out and broken. However, some of these bonds remain because actors that have been cooperating for a long period of time have shown to have a tendency to still keep some contact, even though they are not formally cooperating in the daily work processes of change management.

Instead of forcing the actor bonds to be phased out in the same or even higher pace than resource ties and activity links, they should be maintained across all levels of the relationship to enable an undisrupted communication flow between the actors. Focus should primarily lie on phasing out resource ties and in second hand activity links and finally actor bonds. This would help ensuring a functioning change management process throughout the dissolution process, which is of great importance to safeguard against problems with changes from Ford that could affect VCC's products negatively.

An example of an attenuating event that may have significant effects on the need for a continued relationship between VCC and Ford would be if the transition from the shared platforms to the SPA platform takes longer than planned. In that case, the technical dependencies, i.e. resource ties, would remain for a longer period of time, giving rise to the need for negotiations.

Currently, the disengagement stage is the stage where VCC and Ford are considered to be in the relationship dissolution process, as illustrated in *Figure 7* below.



Figure 7 – The position of VCC and Ford in the relationship dissolution process. Source: Authors.

Within the disengagement stage the actors are arguably in the later phases, approaching the aftermath stage and eventually potential restoration if there is a need to maintain the relationship to some extent. VCC and Ford's current position in *Figure 7* is hence an approximation of where they are in the disengagement stage. As mentioned previously, decreasing resource ties indirectly leads to decreasing activity links and actor bonds are phased out, even though they may still remain to some degree.

The aftermath stage is yet to be reached for the actors and then the dissolution process should finalize, in line with the research by Halinen and Tähtinen (2002), and hence business activities should cease and resource ties and actor bonds should be broken. This is unless VCC and Ford decide to continue to cooperate and restore the relationship to some degree. There is still a need for both the actors to maintain an exchange relationship and then the relationship may be maintained, e.g. in the same or in a more limited way than its current form. A reason that could cause a decision like this could be if the actors jointly consider continued cooperation a necessity in order to ensure that the production of one or both the parties remains functioning, even after the contracts and agreements cease. Then the dissolution process may be aborted.

#### 4.4.3. Technical dependencies and transaction costs

There have previously been substantial technical dependencies between VCC and Ford regarding common technologies, shared parts, and R&D from the time when VCC was a part of Ford. However, since the acquisition by Geely VCC has been working to reduce this

dependency by reducing the amount of Ford components included in cars in production. The goal has been to reduce these resource ties in order to become independent from Ford by the end of the contract. For the shared parts in the shared engines and platforms Ford owns almost everything in terms of IP. Therefore, VCC would have little power to affect decisions regarding these components if not covered by an agreement.

These resource ties in the form of technical dependencies are analyzed with the transaction cost economics determinants asset specificity and frequency of transactions. These are relevant since they are a measure of dependency in the way that asset specificity determines if the part is replaceable and frequency of transactions how often resources are acquired. Uncertainty is not a determinant for the strength of the resource ties but adds a dimension where costs could be incurred from changes to parts that VCC is dependent on.

The interviews establish that there currently is a continued dependence on Ford, but that it has decreased since the separation. However, through the mapping of components it was discovered that there were a significant amount of Ford-owned parts and sub-parts remaining in production after the expiration of the current agreement. Since VCC has designed cars to include these components there is a lock-in since this warrants a long-lasting investment and dependency until the expiration of the car model or platform expires. Every purchase of such a component constitutes a specific transaction where the component cannot be used in any other context due to e.g. restricted use. Together with the investment of including a specific component in a car being long-lasting it implies that asset specificity for these components is high. It also implies that the frequency of transaction is high since the amount of components needed is directly related to the number of cars produced. This means that some technical dependencies remain and that resource ties are still in place after the contract that handles them has expired.

#### 4.4.4. Risk and cost considerations for change management

The responsibility of managing the relationship with Ford lies with the liaison office that serves as the link between VCC and Ford. The liaison office deals with any issues regarding the resource ties and through that work actor bonds and activity links have been established. Everyone at VCC working in relation with Ford knows whom they need to contact regarding issues concerning their particular area of responsibility. On a managerial level the perception is that the cooperation with Ford has worked very well and that Ford is, and has been, very supportive and collaborative. There is witness of an open climate where joint efforts have been made toward independence between VCC and Ford. However, on an operational level, employees perceive the work process to be more limited than before the divestment. Their previous contacts at Ford have received new responsibilities, which has resulted in old actor bonds being broken up and new, different bonds, being established. It is perceived that the loss of old actor bonds complicates the work process for VCC operational staff due to new contacts being more reluctant to share information.

Changes in the resource ties, primarily regarding changes to shared components, are handled through these actor bonds and activity links in the form of the change management process. These changes have the potential to affect large parts of VCC's products and need to be investigated thoroughly. As long as shared parts are in production for Ford or potential third parties, VCC may be affected by any potential changes on these parts. VCC's primary interest in these cases is to ensure quality and functionality of their products but avoid costs incurred by these changes. However, if Ford does not experience an issue with a component but VCC does and request a change it is difficult for VCC to make Ford change the component and will have to deal with the issue on its own. A substantial amount of information is required before VCC is able to decide whether to agree to the change or not. This information is acquired from Ford's R&D and the exchange is part of the current cooperation. However, it is perceived to have become more difficult to get access to all necessary information in the change management process during the transition period. Secrecy has become increasingly pervasive and has replaced the previous transparency between VCC and Ford. Ford has become more careful regarding the handling of information, which is natural after a split and has resulted in increased bureaucracy.

The potential eventualities facing VCC is the expiration or prolongation of the contract and the relationship, in addition to issues either occurring or not, from changes made to shared components after the current date of expiration of the contract. This presents four potential scenarios with varying risks and potential costs, presented in *Figure 8* below.

	Expiration	Prolongation
No issues from changes	- No cost - High risk	<ul> <li>Unnecessary cost for extension</li> <li>Low risk</li> </ul>
lssues from changes	<ul> <li>Cost for handling changes</li> <li>High risk</li> </ul>	<ul><li>Cost for extension</li><li>Low risk</li></ul>

#### Figure 8 – Potential scenarios for change management. Source: Authors.

If the contract expires and there are no issues from potential changes to shared components costs are consequently low. If under the same circumstances the relationship and contract is prolonged, VCC will have suffered unnecessary cost from extending the relationship in vain. However, it cannot be presumed that there will not be any issues from potential changes to shared components and there is risk associated with making this assumption. In the case of potential changes occurring and the contract having expired, VCC would have to suffer the costs for handling any issues in terms of either negotiating with Ford or developing new components and tools. If the contract on the other hand has been prolonged, such changes will incur lower costs but requires the upfront cost of prolonging the contract. To summarize, it is a question of balancing risk and costs. If the contract is not extended, VCC risks

suffering high costs for handling any issues to potential changes. However, if the contract is extended and no issues occur, VCC will have spent funds unnecessarily.

The desired situation for VCC at the point of expiration is to have no Ford-related parts in production that are also in production somewhere else. However, the result of the technology mapping has shown that there currently are a significant amount Ford-related parts remaining in production at VCC. Therefore, there could be components in production at VCC that potentially are in production elsewhere and could give rise to changes that could result in issues of functionality, compatibility or quality. This new information derived from the results of the technology mapping presents the decision to let the contract expire as planned in a new light. From a bounded rationality-perspective, the decision to let the contract expire was satisficing until it was discovered that VCC's dependence on Ford at that point in time would be greater than desired. Therefore the decision to let the contract expire is no longer necessarily satisficing and options need to be reevaluated.

As mentioned previously, risks and costs need to be balanced in order to make a satisfying decision. It is unknown to what extent Ford will make changes to remaining shared components and if there will be any issues from potential changes to these after the current time of expiration for the contract and before the end of production for the car models on the shared platforms. The consideration of what level of risk VCC is willing to accept, as a consequence of potential issues, needs to be complemented by a consideration of the costs for handling potential issues without an agreement with Ford compared to the costs for prolonging the contract or negotiating a new one. These are difficult, if not impossible, considerations to make due to bounded rationality, since it is unknown to VCC how many issues will occur or how much it would cost to manage them.

In the face of the impossibility of determining all potential future contingencies, the ability to adapt to changing circumstances in a flexible manner should be promoted. Costs allowing, the choice of mitigating any uncertainties is then the most satisficing one, which suggests that the relationship should be prolonged. Otherwise VCC risk Ford withholding information necessary to make decisions to follow with a change or not, since there will not be any contractual obligation to provide any information. VCC needs to plan for the possibility of such opportunistic behavior, since actors that presume trustworthiness are easily taken advantage of. In addition, with an increasing degree of uncertainty following the expiration of the contract, issues regarding the understanding of agreed rights and obligations would increase in scope, number and importance. This uncertainty is the main reason for establishing specialized forms of governance, especially if asset specificity is high it is important to formalize how to handle any issues.

#### 4.4.5. Governance and independence

As gathered from the interviews, VCC's relationship with Ford has changed since the divestment. From the beginning of the relationship VCC was dependent on Ford, a dependence that increased until Ford decided to divest VCC. During that time it was decided

that VCC and Ford should become independent from each other and it has therefore been necessary for the relationship to change. Interviewees have stated that Ford's availability and helpfulness has decreased since the divestment in 2010 and that the number of change concerns has decreased as well. The efforts made at VCC to affect out Ford-related components and increased VCC independence are reasonable causes for this.

However, as shown in the technology mapping, and supported by the interviews, VCC currently remains dependent on parts shared with Ford. This could give rise to issues since Ford and VCC no longer share common interests and the best case for Ford may not always be in alignment with the best case for VCC. It is therefore a good thing that the boundaries and obligations of the relationship between VCC and Ford was formalized in detail and documented in agreements at the time of divestment in order to protect both parties. For as long as the contract is in effect, it is specified how issues should be handled. Interviewees stated that the setup has been efficient and well organized, and that as a result the cooperation has worked well. Some have even gone so far as to claim that without Ford's support after the divestment VCC could not have continued its business. In addition, it is perceived that the transition to become independent from Ford has progressed well so far.

Prior to Ford's divestment of VCC to Geely, VCC was heavily integrated into the Ford organization. Due to a significant use of asset specific shared parts a unified governance structure was definitely the correct form of governance when applying Williamson's (1979) framework. With very asset specific transactions activities are better carried out within an organization due to human and physical assets becoming less transferable as specialization increases. In other words, the investment characteristics, in terms of asset specificity, and the frequency of transactions determine the suitable governance structure for handling any uncertainties pertaining to a transaction.

As a consequence of Ford's divestment of VCC, the form of governance changed to bilateral governance, as transactions were no longer carried out within the same organization. Since the efficiency of a governance structure depends on the level of asset specificity, uncertainty and frequency of transactions asset specificity needed to be decreased to suit the new form of governance as a discrepancy was created. VCC has done this by reducing the number of asset specific transactions by affecting out Ford-related parts. However, to become independent from Ford the form of governance would have to become less and less specificity would have to finally be non-existent. In order to achieve this, the level of asset specificity would have to decrease as well as the frequency of transaction until transactions cease. This could be achieved by either first reducing asset specificity or frequency of transactions, presenting two routes through the framework illustrated in *Figure 9* below.



Figure 9 – Potential routes to independence for VCC. Source: Authors.

With the expiration of the current contract and cooperation, the form of governance will transition into market governance. However, as previously stated, there remain asset specific Ford-related parts in production at VCC so taking this step directly without sufficiently decreasing asset specificity or frequency of transactions would be premature. As long as transactions are not recurrent or non-specific, bilateral governance is motivated. But as long as VCC produces cars with Ford-related parts the frequency of transactions will be recurrent. Therefore the only ways of achieving independence are either to continue with the current form of governance until the car models and platforms using Ford-related parts reach end of production, or negotiating a new contract handling the remaining parts. Prolonging the current contract would enable VCC to later shift directly to a market exchange followed by independence as the continued decrease of Ford-related parts is controlled in the same manner as it has been so far.

A new contract would go the route of first changing the form of governance to trilateral governance, then followed by market governance and independence. Which route to take is determined by VCC, that needs to make considerations for different costs. The cost for maintaining the current form of governance needs to be compared to the costs for negotiating a new contract and maintaining and establishing a new form of governance. Specialized governance does require a certain amount of transactions in order to be used to sufficient capacity and motivate and recover its incurred costs. Should it be the case that the need for specialized governance is great despite low frequency of transactions, aggregating demand for similar but independent transactions under the same governance is recommended. In other words, VCC could consolidate the activity links and reduce widespread integration with Ford throughout the organization and instead let the relationship be handled by a smaller number of people, such as the change management department. The option to let the contract expire and the current cooperation end as currently planned still remains, but as previously

elaborated on it would then be a consideration of risks VCC would be willing to take regarding potential issues from changes made to Ford-related parts that are still in production at VCC.

# 4.4.6. Considerations prior to dissolution

To summarize previous sections, there are three options presented to VCC, i.e. letting the current agreement expire without a new contract, extending the current contract, or negotiating a new contract. The potential costs and risks for these scenarios as well as considerations needed to be taken have been discussed. It is also worth highlighting once more that only VCC has the possibility to discern how they could be affected from changes to remaining Ford-related parts. Such an investigation would need to take place before any decisions regarding whether to extend the cooperation or not are made. The analysis is based on the current situation but if VCC would affect out the concerned shared components the analysis would naturally be different, since there would be no Ford-related components remaining that could be subject to issues.

Throughout the interview process it has been clear that VCC continuously strives for independence. Furthermore, there is a preference to become independent sooner rather than later, a preference that it is believed at VCC that Ford shares. This desire for independence is clearly an obstacle for potentially prolonging the cooperation between VCC and Ford. However, independence is not to be achieved at any cost and it is maintained that the dissolution needs to be carried out in an orderly fashion and that too large costs or damages need to be avoided. In other words, the desire for independence needs to be compared to the risk of not having a cooperation, should any issues appear after the dissolution.

If the cooperation would not be prolonged, and the contract expires as planned, change concerns and quality issues would still need to be handled by change management. This work does not end until all Ford-related components have been affected out and a case-by-case arrangement of handling these issues risks being insecure. Some interviewees maintained that change management as in the current cooperation must be upheld or it can become very costly to mitigate issues. VCC's options when faced with a change concern are reduced after the contract expires. To not go along with the change would no longer be an option and VCC would have to decide between going along with the change, making an all-time-buy of the concerned component, develop a new tool and component, or source it elsewhere. Based on this reasoning, as long as asset specific components are being acquired from Ford it is too soon to end the cooperation unless VCC can be certain that it will not be adversely affected by changes made to remaining Ford-related components.

There is a possibility that the current agreement could be prolonged, which could be warranted if there is a significant enough amount of components not yet affected out that risk being subject to changes after the cooperation ends. There are concerns at VCC that without an agreement Ford might tend to disregard VCC since Ford would no longer have the same contractual obligations. Any decision to prolong the agreement would then have to be based

on considerations depending on the amount of Ford-related components that remain at VCC. As long as enough such components are used in production, any lack of a relationship with Ford would be a problem. While there is a preference to end the relationship with Ford as planned, there might be a need to maintain it since as long as any non-standard components shared with Ford are still in production, any different type of cooperation would expose VCC to unnecessary risk. Therefore, current processes should continue for as long as the Ford platforms are still in production at VCC. At least for those platforms that Ford still develop new generations of and have in production as such developments risk giving rise to changes on shared components thereby risking to upset VCC production. Prolonging the current cooperation would achieve this, but it could also be achieved through a new agreement. A successfully negotiated agreement would have reduced service and scope, but ensure Ford support for change management regarding the Ford-related parts remaining in production at VCC. It is, however, uncertain if Ford is interested in extending the relationship, even with reduced contractual scope.

All considered, VCC needs to investigate the Ford-related components that remain in production and evaluate how many of them can be affected out as well as evaluating the risk for issues and the damages incurred by those issues. Not until then should a decision of whether letting the contract expire as planned or to continue the cooperation in some manner be taken. If no such investigation and evaluation of components is conducted, the cooperation should be extended since this is the safest alternative where any potential risks can be taken care of and does not allow for unforeseen high costs for mitigating individual issues. However, VCC does risk spending resources in vain to extend the cooperation if it is later shown that the risk for issues that were expensive to handle occurring was low and such concerns unwarranted.

# 4.5. Recommendations

Based on the empirical results and the analysis of the case study, five recommendations have been formed, directed to VCC on how to manage the exchange relationship dissolution process with Ford. Hence, these are the managerial implications that have been identified and should be considered accordingly.

The first recommendation for VCC concerns the substance of the dissolving exchange relationship and more specifically which one that should be prioritized and how to proceed.

1. Focus should be to first phase out the resource ties and then proceed to decrease activity links, before finally dissolving actor bonds.

Resource ties constitute the core of the remaining relationship. The other ties support the resource ties. By following this order in the dissolution process, a smooth change management process can be maintained throughout the dissolution process because the remaining actor bonds enable an undisrupted information flow. First gaining control over the technical dependencies of Ford owned components in both VCC-unique and shared platforms and engines, with respect to tooling and ownership, and taking an aggregated approach towards phasing them out, before continuing with reducing the change management process and finally phasing out the actor bonds is considered to be the key to a successful disengagement stage. Further, the views of the change management process of management and operations need be more aligned, in terms of how it works and fluency in the cooperation with Ford. Sharing the same view would imply a shared understanding for risks and consequences of a problematic change management process and hence make way for keeping actor bonds until the resource ties and activity links are phased out. The assessment and phase out of the technical dependencies are possible to take care of solely by VCC, while the change management process and especially the preservation of actor bonds is more of an interplay between VCC and Ford.

The second recommendation concerns technical dependencies in relation to the remaining resource ties in the relationship.

2. Consider Ford-related components still in production at VCC after the planned dissolution of the cooperation, as it has implications for future change management and governance.

There are technical dependencies that remain after the planned dissolution of the cooperation in the form of a significant amount of Ford-related parts. The results of the mapping show that there is a significant amount of Ford-related parts and sub-parts remaining in production at VCC. These include non-standard components with high frequency of transactions. As such VCC continues to be dependent on Ford and resource ties remain. Disregarding this fact could lead to subjecting VCC to unnecessary risks and costs if dissolution turns out to be premature. The remaining technical dependencies provide the basis for the considerations and evaluation of scenarios for change management and governance options. The third recommendation considers change management and implications of risk.

3. VCC should organize itself to be subject to as little risk as possible. In the current circumstances, a prolongation of the cooperation presents the lowest risk.

It is unknown if there will be any issues with the remaining Ford-related components and the severity of them. Since technical dependencies remain in the form of components shared with Ford issues could occur from potential changes to such components. The amount of changes and issues and the severity of them are unknown, there could be major issues, or no changes. With such parts still in production at VCC it would be very risky to not have any form of structures in place to handle changes, which would be the case if the contract would expire as planned. The risk for issues and the potential cost for these issues must be weighed against the costs for continuing the cooperation with Ford. If there are no governance procedures in place, information flow will be limited and VCC will have to adapt to acting in greater uncertainty. Since it is impossible to predict what will happen and determine contingencies, the ability to be flexible should be promoted. Extending the cooperation provides more options for VCC when presented with a change as well as reducing the costs for handling individual issues compared to facing the same without a cooperation.

The fourth recommendation regards suitable governance and the different ways VCC can take to achieve independence.

4. Choosing one of the two different routes, extension or new contract, for mitigating a discrepancy between the need for governance and actual governance is recommended.

With the current technical dependencies, an abrupt dissolution would create a discrepancy between the need for governance and actual governance, due to asset specificity and frequency of transactions. There are two options to take to avoid creating a governance discrepancy as long as these technical dependencies remain. Either the current cooperation and agreement is extended to allow technical dependencies to be phased out before the structures and processes that handle them are dismantled, or a new form of governance handling the remaining Ford-related components is established. If technical dependencies were to be removed prior to the planned dissolution of the relationship there would not be a need for a prolongation of the cooperation. However, as technical dependencies still are significant the recommendation is to elect one of the two options.

The fifth recommendation regards considerations prior to dissolution and highlight what needs to be done before the relationship dissolves.

5. The remaining Ford-related components in production need to be investigated and evaluated as to how many of them can be affected out, as well as what the risk for issues and damages incurred by those issues could be.

Not until then should a decision of whether letting the contract expire as planned or to continue the cooperation in some manner be taken. If no such investigation and evaluation of components is conducted, the cooperation should be extended since this is the safest

alternative where any potential risks can be taken care of and does not allow for unforeseen high costs for mitigating individual issues.

# **5. Concluding discussion**

The purpose of this thesis has been to explore the characteristics of dissolving postdivestment exchange relationships and identify and explain the effects of these dissolving relationships on the divested party. The case study of the exchange relationship dissolution process between VCC and Ford has served as the empirical instance where the theoretical framework was applied and used for the analysis, leading to the recommendations for VCC in the previous chapter. In this chapter, the theoretical and managerial implications of the thesis are discussed and conclusions are drawn. Finally, recommendations for further research within the area of exchange relationship dissolution are proposed.

RQ 1. What characterizes the relationship between actors in an exchange relationship following a divestment?

The first research question has been considered through the development of a conceptual model derived from research within exchange relationship dissolution literature. This conceptual model includes stages of the dissolution process and factors and events influencing the dissolution process. It is exemplified in the case study what these stages, factors, and events can look like. Hence, what characterizes the relationship between actors in a relationship following a divestment is answered both from a theoretical and empirical perspective.

The nature of post-divestment exchange relationships arguably vary much between different cases. For instance, it is not certain that actors strive for independence after the divestment and it may be acceptable to maintain the relationship. In this case study however, it is of high priority to become independent for both actors because they have gone from having joint interests and goals to being competitors and therefore the dissolution process is important to address for this type of situations.

RQ 2. What effects arise during the dissolution of an exchange relationship and how do they affect a divested actor?

For the second research question of this thesis, the effects that the dissolution have and possibly will have on the divested party have all been linked to the substance of the relationship between the actors, i.e. resource ties, activity links, and actor bonds. This relation and reasoning should arguably apply to different contexts of post-divestment relationships and hence be applicable to other cases. However, the actual effects, in this thesis identified as relating to technical dependencies, the change management process, and governance, are rather case specific and need to be investigated from scratch for each case.

RQ 3. How should a divested actor mitigate and handle these effects?

The third and final research question is mostly empirically investigated, as no generic effects of the exchange relationship dissolution process on the divested party have been identified through the theoretical findings and development of the theoretical framework. Only generic categories of effects have been identified as mentioned previously. The recommendations for

VCC in 4.5. *Recommendations* serve to answer how a divested party should mitigate and handle the identified effects in the case study.

This thesis contributes to theory by coupling M&A theory with exchange relationship dissolution theory. In contrast to other M&A literature, which strongly focuses on the acquiring or divesting party prior to or in the process of divesting, this thesis takes a look at divestments from a medium- and long-term perspective as well as from the perspective of the divested party. In addition, a conceptual model describing post-divestment exchange relationships, based on the ARA-model and exchange relationship dissolution literature, was created. The conceptual model developed from the exchange relationship literature provided a good picture of what a post-divestment relationship dissolution process may look like and proved to work when the specific relationship between VCC and Ford was portrayed using the concepts of the model. Relationship dissolution theory was also coupled with theory on the organization of the firm by relating it to transaction cost economics and governance.

Suggested further research is to conduct a post-dissolution review where the conceptual model is applied after a relationship has been dissolved in order to evaluate if it was dissolved successfully and properly. It is also encouraged to investigate if the conceptual model is applicable in other similar settings, and how the model could be adapted and improved. Transaction cost economics proved to be a suitable complement to exchange relationship dissolution literature, to assess and evaluate the identified effects and consequences that emerged during the relationship dissolution process on the divested party. Hence, this combined approach is proposed for researchers who intend to evaluate similar situations to the situation in this case study.

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#### 6.3. Interviews

Interviewee 1 (2014, April 24) Phone interview. Chassis department, Change management.

Interviewee 2 (2014, April 24) Personal interview. Powertrain engineering department, Coordination.

Interviewee 3 (2014, April 15) Personal interview. Powertrain engineering department, Change management.

Interviewee 4 (2014, April 23) Personal interview. Powertrain engineering department, Verification.

Interviewee 5 (2014, April 16) Personal interview. Powertrain engineering department, Verification.

Interviewee 6 (2014, April 16) Personal interview. Powertrain engineering department,, Project manager.

Interviewee 7 (2014, April 17) Personal interview. Powertrain engineering department, Quality.

Interviewee 8 (2014, April 29) Personal interview. Product development, Liaison.

Interviewee 9 (2014, April 15) Personal interview. Product development, Change order coordinator.

Interviewee 10 (2014, April 22) Personal interview. Product development, Change order coordinator.

Interviewee 11 (2014, April 22) Personal interview. Product development, Change order coordinator.

Interviewee 12 (2014, May 13) Personal interview. Purchasing department, Powertrain.

Interviewee 13 (2014, April 23) Personal interview. Strategy and vehicles concepts department, R&D Liaison.

Interviewee 14 (2014, April 25) Personal interview. Strategy and vehicle concepts, Business analyst.

Interviewee 15 (2014, April 25) Personal interview. Volvo cars customer service, Purchase planner.
## 7. Appendix

## 7.1. Interview guide

Below is an example of an interview guide used for

- 1. Could you explain your role, what your tasks are and what they involve?
  - 1.1. Could you describe the work process(es)?
- 2. From a broad perspective, what does the cooperation with Ford look like today?
  - 2.1. Communication?
    - 2.1.1. At what levels and in what processes?
  - 2.2. Change Management?
  - 2.3. Contact and information flow?
    - 2.3.1. Overview
  - 2.4. When does the contact with Ford end?
- 3. How has been prepared in advance of the end of the cooperation with Ford?
  - 3.1. Strategic level?
  - 3.2. Operational level?
  - 3.3. Product level?
- 4. Based on how the relationship with Ford has developed, what possible scenarios can you see arising after the end of the cooperation?
  - 4.1. What is most likely?
- 5. What would be preferable from Volvo's perspective?

## 7.2. Terminology

- Affect out The action to remove or replace a component in production.
- *Change management* The process of investigating if and what effects that emerge when third parties initiate changes on shared components.
- *Change order coordinator* Technical expert with, among other things, the responsibility to receive and examine the incoming change orders in the change management process and forward them to the right people.
- *Delivery unit* The unit or component as it is delivered from a supplier and it may include underlying components in several levels.
- *Drive line installation (DLI)* Refers to the rest of the components that make up PTAI, see definition below, e.g. transmission, drive shafts, differentials, and final drive.
- *End of production (EOP)* The time when components no longer are in production and hence enter the service period, see definition below.
- *Engine as shipped (EAS)* Refers to the engine as it is delivered from the engine plant, including components making up the engine such as pistons, engine block, and crankshaft.
- *Lead* The term for which company that is responsible for the development of a certain component and thus has the responsibility of reporting changes that occur on that component to everyone using it.
- *Liaison* The term describing a intermediate or connecting character, e.g. the liaison group at VCC manages the relationship with Ford.
- *Original equipment manufacturer (OEM)* An OEM manufactures products or components that are purchased by another company, who sells the products or components under its own name.
- *Platform* Refers to automobile platform, which serve as the "base" of the car, and is a shared set of common design, engineering and production efforts, and is commonly shared between different models and sometimes companies, e.g. the EuCD platform used by VCC and Ford.
- Powertrain as installed (PTAI) Consists of DLI and EAS, as defined above.
- *Service period* The period following the date when a component is not longer used in production, when it is only needed as a service part when components need to be replaced.
- *Scalable product architecture (SPA)* VCC's own platform architecture, designed to include several models and increase the number of shared components between models.

Sub-part – Part or component that is included in a delivery unit, see definition above.

- Tooling The tools make the production of corresponding components possible.
- *Transition period* The period between the divestment decision and the dissolution of a relationship.
- *Volvo engine architecture (VEA)* VCC's own engine architecture designed to be very fuel efficient, running on four cylinders. They include petrol engines and diesel engines as well as hybrids.