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Generating Revenue-Streams from Vehicle Connectivity Solutions
A case study of Volvo Car Corporation

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Generating Revenue-Streams from Vehicle Connectivity Solutions by Marcus Albertsson and Joakim Edström.

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Abstract

In times of instability in a heavily competitive market, where competing organization strategy has become very similar and innovation of process are quite easy copied, a good way of capturing value can be crucial in order to find new approaches and new ways of generating revenues. Connectivity has become part of our daily life and many people expect to be connected at all time and now vehicles are being developed in order to comprise connectivity functions. The purpose of the thesis is to analyze how pricing strategies affect value capturing within vehicle-connectivity solutions and to contribute to the acknowledgement regarding connectivity opportunities that exists within the vehicle industry. The research was carried out at Volvo Car Corporation and our results show that connectivity solutions may be priced differently according to what objectives the firm wants to achieve. The value captured can be both direct revenues e.g. upfront cost or subscription fees and indirect revenues e.g. better customer relationship.

Acknowledgements

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Introduction

The aim of this chapter is to introduce the phenomena of connectivity and value capturing, which is followed by the purpose of the report. Delimitations are also illustrated in the last part of the chapter together with the disposition of this paper.

Background

New approaches and ways of generating revenues are vital in the competitive market and capturing value is part of that process. Companies do not only have to create value, but they also need a good way of capturing it. Capturing value will generate revenues, which can potentially become profits that can help the company to developed even further and become more competitive (Chesbrough and Rosenbloom, 2002).

Xerox Corp. (former Haloid) was a company that changed their way of capturing value. They went from selling their products to leasing them. The customer did not have to invest heavily in new office copy machines, but instead used a leasing-contract that removed a very big obstacle for customers since now they only had to pay a monthly based subscription for usage of, in this case, the amount of printed copies. The result proved to be a success story and their growth-rate was an incredible 41% for a dozens of years and was explained mainly due to a strategic change in their pricing strategy (Chesbrough and Rosenbloom, 2002).

Another example is Apple, which introduced a series of new innovative products such as the iPod and the iPhone that helped the company gain the top position of its industry. However, the success was very much connected to the ability to create a whole new way of capturing value. Apple introduced the ability of downloading music, namely the iTunes online music service, which was something that the music industry had failed to conceive (Lindgardt et al., 2009). So with the combination of new innovative products and new ways of thinking, Apple grew to become thirty times larger than the original market. The music service iTunes helped Apple to create a whole new way of capturing value where new revenue streams were created, not only by selling new innovative tangible products, but also by introducing new creative services. It made customers more attached to apple products since the iTunes service and Apple´s products worked perfectly together and created a smooth process for the customers and were very much appreciated by the users (Lindgardt et al., 2009).

Value capturing, that is, how to get compensated for the product or service, is one of the dimensions where companies can look for new opportunities and to be innovative within. This is how organisations find new ways of getting revenue streams from their products and services, i.e. how companies capture the value that has been created. By looking at value capturing, corporates can develop and find ways of implementing new systems that generates revenue streams and interactions with partners and customers that were unknown prior to (Sawhney et al., 2006).

To sum up, there is a need for companies to be able to capture value from their products and services when competition is intense, strategies are similar and process innovations are easy to copy. Hence a strategy for how to be compensated is needed in order to generate revenues.

Connectivity

Today, wireless connectivity is one of the most important tools in our daily life. It has become part of many mobile devices such as smartphones, computers and tablets and is vital for this generation of wireless connectivity (Bechmann, 2011). Being able to send, receive and find information anywhere around the globe has become obvious for many people. More and more apparatus are being connected, like for example the heating system in your home, which you can control using an app on your smartphone or the televisions, With it, the user is able to browse around for different programs using different downloaded apps, streaming providers and also video chatting with friends and family using the new generation Smart-TV (Forbes, 2013).

Moreover, companies like ABB (power & automation technologies), LKAB (Iron-making) are examples of companies that acknowledge the importance of connectivity, and it is estimated that around 50 billion gadgets will be connected by the year 2020 (Ny Teknik, 2013). Due to the wide spread usage of connectivity on different apparatuses, people simply expect the ability of being able to connect and this implies constrains on many companies to take action but is also an great opportunity for many organisation to come up with new ways of capturing value that can generate new revenue streams (Lindgart et al., 2009).

Vehicle Connectivity

Cars today have been developed to comprise the new generation of wireless connectivity to the continuing stream of applications and software such as intuitive driver assist systems, telematics and convenience enhancing applications. Original Equipment Manufacturers (OEM) such as Volvo Car Corporation Corporation (VCC) are providers of these kinds of systems used in the car and usually they have their own trademarked devices (Amditis, 2006; Kumar, 2009).

Three different systems can be used to enable the use of connectivity services; embedded solutions, at which the connectivity is incorporated into the car, tethered solutions where the driver is required to set up their phone as a modem and integrated solutions where smartphone apps are assimilated into the car (SBD, 2012). The methods are not mutually exclusive; a solution can use two or more of the connectivity methods e.g. embedded for premium segment and tethered for low-end segment (SBD, 2012).

Connectivity could embrace many different kinds of devices, depending on what goal to achieve, but telematics, infotainment and human machine interface (HMI) are in report considered as the cornerstones of connectivity. Telematics refers to the automated convergence of telecommunications and informatics, mainly wireless communication (Frank, 2009; Chen et al. 2011). Infotainment encompasses the mixture of information and entertainment (Frank, 2009; Kelly and Anderson, 2009). Human Machine Interface (HMI) is a

concept that involves numerous systems with the aim of allowing the driver to interact with the car as well as displaying feedback from the car to the driver (El-Khoury, 2008).

This paper focuses on Volvo On Call (VOC), which is Volvo Car Corporation solution to the increased demand for connectivity. The three main service-areas are Security, Safety and Convenience where an app is also available for the users. VOC is a telematics unit that currently is offered as an additional service that allows a two-way communication between car, VCC, service-providers and customers. VOC enables a more efficient system to be delivered of existing products and services, like for example roadside assistance, car-crash-notification and a car-heating control via convenience, which is an app.

Volvo Car Corporation

VCC first started to produce vehicles in Gothenburg (which still holds the head office, product development, marketing and administration) in 1927 and is now operating with sales in approximately 100 countries with the help of roughly 2,300 local dealers. VCC was a former part of the Swedish Volvo Group but in 1999 Ford Motor Company acquired it. Eleven years later, in 2010, Ford sold the company to the Chinese Zhejiang Geely Holding (Volvo Car Corporation, 2013). VCC had approximately 22,500 employees and 421,951 sold cars in 2012, making it a relatively small OEM with a sheer global market share of 1–2 percent. The largest markets are the United States, Sweden, China, Germany and the UK. The firm is a premium-segment car producer and has models in four types: sedans, versatile estates, cross country vehicles, and coupes and convertibles (Volvo Car Corporation, 2013).

When you buy a Car from VCC, you will be able to log in to "Min Volvo", which is a webpage with an accompanying app. The webpage platform includes many advantageously features. This is for making your ownership of a Volvo car as simple as possible. Some of the things you can do are to keep track of your service, explore accessories and models and gate the latest offers from VCC that fits you personally.

Problem

 Volvo Car Corporation have been selling cars from the year 1927, that is, for over 80 years. This has had implication on their way of capturing value from the cars that are sold where they have been using the strategy of asset sales. So when the product, in this case the car, is sold as a physical object, the new owner has the right to use, sell or even destroy the product and has no further connection with Volvo Car Corporation. That is, little has been done during the lifetime of the company in order to sustain a relationship with the customers.

However, when Volvo now is moving towards the new era of connectivity and the connected car, a whole new way of possibilities arises and the way of capturing value is changing simultaneously. As a result, connectivity is moving Volvo Car Corporation towards a more service oriented pricing strategy where more continues payments from the customers is becoming more common. Since now, by using connectivity and more precise Volvo On Call, VCC can connect the car and hence charge for it in different ways.

Purpose

As mentioned in the background chapter, capturing value is important for companies when competition is immense. Consequently, this paper is focusing on how to find new ways of capturing value for Volvo Car Corporation (VCC) by exploiting technology within connectivity, which is a phenomena that is growing at a very fast pace, and not the least within the vehicle industry. The focus will be on Volvo On Call, which will be examined further in paper. So, the research question is as follows:

- *How Can Volvo Car Corporation Capture Value From Vehicle-Connectivity?*

Delimitations

The limitation of this paper is to examine how VCC can capture value from connectivity and more precise Volvo On Call, which could potentially generate new revenue streams. Because of that narrow focus, other areas outside Volvo On Call will be left out. The paper does not either examines the process of value creation or how to sustain value; hence, focus will be on value capturing as can be seen in Figure 1 where the green box is the area of importance to this paper. In other words, the paper will support VCC in examining ways of capturing value from Volvo On Call.

Create Value
(Create a valueable product/service)

Capture Value
(How to capture the value from Product/service)

Sustain Value
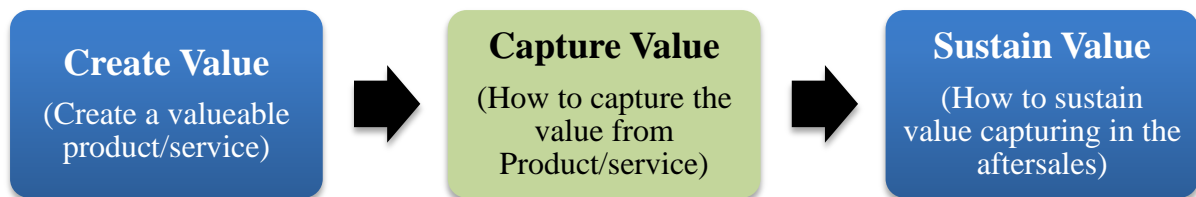(How to sustain value capturing in the aftersales)

Figure 1: Delimitations

Disposition Of Thesis

This paper will be structured as follows:

1. Introduction
2. Theoretical Framework
3. Research Methodology
4. Empirical Findings
5. Analysis
6. Conclusion

Theoretical Framework

This chapter aims at presenting the literature review regarding this paper. Starting by explaining the concept of Value Capturing and then moving forward to present a framework for pricing, which will be the majority of the chapter.

Value Capturing

Sawhney et al., (2006) use the same terminology as Teece (2010), namely value capturing. He defines value capturing as the mechanism by which organisations recaptures value from their offerings. It means that a company must regain value from their products and services that has a certain value. Moreover, Sawhney et al., (2006) explains that companies can be innovative within value capturing by discover and capture untapped revenue streams. For example newspapers, they capture value by including advertisements in their papers and not only capture value and generate revenue streams by selling the newspaper as such. Another example is Xerox, which decided to capture value by leasing their products instead of selling them, which become a huge success (Sawhney et al., (2006).

Another author, Chesbrough (2010) uses a different expression, namely revenue mechanism. He explains that in every company there is an importance of having a well-functioning revenue mechanism that entails capturing value in order to become profitable and make money (Chesbrough, 2010). This is because organizations need to be compensated for the value they offer to the customers. One revenue mechanism does not automatically guarantee revenues and profits. Therefore, companies must sometimes rethink and change their revenue mechanism function in order to better capture the value from their products and services.

Moreover, Osterwalder & Pigneur (2010) explains value capturing as the arteries, whereas the customers are the heart of the business model, or in other words, that customers are the ones generating income to the business. In order to keep the business alive, there is a need to capture the value from their value propositions.

The authors highlight questions such as "how much are customers willing to pay", "how are they currently paying" and "how would they prefer to pay" (Osterwalder & Pigneur, 2010. p31). In other words, customers may have different preferences regarding methods of payment, which his is something companies can acknowledge in order to more effectively capture value.

Today, value capturing is more than simply package a technology together with its intellectual property into a product and then selling the item as a bundled package or as a discreet item. This has been the way of making money for many companies since the industrial era, where economy of scale was most important factor for companies in order to generate revenues. Some believe that there is no need for acknowledgement regarding the architecture of revenues mechanisms or issues associated to value capturing. However, many examples show

the opposite where changing strategy of capturing value proved to be an excellent decision (Chesbrough and Rosenbloom, 2002).

With new technology such as computers, the Internet and many other new gadgets, innovative ways of capturing value and making money has emerged and many new opportunities are to be found. However, for many companies this new technology has proven to be negative. For example, the Internet has giving birth to questions concerning companies to capture value from delivering information service that customers expect to receive for free. Moreover, customers have gained a stronger position towards companies due to the comparison-shopping that is available because of new technology together with connectivity (Teece, 2010).

Conditions have changed due to the new technology regarding how to charge for value. This raises questions how companies are to entice customers to pay for the value created. Put differently, companies must think about if customers would like to pay for it and how they would like to pay for the value the company is offering (Teece, 2010).

Different terminologies have been used by different authors such as value capturing by (Sawhney et al., 2006) and (Teece, 2010) and revenue mechanism used by (Chesbrough, 2010). However, they all encompass the same issue, namely that it is important for companies to capture the value that has been created. It is not only a matter of creating value, but also having a good way of capturing it. Since without capturing the value no revenues are created, hence no profits are generated for the company and the value offering becomes valueless.

Value creation will be used throughout this paper and it will refer to how companies get compensated for their value offerings.

Framework For Pricing

A four-step process towards effective pricing decisions is proposed by Hinterhuber (2004) and will be used to analyze the different components in a pricing process. The framework can be found in figure 2 and shows the structure the paper will follow.
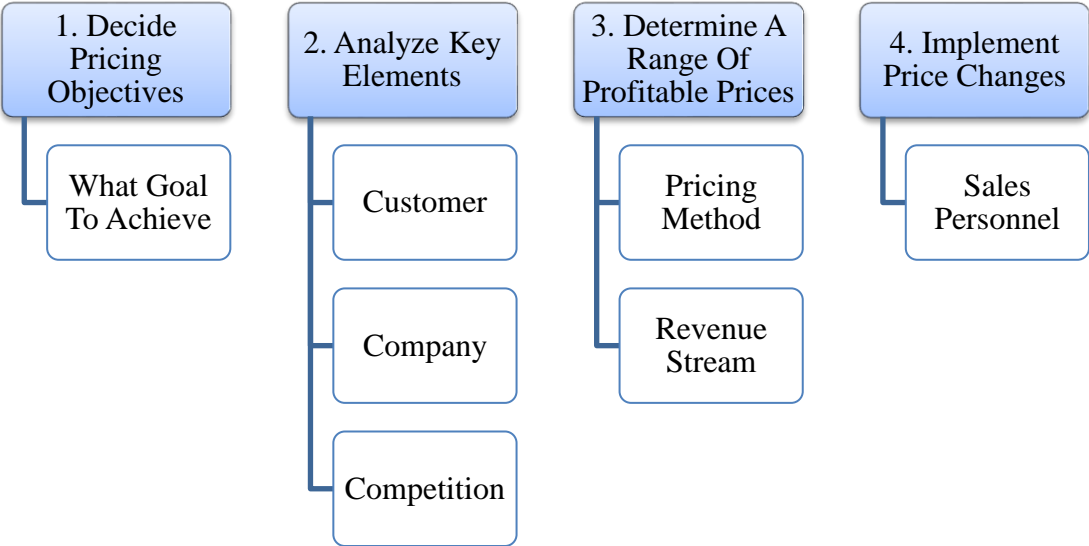
The chain of events is initiated by the undertaking of determining what goal or pricing objective VCC wants to achieve. It is followed by an analysis of the key elements namely customers, the company itself and the competition. The next step is to determine a range of profitable prices, which can be made after the decision of what pricing method and revenue stream to be used. Lastly, the price changes needs to be implemented within VCC and to be carried out through the chain until it reaches the end customers.

Decide Pricing Objectives
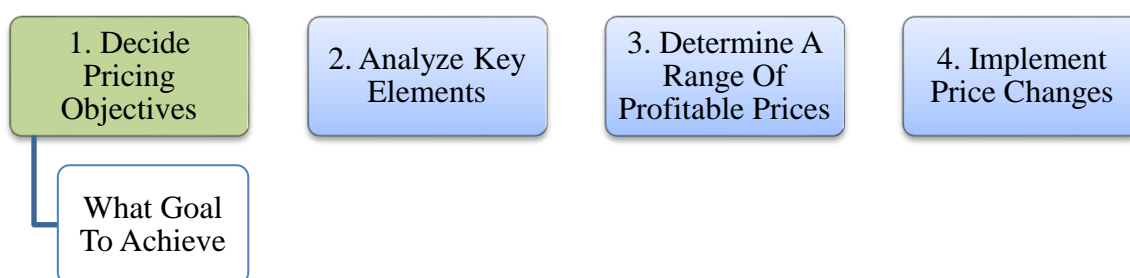
Figure 3: Decide Pricing Objectives

What Goal To Achieve

The pricing objectives should reflect the company's general strategy although it might diverge according to type of product and over time. The firm may use a growth strategy that requires a different pricing strategy compared to a mature firm trying to defend its market share (Hinterhuber, 2004). Firms may also opt to set the prices below their purchasing price to attract customers, to bundle the product together with another service or prevent a competitive entry into their operating market. All of these approaches require a context-specific pricing strategy in order to reach their goals. Examples of pricing objectives are profit-, sales- and market share maximization, return on investment, price differentiation, discouragement of new competitors' entering into the market, maintenance of the existing customers and long term survival (Avlonitis & Indounas, 2005).

Pricing objectives can be divided into three categories, relating to their content, the desired level of attainment and the associated time horizon (Avlonitis & Indounas, 2005).

Relating To Their Content

- Quantitative and qualitative objectives are the two options in this category and they measures different things. Quantitative objectives are associated to data that are easily

measured and interpret such as the firm's profits, revenues, market share and cost analysis. In contrast, qualitative objectives are related to less quantifiable goals. These can be the relationship with customers, competitors, distributors, and the long-term survival of the company (Avlonitis & Indounas, 2005).

The Desired Level Of Attainment

- Another dimension to decide when determining pricing objectives is to use goals to realize maximum results or to achieve satisfactory results. The objective of maximizing for example profits or sales has been condemned by the academic sphere of being somewhat impractical to accomplish. The reason for this may be that pricing managers does not possess all vital information, lack of intercommunication within the firm or neglecting the importance of government intervention (Avlonitis & Indounas, 2005).

Time Horizon

- Pricing objectives can also be separated in regards to what time horizon they are aiming at. Short-term and long-term objectives are the two distinguishable categories and the short-term objectives exertion to achieve goals in a short interval such as six months. Long-term objectives are understandably focused to be accomplished after a period of time. They are not mutually exclusive but short-term objectives may in certain circumstances hamper the ability of realizing the long-term objectives (Avlonitis & Indounas, 2005).

More than one objective should be pursued but as more objectives are involved in the strategy the more complex the pricing decisions become. It becomes problematic as not everyone is compatible with each other and a thorough breakdown of the objectives needs to be done to ensure a well-matched strategy. Research shows that quantitative objectives are perceived as more essential than qualitative ones and that profit maximization is preferred over reaching a satisfactory profit (Avlonitis & Indounas, 2005).

Analyse Key Elements
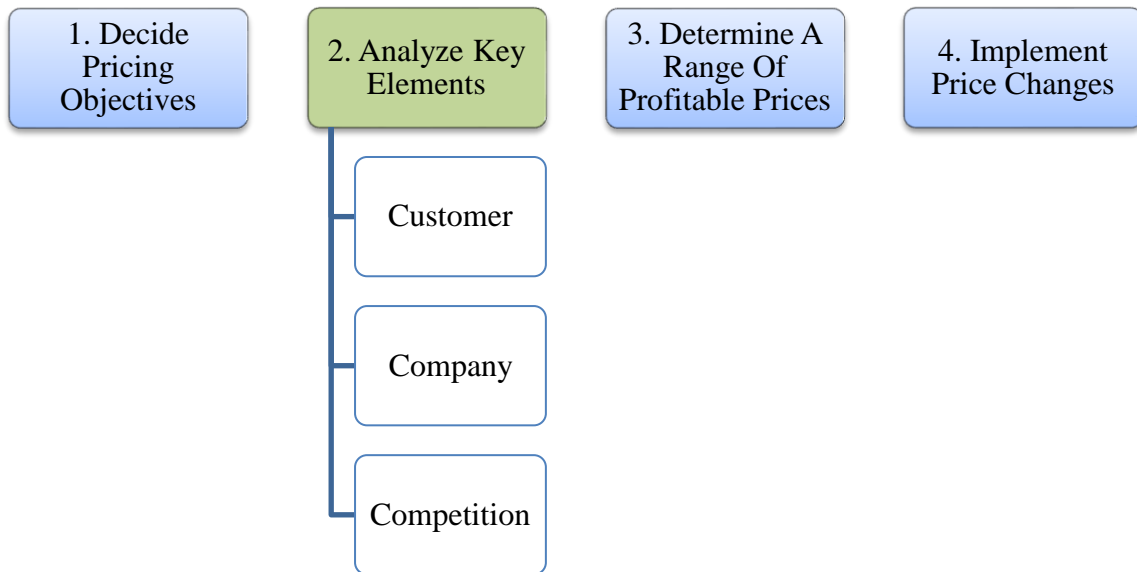
Figure 4: Analyze Key Elements

The next step is to analyse the key elements of pricing decisions. There are three key elements, the customer, the company and the competition (Hinterhuber, 2004).

The Customer

Customer value is being recurrently used in practice, although the concept is rarely well defined. One definition of customer value is the difference between perceived benefits and sacrifices i.e. consumer's willingness to pay in comparison to the actual price paid (Hinterhuber, 2004). Another definition is the maximum sum a customer would be willing to pay to acquire a product. The latter definition describes the price as the amount at which the customer is indifferent between the purchase and foregoing the purchase.

Moreover, affordability and reasonable prices are essential factors that together constitute the offering from the company that is presented to the customers (O´Cass and Ngo, 2011). Through market-based exchange, the firm may find the appropriate price of the product that should be incorporated in the discussion of value. The selling price does not always reflect the acquisition value for the customer and firms should strive to enhance the customers' perceptions of the acquisition value. Especially in a highly competitive and mature market where the selling price is similar, is it important to improve the perceived value for the customer in order for the business to prosper. To sum up, it is a struggle to deliver pricing levels that customers are willing to pay (O'Cass and Ngo, 2011).

To achieve a feasible price, not only does it necessitate innovative products and services, but the firm also needs to communicate through marketing the value of these products to customers (Hinterhuber, 2004). To analyse the value for customers, there is a six-step process that needs to be used, which is as follows:

1. First step is to detect the cost of the best competitive product or service in the market (Hinterhuber, 2004). This product or service should be selected based upon what the customer could use as a reference product. Sometimes several products may offer similar performance, and in that case the two and three most suited products could be used. When measuring the quality and performance of the competitive products, the value should depend on customers, and not the company's, criteria's (Hinterhuber, 2004).

2. The second step is segmenting the market according to how the customers perceive and value the product (Hinterhuber, 2004). This could differ due to individual characteristics of the customer and how they use the product. To acquire knowledge about the firm's customer behaviours and desires, observation and intense field research could be used. Pharmaceutical and software companies such as Microsoft often apply this strategy. The company hand out beta-versions of its latest enterprise software products to a particular segment of customers in order to acquire useful feedback. Its valuable information about what are the most sought after features and how they use the product (Hinterhuber, 2004).

3. The third step includes pinpointing the characteristics that distinguish the firm's product from the competitor's product (Hinterhuber, 2004). There are a myriad of different ways that a product may distinguish from others: consistency, performance, ease of use, environmental safety, service, reputation and so on. The differentiating factors should yet again be decided from a customer perspective, and how relevant they are in order to satisfy the customer's need (Hinterhuber, 2004).

4. The following step is to define how these differentiating factors alter the value to the customer (Hinterhuber, 2004). These factors are allocated monetary values in regards to each customer segment. For some industries, this process is simple as the effect of reduced failure rates, start-up costs, and life cycle costs can be quantified in terms of value for the customer. For others, it is a complex process where indirect survey, focus groups and benchmarks have to be used (Hinterhuber, 2004).

5. Step five concerns determining a range of value that the firm's product will have when the price of the reference product and its differentiation value is put together i.e. the total economic value. The price and the value of the reference product and the firm's products differentiating characteristics may alter according to the customer segment. There is therefore most often not a single monetary value; rather a value pool that encompasses the differences each customer segment may have (Hinterhuber, 2004).

6. Finally, the value pool can be used to assess future sales depending on the price (Hinterhuber, 2004).

In the aftermath of a product deliver to customer, a firm cannot simply cut all the ties with the customer since there is a relationship-building value that can be captured. Features and pricing are not the only privileges that customer expects from the firm, a complete offering should also include swift response to enquiries (O'Cass and Ngo, 2011). A purchase criterion could even be an experienced positive treatment so that a relationship with the company can be constructed. With a relationship established, the customer is keen to keep in touch with the firm so that additional value can be added to the consumption experience. People are getting better informed and more demanding which increase the need of relationship building value (O'Cass and Ngo, 2011).

Moreover, by using a co-creation value strategy, the consumption experiences can be personalized if the customers are allowed to co-create their own unique purchase together with the company. The customer is also a contributor of value i.e. they can generate value from the firm's offerings' conjointly with the firm. The foundation of co-creation rest on the firms and customers strive to jointly create a better consumption experience (O'Cass and Ngo, 2011). In a customer-firm relationship, it is the customer that creates the value independently and the firm provides a framework that will aid and assist the customer in co-creation. The company nurtures and sustains opportunities for customers to insure that they have all the capabilities they need.

Co-creation can involve self-service such as allocation of labour to the customer like e.g. IKEA has done, self-selects such as interactive response system or product co-design. These kinds of co-creation encourage customers to vigorously co-create with firms to receive a personalized consumption experience (O'Cass and Ngo, 2011).

The Company

Within the company an analysis is required to determine the effects price on the product has on the volume and profit. A cost-volume-profit analysis could be used to envision the product's profitability and its contribution to gross margin (Hinterhuber, 2004).

Another important tool that can be evaluated is the value proposition that is a process that encompasses interpreting and responding to customer's reaction and needs. If done more appropriately than the peers, the company obtains a positional advantage, which is a cornerstone in acquiring superior performance (O'Cass and Ngo, 2011).

Moreover, the performance of the value proposition that is the product or service needs to be adequately suited for the unequivocal requirements of the customers. Product attributes have a strong influence on customer's perceived value of the product; however attributes have different prominence according to what the customer believes as important (O'Cass and Ngo, 2011). Product advantage includes innovative features, high quality and meeting customers' needs better whereas relational advantage includes developing and fostering relationships with customers. The two types of advantages are not mutually exclusive; instead companies

should strive for achieving great results in both of them. A firm needs to realize the significance of understanding customer expectations so that product advantage and relational advantage can be accomplished (O'Cass and Ngo, 2011).

Quality is but one attribute although for some customers it is of paramount importance in order for the product to deliver superior performance value. Other attributes that often play a vital role are innovative features and personal preferences. As a result, a firm trying to deliver high performance value need to consider customers' requirements such as quality, innovative performance features and functions that satisfies the consumers' personal preferences (O'Cass and Ngo, 2011).

The Competitor

The third element can be assessed through a numerous point of views, such as analysing threat of new entrants.

New entrants may penetrate the industry if there is a successful access to distribution channels and raw materials, and low barriers to entry and switching cost (Hinterhuber, 2004).

Price trends in existing markets do also affect the competition as customers can initiate a price war by intentionally lie to sales personnel about competitor's offers. They strive to acquire a more favourable negotiation position and the sales personnel may be tempted to comply with lower prices to win the order. If there is no trustworthy database of competitive information, the price levels in the market may fluctuate and harm all players (Hinterhuber, 2004).

Competitive strategies are a third factor that could be analysed with focus on expected profitability; future plans involving growth and SWOT (strength, weakness, opportunities and threats) analysis (Hinterhuber, 2004).

Information about distribution channels such as who are the key distributors and amount of products warehoused in distribution channels influence the competitor's position. The policy of managing distributors often also includes pricing and payment regulations and sales forecast (Hinterhuber, 2004).
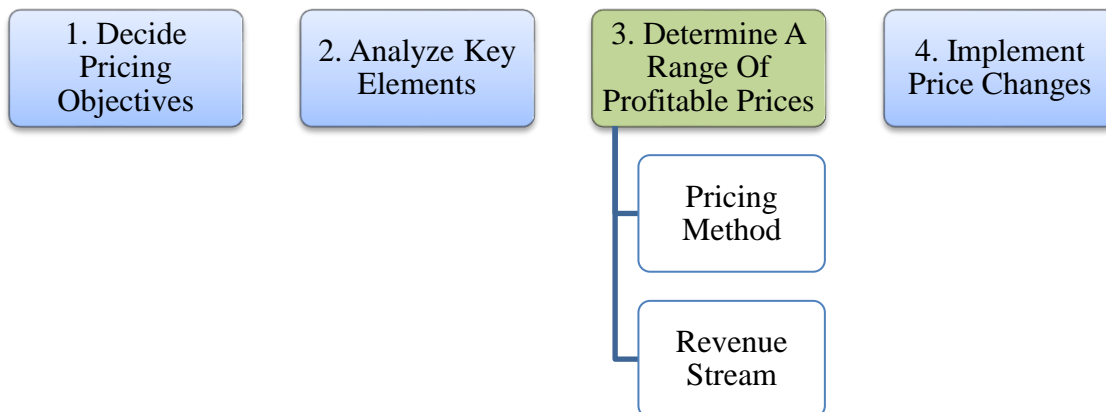
Figure 5: Determine A Range Of Profitable Prices

The expedient information gathered from the previous analyses will provide context to the task of determining a range of profitable prices (Hinterhuber, 2004). The outcome is to gain knowledge about the magnitudes of a price change and how it will affect sales, revenues and other important factors so that the pricing objectives can be fulfilled.

There are strategies and methods that aid the decision-maker to determine a range of profitable prices according to what stream the revenue is derived from.

Pricing Methods

Product and service pricing is a significant tool for companies to improve profits and to secure long-term survival (Hinterhuber, 2004; Avlonitis & Indounas, 2005; Hinterhuber, 2008). Yet managers often neglect it and less than 15% of the firms examined by McKinsey & Company did any studies on pricing effects.

However, managers have realized how important price is as a purchase criterion for the consumer, although research has shown the opposite (Hinterhuber, 2004). Pricing has also been neglected in the academic research, with far less publications on pricing than on other traditional marketing subjects such as product and promotion (Avlonitis & Indounas, 2005; Hinterhuber, 2004). Even major marketing journals tend to diminish the coverage of the subject.

Although there are numerous pricing methods available, they can be classified into three main categories according to Avlonitis & Indounas (2005) and Hinterhuber (2008).

Cost-Based

- Includes methods such as cost-plus method, target return pricing, break-even analysis and marginal pricing (Avlonitis & Indounas, 2005). Basically, these methods strive to cover the cost of the product or service or to set the price sufficient to yield the firm's target rate of return on investment. The foremost strength with this method is the readiness of available data whereas the weakness is that it does not take competition and customers into account (Hinterhuber, 2008).

Competition-Based

- Implies a strategy to price accordingly to the competitors. It can be similar, lower, and higher than the competitors or replicate the dominant price in the market (Avlonitis & Indounas, 2005). As with the cost based method, the strength is that the data is readily available, however it does not contemplate customers and their willingness to pay (Hinterhuber, 2008).

Value-Based

- Encompasses perceived-value pricing; value pricing and pricing according to the customers' needs (Avlonitis & Indounas, 2005). The method focus on the value a product or service can deliver to customers as the main factor for deciding prices. It differentiates itself from the others as it does take customer perspective into consideration. The flaws with this method concern the data that is problematic to obtain and to interpret, it may lead to comparatively high prices and customer value needs to be communicated (Hinterhuber, 2008).

Although the three categories propose a distinct way to set the price, there is a possibility of adjusting the pricing methods. Some alternative methods are the following: (Dolgui and Proth, 2010).

Market Segmentation

- Relies upon the fact that different groups of customers perceive the importance of the benefits differently. The strategy is initiated by a segmentation of the market and developing dissimilar prices for each segment. The customers are divided into the segments accordingly to their willingness to pay for the product or service (Dolgui and Proth, 2010).

Discount Strategy

- Another method at which the provider sells the product or service at a reduced price for a limited period of time. The aim is to increase the sales to such a degree that the reduction in price will produce sufficient additional sales to compensate for the lower price. There are some discrepancies if the method is profitable as during a discount it applies to all sales, thus often culminating into calamitous consequences (Dolgui and Proth, 2010).

Price Skimming

- A method at which the price is initially comparatively high; to be lowered continuously until a certain price is reached. It is most commonly used when customers are not so price sensitive or when they are appealed by some innovation. The strategy could be extra appealing to use when vast investments for research and development need to be compensated. Nevertheless, it is problematic to maintain a relatively high price for a long time even if the firm is in a monopolistic situation (Dolgui and Proth, 2010).

Penetration Pricing

- The final adjustable pricing method that begins with setting an initial price lower than the one of the market, contrary to the price skimming. The reasoning behind the low price is to attract enough customers to alter their purchasing behaviours with the objective to acquire more market share. It puts a lot of pressure on cost reduction pressure and discourages new entrants into the market (Dolgui and Proth, 2010).

Revenue Streams

Moreover, companies can chose different ways of capturing value by using different revenue streams. According to Osterwalder & Pigneur (2010) there are seven different types of revenue streams that an organisation can use to capture value. Those are as follows:

Asset Sale

- The most common one, which is selling the right to a physical product. Once the product is sold, for example a book or a car, the owner has the right to use, sell or even destroy the product (Osterwalder & Pigneur, 2010).

Usage Fee

- A company's revenues mechanism or value capturing is generated by the service offered and the amount of use of the service. Meaning that, the more the service is used, the more revenue is generated for the company. For example, a telecom operator can charge for every minute a call is made or a hotel can charge for the amount of night stayed (Osterwalder & Pigneur, 2010).

Subscription Fees

- This way of capturing value is generated by offering a service with a continuous access. That is, a customer gets access to a service for a certain time for pre-set price. Can be for example monthly or yearly fee, like many gym´s offer to their customers or Spotify that offers unlimited usage of music service for a fixed continuing price (Osterwalder & Pigneur, 2010).

Lending/Renting/Leasing

- By permitting someone the right to use a certain asset for compensation, revenue streams and hence value capturing is generated. For the lender, frequent revenue streams are generated. Different car-lenders are a good example, where the renters experience the benefit of not bearing the full ownership-costs for a vehicle (Osterwalder & Pigneur, 2010).

Licensing

- By licensing out protected intellectual property (IP), such as copyrights, patents, trademarks etc., value capturing is possible through giving the customer the right to use the IP. It results in that the right-holders gain the right to use the IP for own revenue generation, and the IP licensor obtain licensing fees. For example, a certain technology that is patented can be licensed out to other companies for license fees in return. This method is often used in the music industry, where IP holders obtain license-fees from 3rd parties for the right to use their property (Osterwalder & Pigneur, 2010).

Brokerage Fees

- The service provided by an intermediate on behalf of two or more parties will create revenue streams; hence the company will capture value from their service. The value is captured when for example taking a percentage of the transaction from a one party to another, for example a real estate broker, when matching a buyer and a seller or credit card providers, for each transaction, a revenue stream is generated, which the company capture (Osterwalder & Pigneur, 2010).

Advertising

- Organisations capture values by creating revenue stream through advertising other company's products and services where the advertising company earns fees from advertisement. Media such as Television, newspaper and radio have traditionally used advertisement as a value capturing strategy for long time, although others, like software companies have started to use advertisement as way of capturing value (Osterwalder & Pigneur, 2010).
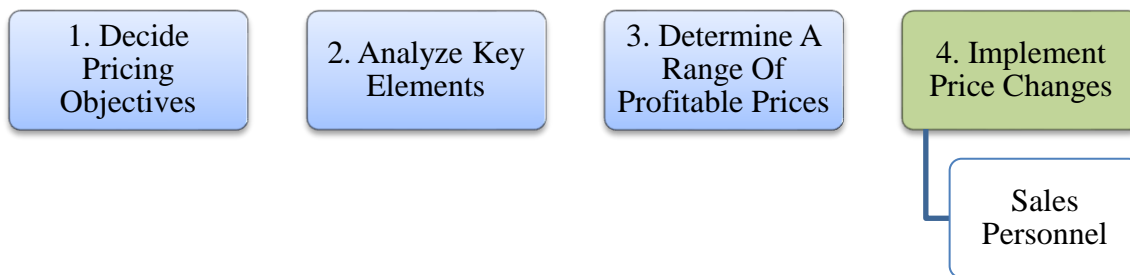
Implement Prices Changes

Figure 6: Implement Prices Changes

Lastly, implementing the prices changes should be made in conjunction with the sales personnel (Hinterhuber, 2004).

Managers may give the sales personnel instructions on suggested product use, positioning and price of the products they are selling but monitoring that these instructions are followed is very difficult. There are often too many enticements for the personnel to win a sales order that they could use unconventional ways to achieve this goal. When they are informally discussing with customers they may mention unorthodox ways of using the product (Hinterhuber, 2004). Another even worse scenario is for the sales personnel to propose to the customers that price strategy they are using is the executive's idea of increasing profits and that the price will change if they resist to buy the product this time. The consequence of their power to influence the customers gives them the possibility to strengthen or to destroy any planned price changes. A number of precautions can be made in order to decrease the potential mismatch that otherwise could be done (Hinterhuber, 2004).

One solution that may mitigate the problem is to involve sales executives in pricing decisions. When the sales staff is negotiating a deal with a customer they should be aware of any noteworthy and sudden price increases. They could be asked in beforehand to contribute in the decision of deciding the price rather than feeling that they are only executing a decision from headquarter. If they instead perceive that they are acting on their fullest conviction they have a better judgment in the negotiating (Hinterhuber, 2004).

Implementing a fixed-price policy is another option that emboldens the sales staff to sell not on price but on value instead. The policy does not include strict guidelines that all customers should pay the same prices; other strategies such as segmented pricing may be used in combination. This would establish flexibility for the sales personnel to modify the prices according to the segments. A crucial component for this to work efficiently is to ensure that the segmentation is consistent and follows the vision of the company (Hinterhuber, 2004).

Rewarding the sales personnel for profits and not sales is a policy that should be implemented to better steer the sales personnel. Another dimension is to link rewards to margin generated and not to turnover. This reasoning might seem obvious, although in practice the compensation and incentive scheme is more than often based on revenues. One reason could be that the executives don't want to reveal and share the margins with the sales staff (Hinterhuber, 2004).

Involving sales personnel in the strategy process and marketing strategies is another remedy to manage the sales force. By not just involving sales managers on pricing but also in the strategy process, they can add value from their perspective. Inputs in the late stage of a new product development process can help to enhance the product. Letting them acquire the feedback on product attributes or identifying lead customers is other viable tasks they could be involved in (Hinterhuber, 2004).

Making the company effortlessly reachable for customers will also help to keep the relationship between the customers and the sales personnel content. Customer complaints are not always handled in a sufficient way and sometimes only a minor amount of products offered in return to complaints gets approved. The sales managers should not explain to the customer about the complex routes of refunds policies when they could be given more authority to handle each case separately (Hinterhuber, 2004).

Uniting sales and technical personnel could enable the firm to rationalize their customer interface and reduce costs. Originally, sales personnel role is to facilitate transactions whereas technical personnel are concerned with new product launches. The two types of staff get their own comfort zone but by widening the role of sales personnel to include responsibility of technical issue will help them to better manage the customers demanding inquiries (Hinterhuber, 2004).

Methodology

In this chapter the reader will get an insight on the proposed research design, where the research design will be explain and the different research aspects will be covered.

Literature Review

Literature review is a part of the thesis that is essential, which will provide the foundation of the research question and build your research design around (Bryman & Bell, 2011). Moreover, the literature review help you decide how your data is collected and help you analyze the data in an informed way (Bryman & Bell, 2011). The literature review is a process where judgments are made about what should be excluded and included from the literate (Bryman & Bell, 2011).

This thesis does not follow the traditional way of discovering new areas within a specific topic in order to provide value to the theoretical body of that field. Instead, the paper seeks to answer a contextual and firm specific problem. The aim of the literature review is therefore to find theoretical frameworks that best help to answer this specific problem.

As stated in the introduction, the research question is as follows:

- *How Can Volvo Car Corporation Capture Value From Vehicle-Connectivity?*

The specific problem lies in the fact that Volvo Car Corporation seeks to discover new ways of capturing value from vehicle-connectivity. Therefor an extensive literature review was conducted in order to find good relevant theories. In order to conduct the literature review systematically, some key words were selected and those are as follows:

- *Keywords: Pricing, Revenue Streams, Connectivity, Volvo On Call, Value Capturing*

Electronic databases such as Summon were used to search for the keywords and combinations of the keywords. Google was used to search for articles and consultancy reports that were not to be found otherwise through electronic databases. VCC's intranet was also used to find explicit information. Articles and books from the academic sphere are in the report classified as theoretical information because they strive to unveil and diffuse knowledge about theories and models. Web pages, such as the competitor's websites, and consultancy reports are classified as empirical evidence. Web pages are empirical evidence because they reveal knowledge that is aimed at a specific target e.g. OEM's customers. Consultancy reports are not classified as theoretical information because of their methodological nature; they are often based on surveys that logically make them empirical findings.

Research Strategy

Normally there are two main different techniques when doing research, namely qualitative and quantitative research according to Bryman & Bell (2011). They further state that a quantitative research puts more emphasis on the collection of numerous of data, which is later transformed into numbers that can be measured. Whereas the qualitative research, highlight the importance of words and depth of data collected.

The research strategy is qualitative as the thesis seeks to address an exploratory problem with many of the variables influencing the answer being unknown. A qualitative strategy aims to gather in-depth understanding of a human phenomenon and the cause behind it, which is accomplished by examining not just what but also why and how the decisions are being made (Bryman & Bell, 2011). The research is not subject to testing theories, rather generating theories that are emphasized by a qualitative study. A quantitative strategy would not give the right tools to entirely grasp the situation, as there is little theory to test. Moreover, a qualitative research will give the advantage of providing the whole picture of the situation. It means that, if there are aspects that have been forgotten or questions that have been formulated in a wrong way, there is an opportunity for adjustments (Bryman and Bell, 2011).

Research Design

This paper adopts a single case study design at Volvo Car Corporation with Volvo On Call as the case and the aim is to serve VCC with guidelines for a pricing decision for VOC.

A research design aims at offering a basis for collection and analysis of data. There are five different types of designs: experimental design, cross-sectional design, longitudinal design, case study design and comparative design (Bryman & Bell, 2011). The research strategy employed for this paper is qualitative and given the inherent time constraints on a master thesis, the number of options available for research design is limited. However, the paper will be focusing on the case study design. This method would allow the authors to get an in-depth understanding of a real-life phenomenon. Lastly, the paper will be focusing on a single organization, namely Volvo Car Corporation.

Research Method

Research method is needed in order to collect data once a case has been selected. There is no use of only selecting an organization and start to observe it, but the researches must also select a method of gathering data (Bryman and Bell, 2011).

The research method of this paper will consist of interviews as primary data and secondary data from articles, books, newspapers and other static sources. The interviews will be made face to face with semi-structured questions. Semi-structured interviews are preferred over totally unstructured interviews because there is probably a time constraint on the interviews, which implies that the respondent should not be able to deviate too much from the questions. As the report is concerned with some specific factors, the interview guide and answers should be structured around the critical questions (Bryman & Bell, 2011). Moreover, the interviews

were made face to face, which would give a more sense trust between the interviewers and the interviewee.

Inductive research is a process of gathering data, attempting to establish patterns, consistencies, and meaning to generate a theory. Inductive approach moves from fragmentary details to a connected view of the situation. In contrast, deductive research is the process of theory to data. It starts with a universal view of a situation and works back to the particular and conclusions are drawn logically from available facts (Bryman & Bell, 2011). The report includes an inductive view because the future is very difficult to predict causing assumptions to be integrated in the paper.

Designing The Interview Guide

The interview questions are open and were chosen instead of closed questions for more than a few reasons. The thesis is, as aforementioned, using a qualitative research strategy that necessitates detailed answers from interviewees. Closed questions put superfluous constraints on the interviewees that hamper the ability to capture all the details. Second, closed questions would suggest that the majority of the potential answers have to be known in advance and this is not possible as it concerns future predications. Finally, fixed answers to the questions would increase the risk of biasing the interviewee (Bryman & Bell, 2011). However, open questions have intrinsic disadvantages too such as the increased time-consumption, the requisite of coding the answers, and more exertion from respondents (Bryman & Bell, 2011).

The sampling of internal interviewees at VCC was made in collaboration with the supervisor of the thesis. There were a total of six internal interviews at which each interview lasted for approximately one hour. Persons interviewed had positions within R&D, forecast and analysis and marketing and sales.

There were four external interviews conducted. The companies were chosen because they operate within the field of telematics and are based in Gothenburg. Each interview lasted for approximately one hour and were all recorded. The four companies used in the report are Wireless Car, Telematics Valley, Diadrom and Consat.

Data Analysis

For the data analysis the paper will be using the concept of grounded theory. It entails the coding of the collected data, and to saturate categories consisting of the information. Coding the data in grounded theory is one of the most essential processes that need to be done (Bryman & Bell, 2011). The method to code the data is to review the empirical information and bundle them together if they are perceived as important. The groups of information is then organized and labeled according to what they resemble. Because grounded theory is used in qualitative studies, the empirical data is qualitative and hence not easily coded. The coding should be iterative and in a state that necessitates revision if it is required (Bryman & Bell, 2011).

The grounded theory used for data analysis has its flaws too. One of the most frequently stated weaknesses is the problem of losing the context of what is said. The transcripts generated after the interviews does not easily include the social setting, which influence the text you use for categorizing and analyzing. Another potential weakness is the production of fragmentation of data, which will reduce the narrative flow. Some information can be interrelated to several categories in a narrative flow hence making it difficult to distinguish them into distinct categories (Bryman & Bell, 2011).

The grounded theory concept that will be applied for data analysis combines the research methods together to more easily be able to draw conclusions. The groups will be coordinated accordingly to what the interviews and other empirical information reveals. Theory and interviews with key people within VCC will help to determine factors regarding VOC while interviews with third parties will provide a base for new perspectives. Whenever information could be found from either the interviews or from the secondary data regarding one of the groups, it would be placed in that category. Both types of method to collect information should follow this structure so that it will be easier to analyze the data. It also enables the theoretical saturation when the amount of data is satisfactory within the categories.

Research Analysis

Bryman and Bell (2011) states that reliability, replication and validity are the three criteria's that are the most prominent regarding the evaluation of research.

Reliability is term used to describe the degree to which the results of a study are repeatable. It is questioning the truth that the results would be the same if the study would be done once more. The study will use interviews as empirical data that affects the reliability because when doing the interview, the place where the interview is conducted, behavior; language and body gestures may affect the respondent. This could lead to biased results and it is therefore important to objectively interpret the information. Another way of securing reliability is to receive the respondent's feedback. It will decrease the possibility of misinterpreting the information and identifying our own biases (Bryman & Bell, 2011). However, since reliability is mostly concerns with quantitative research, there will not be given more attention.

Validity is a term used to describe the integrity of the conclusions generated. There are several types of validity, where measurement validity refers to if the variables are accurately measuring the concept and external validity explains if the results can be generalized. In a qualitative study, the respondents are seldom carefully chosen from a random sample implying that you cannot statistically generalize the findings. Because of this element, the external validity may be affected negatively. In regards to the measurement validity, in depth interviews will be used to collect adequate data, which are detailed enough to provide a revealing picture of what is going on in the field of vehicle connectivity (Bryman & Bell, 2011).

In terms of internal validity, the literature review laid the ground for the semi-structured interviews and data collection. Furthermore, feedback and discussion were made with people from Volvo in order to strengthen the internal validity. External validity is rather strong since

the model and the different alternative versions used in the paper can be applied on other companies than Volvo Car Corporation. However, the specific business case of Volvo On Call with the exact numbers would not be suitable for other companies.

Empirical Findings

This chapter's purpose is to provide the reader with empirical findings. It starts with the introduction of VCC and the findings from the interviews. The next part is covering all the empirical findings related to the theoretical framework.

Interviews

A summary of the information extracted from the interviews is presented in this chapter. The third-party industry that supplies OEM's with connectivity solutions have a tough time to provide their own solutions because each OEM has its own branded technology. One remedy would be for OEMs to use a united platform at which it would be easier to incorporate new software and hardware according to one external interviewee.

How to establish and maintain revenue streams for vehicle connectivity is difficult but two external interviewees believe that the market should test the payment methods to evaluate the feasibility. This could be done through the freemium model and trial, where the customer can try the service for a limited period of time or less functions. Customers are getting more accustomed to monthly subscriptions due to the popularity from Spotify and the method could be used more in the future.

When discussing future possibilities for vehicle connectivity, two of the external interviewees explained that entertainment, or infotainment, and convenience will gain popularity. Infotainment and convenience services is easier to charge for than other features since they have a higher perceived value and they are used more often. Frequency and perceived value are the two parameters that should be measured when designing new features according to one interviewee. Personification will also have an upsurge in attractiveness, as people want to feel and become more attached to the car. Electronic vehicles are another field where connectivity services may prevail according to one interviewee. It becomes easier to develop and to add new apps or functions within the service due to the mechanics. Nowadays it is more complicated because of the ergonomic, display, electricity and security functions.

Some categories of functions, such as security, are vital to have, however there is a struggle to get people to pay for it. The same goes for safety, since people don't really want to use those features. This is because when doing so, an accident has happened like for example a burglary. The frequency and perceived value of those types of features are low and therefore customers are reluctant to pay for them although they want to have them in the vehicle. An option was suggested that the connectivity features could be divided into different categories according to the willingness to pay from customers.

Even some new ideas were discussed during the interviews such as being able to remotely start the air conditioner, add a fast dial button to e.g. Eniro, calendar scheduling, making an information platform, peer-to-peer car-sharing and paying for parking from the car.

Decide Pricing Objectives For Volvo Car Corporation

Information regarding the pricing objectives for Volvo On Call is described here but removed due to non-disclosure agreement.

Analyze Key Elements

The empirical findings of the key elements will be described in this section, starting with the customers and is followed up by the company and the competition, as is the guideline from the theoretical framework.

The Customer

The customer purchasing situation with connectivity services within vehicles is not as straightforward as buying an ordinary grocery product. Firstly, when the customer has decided that he or she wants to buy a Car from VCC, the customer has no choice between selecting other connectivity services provided from other OEMs. The other services such as Mbrace, OnStar or Sync are not available on any Volvo car. So when buying a car from Volvo, the customer can only decide whether he or she wants Volvo's connectivity service (On Call) or not. Second, when the customer is at the selection process of which car to buy, more factors other than the connectivity service determine the purchase. Parameters such as price, model, brand and features play an imperative role as well. As a consequence, the authors decided to focus on consumer's trends instead of following the theoretical process step by step, to grasp how customers perceive connectivity services.

There are four emerging trends regarding the consumer behavior and attitudes for in-vehicle connectivity that creates ramifications on the car manufacturers. The expectations and strategic implications for OEMs will alter accordingly to the consumer's perception of connectivity. The trends are according to a consultancy report from Deloitte written by Hasegawa et.al. (2012):

Increased Consumption Of Data

- The first trend inclines that the usage of data has grown dramatically since audio and video streaming became available, with possibilities go grow further. Mobile data traffic is closely connected with this trend and future estimates show a tenfold increase between 2011 and 2016. The main drivers for mobile data traffic are tablets and smartphones with the aid of faster 4G wireless networks (Hasegawa et.al. 2012). A survey from Deloitte shows that 36% of the respondents are emailing or texting in the car while 24% are using smartphone apps. In the future the respondents also indicated that they want to consume more data and ranked streaming entertainment as the most anticipated.

  Other important areas of connectivity were remote vehicle control and remote diagnostics to mitigate superfluous dealer visits (Hasegawa et.al. 2012). This will

result in the customer expectations of greater levels of connectivity in conjunction with data-intensive programs being manageable when driving. To cope with this dilemma, OEMs have to execute a hardware strategy that supports the financial aims and customer needs (Hasegawa et.al. 2012).

Willingness To Trade Personal Information For Free Content

- The second observable trend inclines that customers are willing to exchange personal information for content that is free. They are used to being exposed to advertisements and being analyzed on their behavior and location in return for using smartphone applications. By using Apple's app store where almost 50% of the apps are free as an example, it's understandable that the customers are getting used to this concept and now the attitude is infecting the market of connected vehicle technology (Hasegawa et.al. 2012). The consumers may therefore raise expectations about being able to trade "free" connected services by offering the OEMs their usage data or allowing the exposure of advertisements in the vehicle.

  Automotive manufacturers can meet the expectations by adapting their business model to support this tendency of serving free content (Hasegawa et.al. 2012). However, mitigating that problem may cause another problematic situation, as the new model may not align with the OEM's customer base. The remedy could be by segmenting the market through demographics, thus offering customers the opportunity amid numerous payment alternatives. One payment alternative is the ad-based software, which has a dissimilar development period considering scanning potential cooperators and negotiation compared to non-ad based software, resulting in a disadvantage. Nevertheless, making the first entry into the market with an ad-based solution will differentiate itself from the competition (Hasegawa et.al. 2012).

Emphasis On Personalization

- A third trend shows that consumer electronics are underlining the importance of being able to personalize your vehicle; hence a high anticipation from the consumers to receive personalization features in connectivity services (Hasegawa et.al. 2012).

  The consumers are being accustomed to being able to personalize their smartphones, computers and tablets that are exploited by the companies to establish brand loyalty. Particularly younger drivers perceive vehicle individualization is an important factor and want their car to function as an extension of their virtual environment according to a consultancy report from MBtech Consulting (Bechmann, 2011).

  The trend is becoming ubiquitous in the automotive industry as consumers have equivalent desire to modify their cars (Hasegawa et.al. 2012). A survey carried out

from Deloitte in year 2012 shows that consumers are interested in tailoring the interiors of the car with technology features once the car has been bought. Almost 80% of the respondents specified that they are willing to purchase extra accessories and upgrades for their cars during the entire lifetime (Hasegawa et.al. 2012). The survey also reveals that nearly half of the respondents have profound interest in syncing personal data and settings from their car into additional appliances. Customization and the ability to express them-selves turned out to be a noteworthy driver in the vehicle purchase decision by a third of the respondents (Hasegawa et.al. 2012).

Personalization Demands
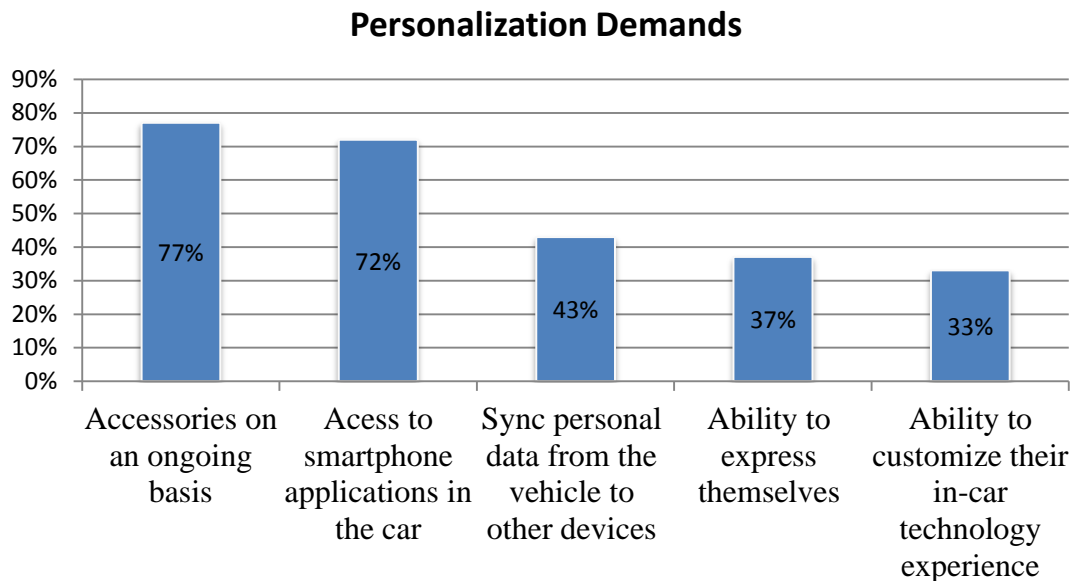
Figure 7: Personalization Demands

Automotive manufacturers need to be aware of this and consider customization as not just as a selling point but also as a tool to build long-term loyalty and to prevent customers from switching brand according to a study from Deloitte (Hasegawa et.al. 2012). There are some value-adding experiences in the car that can be customized early in the development lifecycle and by demonstrating these services the manufacturer can attract customers before entering the financing point. By also including competencies such as syncing contacts, calendars, radio channels and downloaded apps with the vehicle, it will raise the switching costs (Hasegawa et.al. 2012).

Expectations Of Shorter Product Life Cycles

- A forth trend shows that consumers are starting to anticipate shorter product life cycles of electronics in the vehicle. Consumers may consequently presume that the in-vehicle technology should keep equal pace with the electronics available on the market. The trend stem from consumers being accustomed of short product life cycles of consumer

electronics such as smartphones, laptops and tablets (Hasegawa et.al. 2012). They are usually dowdy within a couple of years and the software is updated on a monthly or annual basis. The vehicle structure is required to be attuned with different kinds of consumer electronics for at least several years; else the expectations will not be satisfied. The software has the same anticipations; the consumers are requiring them to be routinely updated.

It is essential that OEMs forge strategic alliances with external partners to uphold the same pace as the advancement of the technological market (Hasegawa et.al. 2012). Such alliances can be seen between OEMs, automotive suppliers and even collaborators in other industries. Microsoft is one example and they have during the late 1990s and early 2000s worked in collaboration with firms such as BMW, Citroen, Toyota, and Fiat.

To ensure long-term compatibility, automotive manufacturers should also overhaul the development process by involving the technology companies to provide insights about consumer technologies. A revamp of the ecosystem with new external parties will help to keep pace of technology change (Hasegawa et.al. 2012). Providing software updates will prolong the lifetime of the software, although measures needs to be taken to safeguard against damaging effects of recurrent dealership visits. Software upgrades should not be perceived as product recalls which have a harmful impact on brand loyalty; instead they should be updated autonomously without hassle (Hasegawa et.al. 2012).

The Company (VCC)

Volvo On Call is VCC response to the increasing demand for connectivity services and is part of the overall strategy of VCC.

The VOC system is an additional service that provides a two-way communication between the car, VCC, service providers and customers. VOC enables a more efficient system of delivering existing products and services like for example roadside assistance. Moreover, VOC also delivers a new set of products and services within the area of Safety, Security and Convenience (app) and it is available in all VCC car models. Further, the VOC app (convenience) is compatible with iOs, Android and Windows-phone.

There are three main categories within VOC: safety, security and convenience. They are summarized in table 1 below.

Safety	Security	Convenience
Crash Notification	Stolen vehicle tracking	Car locator
Emergency Service	Alarm notification	Vehicle dashboard
Breakdown Service	Remote vehicle immobilisation	Car alerts
Remote Door Unlock		Journal log

	Heater start
	Roadside assistance
	Vehicle info
	Subscription info

Table 1: Volvo On Call Features

Below in picture 8, it is visualized how the data is transferred from VOC to external parties.
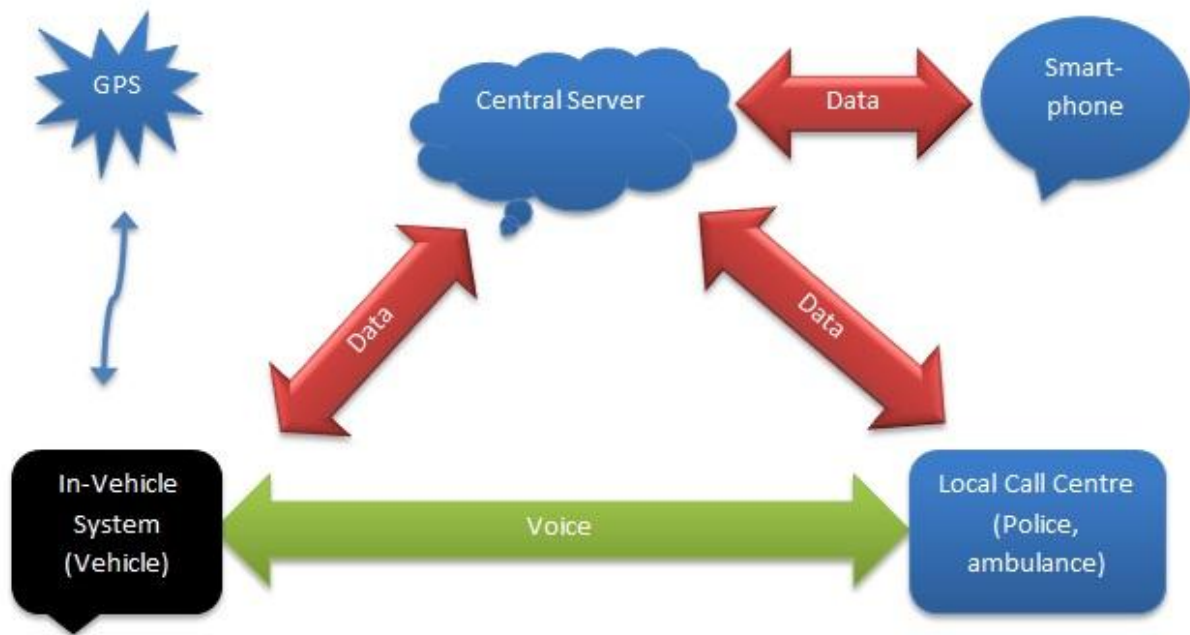
Figure 8: Volvo On Call

As can be seen in the above picture, the In-vehicle system can be connected to the local call centre (ambulance, police) using voice-connection, meaning that communication using voice is possible. Moreover, the vehicle communicates with the central server by sending and receiving data, which occurs between the central servers that communicates with the local call centre. The smart-phone is connected with the central server and uses data as communication way (VCC, 2013).

Competition

The selections of competitors were made through careful research and in collaboration with key people within VCC.

Competitor	Mercedes	General Motors	Ford	Audi	BMW
Service	mbrace	OnStar	Sync	Connect	Connected Drive
Packages	3	2	4	2	2
Trial	3 months	6/12 months	N/A	6 months	3 years/6 months

| Subscriptions | Monthly & yearly | Monthly & yearl | N/A | N/A | Yearly |

Table 2: Competitors

Mercedes: mbrace

- mbrace is Mercedes-Benz's name of their connected services platform which was developed in collaboration with its service partner, Hughes Telematics, Inc. The hardware of mbrace has become standard gear on all model lines as of the 2013 Model. It was launched in late 2009 on Model Year 2010 vehicles and was updated with a set of new services with Model Year 2013 vehicles. The new update is referred to as "mbrace2" as it employs the second generation of technology (Mercedes-Benz, 2012). There are three mbrace packages at which the customer has to start with the basic mbrace package and then opt for one or both of the two upgrades. The basic mbrace package has a 6-month trial included on new cars and 3-month trial on pre-owned cars and the customers pay a yearly fee for access to this service. The first upgrade features personal assistance for a convenience life and the second one include apps and the Internet in the car. Both the upgrades incorporate a monthly fee instead of the yearly fee. The basic package is standard in all models except GLK, C-class, SLK and E-class Cupe whereas the upgrades are all options. The yearly price with all three packages is $616, which corresponds to roughly SEK 4200 (Mercedes-Benz, 2013).

General Motors: OnStar

- OnStar is General Motors and Volkswagens connected services platform that offers an array of services to the driver. They offer two packages of OnStar, the Safe & Sound and the Directions & Connections. The latter one includes all features of Safe & Sound but also Turn-by-Turn Navigation that simplifies the navigation (Onstar, 2013a). For those vehicles that weren't initially equipped with OnStar they have the opportunity to enjoy the features through OnStar FMV (For My Vehicle). It includes all the features from the Directions & Connections and the OnStar FMV mirror that can detect an impact and consequently make an automatic emergency call (Onstar, 2013b). The yearly price for the Safe & Sound package is $199 (SEK 1350) and the yearly price for Directions & Connections is $299 (SEK 2700). There is an option to pay monthly fees instead but also to pay for one, two or three years ahead.

Ford: SYNC

- SYNC is an embedded voice-controlled communications and entertainment system, developed in conjunction with Microsoft, which was released in 2007. The discussions

between Ford and Microsoft on in-car infotainment systems was initiated in 2006 and has since then achieved a long history of working closely together (Ghangurde, 2011). Ford offer four distinctive packages, Sync, SYNC with Voice-Activated Navigation, SYNC with MyFord and SYNC with MyFord Touch. The last option includes among other things the possibility of creating a Wi-Fi hotspot using the phone and color-coded touch screen (Ford, 2013).

Audi: Connect

- Audi connect is the connectivity solution offered by Audi. Audi began its journey in the connectivity field in 2005 at which they launched mutual projects with Google and Nvidia. The initial goal was to develop software and hardware and in 2009 they extended their vision and provided the first Internet services available in the automobile. It had a positive effect on the brand value and they became one of the leaders in the field of infotainment. With the future entrance of the new LTE mobile radio standard, Audi is now focusing on new solutions in car-to-X communication cloud computing (Audi, 2012). Audi offers two packages, Audi connect and with the addition of MMI navigation plus which is an embedded navigations system. The two packages are standard in some models, optional in some and not available for certain models (Audi, 2013).

BMW: iDrive/Drive Connect

- BMW has named their connected services platform "ConnectedDrive" which provides the individual services BMW Assist, BMW Online, BMW Tracking, BMW TeleServices and Driver Assistance. BMW Assist and BMW Tracking are available for all BMW models although BMW Online is only available for some series. BMW has been an early pioneer in the connectivity field and in 1997 they offered an emergency call function in the USA, and two years later in Germany as well, as the first carmaker in the world. The BMW ConnectedDrive was launched in 2000 as a general concept with the aim of assembling all the preceding development together to one integral whole. In 2008, BMW offered the possibility of unrestricted use of the Internet in the car with BMW ConnectedDrive, yet again as one of the world's first carmaker (BMW, 2009). There are two packages, BMW Assist and BMW Online and they are included in some of the models and when it is an option there is an upfront cost of purchasing it. Vehicles with Navigation system Professional and Navigation system Business together with Bluetooth mobile phone offer ConnectedDrive for free of charge for three years. After that period, the customers are obliged to pay an annual subscription fee of £120 (SEK 1200) per year in order to use the service (BMW, 2013).

Features

After reviewing the different functions and features that the competitors offer in their connectivity solutions, they were bundled together into groups that contain similar technologies as VOC, and described below. This gives a better overview of what features that VOC is competing against and what differentiating factors that may exist.

Convenience / Remote Control

- With the wide spread usage of smartphones, new technique has been possible to control your vehicle from long ranging distance. With different apps on your phone, you are able to control your car. For example, lock and unlock the doors on your car, turn on your heater/cooler or find your cars position. Smartphones have already been incorporated in infotainment systems by some automotive manufactures to achieve greater connectivity according to a report from Telematics Update (Stojaspal, 2011). Car-related applications are spreading widely on the common markets of Apple's App Store and Android Market and its estimated that 10,000 applications are available today. Some characteristic problems with the often custom-built applications are the cost to produce and complications with upgrading the software. With a lengthier lead-time of a car, the smartphone application could turn obsolete by the time it hits the market. According to another report from Telematics Update (Kuchinskas, 2011) there are numerous advantages with smartphones as a tool to enhance the connectivity in a car. The smartphone can act as a data transceiver which is easier and more cost-effective to use than using a separate data plan to send information to systems. Electric vehicles are driving the evolution of smartphone integration as well because charging taking usually takes several hours and the drivers want to be able to check on the state of charge while they're doing other things. Smartphones have created emotional relationships with the owner whilst the car is still a mean of transport, turning the car to be seen as an extension of the phone. Smartphones are also becoming more personalized and the opportunity to also tailor your car after your preferences are increasing if you could control the environment in the car with the smartphone (Kuchinskas, 2011).

MirrorLink is one initiative that permits smartphone apps to be displayed on the car interface and accessed through the car's built-in controls. MirrorLink has after the market entrance in late 2011 received support from Alpine, Nokia, and Apple (Stojaspal, 2011). In its pursuit of to creating an industry-wide standard for car-integrated smartphone applications, it has marked two significant highlights. The first car to embed a MirrorLink-enabled infotainment system, Toyota iQ, was launched and in 2012 the first MirrorLink-enabled Android smartphone, Samsung Galaxy S III, was presented which broadened the technology's reach even further (Stojaspal, 2012).

Safety/ Security

- The connected car allows many new features that could be applied for increasing safety. When the car is constantly connected, the car is able to send notifications in real-time. When there has for example been an accident, then the car sends out information to nearest emergency service about different car-status, e.g. whether the airbag has been deployed and where the location is. Moreover, if the vehicle is stolen, a stolen vehicle notification is available in order to track the car according to a consultancy report from MBtech Consulting (Bechmann, 2011).

The fact that in-vehicle cell phone usage distracts the driver has been acknowledged. Newer generations of smartphones increase the functionality of the phone by adding further features such as Internet and apps. It promotes the possibility for further deviation of the driver's capacities away from driving. A frequently proposed remedy is speech recognition, as it will result in a decreased cognitive workload and enhanced driving performance (Kuchinskas, 2011). Fiat has introduced speech recognition in their car model Grande Punto, with the Blue & Me module that allows drivers to manage their Bluetooth phones with voice commands, getting their incoming text messages read out and control the songs on their MP3 players (Newton, 2008).

Intrinsic difficulties with speech recognition cannot be avoided such as the background noise. Another issue is the situation of today's multicultural world where there is a sturdy cultural variance in the way people pronounce directions. It's interrelated with the linguistic dilemma with different languages as a person may switch language as he or her travels to other countries, putting a heavy workload on the navigation system to identify the language (Kuchinskas, 2011).

Internet / Cloud Computing

- Bringing Internet into the car would create new possibilities and the connected car would be able to take advantage of internet-based services, such as real-time information updates. Moreover, by using the cloud technology, meaning that all your data is available on all your devices, creates a more smooth and easy way of getting data and information into the car making it a more individualized car and used friendly (Bechmann, 2011). The cloud-based platform is becoming a vital component in the in-vehicle services because they minimize the dependence on tethered hardware and smartphones. Applications in the cloud, in comparison to statically installed applications, ensure the compatibility of the software due to constantly being updated. It mitigates the problem of different life cycles as electronics and apps could have a couple of year's lifecycles whereas vehicles' will last for a decade (Hilton, 2012). It safeguards against outdated technology but the cloud also facilitates as a diversification tool for automotive manufacturers to distinguish their services. The vehicles could be able to deliver differentiated and modernized content way after the purchase of the vehicle (Hilton, 2012).

Agero is a firm that has launched their cloud-product AgeroView that gives the user the ability to update apps and push content during the entire lifecycle of the car. Service

updates are downloaded invisibly and offer functions such as real-time, location-based advertising and user profile management. AgeroView can examine the trends of Internet services and if a decrease in popularity can be established or a new application emerges it will adjust to these tendencies and deliver updates in all of their vehicles in the market. If the customer is not fond of the conventional services they are able to customize the dashboard display screen to display the emblems and colors of their preferred sports teams. It enables each user to have a tailored experience with the applications, services and features that suites them (Wallace, 2012).

Determine A Range Of Profitable Prices

The range of profitable prices can fluctuate and is determined by what pricing strategy that is applied. A survey from Telematics Update, written by Cuddeford-Jones (2013), shows that infotainment-focused telematics executives believes that the dominant (34%) model for how a consumer will pay for telematics will be through a cost included in the purchase of the car. 22,6% thinks that paying per use would define the customer charging model and almost a fifth hold monthly contract as the driving pricing strategy. 14,6% believe yearly contract will be the norm and only 9,2% of the respondents feel that a single payment would prevail as a model for consumers to pay for the services (Cuddeford-Jones, 2013).

Prevailing pricing method for consumers

- Price included in car
- Pay per use
- monthly payments
- Yearly payments
- single payment

9% 34% 15% 19% 23%
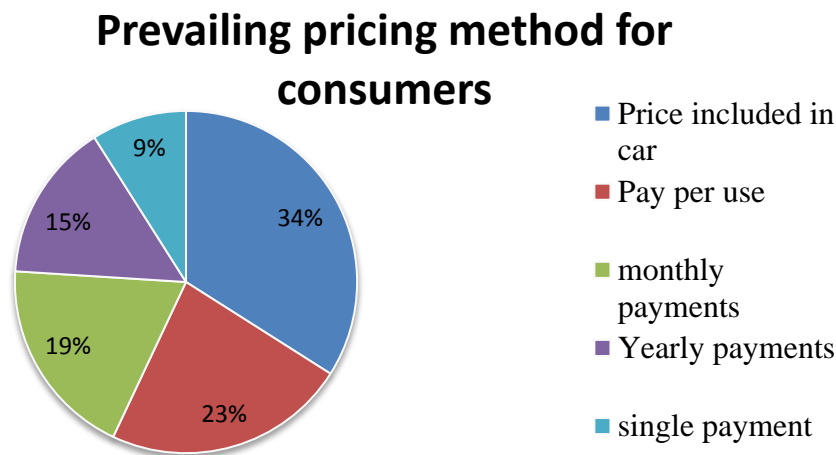
Figure 10: Prevailing Pricing Method For Consumers

A similar survey was carried out by Deloitte and elucidates the payment preferences for common telematics packages from a consumer perspective. Roughly two-thirds of the respondents preferred free advertising-based software when they had stopped whereas a mere 17 percent voted for the same services while driving. A fifth expressed preference towards monthly payment and the payment methods annually, whereas upfront payment and added to car loan received little support of the respondents (Hasegawa et.al. 2012).

Payment preference

Figure 11: Payment Preference

Pricing Strategy

The seven types of revenue streams provided earlier in the theory chapter may not be applicable on connectivity services as they have some distinct features that differentiate them from other products or services. The revenue streams have to be tweaked in order to fi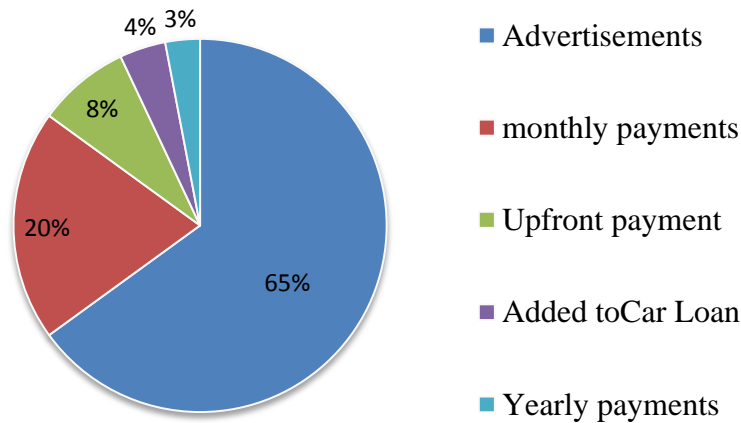t these kinds of services, some have to be removed while new types are becoming available. It culminates in five sections of pricing strategies that can be distinguished from each other according to the strategy report from the consulting and research firm telematics update (Cuddeford-Jones, 2013):

Pay Per Application

- When studying the app-based telematics services, the least popular option among OEMs is to charge the customer by the application. Smartphone users have a tendency of only downloading a scarce amount of none-free apps and amongst them are even less apps suitable for the connected car (Cuddeford-Jones, 2013). Because there is no legit standard framework, every app has to be adapted in order to work with each OEM's exclusive HMI display. The market for apps for vehicles is a fraction of that for smartphones as there is a huge discrepancy in volumes sold, leaving the app-supplier with fewer incentives to focus on the automotive industry. Nor is the development costs incurred in making and altering an app in relationship to the revenue the app might generate in sales (Cuddeford-Jones, 2013).

Subscriptions And Freemium

- The second concept of how to charge the customer for telematics is through subscriptions. As with other industries, several OEMs are offering freemium or a promotional period subscription in their quest of appealing the consumers (Cuddeford-Jones, 2013). They initially provide a free service with anticipations of being able to sell a more advanced group of services with subscription payments. In the app industry, mobile gamers who bear little resemblance to telematics in the connectivity area typically pursue this business model. There is therefore a weak indication that customers will consent to this freemium models and pay for advanced applications and research shows that the customer retention rates after the free trial periods is between 20 and 50 per cent (Cuddeford-Jones, 2013).

Advertisement Based Model

- The third concept is a version of the free model, where the customer is not charged with monetary subscriptions but gives permission for OEMs to display ads in the software. One disadvantage is the dissimilar development period compared to non-ad based software, but there more potential hazards with this kind of pricing strategy (Hasegawa et.al. 2012). A possible dilution of brand value may occur as ads hamper the control over the customer experience. The risk of diverging the driver's vigilance could increase and the customer may perceive ads as an attack of privacy (Hasegawa et.al. 2012).

Connectivity As Functionality

- Telematics is most commonly purchased as an optional extra addition to the vehicle as the consumers demand are not sufficient enough for the telematics to be embedded from the start. However, in less than two years some experts believe that some telematics will be standard in the cars due to their functionality (Cuddeford-Jones, 2013). It's not only the demand from the customers that are driving this trend but also the institutionalization of countless safety legislations, hence the possibility of selling telematics that are already incorporated in the vehicles. Today the automotive manufacturers may profit from the functionality their software provides through HMI packages such as BMW's option of combing its App and phone cradle together with its navigation and iDrive solution. Mercedes Benz offers their solution US MBrace package while Toyota has its Entune navigation system (Cuddeford-Jones, 2013).

Indirect Revenue From Information Gathering

- The prevailing consumer charging model is yet to be decided but indirect revenues will most likely be the major revenue streams for OEMs. Indirect revenues could be derived from an array of sources such as customer relationship management (CRM),

brand consideration, cost efficiencies and third party data (Cuddeford-Jones, 2013). The revenues are derived from four types of data that can be gathered from the driver and the vehicle, the driver data, personalized cloud data, vehicle data, and vehicle health/diagnostic data according to a consultancy report from Roland Berger Strategy Consultants (Bernhart et.al. 2012). The idea is similar to barter, where a product is offered for free to customers who in return are obliged to provide something of value to the firm. One example is the pharmaceutical industry where firms provide drugs to hospitals for clinical trial testing for free. The doctors provide the pharmaceutical companies with information about the trials and drugs as exchange which benefits all the players involved (Bernhart et.al. 2012).

Types Of Information

The four types of data that can generate indirect revenue are the driver data, personalized cloud data, vehicle data, and vehicle health/diagnostic data.

Driver Data

- The driver data comprise information about the driver's profile, preferences and conditions. One part of the information extracted is the navigation style, such as routes and what kind of route types e.g. highways, urban roads the driver uses. Fleet companies can use this information to manage and enforce driving regulations according to a study written by Bernhart et.al. (2012) from Roland Berger Strategy Consultants. Insurance companies are offered a surpassing prospect as they can offer customized payments based on the customer's driving profile. The drivers can exploit the information exchange as well since they can modify their driving behavior to lower their exposure of risk (Cuddeford-Jones, 2013). The style of driving e.g. calm or aggressive and the time and distances they drive can also be monitored to provide a transparent profile of the driver. Observing the hours and distance covered by the driver assist in determining the drivers' physical condition in order to expedite the development of a fatigue detection device with help of sensors such as steering control sensors and blink sensors (Bernhart et.al. 2012). OEMs have another opportunity as they can improve the operating functionality of the vehicles in terms of the adjustment the drivers can make e.g. the vehicle damping level, changes in gear, tailored assistance systems and offering customization in infotainment systems (Bernhart et.al. 2012).

  The exclusive access for driver data is strenuous clash from OEMs, suppliers, aftermarket firms, third parties and other stakeholders (Bernhart et.al. 2012). Because driver data can open up a variety of opportunities the original owner of the data, especially firms such as Google and Android are threatening OEMs. If they lose the battle of the exclusivity, OEMs may forfeit any possibility of participating in new business opportunities. However, as the gathering of highly personal driver

information upsurges it may be regulated by data protection laws (Bernhart et.al. 2012). Peer-to-peer car sharing is one example where driver data is exploited as vehicle owners can indicate when their own car is available for use by third parties (Bernhart et.al. 2012). The car owners receive reimbursements from service providers, whilst the service providers experience a proliferation of their fleet size. Parking systems provides another example that can become more cutting-edge through providing information about free parking space, ability to pay for and reserve a spot (Bernhart et.al. 2012).

Personalized Cloud Data

- Personalized cloud data available from the vehicle spans over the information identified from mobile devices e.g. newsfeeds, e-mails, social networks, music and videos according to the study from Roland Berger Strategy Consultants (Bernhart et.al. 2012). In the cloud data business, the most influential players are content providers that sustain the cloud applications and space with bandwidth infrastructure and network access such as Apple, Google, network operators and infrastructure providers. OEMs part in the value chain is to offer a practicable vehicle infrastructure so all the services can be interlinked effortlessly (Bernhart et.al. 2012). The overall aim with personalized cloud services is to provide a convenient in-vehicle experience that unites the cloud with existing mobile devices. These services are becoming significant as a purchase criterion for younger people and should not be disregarded from the OEMS. Even so, it's an area fraught with jeopardies as it enables direct customer access for third parties, giving them the opening to provide data based services of their own (Bernhart et.al. 2012). This can be utilized by the OEMs through retrieving various data from applications e.g. what radio stations are popular and the listening frequency from radio apps (Cuddeford-Jones, 2013). Apps are also able to determine if for example the user pay heeds to in-app traffic alerts or if the driver use navigation applications instead for looking for the best route. This information is valuable for developers when assessing their current advertising charging strategy and if the contracts with the content providers are value adding (Cuddeford-Jones, 2013).

Vehicle Data

- The third type of data is vehicle data, which encompasses information about the vehicle's environment. The data can be distinguished into three groups where environmental data refers to information on the infrastructure, other vehicles and from cloud services (Bernhart et.al. 2012). There is also OEM data, which is information such as control algorithms, and coding/customization data that are controlled by the OEMs. The third type, vehicle data, refers to information retrieved from the diagnostic gateway or at the bus protocol level. In contrast to driver data, vehicle data is provided and extracted from the car that gives OEMs an auspicious possibility of improving the

operation of their vehicles (Bernhart et.al. 2012). They may also increase the safety and comfort with various applications coupled with remote diagnostics. Although OEMs have the upper hand because they can to some extent control access to vehicle data, there are other players who benefits from this data too. Governments can enhance road safety, monitoring the road signs or toll systems with access to vehicle data and traffic service providers is another player in the new value chain which benefits from this as they can use for making custom-made services (Bernhart et.al. 2012). Electronic vehicles provides another burgeoning field for use of third party data as consumers can use real time data to adapt their driving in the most resource-effective way. Likewise, the provider or recharging stations gets information if customers are repeatedly in need of recharging their cars in a certain location, thus making it a feasible location of relocating a station in that area (Cuddeford-Jones, 2013).

Vehicle Health/Diagnostic Data

- Vehicle health/diagnostic data comprises information gathered from an internal system or any interrelated interfaces regarding the condition of the car. It will lessen the amount of time devoted at repair shops and software updates for the customer because of the lingering stream of information available to the OEMs (Cuddeford-Jones, 2013). Remote diagnosis, maintenance and updates will managed in a more convenient way and the dependency on repair shop networks will decrease in order to achieve understandings into the vehicles operating status. More services such as battery charge, health status monitoring and emergency systems can be provided if repair shops and network operators are incorporated in the value chain. Even warranty and recall costs can be diminished when combining real-time health/diagnostic data together with data from repair shops (Cuddeford-Jones, 2013).

One example of how to effectively use vehicle health/diagnostic data is to enhance the customer relationship management between OEMs, dealerships and customers. The applications that monitor the car's performance and driver experience accumulate rich information that could be returned back to the OEM or dealer who consequently can satisfy the needs of servicing and maintenance according to the report from Telematics Update (Cuddeford-Jones, 2013). The residual value of the vehicle is impaired if there is no record of a dealer-maintained service, however there are no other incentives for the customer to continue being dedicated to OEM-branded dealerships. To boost the relationship with the OEM brand and to enhance the brand consideration in the future, OEMs should offer advantages that are of significant value to the user in combination with a lower anticipated maintenance cost than from branded dealerships (Cuddeford-Jones, 2013).

Two companies that have embraced CRM into its telematics are BMW and Mercedes Benz. BMW has since 2007 incorporated continuous contact between its telematics system and the home dealer so that servicing and maintenance needs can be dealt with. BMW defend its one-

time cost for this telematics with the justification that customers will have a lower cost during the entire time they own the vehicle (Cuddeford-Jones, 2013). Mercedes Benz delivers mBrace and the Dealer Connect app to improve the relationship with its customers and suppliers. By using a specific button in the interface the app will call either the customer's own dealer or by using the driver's present location trace the closest dealer (Mercedes Benz, 2012). Although telematics enables the customer to change its perception of the brand, it does not necessitate a foreseeable improvement in the perception. Another prerequisite is the dealer's behavior and poor service from the dealer affects the fondness of that specific dealership and the OEM's brand in a negative way. OEMs need to ensure that dealers are fully enabled to deliver a satisfying brand experience if customer relationships are to drive revenue (Cuddeford-Jones, 2013).

The willingness to share this kind of data with OEMs differs across countries according to a study from Cap Gemini (Boruszok, 2013). Countries representing all markets are keen to share information as only 25% of the respondents didn't want to share any data and astoundingly 47% answered that they would share data either for an incentive or service in exchange, or without restrictions. 28% answered that they would be willing to exchange data but only anonymous data for research and statistics. In contrast, 40% of the countries in mature markets didn't want to share any data at all, and only a third would be willing to share data either for an incentive or service in exchange, or without restrictions (Boruszok, 2013).

Willingness To share Data With OEMs And Dealers

Figure 9: Willingness To Share Data With OEMs And Dealers
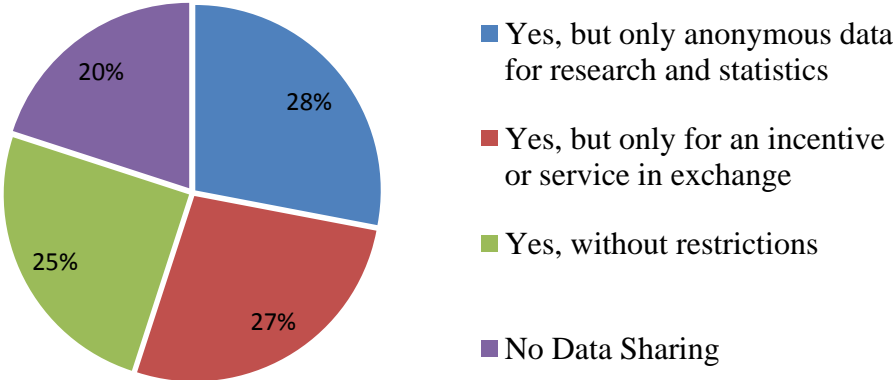
Revenue Sources

Although automotive manufactures should strive for opening up to technologies and services offered by telecommunications, IT and media & entertainment firms, they may be deprived of their revenues. As IT companies are becoming a force to be reckoning with, their increasing dominance of plug-in solutions may hamper the revenue streams of the manufacturers

according to a survey from KPMG (Meyer, 2012). It shows that 31,5% of the automotive executives believe that OEMs will have the most influential power over the revenues created from connectivity devices. 24,5% considers Information technology & connectivity companies to bring in most of the revenues whereas 17% thinks its Tier 1 suppliers. 15,5% perceives lifestyle companies from the telecommunications, IT and media & entertainment industry as the leader of in-car revenue streams. New suppliers from converging industries received a mere 11,5% support from the respondents (Meyer, 2012).
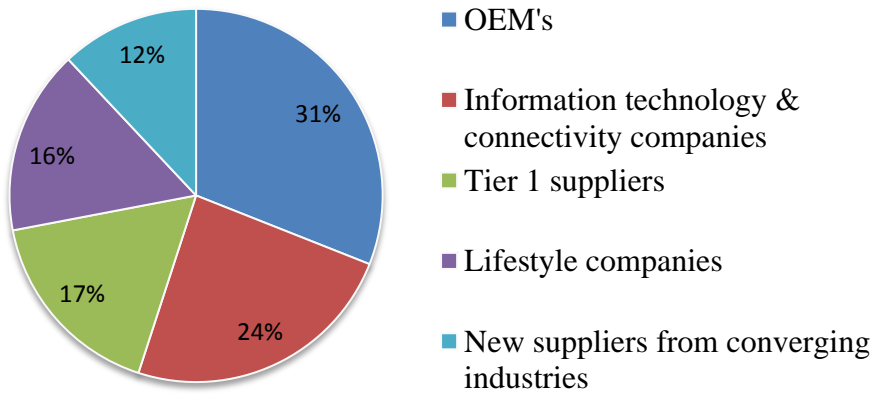
Power Over Revenues Created

Figure 10: Power Over Revenues Created

A similar study was made by Accenture and shows that consumers believe that automotive companies are in the best position and plays the most important role in providing in-car features. Device makers (e.g. Sony), software companies (e.g. Google) and mobile phone companies are next on the list as the most important provider (Accenture, 2011).

Although surveys pinpoints OEMs as the most influential player over the revenues created from vehicle connectivity services, it has traditionally not been immensely successful because OEMs have commonly aimed at security application such as crash notification which inherently is incident driven. The customer perceives a weakening value compared to daily-use software that results in low uptakes and retention rates after the expiration of the free trial period. As software in other areas is becoming ubiquitous there are benefits to be reaped in several dimensions according to a study from Arthur D. Little (Gissler, 2012). One dimension is through prevention of revenue loss, which may otherwise occur, as customers are not keen to pay for head units that are not connected in the future. Connected head units are frequently modified to be converted to an integral part of the car and by investing in connected vehicle services OEMs can remain the high price of head units. If no actions are taken by OEMs there will be a revenue loss since users will use their smartphone instead, which has more functions than in the head unit (Gissler, 2012).

Another dimension is optimization of the revenue sources that exists in the ecosystem. Tele-diagnosis is an example of a service with high potential revenue for OEMs if they rectify their after sale offerings. The potential in enhancing the revenue stream derives from the possibility of addressing costumers via telematics solutions for maintenance; accidents and even direct customer related marketing activities (Gissler, 2012). It may ultimately lead to an increase the brand perception for customers who have exceeded their warranty period. A second example is the retail workshop processes, which involves authorized repair shops and the OEM's subsidiaries, which can be improved by proficient vehicle- and error diagnosis. Optimizing the process culminates in timesaving, so that more effort can be put into growing the customer relationship (Gissler, 2012). Product intelligence is another field in where new technologies and products can be monitored to more accurately measure the risks and if necessary take actions in time. Harmful brand effects can be alleviated if they can reduce the product recalls (Gissler, 2012).

A third dimension is development of new revenue streams, which could be service fees for certain services such as cloud and entertainment services. OEMs are presented with a peerless opportunity to unravel new sources of revenue with the aid of innovative business models that incorporate partnering options (Gissler, 2012). An OEM, a service provider and an insurance company have an inimitable opportunity to cooperate at which the insurer offers its customers a reduction in price if their product gets installed. This will in return be perceived as a buying incentive for the customer, resulting in a beneficial situation for the OEM and the service provider too (Gissler, 2012).

Incorporated fleet management solutions are revealed to provide revenue potential as well as there is an inclination that fleet operators are asking for management solutions. A high degree of specification, which they usually demand, relates to a high willingness to pay. Reimbursements for exposing advertisements in the software are an alternative solution, although it requires additional consideration before integrating according to the study from Arthur D. Little (Gissler, 2012).

Pricing Strategies Applied On Volvo On Call

The business cases i.e. the proposed new ways of charging the customers, for Volvo On Call will include several calculations, according to which type of pricing strategy applied, that will highlight the revenues, costs and profits VCC can make from these versions. The different pricing strategies described earlier in the report will be used on Volvo On Call to elucidate alternative options of reimbursements. The fifth pricing strategy, indirect revenue from information gathering, will not be used explicitly on VOC but rather incorporated in the analysis on how VCC can use it. Estimates on the figures have been made primarily with reference to assumptions from key people within VCC. If not possible, figures from competitors and reports have been scrutinized together with the author's own perception in order to make reasonable assumptions. The numbers are configured to the Swedish market, as it is one of VCC's main markets. The calculations will cover a three years forecast starting from year 2013.

There are three types of revenue streams that can be generated through Volvo On Call. The upfront income of selling the service is usually the first one, and then there is a possibility of monthly subscription fees. When the subscription ends, new monthly fees can be derived from customers prolonging the subscriptions. The latter revenue stream is dependent on the retention rate and is called subscription revenue. The third stream is revenue from advertisements.

Current Version

This is the version that VCC is currently pursuing where Volvo On Call is an option that the customer can select when they buy a new car from Volvo. VCC applies a pay per application together with a subscription fee. In the current offering for Volvo On Call, there are two types of revenue streams at which the upfront income of selling the service is the first. In this price, two years of subscription fees are included, and after that new subscription fees may be derived from customers prolonging the subscriptions. The latter revenue stream is dependent on the retention rate.

Alternative Version 1 – Price Penetration

This version could be an option for Volvo Car Corporation that is similar to their current strategy, meaning that is an option for the customer when buying a new car. However, now both the upfront cost and the subscription cost are lower.

It has been based on the empirical pricing strategy pay per application in combination with subscription. The application in this case would be the hardware, whereas the subscription is the service (safety, security & convenience) obtained by paying a subscription fee. For the customer, the total cost would be lower than it is currently. The price will be lower by removing the margins VCC currently is adding when selling to dealers. Fixed costs will still be covered though, meaning that VCC will get coverage for the cost from VOC.

This option is derived from a combination of the strategy mentioned in the theory called the penetration pricing and the cost-base strategy. The first strategy is based on the reasoning that a company should put a low price in order to attract customers for the purpose of acquiring more market share. In this case, the aim is to get the customer to obtain VOC so that as many cars as possible are equipped with VOC when being sold. As the theory mentioned, the cost-based strategy implies putting a price same as the cost for delivering the product/service which implies that no or very low additional profits are made.

Alternative Version 2 – Price Skimming

This version introduces Volvo On Call as embedded in the car as part of the car's functionality. It is based from the empirical pricing strategy functionality where the hardware is incorporated as a function of the car. The customer doesn't have to make an active choice when purchasing the car, but the hardware will be installed when purchase is made.

The price of Volvo On Call will be added to the car price to cover the cost of delivering the service. Volvo On Call will be available throughout the entire lifetime so no subscription fees

are to be paid. This strategy will generate more revenue from the selling point due to higher upfront price but there will be no continuing revenue generation. The total price of Volvo On Call will be the cost of the hardware and 7 years of the subscription fees.

This option stems from what in theory is called a price skimming strategy in combination with a value-based strategy. The price is higher than the base version and is set to an amount which should be appealing enough for customers when considering that they get a lifetime subscription. It should be stated that the selling strategy should be that the customer pays for the functionality, i.e. the hardware, whereas the service is for free.

Alternative Version 3 – Freemium

This version introduces Volvo On Call as embedded in the car as part of the car's functionality. It is based from the empirical pricing strategy Subscriptions/Freemium and functionality.

The price of Volvo On Call will be added to the car price to cover the cost of delivering the service. Volvo On Call will be divided into two categories, one basic model that includes the safety and security features and the second model, premium model, which encompasses all features from the basic model and convenience features such as remote heater.

When the customer buys the car with Volvo On Call installed, they are offered the premium model of Volvo On Call for a trial period of 12 month. During this test period the customer may test and use all the features. After the trial period, all convenience features are disabled and the customer is only able to use the basic model, which is safety and security. From this point on, the customer may subscribe through monthly fees to receive the premium model.

By applying this theoretical cost-based method, this option was developed, and the margins are equal to the amount as in the base version. The revenues from customers buying the freemium subscriptions are used to cover the maintenance costs.

Alternative Version 4 – Advertisement

In this version Volvo On Call is still a selectable option and introduces a medium upfront cost with the possibilities of further subscription fees for the customers. It is based from the empirical pricing strategy advertisements where ads can help VCC generate money. The services of Volvo On Call will be available throughout the entire lifetime without any mandatory subscription fees. This option lets the customers be exposed to advertisement through the VOC app and through the speakers, for example every time the car is started.

In the beginning, the ads will only be from VCC or its repair shops. However, later on this may be opened to include external firms in order to create revenues. Customers will have the option of getting rid of the ads by subscribing through monthly fees to VCC. Even though the customer doesn't subscribe, indirect revenue can be gained through the exploitation of advertisement.

This option is derived from the value-based method because the perceived value from the customers is partly dependent on the advertisements. If VCC can provide valuable and sought after advertisements the upfront price may change because the indirect revenues increases. If advertisements instead are weakening the brand value, the subscription fees may have to alter.

Implement Prices Changes

A description about how VCC is implementing their prices on Volvo On Call is discussed here but removed due to non-disclosure agreement.

Analysis

This chapter includes analysis of the findings described earlier in the report. It will consider a number of different ways to charge the customer for Volvo On Call. Lastly in the chapter, the selection and description of two future prospects will be covered.

Pricing Objectives

An analysis about the pricing objectives for Volvo On Call is discussed here but removed due to non-disclosure agreement.

Analyze Key Elements

The three key elements, the customer, the company and the competition will be analyzed below each corresponding heading.

Customers

The customers are raising their expectations on vehicle connectivity because they have increased their consumption of data and that trend will most likely continue in the future. The customer is not satisfied even with the connection installed; OEMs should be able to deliver sufficient traffic to enable high quality streaming possibilities in the future. If OEM's wants to incorporate Wi-Fi or internet connection they should pay heed to this trend and see if there are more possibilities to develop the collaboration with the major telecommunication companies.

The expectations are also higher because customer urges for shorter product life cycles of connectivity solutions. As being stressed from one of the external interviews, OEMs should let third party companies aid them in the struggle to shorten the life cycles, although this situation is aggravated due to the lack of standardization platforms.

Customers have a growing desire to personalize their car to fit their individual needs. Predominantly younger drivers are already customizing their smartphones, computers and tablets and the vehicle is now a product that potentially will continue this path. As the technology becomes more advanced, it will pave the way for vehicles to adapt to the customers habits. A personalization feature could be to have an account or profile where all the settings are stored for each driver.

Though customers tend to yearn for personalization features, they are even so, willing to trade personal information for free content. Once again, this trend may be more applicable to younger people as they are more exposed to applications and companies that use this kind of strategy. As roughly half of all the smartphone-applications on the market are for free to some extent, for example with advertisement, customers has a higher acceptance for being exposed to this strategy when it comes to vehicle connectivity solutions that uses advertisement.

An analysis about Volvo On Call is discussed here but removed due to non-disclosure agreement.

Competitors

The competition between the different vehicles manufacturers are much fiercer in regards to the vehicles in comparison to the connectivity services. This is because when the customer has decided that he or she wants to buy a car from a specific brand, the customer has no choice of selecting other connectivity services provided from other OEMs. All the competitors screened in the empirical chapter uses their own trademarked connectivity services. These services have similar features as well, and it is difficult to differentiate the company's offer. Especially software features and updates can be added remotely to the services after it has been bought from the customer. The connectivity services are often sold in a number of packages that includes different options and features. Each package is delivered with its own price and many of the car manufacturers use both an upfront cost and monthly payments. Data from the interviews stated that costumers could be more prone to pay for certain features and these competitors are aware of the solution to divide up the features. By offering several distinct packages the customers won't have to pay for unwanted features but instead choose the ones that fit their lifestyle. Some of the competing OEM´s are among others Mercedes, BMW and Audi but it should be stated once again that these are competitors to Volvo Car Corporation before the car is sold.

However, once the car is sold, competition changes from other OEM´s like e.g. Audi or Mercedes towards companies that supply service for cars such as Meca, Mekonomen and Mechanum. These service centers provide car owners service for their vehicles meaning that, instead of going to a Volvo service center, they can choose to go to competing companies instead. This has implications on how Volvo Car Corporation should act towards customers after the car is sold where a relationship should be created so Volvo Car owners choose Volvo service centers regarding the decision on what center to use for the maintenance of their cars.

Determine A Range Of Profitable Prices

The alternative versions for charging the customers will not follow the same profit goals as the current one and does not adjust potential profits to fit that amount. The reason for this is because the pricing strategies will highlight the possibilities of adjusting the profit of Volvo On Call. Other figures and assumptions such as retention rate and sales of Volvo On Call and cars will not be altered because it would involve a great deal of guestimates which would hamper the trustworthiness of the case. An analysis will underline the theoretical potential effects the pricing strategy will have on those parameters, although they will remain the same in the calculations. The figures regarding the price and costs for VCC's current strategy is based on empirical findings from the interviews and is displayed here in the current version.

Versions

Once again, the current version is the one VCC is using from 2011 and forward whereas the four alternative version are the authors alternatives on how to alter the way of capturing value from VOC.

Current Version

A profit analysis is described here in regards to the current pricing strategy used for Volvo On Call but the text is removed due to non-disclosure agreement.

Alternative Version 1 - Price Penetration

A profit analysis is described here in regards to using this pricing strategy for Volvo On Call but the text is removed due to non-disclosure agreement.

In this scenario VCC will be supplying VOC as an additional service with a onetime cost and subscription fees together with a two years subscription. It means that VOC is not embedded in the vehicle from the start and the customer must make an active choice when purchasing VOC. Further, the customer will have to pay a subscription fee after the two included years are finished if they want to be able to use the service. As mentioned in the empirical findings, it is a mixture of the penetration pricing and the cost-base strategy. This strategy puts a lot of constrains on cost reduction and one way of doing so would be the possible increase in volumes this strategy impose, meaning that economy of scale could be exploited.

One advantage with this method is that it will appeal to price sensitive customers. New customers that haven't tried VOC could be hesitant to buy something that they barely have seen or touched. A low price would comprise this segment of customers and thus broaden the total customer-base. This will probably lead to a higher volume of sold Volvo On Call, which means that more cars are equipped with VOC. This will not generate any more direct revenues since margins are at zero, however, greater indirect revenues opportunities will emerge.

A disadvantage in applying this method is the elimination of the financial profit. Even though more consumers will most likely buy VOC, the profit will remain zero, as there are no margins for VCC. Moreover, another risk is that VCC subsidies the hardware and after the 2 years of included subscription, the customer does not prolong. It means that VOC will not generate any further revenues and a longer relationship cannot be established and the hardware has been subsidized in vain.
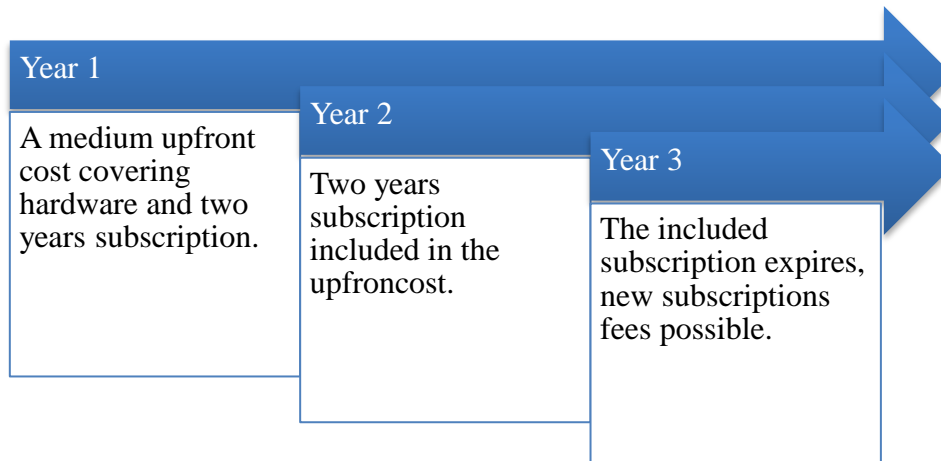
Figure 11: Alternative Version 1 - Price Penetration

Alternative Version 2 - Price Skimming

A profit analysis is described here in regards to using this pricing strategy for Volvo On Call but the text is removed due to non-disclosure agreement.

In the case using version number 2, VCC will use the strategy of selling VOC as a function of the vehicle. This strategy implies providing VOC in every car and adds the cost of delivering the service to the car-price. By choosing this strategy, VCC will offer VOC hardware and service to the customer without having to make an active choice. It will simply be included in the car. Using VOC as standard, that is, where the hardware is embedded in the vehicle and raising the price of the car covering the price, customers can get access to VOC for "free". In other words, the customer does not have to make an active choice when purchasing a new car, since the hardware will be there as standard.

This strategy will make VOC available for the car-owner throughout the entire lifetime of the car for free since no subscription fees are charged for. This will generate more revenue from day one due to higher upfront cost for the customer, however no continues subscription revenues will be obtained. The total price of Volvo On Call will be the cost of the hardware and 7 years of the subscription fees to cover all the lost subscriptions fees that VCC otherwise could have gained.

This strategy has big implication when/if the car is resold to a secondhand-buyer. First for the owner of the car, which can charge a higher price for the car since it has a valuable function within. Moreover, the new owner has the benefit to enter Min Volvo and register a new account. When done, VOC will be up and running for the new owner, which means that VCC can keep track of the car even when the vehicle has got a new holder. Since the new owner can do this for free, there are almost no reasons not to, but many reasons in favor such as the convenience features. The car-price will also be higher because VOC is installed and ready to use without any further cost.

The advantage for VCC with this lucrative method is evidently the higher profit that will be receiving. The total profit over three years is roughly five times bigger than the current version. With the profit collected, VCC can develop VOC in order to enhance it even further, which will attract more customers. Another advantage is the fact that the new owner can register a Min Volvo account and by doing so, giving VCC information about the new ownership and a better customer relationship can be established. It will result in a better customer market overview as VCC gets hold of data of the new owners.

A disadvantage is that there is no continuing revenue stream for VCC after VOC has been sold. The income at year one is substantial higher but as there are no further revenues and there is a maintenance cost each year, the total profit over a longer period becomes smaller. Another disadvantage is the difficulty of attracting price sensitive customers. As some customers do not want VOC, they may perceive this method to be too aggressive, leaving the customer with no options to choose from. This will probably decrease the number of vehicles sold each year, thus diminishing the profit.
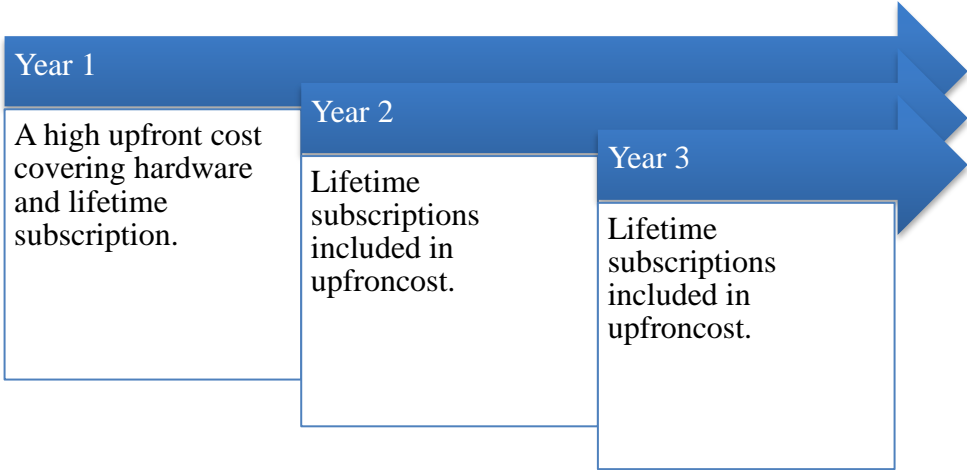

Figure 12: Alternative Version 2 - Price Skimming

Alternative Version 3 - Freemium

A profit analysis is described here in regards to using this pricing strategy for Volvo On Call but the text is removed due to non-disclosure agreement.

By using this version VCC will incorporate VOC in the car as standard using subscription and freemium as pricing strategies for the service. The price for Volvo On Call will be added to the car-price to cover the cost of delivering the service.

Volvo On Call will be divided into two categories, one basic model that includes the safety and security features and the second model, premium, which encompasses all features from the basic model plus the convenience features. When the customer buys the car at Volvo they are offered the complete model of Volvo On Call for a trial period of 12 months. During this test period the customer may test and use all the features. After the trial period of 12 months, all convenience features are disabled and the customer is only able to use the basic model, which is safety and security. From this point on, the customer may subscribe through monthly

fees to receive the premium model. There could be an idea that the convenience features could be divided even further as many competitors do.

The reasoning behind charging only for the convenience features is that security and safety functions are very much demanded, however people don't want to pay for them since the usage frequency is close to zero and research show that people are very reluctant to pay for safety and security, however they would like to have it their vehicles. Convenience features on the other hand, such as remote control for the heater is much easier to charge for since customers perceive more value when frequency is higher.

Since this type of vehicle connectivity method is relatively new, people may be reluctant to pay for something that is unknown. Therefore, in order to capture the customer and get them to perceive value, a free trial period is given for 12 months. This is something people are getting more and more used to monthly payments due to the popularity from Spotify, Netflix, etc. As a result, this method may be more feasible in the future.

An advantage with the freemium model is that the customers get all the basic features for free since customers are very reluctant to pay for it and moreover, there is a debate around legislation regarding safety and security in cars where security connectivity services already been implemented in some countries, e.g. Brazil. The regulations may in the future also encompass countries in Europe, hence making connectivity services such as VOC mandatory in every vehicle. Lastly, by providing those types of features for free will also strengthen the brand value of VCC as a safe vehicle producer compared to those that charges for features regarding safety and security.

The major disadvantage is the increased price on the car as it will intense the already fierce price competition on vehicles. There is a low margin on the car because potential customers are price sensitive. By adding the delivering price of VOC to the car-price may decrease the number of sold cars although hopefully the installment of VOC will steady the sales. There is also concerns whether how many customers that would pay for receiving the freemium model. The one-year trial will aid the decision maker in evaluating if he or she will buy it after the subscription expires.
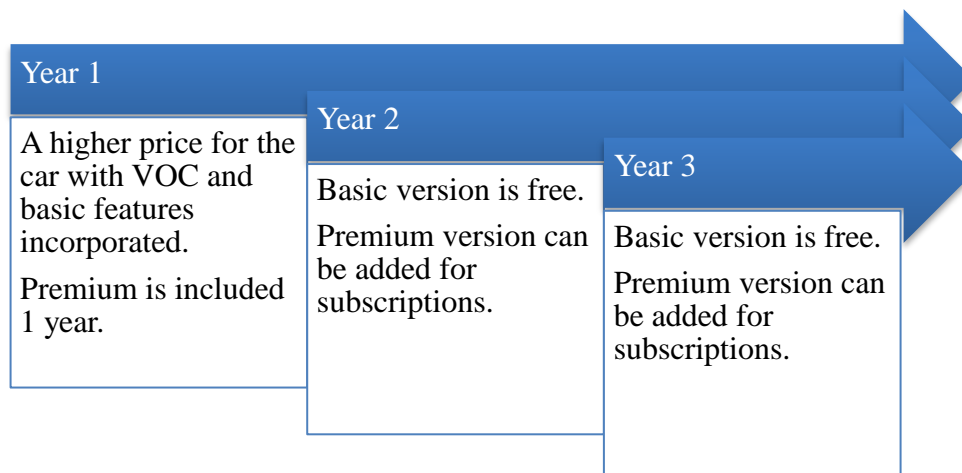
Year 1		
A higher price for the car with VOC and basic features incorporated. Premium is included 1 year.	**Year 2** Basic version is free. Premium version can be added for subscriptions.	**Year 3** Basic version is free. Premium version can be added for subscriptions.

Figure 13: Alternative Version 3 - Freemium

Alternative Version 4 - Advertisement

A profit analysis is described here in regards to using this pricing strategy for Volvo On Call but the text is removed due to non-disclosure agreement.

In the case of this version VCC will use the strategy of selling VOC as an additional service. Continues revenue streams can be possible through the exploitation of advertisement. By letting the customers agree upon for example getting advertisement through the VOC app and through the speakers, for example every time the car is started, VCC can offer the VOC service for free due to the revenue streams generated from advertisement. There is also the possibility to start paying a monthly subscription to get rid of the ads, much similar to the business model Spotify is using where the customers can get rid of the advertisement through subscriptions.

One advantage is that customers are often being exposed by advertisements, which means that they are getting used to this concept and are willing to be exposed by getting services for free. According to a survey, two-third of the respondent's preferred free advertised-based services. Another advantage for the customers is the lifetime subscriptions they receive, which should increase the sales of VOC. As with the price skimming option, the customer gets access to all features that raise the residual value for the next potential car-owner. The price of VOC is also slightly cheaper compared to the price of the base version and that will attract more price sensitive customers, however, those who prefer an ad-free car have the possibility.

A disadvantage is the possible dilution of brand value that may occur as advertisement may deteriorate customer experience. To add value for the customers, the advertisements should be tailored to the customer and offer specific products or service that is essentially demanded. The share of customers that would pay monthly subscription in order to be free from advertisement is therefore unpredictable and heavily depends on what ads VCC can deliver. The profit from using this version is also lower than the base version and the objective should

not be to maximize the profit but instead offer the customers added value through special offers and for VCC the opportunity for indirect revenues from VOC.
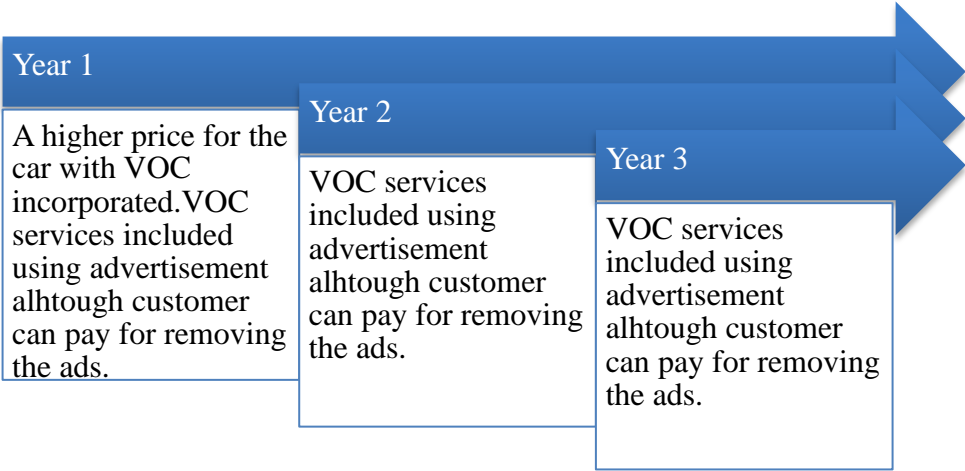

Year 1

A higher price for the car with VOC incorporated.VOC services included using advertisement alhtough customer can pay for removing the ads.

Year 2

VOC services included using advertisement alhtough customer can pay for removing the ads.

Year 3

VOC services included using advertisement alhtough customer can pay for removing the ads.

Figure 14: Alternative Version 4 - Advertisement

Analysis Of The VOC Situation

The fifth pricing strategy indirect revenue from information gathering, which has not been applied on VOC to illustrate how to achieve great benefits from volume of VOC, is specially analyzed in this section. Price skimming and the freemium version aims at this objective to diffuse VOC to the market to gain indirect revenues, which can better be derived when all of the customers have VOC installed in their vehicles. Moreover, these strategies incorporate VOC as a function of the car resulting in the service being pushed out to the customers. According to the empirical evidence, customers are starting to demand more connectivity solutions and due to all products such as smartphones, tablets etc., people are getting more informed and demanding.

Some experts believe that connectivity will become standard already within two years and in some places, e.g. Brazil, legislation for security connectivity has already taken place, where every car has to be equipped with security features. For VCC, they are now given the opportunity to push out VOC and be proactive instead of waiting for the customer to ask for it or governments to demand it. It can give them an excellent position on the market if others focus on others issues such as engine power, fuel consumption etc. Moreover, this could be perceived as a buying incentive for the customer, resulting in a beneficial situation for Volvo Car Corporation if insurance-companies see VOC as a safety feature that can decrease the theft damage from people stealing the cars.

The price skimming, freemium and advertisement versions also focus on maintaining a relationship with the customers as they get to use VOC during the entire lifetime, although the freemium and advertisement model have some constraints in what features that are free. The advantage with this is that VCC can get a better overview over its customers. As the theory states there is an importance not only to sell a product/service to a customer, but to maintain

existing ones as well. In connection to the value proposition, where the products is important, however, relationship is equally valuable, i.e. relationship building value. It means that, after the product is sold, how you can keep them continuously satisfied. In this case, a car is sold with connectivity, where VOC can function as added value for the owner, but also as the connection between VCC and the customer. This connection is important for maintaining and nurturing the customer relationship and with the possibility of VCC to know who their customers are, they can offer the customers discounts and other benefits. If the customers send data about the car and if it has any problems to VCC, it opens an opportunity for VCC to be able to solve some of the problems by giving them an offer such as a reduction in price on a repair of a broken side mirror.

By using connectivity, in this case VOC, Volvo Car Corporation can build up a relationship through connectivity. This is because, according to the empirical evidence, people have become more willing to share their information in return for other value due to the introduction of products such as smartphones, tablets etc. One example is if the customer shares information about their vehicle with VCC and mainly the authorized repair shops beforehand going to service, a reduction in service-time can be achieved; hence the customer's waiting-time will be reduced. Moreover, the repair shops will know in forehand what the problem is and can fix it fast, which the customer perceive as high value and potentially continuing customer. This will attract customers to going to Volvo Car Corporation authorized repair shops and take market share from Mechanum, Mekonomen and other competitors.

Furthermore, co-creation that is part of the relational advantage implies building a relationship between the company and customer by personalized experience. In other words, the customer also can contribute to a better relationship that can generate value from the companies offer. In this case, the customer can supply VCC with information regarding the vehicle that VCC can use when serving the car at the service center.

Implement Prices Changes

An analysis is described here on the implementation process of new prices on Volvo On Call but the text is removed due to non-disclosure agreement.

Conclusion

In this section, the answer to the research question will be discussed by presenting a summary of the report. It will contain concluding remarks and discussions of possible pricing strategies for Volvo On Call and future research ideas.

New approaches and ways of generating revenues are vital in the competitive market and capturing value is part of that process. Companies do not only have to create value, but they also need good way of capturing it. Capturing the value will generate revenues, which can potentially become profits that can help the company develop further and stay competitive.

Value capturing is defined as how to get compensated for the product or service, and firms can exploit new opportunities to be innovative within capturing value. The paper has explored value capturing in the connectivity industry with focus on a specific connectivity solution within vehicle connectivity, namely Volvo on Call. Connectivity is defined as wireless communication that could embrace many different recipients. Cars are facing a rapid development in connectivity to comprise the new generation of wireless connectivity.

The purpose of the paper is to examine potential new ways of capture value from Volvo On Call; hence the research question is as follows:

- ▪ ***How Can Volvo Car Corporation Capture Value From Vehicle-Connectivity?***

This question is answered by following a four-step framework displayed in figure 19 below.
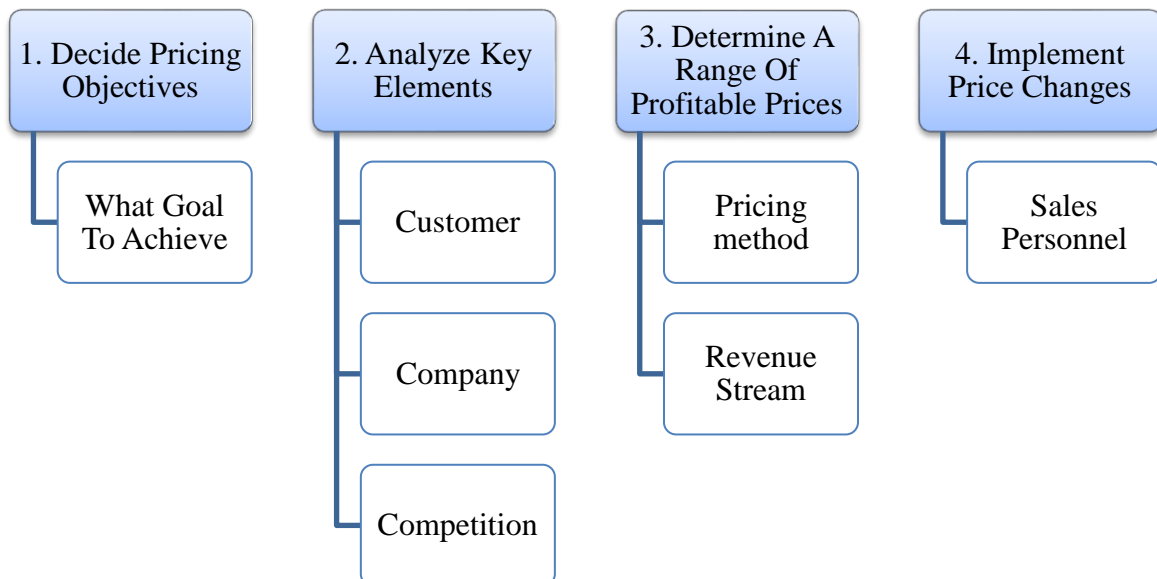

Figure 15: Framework For Pricing

The chain of events is initiated with determining what pricing objective VCC wants to achieve with VOC. Pricing objectives can be divided into three categories, relating to their content, the desired level of attainment and the associated time horizon. Examples of pricing

objectives are profit-, sales- and market share maximization, return on investment, price differentiation and long term survival.

Step two includes an analysis of the key elements, namely customers, the company itself and the competition. One definition of the value from customers is the difference between perceived benefits and sacrifices i.e. consumer's willingness to pay in comparison to the actual price paid. Within the company an analysis is required to determine the effects price on the VOC has on the volume and profit. The third element can be evaluated through different types of analysis, such as analysing threat of competitors and price trends in existing markets.

The third step is to determine a range of profitable prices, which is a result from the decision of what pricing method and revenue stream to be used. The outcome is to gain knowledge about the magnitudes have on a price change and if the price corresponds to the objectives. Four different pricing versions were created and illustrated on VOC. The first one, price penetration, has a similar concept to the current scenario but the prices are lower. VOC is embedded in the car in the second version price skimming together with lifetime subscriptions and a higher price on the product. Freemium introduces two embedded versions, one basic that include safety and security features and is included with a lifetime subscription. The premium model also incorporates convenience features and requires monthly subscription fees to access. Advertisement version offers VOC as an option with all features and advertisement included with the option of paying subscription fees to remove the ads.

Lastly, the price changes needs to be implemented within VCC and to be carried out through the sales channels until it reaches the end customers.

Discussion

Some reflections will hereby be presented in regards to vehicle connectivity and how Volvo Car Corporation can capture value.

As Avlonitis and Indounas (2005) states, companies must start by articulating their pricing objectives, which should reflect the organisations general objective. However, some product may differ from the company's general objective due to type of product and over time. Two alternatives to choose from are the qualitative and quantitative strategy. The qualitative option is more easily measured and interpreted and the quantitative more difficult to measure and builds more on customer relationship and the long-term survival. Moreover, it is argued that a company must not only sell a product and cut all ties with its customers. But instead be prepared to supply a complete offering including a long-term relationship. It is also important to remember, that there are many opportunities to capture value from a customer relationship building perspective.

Further, the authors' states that a co-creation relationship can help capture value if the company is able to create a viable customer experience. This implies that the company should allow the customer to co-create their unique purchase experience together with the company. In other words, personalisation can be achieved through a co-operation between the organisation and the customer and jointly create a better relationship by creating value

together. The company provides a framework that will aid and assist, whereas the customer will create the value independently.

Connectivity has made these two relationship-building strategies more feasible than ever before for VCC. It has enabled to implement a strategy that implies a complete offering and not only focusing on performance value of the product. Connectivity should be seen as tool for delivering these relationship-building solutions and not as a new product that can solely generate direct revenues to VCC.

It is the author's perception that generating direct revenues in the same way as today could become troublesome in the future. Some of the arguments are that vehicle connectivity will according to some empirical material become standard in two years, legislation could force OEMs to implement it in the vehicles and the part of the same technology is already on people's smartphones and cannot be charged for. The indirect revenues could thus be the most likely revenue source from vehicle connectivity. The different revenues could be derived from different sources such as customer relationship management, third party data or cost efficiency.

From a short-term perspective, heed should be given to the fact that VCC recently changed their offering to include two years subscription. Altering the offer to the customers in a short time horizon may not be greeted as a positive change. It is most likely more feasible to alter the pricing strategy in the future, as there are other sources of revenue that may play a bigger part than the direct ones. With a product in place, there is time for relationship building with the customers and VOC serves as a facilitator between VCC and its customers. A relationship can be established as customers can communicate with VOC and send diagnostics data to Volvo Car Corporation repair-shops and by doing so locking in the customers to VCC. There are also opportunities with VOC to create other services (such as a peer-to-peer car-sharing) that could further enhance the Volvo brand and the relationship between VCC and the customers.

In a long-term perspective, there could be some legalisations that require safety and security features to be embedded in the vehicle from the purchasing moment. VCC should therefore investigate the possibility of using a pricing strategy where at least some of the functions are already incorporated in the car. The competitors have already responded to this and offer several packages to the customers where sometimes the basic package is already included in the car. Another benefit with a segmentation pricing strategy, much like the alternative freemium version, is that the customers may choose to purchase only those features they want and not all of them since there could be differences in what customers perceive as important. VOC could be divided even further into three or four packages to suit the different needs of the customers that depend on the personal preferences. There is also the option of including VOC in some models and offer it as an option for other models.

Future Research

Connectivity services are bound to grow even more in the future and the opportunities are vast for Volvo Car Corporation. One idea to explore for further research could be what new services within connectivity will prevail in the upcoming years. Two potential ideas that the authors have been gathered from the theoretical and empirical data are information exchange between customers and companies and peer-to-peer car sharing.

The first idea, from now on called information platform, is centered on the idea that customers can trade information in exchange for both monetary and non-monetary reimbursements. Firstly, a web based platform where all the data gathered from the car should be created in order to store this data. The role of the OEM is to store the information of the customer so that he or she can access all this information. The empirical chapter describes four types of data, driver data, personalized cloud data, vehicle data, and vehicle health/diagnostic data. All these types of data could be stored on the platform for customer's benefit. With this solution in place, the next step is to attract companies that would benefit from this type of information. The firms gain access to upload deals to the customers at which some type of customer information is traded in exchange for benefits such as discounts. The customer may then sign the agreement with the firm and exchange their assets.

The second idea, peer-to-peer car-sharing, is centered on the idea that customers can rent or lend out their Volvo Car Corporation to and from other people in a community. It is a car-sharing model that incorporates the customers as both the provider and receiver of cars.

The goal is to provide a possibility of a flexible and hassle-free car sharing between people. The idea requires a web-based platform at which customers can sign up and register a profile. The customers then register when they need a car or when their vehicle is free to rent. The owner states when and where their car is available for others to use. When there is a match between the owner and the renter (who can be anyone with a driving license), the car is lent out to the new person. With an app that can lock and unlock the car remotely, there is no need to exchange keys; the keys can be left in the car. The owner of the car can remotely unlock the car for the renter and give that person access to the car during a certain period of time. When the time period is over and the car has been restored to the original owner, the owner can rate the renter of his or her performance. This will prevent fraudulent persons of being able to loan the car, as people won't be keen to lend out their cars to a person with low ratings.

Another idea is to explore the idea of segmentation pricing with different pricing strategies in countries or regions. There are most likely cultural differences between the countries and to differentiate the prices according to those cultural dimensions could be a feasible strategy. That would require a market analysis of the markets that VCC is operating in and also bundling countries together into regions that share the same attributes.

A third idea is to analyze what the key purchase attributes are for customers when evaluating connectivity services. The attributes could for example be price, reputation, features and brand value and they could differ between customers. Younger potential customers may perceive price as more important than customers that are older, or that high-educated people

perceive reputation as the most vital factor. These attributes could then be analyzed to attract more customers and increase sales.

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Appendix

Appendix 1 - Automotive Technology

The technology in vehicles has progressed immensely in the last decades as part of the evolution of the computer systems. In the beginning the technologies were foremost in the form of dispersed, unconnected, program-control-based devices (Fabbrini et al. 2007). The tendencies in the 1990s were towards improving the vehicle safety by gears such as obligatory airbags and daytime running lights but also developments in electronics, communications, GPS, and cellular technology were made. In the end of the 1990s, car manufacturers began discovering how they could use connectivity by incorporating cellular technologies into the vehicles. The initial technologies served to increase driver safety by offering wireless-enabled services e.g. automated crash notification and emergency roadside assistance (Hasegawa et. al. 2012). Today, machines have developed entrenched autonomous decision making procedures and mechanism with integrated networks of active nodes, each one performing complex, often time-constrained functions (Fabbrini et al. 2007). The drivers have been subject of change too, as their role is more towards supervision with responsibility of monitoring the procedures which are performed automatically by the devices (Tango & Montanari, 2006). Even so, the users of the car have to manage a rising volume of information.

There have been additions in traffic density and most importantly new in-vehicle devices, such as entertainment systems, global positioning systems, trip computers and vehicular phones (Amditis et al. 2006; Bellotti et al. 2005). The majority of the functions are accessible through exclusive user interfaces and dashboards denoting that the driver has to cope with several different systems. Every system could each produce a couple of messages for the driver so the driver has to pay attention to a growing amount of messages that sometimes are displayed simultaneously. The situation for the driver is becoming more complex and could hamper the driving performance (Tango & Montanari, 2006).

Today OEMs play an imperative role as a provider of the systems used in the car by having them built in through devices and registered software. Some of the devices are only available with the services provided by the same OEM but the automotive industry is compelled to open itself up to technologies and services offered by companies in the Telecommunications, Information Technology, and Media & Entertainment industry to prosper (Meyer, 2012). Sophisticated plug-in inventions and intelligent interfaces open up new possibilities for external parties to launch their products. Another problem with new software and devices are the deviating development cycles. A vehicle can be researched and developed for several years before it reaches the market, whereas the development cycle for a new technology can be as little as a few months (Meyer, 2012). The pressure to provide integrated services within a car has increased which puts an extensive demand on the manufacturers to array the most advanced system and software engineering practices. The software and devices are not necessarily produced in house; the dependency of acquiring new software has amplified (Fabbrini et al. 2007).

Appendix 3 – Automotive Ecosystem

The present ecosystem is closed for external parties and the borders are well-defined with a rigid process and clear structures. The three players, suppliers, OEMs and customers have defined tasks and responsibilities and the process begins with automotive suppliers providing hardware components and software in cooperation with vehicle manufacturers. The value chain is straightforward and value creation is made when the customers buys the car (Kalmbach & Landmann, 2012).
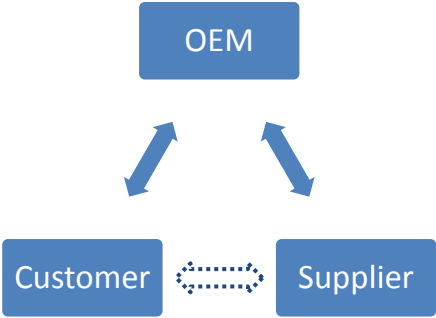
The ecosystem of automotive manufacturers is now beginning to be revised as vehicle connectivity is shifting the boundaries. This new open ecosystem is compelled with new rules, collaborating with players from other industries and understands the value of data (Kalmbach & Landmann, 2012). As boundaries will be softened the value chain will be transformed into a value network where new companies have the possibility of generating revenues. This will be accompanied by new data-based business models which in turn will change the opportunities and risks in the market (Kalmbach & Landmann, 2012).
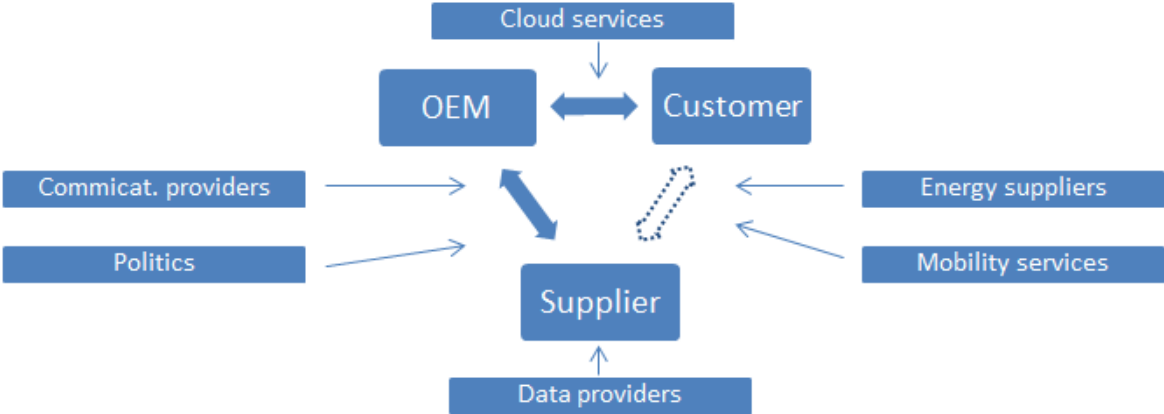
The new actors will inevitably disrupt the conventional ecosystem by shifting value from hardware to software. It is a necessity for all players in the ecosystem to modify their business model to become sustainable in accordance to the sophisticated dynamics of the new value chain. Each player has its own intrinsic value of data which need to be exploited and a decision about what type of data they will release to third parties should be made (Kalmbach & Landmann, 2012). Another issue arises with how the data is generated and dissecting the

channels is essential in determining how the dominant players get access to this data. Navigation services serves as a conspicuous example as drivers value the function but are reluctant to pay for it. The reason of the reluctance is evidently the available access to navigation solutions the customers already have from companies such as Google (Kalmbach & Landmann, 2012).

Appendix 2 - Connectivity Solutions

A great amount of applications and software are available in the cars such as intuitive driver assist systems, telematics and comfort enhancing applications (Amditis, 2006; Kumar, 2009). Together they connect the driver to its vehicle by an interacting interface and intelligent electronics integration. The original goal with telematics and a greater connectivity was to decrease the distraction of the driver in order to avoid accidents but the concept has been broadened and solutions need to integrate with the user's social life (Kumar, 2009). Today, there are several concepts that play a vital role in the field of connectivity such as telematics, infotainment and human machine interface (HMI). The scope of each subject is a tad blurry and certain technologies combine two or more of the concepts.

For making connectivity available in the car, the provider can use three different methods; embedded solutions, at which the connectivity is incorporated into the car, tethered solutions where the driver is required to set up their phone as a modem and integrated solutions where smartphone Apps are assimilated into the car (SBD, 2012). However, the methods are not mutually exclusive; solutions that use two or more of the connectivity methods can be seen from the automotive manufacturers e.g. embedded for premium segment and tethered for low-end segment.

The most consistent method for connectivity is the embedded solution, although tethering and integration solutions are gaining acceptance due to a number of impediments for the embedded method. High hardware costs are a barrier for embedded solutions since tethered and integrated solutions relies on technology that is readily available on the smartphone. The government can aid automotive manufacturers in mitigating this problem by introducing telematics-related mandates (SBD, 2012). Another barrier is high communication costs as the arduous work of predicting the usage and data requirements for the services is difficult. High-bandwidth services such as navigation and infotainment commonly entails an extra subscription for further use. Customers are reluctant of the unnerving task of managing another additional subscription but collaboration with telecom operators provides a remedy. By creating shared data plans they could allow customers to receive only one bill and still being able to access the same data plan through various devices (SBD, 2012). A third barrier that disrupts the prosperity of embedded solution is the relationship customers have with their smartphones. Consumers feel devoted and reliant on their smartphones due to various downloaded Apps and they want to access them in their in-car display. This can be achieved by introducing web-based Apps that can be accessed by implementing a browser in the car (SBD, 2012).

Telematics

Telematics refers to the automated convergence of telecommunications and informatics, mainly wireless communication (Frank, 2009; Chen et al. 2011). The industry of telematics is rather young and no cohesive multiple platform standards have been sanctioned, making most telematics technologies independent of each other. The software providers have thus difficulties with producing value-added telematics services. To mitigate the problem, a plentiful of automotive manufacturers has established open platforms (Chen et al. 2011). During the first decade in the 21th century it is projected that approximately 10.000 people are conducting research and development on telematics. A tenth of those researchers are based in Gothenburg making Sweden a significant player in the telematics industry (Whitfield, 2004). A cluster of corporations and universities, based in Gothenburg, are called "Telematics Valley" and they have realized that there is a lucrative market potential for the telematics industry. As information technology is turning out to become more mature, it becomes easier to develop new telematics devices. Consequently, the automotive telematics has enticed substantial attention from other industries such as mobile computing and intelligent transport systems (Chen et al., 2011). Some of the telematics services that are available today are monitoring, emergency road-side assistance, driver aids, remote diagnostics and web browsing (Chen et al. 2011; Ramamoorthy, 2005).

Infotainment

Infotainment embraces the mixture of information and entertainment (Frank, 2009; Kelly and Anderson, 2009). Conventionally, it defines the term as technologies aimed to augment the driving experience by ameliorating the quality of entertainment and information simultaneously. Today, it needs a broader definition as it also entails solutions intended to modernize the safety and fuel efficiency. Infotainment has a richer history than telematics and the first sign of infotainment was seen in the vehicles in the 1930s, with the introduction of radios in cars. 80 years later and the radio is still an essential part of the car and audio system suppliers are researching pioneering results that may improve energy efficiency (Kelly and Anderson, 2009). Radios underpinned the establishment of infotainment; however the structure was built from the navigation technology. The initial navigation system served the drivers by providing intelligence on which routes to take. As customers become more demanding, they plea for a richer experience when it comes to navigation imagery and today navigation systems is linking itself with social networks. They complement the navigation with utilities originating from websites like Facebook and MySpace straight into the car (Kelly and Anderson, 2009).

Human Machine Interface

Human Machine Interface (HMI) is a concept that involves numerous systems with the aim of allowing the driver to interact with the car as well as displaying feedback from the car to the driver. The interaction between the user and the vehicle can begin instantly as the driver unlocks the car door and finishes the instant the driver gets out. HMI is diligently connected and used with the other concepts because it enables drivers to control personal electronics devices with the use of the infotainment system (El-Khoury, 2008). As with telematics, there are no standardisation modules which are an underlying distress for HMI developers. The consumers' slope of the learning curve is therefore steep and taking the driver's attention

away from the road due to ineffective interface is not an appeasing progress. New software is entering the automotive industry continuously and it is of vital significance to familiarize the different interfaces with the users so the distraction is minimized (Kumar, 2009). The hardware of the interfaces are adapting too as mechanical buttons are replaced by capacitive touch inputs and resistive touch screens to capacitive touch screens. Examples of common HMI systems are keyless entry, power seats control, side mirror control and occupant detection (El-Khoury, 2008).

Appendix 4 – Connectivity Challenges

The different product life cycles of vehicles and software thwarts the diffusion of connectivity devices but there are other challenges as well such as the cost of integration. OEMs are subject to invest in hardware, for instance embedded human machine interface (HMI) or aftermarket solutions. In the end, it is often the costumer who has to bear this cost with, culminating in telematics capabilities costing upwards of $3000 (Cuddeford-Jones, 2013). Being that most of telematics solutions are requiring a partially connection with the driver's smartphone, the cost of connectivity escalates. The majority of apps that requires a lot of bandwidth such as radio and navigation impede the practicality for many drivers. Connection with all the devices and software's will require a high-bandwidth, mobile commerce and a stable communications network in order to also show high-resolution video and audio without any disturbances (Kelly and Anderson, 2009). That fact that cost is source of failure for connectivity and telematics is reinforced by Juliussen (2003) who claims that not only is telematics systems too expensive, but also that few customers are paying for telematics services. A fourth challenge for further prosperity of connectivity devices is the lack of standardization, making consumer adoption a grim task. No industry settlement as the optimal way of providing a telematics solution has prevailed; leaving the competitors the availability of offering a wide diversity of solutions (Cuddeford-Jones, 2013). This results in the consumer having to make the not so easy task of comparing the embedded, tethered, and integrated or cloud combined systems, turning the cost of entry to upsurge. It is correspondingly as difficult for the providers to offer a single approach to integration as there are many OEM telematics systems (Cuddeford-Jones, 2013). Reaping the benefits of all new technologies necessitates a more scalable and open-sourced vehicle computing platform. This will enable new features to be connected as time goes by without having to install new hardware (Kelly and Anderson, 2009). A final difficulty for the integration of connectivity in the cars is the regulatory differences that exist across countries. Safety, legal and logistical regulations are applied differently in the nations and the service providers does not only have to cope with dissimilar levels of compliance, the levels usually have timescales that change before the implementation takes place (Cuddeford-Jones, 2013).

Appendix 5 - Market Trends

The upsurge of connectivity for vehicles stem from five trends that together create an indispensable disruption point for the automotive industry to seize the opportunities that are available. The market trends are (Kalmbach, 2012):

1. Development of technology
2. Politics and legislations

3. Electric vehicles
4. New mobility solutions
5. Value of the data

The first trend is modern technologies and software that enable gathering, processing and recording of data (Kalmbach, 2012). DSRC (Dedicated Short Range Communications) and WiFi, Bluetooth, 3G and LTE (4G) are just a few technologies that facilitates stable connections with vehicles, enabling large volumes of data transmission and enhanced mobility. DSRC originates from the automotive industry and enables time-sensitive functions between vehicles and for example the traffic infrastructure (Bernhardt et.al. 2012). 4G is the technology that is predicted to lead the global market due to low cost, and the breakthrough of 4G will have positive consequences on the diffusion of connectivity. There are different types of networks where all these technologies are used such as Personal area networks (PANs) for short-range networks, local area networks (LANs) for medium range and wide area networks (WANs) for long range (Bernhart et.al. 2012).

A well-structured HMI is a necessity in the upcoming years to avoid distraction from the driver. As the number of connectivity devices, software and other gadgets are increasing in the car, the driver will be exposed to visual, auditory (sounds coming from other sources than the road environment), biomechanical (taking hands off the steering wheel to control other devices) and cognitive distractions (the attention is elsewhere from the road) (Bernhart et.al. 2012). The software development in the automotive industry is currently underdeveloped and there are complications in upholding integrity for the suppliers. However, there are tendencies towards cross-industry platforms, standardization, and convergence of systems which will aid the software development in contributing to the proliferation of the connectivity industry (Schlesinger and Girardot 2010).

The second driver is the politics and legislations that are emerging as a consequence of the globalization and growing vehicle demand. This leads to heavy pressure on the environment and the developing countries will on its own emit 1.9 million tons of carbon dioxide annually due to the increase in car ownership (Tamietti & Smith, 2011). The political spheres are also aware of the traffic-congestion are alleviating these problems with regulations that support vehicle connectivity and road infrastructure as it is seen as the only remedy (Kalmbach, 2012; Schlesinger and Girardot, 2010). With cars being connected to infrastructure to handle traffic lights in a more flexible way, the driver may reduce stops, travel time and gasoline consumption. Traffic safety is another issue and will be enhanced as Europe's eCall emergency call system will be obligatory in all new cars from year 2015. This technology will diminish the rescue times which subsequently will decrease the amount of fatalities and serious injuries (Bernhart et.al. 2012). The government will also play a vital role in governing the regulations regarding data ownership, privacy and security. Who will own the data, data access authentication and the goal of data usage are unresolved questions that will have impact on the OEMs businesses. Data privacy embraces issues such as access rights to personal information and using data for litigation proceedings. Data security is third field where legislations will regulate the process of providing secure data storage and transmission (Bernhart et.al. 2012).

Electric vehicles will provide a basis for connectivity to prosper as they need better technology to be fully adjusted for a large scale deployment in the cities. The restricted electric range of electric vehicles (EV) calls for a connectivity system that makes it convenient for the customer by finding the nearest charging station, assessing its attainableness and preserving a charging point (Kalmbach, 2012). Connectivity solutions may also provide remote control possibilities so that information regarding temperature/ voltage data, the charge status and diagnostic information and alerts can be accessed remotely (Bernhart et.al. 2012). The majority of the EVs entering the market today have their engine and motor adjusted as electric vehicles but not from the ground up. This burdens the in-vehicle system, consequently necessitating a reconsidering of the electronic architecture and software (Schlesinger and Girardot 2010).

New mobility solutions are the fourth trend that explicates the concepts of multimodal systems and car sharing. Car sharing has grown immensely and proven to be a feasible business model and is projected to encompass over 4 million users in the US and nearly 6 million in Europe by 2016. In this business the rental companies, OEMs and independent companies are all struggling to gain market shares, which opts for new ways of making business (Bernhart et.al. 2012). These mobility solutions are only feasible if people and vehicles are being connected to each other and to communities (Kalmbach, 2012). This trend descends from the fact that urbanization is taking place. By 2015, almost half of the world's people will be inhabitants in cities at which drivers will be exposed to congested roadways and traffic jams. New in-vehicle systems are required and connectivity devices will play a vital role in assisting drivers to better navigate (Tamietti & Smith, 2011).

The fifth trend concerns the value of the data that consumers are providing to the OEMs. As the advancements in software progress, more data will be available to extract and unlocking the full potential value of data will be crucial for an inevitable success (Kalmbach, 2012). Firms in the IT sector such as Google or Facebook have demonstrated the usefulness of data centric business models. For them, the customer is a supplier of data that can be administered and generate revenue by selling the information to third parties. Automotive manufacturers may benefit from this opportunity by exploiting the information and offer the customers connectivity services at lower cost (Kalmbach, 2012).

Appendix 6 – Internal Interview Questions

The introduction that initiated the interview consisted of questions such as what is your role, what do you work with and telling the interviewee about the authors report and situation. Many of the other questions were explicitly aimed towards the particular person and his or hers role or follow up questions, which resulted in unique questions each interview. The interviews were focused on a specific topic such as Volvo On Call, Volvo Sensus Connected Touch, the legal aspects and innovation process and marketing of vehicle connectivity. These general questions were asked

- What are the current trends within vehicle connectivity?

- What are the future trends within vehicle connectivity?

- What are the potential revenue streams that can be derived from connectivity solutions?

- What payment methods can be used?

Appendix 7 – External Interview Questions

The introduction that initiated the interview consisted of questions such as what does your firm do, what is your role, what do you work with and telling the interviewee about the authors report and situation. The other questions were sometimes specifically designed towards a particular company or follow up questions, resulting in some unique questions each interview. Otherwise these types of questions were asked

- What are the current trends within vehicle connectivity?

- What are the future trends within vehicle connectivity?

- Will the demand for vehicle connectivity change in three years?

- What are the difficulties with developing connectivity solutions?

- What types of connectivity solutions will prevail in three years?

- What are the potential revenue streams that can be derived from connectivity solutions?

- What payment methods can be used?

- How can OEMs use connectivity solutions to increase the revenues?

Appendix 8 – List Of Figures and Tables