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# **Developing an innovative business model for the connected car**

*Master's Thesis in the Master's Programme  
Management and Economics of Innovation*

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MASTER'S THESIS E 2017:030

# Developing an innovative business model for the connected car

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# Abstract

In recent years, the concept of Internet of Things (IoT) has gained increasing attention and it is claimed to be one of the most disruptive technological revolutions of our lifetime. An industry that is on its verge of major transformation due to increased connectivity is the automotive industry as the car has moved from a purely mechanical machine to a more digitally integrated system. The shift attracts new players to the industry which requires new and innovative business models in order to realize the business potential in the integration of multiple businesses operating in a collaborative environment. IoT enables ecosystems to be built around the car, which transforms it into a multi-sided platform (MSP) where drivers and passengers can connect with new actors that provide innovative services.

Company Alpha, a fast growing, high-tech company has developed a connectivity solution for vehicles. By connecting the car through a dongle, the owner will get access to an ecosystem of features, developed both by Alpha and 3rd parties. The management team is however uncertain of how the business model should be designed in order to create a successful and competitive solution that works as an MSP related to the connected car. The purpose of this thesis is hence to suggest a business model for Company Alpha's product.

Initially, a framework for mapping an MSP business model was decided upon and a literature review was conducted to understand what characterize a successful MSP according to previous research. Thereafter, a multiple-case study of competitors to Alpha was conducted and compared to the literature review to find success factors and pitfalls that could be relevant for the company. The focus was then shifted to Alphas company specific requisites and preconditions. Insight from previous literature, learning outcomes from the case companies as well as analyses of these preconditions then lay the groundwork for suggesting the most suitable business model for Company Alpha.

Briefly described, the business model suggests that Alpha should focus on facilitating an attractive open platform for developers and various companies that want to produce content and services related to the connected car. Alpha should then use non-exclusive distribution partners who sell the product and thus manage marketing and customer relationships. The product is recommended to be sold co-branded. Alpha primarily makes money on revenue sharing from purchases within the platform and project development fees. Alpha can also generate revenue by selling industry reports based on aggregated driving data from users. For this reason, data should be anonymously available to Alpha, but it is owned by the user itself who also decides upon which 3rd party developers that will have access to it.

*Keywords: Business model, internet of things, connected car, multi-sided platform*

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# Abbreviations

API	Application programming interface
B2B	Business-to-Business
B2C	Business-to-Consumer
B2B2C	Business-to-Business-to-Consumer
BMC	Business Model Canvas
IoT	Internet of things
MSP	Multi-sided platform
OBD	On-board diagnostics
OEM	Original equipment manufacturer
PC	Personal computer
RQ	Research question
SDK	Software developer kit

# 1. Introduction

In this introductory chapter, the background of the thesis including Internet of Things and the need for innovative business models is presented. Thereafter follows a presentation of Company Alpha and the thesis' problem statement. Lastly, the purpose of the study is stated together with the related research questions.

## 1.1 Internet of Things and the need for innovative business models

In recent years, the concept of Internet of Things (IoT) has gained increasing attention (Batalla, Mastorakis, Macromoustakis & Pallis, 2017). The term describes various technologies and research disciplines that enable the Internet to reach out and connect to physical objects in the real world (Feki, Kawsar, Boussard & Trappeniers, 2013). IoT has thus enabled new forms of communication between people and devices, and between devices themselves, which has added new dimensions to the field of information and communication technology (Batalla et al., 2017). Feki et al. (2013) claim that “the IoT represents the most potentially disruptive technological revolution of our lifetime” (p. 24) which is supported by Gartner's (2015) estimation that the number of connected devices will reach 20.8 billion by 2020. Some explanatory factors for the rapid growth are the increased availability of broadband internet connection, decreased costs related to technology and connecting, more devices are being created with Wi-Fi capabilities and sensors built into them, as well as the ubiquity of smartphones in society (Morgan, 2014).

Although the concept of IoT refers to basically any device (e.g. cellphones, lamps, refrigerators, machines etcetera), the automotive industry is an industry that is on its verge of a major transformation due to increased connectivity (Kollaikal, Ravuri & Ruvinsky, 2015). The car has moved from a purely mechanical machine to a more digitally integrated system and today, a modern car has the computing power of 20 personal computers, includes approximately 100 million lines of code and generates up to 25 gigabytes of data per hour (McKinsey, 2014). So far, this digital technology has focused on optimizing the car's internal functions but due to the rise of IoT, a shift towards developing the car's ability to connect with the outside world and enhance the in-car experience for the drivers and passengers is occurring (ibid).

Connectivity of cars enables drivers and passengers to connect with actors providing new types of services, e.g. on-demand mobility services and data-driven services (Gao, Kaas, Mohr, & Wee, 2016). This shift attracts new players to the automotive industry, ranging from high-tech and software companies to other actors that want to reach car users, which are different from the incumbent firms on many levels (Beiker, Hansson, Suneson & Uhl, 2016). A major challenge associated with the presence of new actors in the industry is to realize business potential in the integration of multiple businesses operating in a collaborative environment (Glova, Sabol & Vajda, 2014). Since the collaborative environment, or the ecosystem, compounds of various actors with heterogeneous characteristics, who previously had no business dealing with each other, the value creation and capturing are more complex than for a traditional business (Westerlund, Leminen & Rajahonka, 2014).

Looking at other industries, the new dimensions that IoT and connectivity entail have increased the demand for new and innovative business models (Glova, Sabol & Vajda, 2014), and the automotive industry is no exception. The term business model can be seen as a fuzzy concept but Osterwalder and Pigneur (2010) defines a business model as “...the rationale of how an organization creates, delivers and captures value” (p. 14) which indicates that both technology as well as economic related aspects are included in the notion. As new technology has brought the IoT and connectivity to the automotive industry, it seems logical that new business models are needed in order to capture and monetize on the value that the new technology enables. The potential is described by Gao et al. (2016) who argues that the new dimensions and opportunities that the connected car entails can increase the revenue pool in the automotive industry by 30 percent.

Connectivity enables ecosystems to be built around the car, transforming it into a platform, where drivers and passengers can connect with new actors that provide new and innovative services (Gao et al., 2016). Platforms, or multi-sided platforms (MSPs), are defined as “technologies, products or services that create value primarily by enabling direct interactions between two or more customer and participant groups” (Hagiu, 2014, p. 71). Several of the 21st century’s largest and most fast growing business have been MSPs (Hagiu, 2014). Examples include Facebook, Twitter, Ebay, Android and Uber to name a few. MSPs create excessive value by using network effects and facilitate interaction and thus reduce transaction and search costs between two or more user or participant sides (ibid). The great potential of MSP business models inspires businesses and entrepreneurs to build the next dominant platform for their respective industry and automotive is no exception (ibid).

## 1.2 Introduction to Company Alpha

Company Alpha, a fast growing, high-tech company has developed a product that enables a connectivity solution for vehicles. By connecting the car through a device into the OBD (on-board diagnostics) socket, the owner will get access to an ecosystem of features based on driving analytics, health of the car, geographical location etcetera via their smartphone. The device works on basically every car manufactured after 2001, making the connectivity solution available to a vast number of cars resulting in a great market potential.

The product is technologically ready for market launch, but the management team is uncertain of how the business model should be designed in order to create a successful and competitive solution that works as an MSP for various features and applications related to the connected car. The features will be developed both internally by Company Alpha as well as externally by other members of the ecosystem. Issues to be dealt with for Company Alpha hence include, but are not limited to, pricing model, cost structure, distribution channels, data rights, partnerships and so on. Also, the importance of creating a platform that attracts participants in terms of both producers and customers is of major importance (Bonchek & Choudary, 2013).

## 1.3 Purpose of the thesis

The purpose of the thesis is to suggest a business model for Company Alpha’s product.

## 1.4 Specification of issue under investigation

In order to achieve the purpose of the thesis, the following research questions have been formulated:

- 1) How can an MSP business model be mapped into a framework?
- 2) What characterize a successful MSP business model according to previous research?
- 3) What insights can be gained from competitors' business models?
- 4) What are the company specific requisites for Company Alpha?
- 5) What is the most suitable business model for Company Alpha's product?

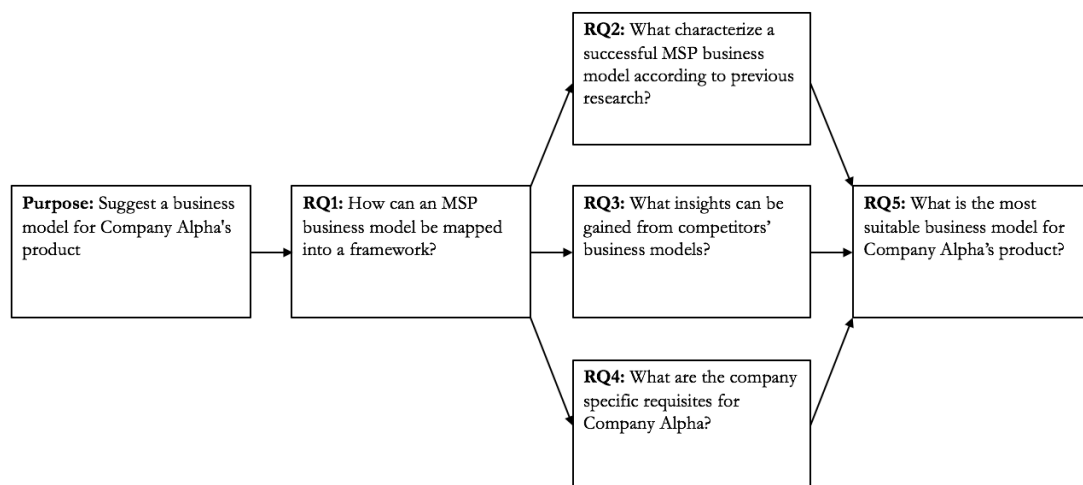
## 2. Methodology

This chapter will present and motivate the methodology used in order to answer the research questions and achieve the purpose of the study. Firstly, the research approach will be presented together with an illustration of how the research questions relate to each other. Thereafter, the procedure of how each research question was answered will be explained.

### 2.1 Research approach

There are several ways of how a new business model can be developed, stretching from doing extensive trial and error research in close collaboration with customers, to simply copying a competitor's business model (Chesbrough, 2007). The connected car market is changing rapidly and a short time to market and developing a business model quickly was desired by the management team of Company Alpha. The authors of this report did not have the resources to conduct extensive customer involvement research by for example using prototype testing. Also, since Alpha's product is supposed to be an MSP and a facilitator of a connected car ecosystem, the complexity of using prototypes and trial and error research increases. The alternative of just copying a competitor's business model, which would have been the most resource efficient method, was not suitable either since Company Alpha has few long-established competitors due to the immaturity of the market and which business model that will be the most successful one is still unknown. For these reasons, just copying a competitor's business model was considered a risky move. Thus, in order to design a suitable business model for Company Alpha, deep going knowledge about MSPs, Company Alpha's prerequisites and its business was needed and a qualitative research strategy was therefore used.

An illustrative overview of the process used in the study and how the research questions relate to each other can be seen in *Figure 1*. A similar research approach has been used in other studies where business models have been in focus. For instance, Mårtensson (2014) used a similar design in his M.Sc.'s thesis where he studied how new business models can be generated through modularization.



*Figure 1. An overview of how the research questions relate to the purpose.*

## 2.2 How can an MSP business model be mapped into a framework?

In order to suggest a business model for Company Alpha's product, a framework including a business model's different components was needed. The framework made it possible to analyze and evaluate each component individually which enabled a more structured approach of mapping and comparing different business models in RQ3 as well as presenting the suggested business model for Company Alpha in RQ5.

Even though a lot of research has been published in the field of business models, researchers do still not agree about a united definition and the concept can be seen as fluffy and difficult to grasp (Zott, Amit & Massa, 2011). In this thesis, the earlier mentioned definition of a business model has been used, i.e. "the rationale of how an organization creates, delivers and captures value" (Osterwalder & Pigneur, 2010, p. 14). Nevertheless, the definition does not define a business model's different components and a framework was thus needed. One of the most recognized frameworks for mapping business models is the Business Model Canvas (BMC) developed by Osterwalder and Pigneur (2010). However, existing frameworks, such as the BMC, are adequate when analyzing traditional business models but less suitable when it comes to the understanding of MSPs, let alone develop a new one as in this case (Scholten, van der Heijden & Aalbrecht, 2016).

In order to decide which framework to use, a literature study was conducted in order to gain more insights and knowledge about previous research regarding business models for MSPs and ecosystems. To find previous literature within the field, Chalmers Library's database was used. Searches in the database included keywords such as "multi-sided business model", "platform business model", "ecosystem business model", "business model framework" etcetera. Also, Google searches were used to ensure that a thorough understanding of the subject was gained. After the literature review was conducted, insights from previous research was used for choosing an appropriate business model framework to use in this thesis.

## 2.3 What characterize a successful MSP business model according to previous research?

A literature review of previous research was conducted in order to lay the groundwork necessary to answer this question. By reading articles dealing with MSP based businesses and previous case studies, insights of factors that make a platform successful were gained and potential pitfalls were identified. Informative quotes and key takeaways for each article were compiled in a table. Thereafter, coding was used to group quotes and takeaways from the articles that dealt with the same subject (e.g. network effects & first mover advantages). By doing so, eight important factors that are worth considering when developing a MSP business model were identified.

## 2.4 What insights can be gained from competitors' business models?

To answer this research question, a multiple case-study was conducted. Five case companies and their business models were mapped according to the framework from RQ1. The business models and their components were then analyzed and compared with the characteristics and

insights from RQ2 in order to find success factors and pitfalls that could be relevant for Company Alpha's business model. The case companies included both direct competitors to Company Alpha as well as companies operating in the same field as Alpha but on other geographical markets.

The companies were chosen based on two factors; expected input for Alpha' and data availability. These two factors are somewhat connected since the more data about the company's business models that were available, the better the input for Alpha. However, expected input also considered how prosperous the case companies were so that the most prominent ones within the field were included in the study. The data used to analyze the companies was primarily secondary data from previous studies, websites, annual reports etcetera. For some cases, emails were sent to company representatives including complementary questions about their business models that secondary data had not answered. However, the sought information was often confidential which gave an explanation to why it had not been publicly available in the first place. Learning outcomes and key takeaways from the analysis of each case study were formulated and compiled in a summarizing table so it would be easily available later in the study.

## 2.5 What are the company specific requisites for Company Alpha?

In order to design a business model for Company Alpha's product, extensive knowledge about the company, its product and its business environment was needed. The knowledge came from primary data gathered by open interviews with Company Alpha's management team throughout the time of the study as it was supposed that they were to give the most data-rich answers. More specifically, three open interviews were held, and an area of topic was introduced each session. The focus of the first session was on getting an introduction to the company, its history, organization and way of working. The second session aimed to understand Alpha's product and the company's current state, which also was the focus during the third session where the topic was further elaborated. Due to the management team's previous as well as ongoing involvement with potential partners, customers, developers etcetera, they had insights that needed to be considered when developing the business model. Considering the company's surrounding is necessary for making sure that the business model matches other involved parties' needs and wants (Eisenmann, Ries & Dillard, 2012).

## 2.6 What is the most suitable business model for Company Alpha's product?

To answer this final research question, a combination of characteristics of a successful MSP business model (RQ2), learning outcomes and insights from the five case studies' business models (RQ3) and the company specific prerequisites for Alpha (RQ4) were used for designing a suitable business model for the company. Two workshops with Alpha's management team was also conducted. At the first workshop, about halfway into the study, a preliminary business model was presented for the management team in order for them to comment on the model itself and the feasibility of it. Their feedback was then considered and changes in the suggested business model could be made before the second workshop where the changes were discussed.

Lastly, the final model was presented to the whole company in the end of the study for engaging all employees in the suggested model.



### 3 Literature review

This chapter includes two main parts. First, a business model framework suitable for MSP businesses together with its including building blocks is presented. Thereafter, the chapter deals with eight important factors MSP firms need to consider according to previous research.

#### 3.1 Business model framework

Although the concept of business models is ambiguous and lacks an official definition, the notion is widely used by researchers and practitioners for its usefulness as a conceptual device for thinking as well as a tool for doing (Baden-Fuller & Morgan, 2010). The business model concretizes how a firm creates and captures value through exploitation of business opportunities (Amit and Zott, 2001), which is useful for creating new businesses and innovating existing ones (Chesbrough, 2010). It is also useful for communicating what a business does and how it works to external stakeholders such as investors, partners, analysts etcetera (ibid).

A business model framework is a useful tool for mapping and analyzing various businesses in a standardized way (Osterwalder & Pigneur, 2010). The conducted literature review of business model frameworks indicates that a clear majority of previous research focuses on business models for traditional firms, i.e. not MSP businesses. Since a traditional business model framework, such as the Business Model Canvas (BMC) by Osterwalder and Pigneur (2010) only includes one customer side, it does not capture the dynamics of an MSP business illustrated in *Figure 2*. The sides of an MSP could, for example, be a developer side (supply side) and a user side (demand side). Hence, traditional frameworks such as BMC will not be suitable when mapping MSP business models.



*Figure 2. An illustration of the characteristics of an MSP. Traditional frameworks, such as the BMC, do not capture the dynamics of multiple sides of customers.*

Even though the BMC only includes one side of customers and hence disqualifies to be a framework for mapping MSP business models, its different components are a neat illustration of how a traditional business works which provide useful insights also to MSP businesses. The BMC includes nine building blocks as shown in *Figure 3*. The value proposition, i.e. the service or the product that creates value for a specific customer segment and reason for them to turn to the company, is placed in the center of the canvas. To the right of the value proposition is the customer side of the framework. It includes what customer segments to target, as well as building blocks related to how to reach them and what relationship one should have with each segment. The left side of the BMC includes the building blocks related to what the firm does and what resources and partnerships it needs to create the value proposition. Below the mentioned building blocks are the financial building blocks including revenue streams generated from the customer side, and the cost structure generated from the value creation side of the canvas.

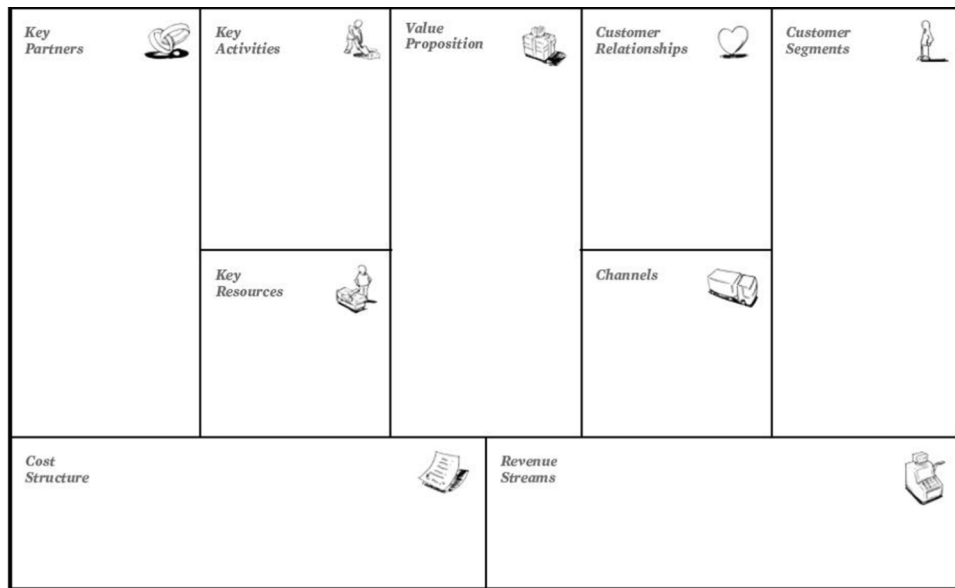


Figure 3. The Business Model Canvas by Osterwalder and Pigneur (2010).

The BMC is, as mentioned, a useful tool for explaining how a traditional company creates and delivers value but is not suitable for MSP based businesses. However, a modified version of the BMC is presented by Fielt (2011) which includes an additional customer side of the canvas. As this framework provides multiple sides, as well as includes the logic of the BMC, it is a suitable framework for mapping Company Alpha's and other MSP's business models. A graphical illustration of Fielt's (2011) framework is presented in *Figure 4* and here includes two sides. However, more sides can be added to the platform if necessary. As can be seen in the framework, the revenue streams derive from the customer sides and the cost structure from the platform. The value propositions are different depending on which customer side it addresses. In the subchapters below, each building block of the framework is presented in detail. Readers with previous knowledge of the BMC's building blocks may go to Chapter 3.2 directly.

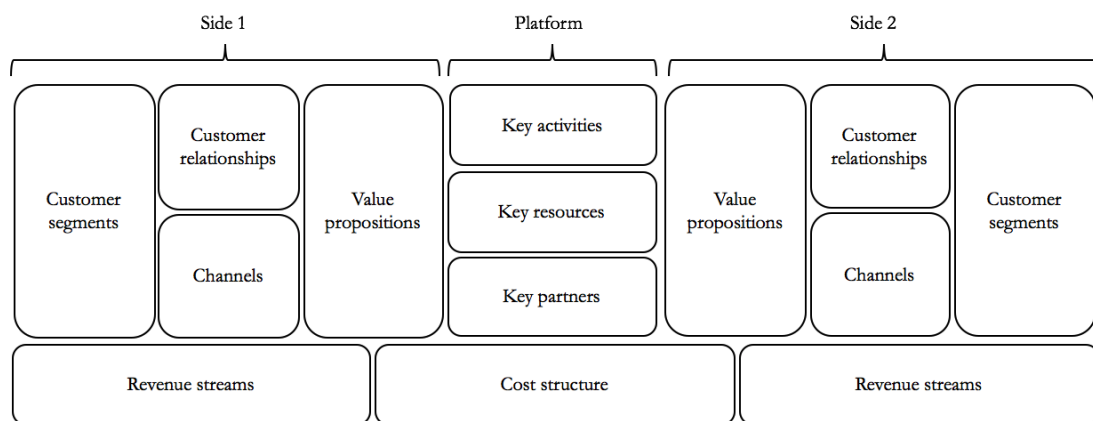


Figure 4. The MSP business model framework to be used in this study. The framework is based on Fielt (2011).

### 3.1.1 Customer segments

The customer segments define what different groups of people or organizations the company aims to serve on each side of the platform. By targeting specific segments a company is in a better position to satisfy their needs (Osterwalder & Pigneur, 2010). A company therefore needs to carefully decide which customer segments to serve and which to ignore so that the remaining parts of the business model can be designed around the needs and prerequisites of its target customers. Osterwalder and Pigneur (2010) propose several different types of customer segmentation strategies. For example, a company can target a mass market meaning that the business model does not differentiate among different customers but rather targets a large group of customers with broadly similar needs (ibid). The opposite strategy is to focus on a niche market which means that the business model caters a narrow segment with customers with same, or very similar, requirements (ibid). An MSP will have two or more customer sides which means that segmenting each side's customers is required.

### 3.1.2 Value propositions

Once the customer segments of each side of the platform have been decided, the value propositions towards each side can be defined. The value proposition aggregates benefits and creates some sort of value for a customer, which could be either through a product or a service (Osterwalder & Pigneur, 2010). The value proposition can be new and innovative, or similar to an existing offer but with additional features and/or a lower price (ibid). Examples of ways to create value for customers include improving performance, helping customers to do a certain job, lowering price, giving status, etcetera (ibid).

### 3.1.3 Channels

This building block focuses on how to communicate and reach each customer segments. Since the sides of the platform have different customer segments, a channel building block is needed for each side which can be seen in *Figure 4*. The channels include communication, distribution and sales channels which all act as the company's interface with each customer side (Osterwalder & Pigneur, 2010). A firm can either use its own channels, for example selling through their own sales force or using their own web site or retail stores (ibid). A firm can also use partners' channels such as wholesale distribution or partner owned web sites and retail stores (ibid). These channels can bring additional value for a company since it can benefit from the partners' capabilities and resources (ibid).

### 3.1.4 Customer relationships

The building block describes what kind of relationship the MSP company should have with each customer side and its related segments. The relationships could range from personal assistance to self-service depending on the needs and requirements of the customer segment (Osterwalder & Pigneur, 2010). Another customer relationship method to use, which is becoming more and more popular, is utilizing user communities (ibid). Communities, usually online, allow communication between the MSP company and its customers/prospects as well as simplifying connection between the members of the community (ibid). For an MSP company, the community could be a way for each side of the platform to communicate with each other.

### 3.1.5 Revenue streams

The revenue streams building block represents the cash the company generates from each side of the platform. Even though each side of the MSP framework include customer segments, it is not necessarily so that each side generates revenues to the platform. One side of the platform could rather include what is better defined as “users” since they do not directly pay for the value proposition. However, each side of the framework could potentially generate revenues to the platform in some way and therefore, each side includes this building block. The traditional way to generate revenues is through what Osterwalder and Pigneur (2010) defines as asset sales which derives from selling a physical product. Other ways to generate revenues are usage and subscription fees, leasing/renting, licensing, brokerage fees and advertising to name a few (ibid).

The digital economy and MSPs have however enabled new ways to generate revenues. Revenue sharing is one such way that has gained increasing attention for MSPs (Roma & Ragaglia, 2016). As all actors involved in an MSP are interconnected with each other, it is important that there are incentives for all involved actors (ibid). Examples of companies using revenue sharing are Apple and Google that are using revenue sharing models for their smartphone platforms. For each transaction made on the platform, a certain percentage (e.g. 70 % at App Store) goes back to the developer while the platform provider gets the rest of it (ibid). There are however different ways for an MSP provider to make money, both through revenue sharing and other revenue models. Eurich, Giessmann, Mettler and Stanoevska-Slabeva (2011) mention eight ways for an MSP provider to create revenue, focusing primarily on how to retain revenue from the supply side of the platform:

*Subscription* - Annual fee that the supply or demand side of the MSP pays for access to the platform or to certain content or services available on the platform.

*Transaction-based* - Another way of generating revenue is to use a transaction based model dependent on the usage of the platform. The size of the fee is dependent on how much the specific actor is using the platform. However, such models are often associated with high monitoring costs for the platform provider.

*Revenue sharing* - The revenue is shared between two or more actors on the MSP, as described above. Normally, the platform provider and one of the platform's sides. For example, a share of the revenue that a supplier earn from their application or service on the platform goes back to the platform provider.

*Additional platform services* - The platform provider could also sell additional services related to the platform such as different service support levels, training and courses to users and suppliers as well as offerings related to certification of suppliers etcetera.

*Advertisements* - Advertisement is another way for platform providers to generate revenue. Normally, they take a share of the advertiser's income through for instance a pay-per view or pay-per sale model. Advertising could also be used inside applications and it is not unusual that

the platform provider takes a share of the revenue from developers' advertising through a revenue sharing model.

*Affiliate services* - Affiliate services are another way for platform providers to generate revenue from third parties by offering expertise to for example suppliers and help them develop a platform application.

*Admission fees* - Another potential revenue source for platform providers is to charge an admission fee from actors that want to use the platform.

*Downloads/upgrades of applications* - Taking a share of the fee that the consumer of an application pays to get access to an application (unless it is free) or the fee related to consumers in app purchases is another way for a platform provider to generate revenue. This model could also be seen as a form of revenue sharing.

### 3.1.6 Key Resources

Key resources are the most important assets needed to make the business model work. The resources could either be owned by the company itself, or leased from a key partner (Osterwalder & Pigneur, 2010). The most obvious resources are perhaps physical, but a firm's key resources can also be human, intellectual or financial (ibid). Physical resources include buildings, manufacturing facilities, machines etcetera. Human resources are the employees which are important for all companies, but particularly crucial in knowledge-intensive and creative industries (ibid). Intellectual resources could be patents and copyrights, brands, partnerships and customer/user databases. The last type, financial resources, are cash, lines of credit, a stock option pool for new employees, etcetera. Different types of business models require different sets of key resources, hence all resource listed above are not required by a single firm.

### 3.1.7 Key activities

Key activities include the most important activities the company needs to do to make the business work. For a manufacturing company, the production is a key activity while for a management consulting company for example, problem solving is the vital activity. For an MSP business, key activities might include platform management and service provisioning to name a few (Osterwalder & Pigneur, 2010).

### 3.1.8 Key partnerships

This building block includes a company's network of partners which has been touched upon in some of the above-mentioned building blocks. Historically, firms were vertically integrated and did everything in house, but a trend has been to outsource many steps of the value chain to partners and suppliers for increased performance (Powell, 2003). This trend has increased the importance of key partnerships. Osterwalder and Pigneur (2010) distinguish between three different types of key partnerships. The first type is the most basic form of partnership which is the one between buyer and supplier, so called "Optimization and economy of scale" partnerships (ibid). These partnerships usually aim to reduce costs (ibid). The next type of partnership,

“Reduction of risk and uncertainty”, can be useful when a company wants to reduce risk in an uncertain and competitive environment, for example through a strategic alliance (ibid). The last type of partnerships mentioned by Osterwader and Pigneur (2010) is called “Acquisition of particular resources and activities”. Since few firms possess all necessary resources, knowledge, capabilities etcetera needed for their business model, they rely on partners to provide them with what they are missing. For example, a new tech start-up with a new and innovative product might not have the resources to sell the product by themselves. Instead, they initiate a partnership with one or several distribution partners.

### 3.1.9 Cost structure

Even though some firms are more cost conscious than others, all business models incur costs in some way. Costs could be either fixed, i.e. costs that remain the same despite the volume of products or services produced, or variable, i.e. they are proportional to volume (Osterwalder & Pigneur, 2010). Two other relevant concepts related to the cost structure are “Economies of scale” and “Economies of scope”. Economies of scale refers to the cost advantage a company gains as its output increases (ibid). For example, a larger company can procure goods and products at a lower bulk price, which together with other factors result in a lower cost per unit as the output rises (ibid). Economies of scope on the other hand refers to the cost advantage related to a larger scope of operations (ibid). If a company for example sells multiple products through the same distribution channels, they could enjoy cost advantages which is due to economies of scope (ibid).

## 3.2 Eight areas to consider for MSP companies

The conducted literature review of MSP businesses and ecosystems indicated eight reappearing areas that are worth considering when developing a business model for this type of businesses. The eight areas are: (1) The importance of a clear growth strategy and identification of your customers, (2) Importance of network effects, (3) Securing the critical mass, (4) Evaluation of first mover advantages and winner takes it all characteristics, (5) Creating a win-win environment for all involved actors, (6) Pricing strategies and the importance of subsidizing, (7) Governance and strategies to avoid quality pitfalls and (8) Keeping competitors out of the game. The areas are explained in the following subchapters.

### 3.2.1 The importance of a clear growth strategy and identification of your customers

Executives of any MSP or soon to be MSP should start by asking one question; how many sides should be brought on to the platform? (Hagiu, 2014). The number of sides to bring on can be obvious, as in the case of Match.com, where the sides are males and females looking for a partner. However, in other cases, the choices are more difficult. For instance LinkedIn, one of the world's leading professional networking services, is currently using a three sided platform where they bring together professionals, recruiters and advertisers (ibid). Each side generates revenue (20 % from subscriptions, 30 % from advertising & 50 % from recruiting services) and LinkedIn are currently evaluating if they should bring on two more sides; application developers and corporations that want to interact with their employees (ibid). Even though bringing on

more sides could be beneficial for LinkedIn's growth, other problems might appear. For instance, friction between sides might occur if the new sides only create value for themselves and not for the whole platform (Evans & Schmalensee, 2016). An example is that LinkedIn users (employees) may not welcome the attendance of their employer and the users may not want application developers that develop games as it will ruin the stamp of a serious work-related platform (Hagiu, 2014). Thus, a trade-off appears between bringing on more or fewer sides to the MSP.

Another aspect to consider is that increasing the number of sides will amplify the complexity of the platform and thereby diminish the opportunity to innovate the platform by introducing radical new features as more actors have to be involved and satisfied (Hagiu, 2014). For instance, Apple are keen to have control over both software and hardware which has made it possible for them to produce state-of-the-art hardware/software systems (Cusumano, 2010). Microsoft has historically had a different approach than Apple, but with the acquisition of Nokia's device business and their own tablet called Surface, they are taking a step towards more control but less scalability (Hagiu, 2014).

Even if the executives have the number of sides figured out, they also need to develop a strategy for how to grow each side of the MSP. A common belief is that the key to success is to get big quickly and grow the number of participants on each side of the MSP as fast as possible (Cennamo & Santaló, 2015). However, it is easy to be blindfolded by the substantial profit potential of a market dominating MSP so executives need to be aware of that the reality can be complex and a lot of pitfalls can be made on the way (Cennamo & Santaló, 2015).

In order to avoid such pitfalls, it is important to have a growth strategy (Cennamo & Santaló, 2015). Cennamo & Santaló (2013) have identified two different growth strategies. The first and the most common one is trying to add material to the platform from the supply side as fast as possible in order to make the platform attractive for the demand side. While the demand side increases, the incentive for the supply side to develop more material will increase which creates a snowball effect. The second strategy that can be used is to limit the material supplied to the platform and make sure that the material supplied are exceptional good and exclusive to the platform (ibid). Both strategies have proved successful, but sometimes executives try to combine the two of them and supply a lot of material where only some of it is exceptional and exclusive to the platform (Cennamo & Santaló, 2015). This might seem like a good strategy but research indicates that it is not the case (Cennamo & Santaló, 2015; Cennamo & Santaló, 2013; Thornhill and White, 2007).

An example mentioned by Cennamo and Santaló (2015) is Groupon. In its early years, Groupon pursued an aggressive growth strategy trying to push as many shop owners as possible on to the platform in order to increase the value of the platform for consumers. The shop owners that were brought on, had to agree with Groupon's exclusivity conditions and agree not to have any promotions or offers online during a certain time period near the Groupon deal. Thus, shop owners were not only limited in their options to launch new campaigns, they were also put against other local shop owners in a highly competitive environment that resulted in a price cutting war. The unpleasant situation for shop owners together with the fact that Groupon had

problems to differentiate itself from competitors, eventually led to a massive drop out of shop owners, which highly affected the platform's growth and value.

Even if the number of sides and the growth strategy is determined, executives also have to consider who their customers are (Cennamo & Santaló, 2015). A platform has, as described earlier, basically two different segmentation strategies; targeting niche markets or the mass market (Osterwalder & Pigneur, 2010). A commonly known mistake by executives is trying to win both a niche and the whole mass market at once which often results in a hard time winning either of them (Cennamo & Santaló, 2015). A neat example of this, mentioned by Cennamo and Santaló (2015), is Blackberry that for a long time was the market leader for smartphones for business users by offering superior features appreciated by such users. Slowly, Blackberry started to lose users to competing solutions dominating the consumer market (e.g. Apple and Android). The response from Blackberry was offensive and they upgraded their devices to include features important to the consumer market (e.g. camera, games etcetera) in an attempt to conquer both the consumer and the business market. The strategy showed to be unsuccessful as Blackberry ended up stuck in the middle, with a product that did not satisfy neither the business market's nor the consumer market's needs (ibid). The struggle was also reflected in Blackberry's market value which went from over 80 billion USD in 2008 to 4.3 billion USD in 2013 (Taulli, 2013).

The above mentioned example illustrates that it is a good idea for executives of MSPs, or soon to be MSP, to early on define who their customers are. However, it is not necessarily so that the initial customers the MSP targets are the same ones that it will focus on in the future. Several successful platforms started out targeting niche segments and first after acquiring their specific segment, they moved over to the mass market. An example is Facebook, which initially targeted only university and college students in the US, but now has 1.86 billion monthly users worldwide (Statista, 2016). In comparison, MySpace targeted a broad range of users, ranging from teenagers who used the site as a place on the internet to hangout, to professional musicians who rather used the site to communicate with their fans and promote their work (Cennamo & Santaló, 2015). Hence, Facebook and MySpace used two different strategies where Facebook's was clearly the most successful one (ibid).

### 3.2.2 Importance of network effects

The importance of network effects in an MSP business is frequently mentioned in the literature (e.g. Giessman & Legner, 2016; Hagiu, 2014; Evans, Hagiu & Schmalensee, 2006; Kim, 2016; Eisenmann, Parker & Van Alstyne, 2006; Shaughnessy, 2016). Network effects are defined as a "a virtuous circle whereby the value of a product or service to users rises as its user base expands" (Chandler & Munday, 2016, p.1). Applied to MSPs, network effects imply that the more actors who belong to the platform, the more valuable it becomes. The network effects could be either "cross-side" or "same-side" (Hagiu, 2014). Cross-side network effects are present when an increased number of participants on one side of the platform, increases the value for the other side (ibid). An illustrative example of this effect is Apple's iOS platform. If more users join the platform by buying iPhones or iPads, application developers are more eager to join the platform and develop content for the large user base. Cross-side network effects also work the other way around. If a lot of developers are producing applications to iOS, it is more valuable for



users to join the platform instead of a competing one. The effects can be enhanced by investing in one side of the platform since investment spillovers that create cross-side network effects might occur (Bakos & Katsamakas, 2008).

Same-side network effects refers to network effects present within a specific side of the platform (Eisenmann, Parker & Van Alstyne, 2006). These effects are generated when attracting users to one side of the platform result in the attraction of even more users to that same side (ibid). For example, if more people decide to buy an Xbox console, new users will find it easier to find players and friends to play games with online, as well as it gets easier to buy and sell used games with other Xbox users. These snowballing patterns are the positive same-side network effects (ibid). Another example of positive same-side network effects happens on social media sites like Facebook. The more people someone know on Facebook, the more attractive the site is for that person. It is however important to mention that both same-side and cross-side network effects can be of negative character, which means that additional members of the platform reduce the value for the existing ones. The four kinds of network effects are summarized in *Figure 5* below.

Positive	Adding someone <b>increases</b> appeal to all existing users on the <b>same</b> side	Adding someone <b>increases</b> appeal to all existing users on the <b>other</b> side
Negative	Adding someone <b>decreases</b> appeal to all existing users on the <b>same</b> side	Adding someone <b>decreases</b> appeal to all existing users on the <b>other</b> side
	Same-side	Cross-side

*Figure 5. A description of all kinds of network effects related to an MSP (Tiwana, 2014).*

As the examples above illustrate, network effects are relevant for MSP companies because they increase the value of the platform and contribute to continuing, exponential growth (Shaughnessy, 2016). This can be important to achieve since it is not unusual for an industry to settle on one platform which becomes the dominant design, even though it might be technologically inferior to competing platforms (ibid). Also, users are generally more willing to pay for access to a bigger network, hence profit margins increase with the number of platform participants (Eisenmann et al., 2012). This is called increasing returns to scale (ibid).

### 3.2.3 Securing the critical mass

In order for network effects to kick in, it is necessary to have sufficient number of users on one side of the platform in order to attract the other side and vice versa. A problem for platform businesses is thus that it is unlikely that they initially will have a sufficient number of users on each side in order to get network effects going (Berkers, Roelands, Bomhof, Bachet, van Rijn & Koers, 2013). A strategy for how the platform will get off the ground and get the network effects

going is therefore necessary. Evans and Schmalensee (2016) mention three different strategies an MSP can use in order to secure the critical mass, i.e. the minimum number of participants needed for the platform to ignite:

*Zigzag strategy* - A basic strategy where the platform provider tries to continuously push participants to each side simultaneously. The methods to attract participants can vary over time, as long as participants are pushed on to each side simultaneously. Two successful examples are Youtube that initially tried to attract people to upload and view videos simultaneously, and Alibaba that tried to push on Chinese manufactures and foreign buyers at the same time.

*Two-step strategy* - Another strategy that could be used is the two-step strategy. Platform providers start by pursuing one side to join the platform and after reaching enough actors, they pursue the other side to join. OpenTable is a successful example of the two-step strategy as they started to sign up restaurants and when reaching enough restaurants, they started to approach consumers.

*Commitment strategy* - The commitment strategy can be used when one of the platform's sides have to make an investment. No investments will be done until the investment side has a guarantee that the other side, the side they will interact with, will join the platform. Microsoft used such a strategy when they first launched Xbox. They convinced game developers that the Xbox console was an extraordinary product and it therefore would be many players joining the Xbox platform. Microsoft also agreed to subsidize the console and thereby make sure that there would be enough users so developers could sell their games.

Even though the strategies seem straightforward, there are some tactics that can be used in order to implement them. Evans and Schmalensee (2016) mention three different ways:

*Self-supply strategy* - A commonly used tactic is to self-supply the platform. The platform provider vertically integrates to one of the platform's sides and supply it with material necessary to satisfy the other side whereafter external suppliers are invited. Such tactics were for instance used by Apple when they launched Iphone. Initially, no external developers could develop applications to App Store, instead Apple had filled it with an adequate amount of in-house developed apps.

*Make them believe* - A method that requires platform providers to persuade actors on one side to believe that if they join the platform, the other side will come too. This tactic is commonly used by MSP companies.

*Marquee users* - Trying to get commitment from one or several "Marquee users", i.e. users who are more valuable to the platform than normal users as they can attract substantially more participants to the platform and thus help to create momentum. The tactic is often used at shopping malls where contracts with attractive brands (e.g. H&M, Zara etcetera) are signed early on making it easier to sign contracts with smaller firms later on.

Nevertheless, it is important to remember that even though the above-mentioned strategies and tactics are proven to be successful, there are several other strategies to be used as well. Another common strategy, mentioned by Berkers et al. (2013), is to use ecosystem seeding, which refers

to initially targeting one specific subset of the target customer in order to get the network effects going within the subset. When the network effects are going, the platform will aim for the rest of the potential customer base while at the same time continuously adding more content and features to the platform (Evans & Schmalensee, 2016). Thus, the platform's value proposition will change over time. PayPal used a similar strategy when they launched their online payment solution. Instead of targeting all potential online-purchasers, they only focused on the purchasers at Ebay, one of the largest consumer-to-consumer transaction platforms on the internet (ibid). Eventually Paypal became the standard payment-method at Ebay and PayPal could then expand and reach customers all over the internet with the help of Ebay and its customer base (ibid).

### 3.2.4 Evaluation of first mover advantages and winner takes it all characteristics

During the 20th century, the perception in academia was that all two-sided markets that were subject to network effects would be dominated by strong first-mover advantages and winner takes it all characteristics (Evans & Schmalensee, 2016; Parker and Van Alstyne 2005; Rochet & Tirole 2003). A frequently mentioned example is the battle between VHS and Betamax as the common technical platform for taped media (Evans & Schmalensee, 2016). The battle was eventually won by VHS which resulted in the Betamax technology becoming obsolete (ibid).

However, the studies made in the 20th century mostly focused on platform value associated with the number of users, but did not consider the value associated with the actual usage of the platform over time. Thus, the studies in the 20th century did not recognize that a platform with a smaller user base can outcompete the industry leading platform over time if it offers a superior consumption experience or offers better quality, something that Zhu and Iansiti (2012) as well as Shankar and Bayus (2003) showed. Hence, network effects are more complex than expected, and earlier recognized theories of first mover advantages and winner takes it all characteristics are proven to be doubtful (Evans & Schmalensee, 2016). As an illustrative example, there are several different payment card networks today (e.g. Visa, MasterCard, American Express, Eurocard etcetera), even though the characteristics of the payment card market might indicate that it would consolidate to only one network. Interesting to notice is that Visa, the largest payment card network in the US today, expanded nationally about sixteen years after the first payment card network was introduced in the US (ibid).

Evans and Schmalensee (2016) argue that there are few examples where the first mover in an MSP industry conquered the whole market. In fact, they argue that most of the first movers are often vanished and not remembered. An example can be seen in social media. In the late 1990s there were several different social media platforms such as SixDegrees, Xanga and Friendster that today are vanquished from the social media scene or just marked as failed (van Dijck, 2013). Nevertheless, there are some MSP markets and industries where winner takes it all characteristics might apply (Evans & Schmalensee, 2016). Eisenmann et al. (2006) argue that a market is likely to be served by only one platform if the following three conditions apply:

*The costs of multi-homing are significant for at least one side of the platform* - Multi-homing costs are cost associated with affiliating with more than one platform. An example can be seen in the PC

industry where users tend to only use one operating system as the cost associated with using more than one operating system (e.g. additional software and training) are too high.

*Network effects are positive and substantial, at least for the side with significant multi-homing costs* - If cross-side and same-side network effects are positive and substantial, users tend to consolidate to one platform as the alternative, to use a smaller platform, will have lower value for the user.

*Neither side of the platform has a substantial demand for special characteristics or features* - If neither of the platform's sides have special needs and wants there will not be room for smaller niche platforms. For instance, if there would not be a niche with the need of a card with no spending limit, American Express would not have had any users.

Thus, when the following three conditions apply, the market is likely to be served by only one platform. If so, managers have to decide if they should battle competitors in order to make sure that their platform will be the winning one, or if they should cooperate with competitors and share the platform (Eisenmann et al., 2006). A reason for sharing is that it will facilitate the attraction of more users. The explanation is that many users would otherwise sit tight and wait to see which platform that will be the dominant one in order to avoid betting on the wrong horse (ibid). Moreover, the battle for winning control of the dominant platform will most likely be an expensive journey as it will require a lot of upfront costs for development and marketing of the platform (ibid). Thus, sharing will decrease competition and minimize risks for the company.

### 3.2.5 Creating a win-win environment for all involved actors

An MSP is about creating a proposition that is valuable for all involved customer groups and if any of the involved parties is neglected, the platform will not be viable for long (Cennamo & Santaló, 2015). An example of a company that oversaw one of their sides' value proposition was Amazon with their initial launch of the Kindle e-book platform in late 2007, explained by Cennamo and Santaló (2015). Amazon's strategy for attracting readers to their platform was to offer e-books at a low price. This pricing strategy was however not appreciated by the publishers since they saw it as a threat to their business models and potential revenues. Therefore, publishers decided to delay the launch of their most important books to Kindle for several months after the hardcover release date. Thus, Amazon's value proposition of cheap e-books did not align with their ecosystem members' value propositions which clearly affected the value of the Kindle platform negatively. Apple on the other hand, created a platform (iPad's iBook) where the publishers could set their own prices which gave the publishers an attractive alternative to Kindle.

It can be concluded that previous research highlight the importance of creating a win-win ecosystem (e.g. Cennamo & Santaló, 2015; Kim, 2016). A relevant question is then how this win-win scenario occurs and how it is maintained. Kim (2016) claims that maintaining continuous quality management and building revenue structures are the key success factors to enforce a win-win ecosystem. The two factors are further described below.

Attracting participants to the platform is necessary to create network effects. However, an increased number of participants might result in an increased number of unwanted participants

that have the potential to decrease the quality of the platform (Kim, 2016). If the quality of the platform is affected negatively, desirable participants might leave or go to another platform (ibid). If this happens, the platform will lose its credibility and the business might fail (ibid). This could be seen as what Akerlof (1970) refers to as “a market for lemons” which is a concept related to quality and uncertainty. A market for lemons, or the lemons problem, occurs because a seller and a buyer might have asymmetric information about the true value of the product or service in question (ibid). Akerlof (1970) used the purchase of a used car as an example where the lemons problem result in a decreased willingness to pay for the customer since he/she does not know the true quality and hence the value of the car. The same argument can be applied to platforms. If a potential user is unable to perceive the true value of a platform due to quality issues, the willingness to join and pay for the platform decreases.

Another illustrative example of the lemons problem comes from the collapse of the US video game market in 1983 where more than 90 percent of the game developers went bankrupt (Boudreau & Hagiu, 2009). The reason was that Atari, the manufacturer of the dominant game console at the time, could not prevent unwanted game developers from developing poor-quality games to the platform (ibid). As with lemons, gamers could not separate the good games from the bad ones which resulted in a collapse of the market (ibid). This example truly highlights the importance of continuous quality management. A thorough review of how this can be set up is presented in Chapter 3.2.7.

As with any other business, an MSP must produce profits in order to be maintained (Kim, 2016). It is therefore important that the platform provider creates economic incentives for all participating members (Gawer & Cusumano, 2008). These economic incentives should be designed in a way that promotes the entire business ecosystem to grow continuously and produce profits on its own (Kim, 2016). This could be done through various pricing strategies as will be dealt with in the following chapter.

### 3.2.6 Pricing strategies and the importance of subsidizing

The main objective of all businesses is to create revenue (Kim, 2016). In the case of MSPs, several actors distributed over different sides enable the platform provider to collect profits and revenues from more than one source (Hagiu, 2014). The problem is however how much each side should be charged for access to the platform (Hagiu, 2009a). It might actually be so that collecting revenues from all sides is not always the best strategy in order to create a profitable and growing ecosystem which is something that have been realized by many MSP companies (Kim, 2016; Hagiu, 2014). Instead, many companies choose to subsidize or even give away their services to one side, the subsidy side, in order to collect revenue from the other side, the money side (Hagiu, 2014). This pricing strategy can be derived from the presence of cross-side network effects. If platform providers can attract more users to the subsidy side, the money side tends to pay more for access to the platform (Kim, 2016). MSP providers therefore have to use a pricing strategy that is optimized for all sides of the platform (ibid).

The first step for creating a suitable profit formula is to identify the MSP’s money and subsidy side (Eisenmann et al., 2006). To identify the money and subsidy side, executives need to consider each side’s price sensitivity (ibid), i.e. how much the price of a product or a service

affect a consumer's purchasing behavior (Gabor & Granger, 1979). The side with the highest price elasticity is the subsidy side while the side with lowest is the money side. Depending on how the MSP is designed, Kim (2016) argues that the money side can be divided into three categories.

The first category mentioned by Kim (2016) is when the supply side is the money side. Examples are Playstation and Alibaba that cannot extract value from the price sensitive demand side. Instead Playstation extract revenue from game developers (Cennamo & Santaló, 2013) and Alibaba from sellers. Trying to make revenues from both sides would result in the platform only being attractive for the supply side and not the demand side, making it obsolete over time (Kim, 2016). Therefore, it is recommended to subsidize the demand side in such cases (ibid).

The second category according to Kim (2016) is when the demand side is the money side. A mentioned example is Microsoft's operating system Windows. Ever since the start, Microsoft has had the vision that people would choose Windows due to the great amount of programs and software available. Initially, Microsoft acquired critical software and programs necessary to take a leading position on the market and has since then been giving away free tools for developers in order to expand the number of programs and software available to users (ibid). Thus, Microsoft subsidizes the supply side and generates profits from the demand side through customers that purchase a PC with the Microsoft operating system (ibid).

The third category mentioned by Kim (2016) is when neither the supply nor demand side is the money side. In this category, a third side has to pay for the expenses associated with the supply and demand side (ibid). An example is the free apps available at Apple's App Store or Google Play. Such apps are developed by the supply side and used by the demand side, but the revenues come from a third side; advertisers that want to reach users. This model is suitable when both the supply and demand side have a high price elasticity and the price competition is substantial (ibid). Eisenmann, Parker, and Van Alstyne (2006) express similar opinions as Hagiu (2014) and Kim (2016), and have identified six important factors that executives need to look closer at in order to take the right decision regarding pricing:

*Ability to capture cross-side network effects* - If your subsidy side can interact with another platform's money side, your "subsidy" is a waste of money. An example is Netscape who gave away internet browsers with the anticipation that they would sell more web-servers. However, users took the internet-browsers for free and hosted their servers at a cheaper competitor.

*Users' sensitivity to price* - Eisenman et. al (2006) confirms that the side that is most sensitive to price normally should be subsidized while the other should be charged a premium.

*Users' sensitivity to quality* - The side most sensitive to quality normally indicates the side that should be subsidized. The pricing strategy can seem rather unreasonable, as you charge the side that supply quality but the strategy is widely used in for instance the game development industry.

*Output cost* - Subsidizing decisions are easier when the cost for adding a new user to the subsidy side is neglectable. However, in the case of a giveaway product with a noticeable cost, MSP

providers have to be more conservative. Especially, if there are any doubts if the money side will pay a premium for accessing the subsidy side or not. The most apparent example is FreePc that in the late 1990s gave away computers with free internet access to customers that agreed to watch non-removable ads. However, advertisers were not willing to pay to reach such price sensitive customers. Instead, FreePc made huge losses before ending the program.

*Same-side network effects* - The attraction of more members to one side could have a positive impact for members on the same side, as well as for those on other sides of the platform. However, in some situations it actually makes sense to exclude some members from the platform. The reason is to avoid negative same-side network effects. For instance, most sellers would welcome a limited number of direct competitors on the platform. If such negative network effects are severe, executives have to consider giving exclusive licenses to a limited number of users in exchange for a high licensing fee. Nevertheless, such exclusive licensing strategy demands that platform providers supervise exclusive users and make sure that they do not abuse their monopoly position as it might make buyers to avoid the platform. Lastly, it is important to mention that even though same-side network effects can be negative for one side, for example suppliers, the negative effects of increased competition can be outweighed by the positive effects of participating on a popular platform (Cennamo & Santaló, 2013).

*Users' brand value* - As mentioned by Evans and Schmalensee (2016), all users are not equally important. By signing exclusivity contracts with marquee users, platform providers can accelerate growth of the platform as other members will be aware of that these marquee users will not attend another platform. However, problems with how revenue should be divided often arise if a platform is highly dependent on one or a few marquee users.

### 3.2.7 Governance and strategies to avoid quality pitfalls

The importance of proper quality management due to the lemons problem was introduced in Chapter 3.2.5. Due to Atari's lack of a governance system regulating entry of unauthorized developers, the good games were driven out by poor games and the prices dropped significantly which eventually made the platform collapse (Boudreau & Hagiu, 2009). Nintendo on the other hand had strict policies for regulation of 3rd party developers when they entered the video game market six years later (ibid). Games that were not approved by Nintendo were blocked by a security chip. This governance incentive also enabled Nintendo to reduce the risk of the market failure mentioned by Hagiu (2014), saying that too much competition within one side of the platform can reduce developers' incentive to produce high-quality products.

Kim (2016) presents a framework for governance based on two quality management strategies. The first strategy is "platform regulation" first mentioned by Boudreau and Hagiu (2009) which determines whether to regulate the platform ex ante or ex post, i.e. if behaviors should be managed before or after they have occurred. The second strategy, "platform quality certification" introduced by Hagiu (2009b) decides whether to regulate participation or to rely on consumers to regulate the MSP quality themselves. The framework can be seen in *Figure 6*.

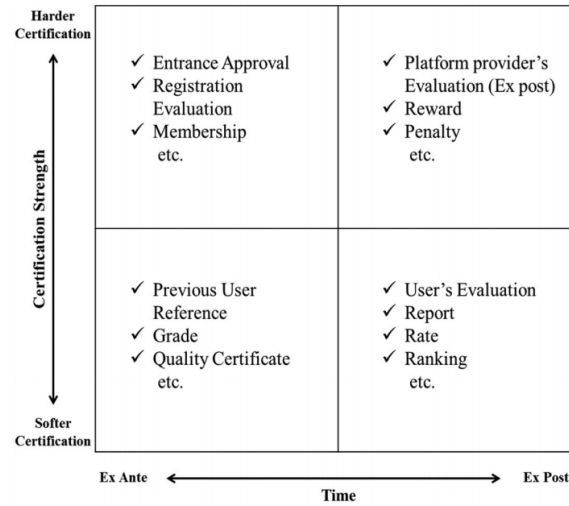


Figure 6. *Quality management framework presented by Kim (2016).*

Apple's App Store and Google Play are similar platforms but with different governance structures. Apple controls the developers' applications before (ex ante) they are registered on App Store while Google controls applications only after (ex post) they have been registered on Google Play (Kim, 2016). Hence, two different strategies are being used that would place the two companies on different sides in the framework in terms of the "Time" dimension. The other dimension, "Certification Strength", is divided into either a harder or a softer certification. Hagiu (2009b) suggests that the hard method is that the platform owner limits the activities on the platform if certain criterions are not met. The soft method on the other hand, lets users provide information regarding satisfaction and reliability through consumer evaluations and reviews which will control activities on the platform (ibid). The framework is therefore a 2 x 2 matrix where the quality management structure could be either "hard-ex ante", "soft-ex ante", "hard-ex post" or "soft-ex post" (Kim, 2016).

Hagiu (2014) argues that at a high level, an MSP's choice of governance structure is a trade-off between quantity and quality. In the pursuit of network effects, it is easy to focus on quantity, but it is important to mention that network effects for an MSP are also determined by quality (ibid). However, higher quality usually inquires costs. These costs could be related to the technological development and implementation of a governance initiative, e.g. Nintendo's security chip, or operational if the platform owner for example wants to continuously analyze user activities (ibid). Hence, a soft certification strategy could be a cost-efficient governance method if it works properly. It is also important to mention that the need for governance and regulation of an MSP may evolve over time (Boudreau & Hagiu, 2009).

### 3.2.8 Keeping competitors out of the game

Barriers to entry prevent other companies to enter a market or an industry. This is of importance for an MSP firm, not only because the lack of competition allows for higher profit margins, but also because some platform industries tend to settle on one dominant design rather than continuing with a variety of platforms (Tiwana, 2014). Therefore, an MSP company risks losing its participants to a competing firm entering the market with a more attractive product. By



enforcing entry barriers, a platform can secure its position and become the dominant one. Previous research deals with three main types of barriers relevant for an MSP company; network effects, switching costs and economies of scale.

Network effects result in barriers to entry because when a platform has reached the self-reinforcing cycle which increases the value of it as explained in Chapter 3.2.2, new members will prefer to join this platform rather than a new one without users. Also, existing members will not be eager to switch to the new one of the same reason, hence lock-in effects occur that create barriers for new entrants.

Switching costs are costs occurring when a customer goes from one product, platform, service etcetera to another. High switching costs result in lock-in of customers which obstruct them from going to a competing firm (Klemperer, 1995). For example, a gamer who has invested a lot of money in a Playstation console and belonging games has high switching costs if he/she decides to switch to the Xbox console. If the gamer is price sensitive, it is likely that he/she will stick to the Playstation platform. Switching costs are not only the direct costs of buying an Xbox, but also the time the gamer has to spend in order to learn how to use the new platform in the same way as the old one. The entry barriers to an industry with significant switching costs are therefore higher than if no switching costs had been present.

The last type is economies of scale which can raise significant barriers to entry according to Hagiu (2014). For example, the extensive up-front costs related to the development of Microsoft Windows operating system leads to economic advantages as the number of users increase. Therefore, an entrant firm can not offer users a similar operating system at the same cost per user as Microsoft which means that a barrier to entry exists. If a hardware is required to join the platform, an increased number of users could also lead to decreased costs of the hardware due to scale effects in manufacturing or procurement if production is outsourced.

## 4 Case studies

In this chapter, five platform companies' business models in the automotive industry will be presented and analyzed. The business models have been mapped with the framework introduced in Chapter 3, and a summary of the business models will be presented below together with an analysis of each. For a presentation of each business model's building blocks, see Appendix 1. Data used to describe the case companies' business models is collected from the companies' websites as well as from their partners' websites, if not stated otherwise. In the end of the chapter, a summary of the learning outcomes of the case studies is presented.

### 4.1 Case A - SpringWorks

SpringWorks offers a platform with basic connected car features such as vehicle monitoring and driving analytics to owners of cars and light trucks. Besides the basic features, the platform has a few selected service providers that have developed their own apps (e.g. Bilprovningen, Bilia and Folksam). The product targets mostly private buyers (mass-market) in the Nordics and the value proposition gives customers access to the platform as well as access to free in-car WiFi including 20 GB data/month (data provided by Telia). SpringWorks is using a partnership strategy where the product is sold in the Nordics and Baltics through Telia's distribution channels under the name Telia Sense. The product will later on be available in more countries where Telia operates. In countries where Telia is not present, partnerships with other telecom carriers might be initiated by SpringWorks.

The price of the product is 1495 SEK combined with a monthly fee of 99 SEK/month for 24 months. Data collected from users is owned by the users themselves and stored by SpringWorks in the cloud. Users can then decide if they want to share the data with certain application developers or not.

SpringWorks is acting as a platform provider to Telia and SpringWorks' key activities are therefore to develop and maintain their platform, called Sparks, while managing their partnerships with Telia and the hardware provider. Furthermore, Telia bought 30 % of SpringWorks in mid-2015 for 30 MSEK (Rossi, 2015; de Lange, 2016). SpringWorks also raised around 28 MSEK through a convertible loan in late 2016 where Telia was the financier (Carlsson, 2016)

#### 4.1.1 Analysis of business model

SpringWorks uses a business-to-business-to-consumer (B2B2C) strategy to reach users in the mass market. By partnering up with Telia, a market leading telecom carrier, SpringWorks can use Telia's resources (brand, distribution channels etcetera) and existing customer base which gives them potential to reach a critical mass quickly. However, by partnering up with Telia, SpringWorks might have lost the opportunity to determine if subsidizing strategies should be used or not as Telia most likely sets the price of Telia Sense.

As for now, customers have to pay an upfront cost for the product, as well as a monthly fee for two years. By pricing the product this way, customers are likely to be locked-in, but the relatively high price and long commitment can harm the adoption rate of new users. If Telia sets the price, it is important that Telia and SpringWorks share the same objectives and incentives related to the platform in order to create a win-win situation. If for example Telia will make more money by selling data for in-car WiFi, rather than creating a valuable ecosystem for all participants, a suboptimization would occur that could harm the platform's potential to succeed. Attracting more users by offering a cheaper version of the product, without WiFi, might be a feasible initiative in order to build a large user base and get network effects going, but this initiative might not be supported by Telia. This risk is however somewhat mitigated by the fact that Telia owns a share of SpringWorks and Telia has thus incentive to create a large user base and a valuable platform.

The developer side of the platform is limited and as for now only a few selected partners are allowed to provide applications and services to the user side. One can argue that this closed platform is more attractive to developers since it means less competition compared to an open platform, but the closed platform is likely to be less attractive for users due to the limited supply of applications and services. Hence, there is a risk that an optimal win-win situation for both sides of the platform will not occur.

Another interesting aspect in this case is whether Telia or SpringWorks decides which partners that are allowed to produce content to the platform. If Telia makes these decisions, SpringWorks' ability to control the platform is further limited. It is not conspicuous in this case if SpringWorks are planning to (or are allowed to) use more distribution partners than Telia. If they are to use more partners, it is relevant to discuss if the existing service providers (Bilprovningen, Bilja and Folksam) are exclusive to Telia or not. If they are exclusive, the platform's value to other distribution partners is lower as they then need to create an own ecosystem. SpringWorks' lack of control of the platform hence risks putting them in a position where they are only a technical provider of a platform solution, rather than a facilitator of a connected car ecosystem.

Learning outcomes:

- Using a telecom carrier as distribution partner is a time and cost effective way to reach users, but affects the platform provider's control
- It is important to decide who is in charge of the platform and ecosystem
- Pricing and subsidizing strategies may be obstructed when using B2B2C strategies
- Using a limited number of developers limits the growth potential of the platform

## 4.2 Case B - Vinli

Vinli offers a platform with access to basic connected car features and in-car WiFi as well as the world's largest automotive app store with over 50 applications. The platform is open to all developers and Vinli does not charge actors that want to develop new apps. Vinli also has a developer portal providing help and SDKs in order to simplify for developers as well as a forum where developers can discuss development problems and help each other, among other things.

The product is sold through a partnership strategy (B2B2C) and can not be bought directly from Vinli. The partners in the US are the car care company Meineke and the car dealership Cox Automotive which have taken the Vinli platform and hardware and branded it as their own connected car product. Meineke calls their product Meineke Revy but clearly states that you get access to the Vinli platform when buying it. It is supposed that Cox will do the same. The main customers for Meineke are both private and business car owners. In the case of Meineke, the product costs 99.99 USD and data needed for the platform's features are included. If more data is needed for WiFi surfing, customers can choose a data plan from T-mobile inside the platform.

Vinli's main activities are thus development and maintenance of their platform as well as maintaining their partnerships with the data supplier T-mobile, hardware suppliers, Meineke and Cox and other potential partners that want to sell the product. Data generated by users is owned by Vinli who also owns the right to share anonymized and aggregated data for any purpose. The different services and applications available on the platform may also ask for permission to collect user information which might be required for using the service. In 2015, Vinli completed a 6.5 million USD financing led by Samsung where Cox Automotive also was one of the investors (Conley, 2015)

#### 4.2.1 Analysis of business model

Vinli also targets the mass market using business partners as distribution channels. In this way, Vinli can use the partners' existing customer bases and brand names. Since Vinli does not possess the resources, nor the capabilities, to reach the mass market directly, using a B2B2C strategy makes sense. By doing so, they also increase their chances to grow the user base quickly and thus reach the critical mass. Customers can buy the product from brands they trust, which also is likely to contribute to an increased adoption rate. A large user base enables positive cross-side network effects which will make the platform more attractive to developers. It is however uncertain if these existing distribution partners are exclusive or not. If they are non-exclusive, Vinli can add more distribution partners to the platform and get access to a potentially larger user base. If they are exclusive on the other hand, Vinli's growth potential is limited to the performance of these existing partners. Using distribution partners also emphasize the importance of common incentives related to the platform as mentioned in the case of SpringWorks.

Developers are allowed to develop content based on data from the connected cars. By providing supporting tools to developers (SDKs, forums, meetups etcetera) and not charging them for using the platform, Vinli creates an attractive environment and facilitates a growing supply of apps. Worth mentioning is that a risk of selling a so called white-labeled product (i.e. a product that is made by one company but branded by another company to make it appear as if they made the product themselves) is that Vinli's brand could get lost in the dark. This will make it harder for developers to "find" the platform as it could be perceived that each distribution partner's own version of the product is a separate platform. Vinli has however mitigated this risk by making partners mention Vinli in their marketing. By doing so, the product could be sold by various companies under their names, but users and developers will be aware that it is based on

the Vinli platform. In this way, customers can buy the product by their preferred supplier, but get access to the same platform and same supply of apps as all distribution partners' products. In the same way, developers can get access to all distributors' customers instead of just one's. The business model will in this way enable a win-win ecosystem for both sides of the platform given that the objectives of all partners are aligned. The strategy will also enhance network effects.

Vinli's ability to control the platform by pricing and subsidizing depends on whether business partners are allowed to set their own prices or not. If they are, the same potential problems as mentioned earlier for SpringWorks appear since Vinli then has no ability to manage the platform and for example grow the user base by subsidizing the product. If partners control the price, and not the platform itself, it could also lead to misalignment of incentives. A partner might make more profit if it sells less products to a high price than the opposite way around. This will not benefit the platform since it will not contribute to network effects and an attractive platform for developers. However, if Vinli can manage the price the partners are allowed to charge, they gain more control of the platform, but partners might be less willing to sell the product if they are not allowed to set the price of their choice.

Vinli's open platform allows for all kinds of actors to develop content to the platform, which facilitates network effects and a growing supply of apps, but also increases the risk of the lemons problem introduced in Chapter 3 if not a proper government system is in place. It is unclear whether Vinli controls content and if so how thoroughly, but if they do not, poor applications might be available on the platform which eventually could drive out good applications as in the case with Atari (Chapter 3.2.5). The increased share of poor content could eventually deter users from the platform.

Moreover, by signing up strategic partners early on, Vinli has raised barriers to entry for potential competitors. Also, Vinli's claim of having the largest app ecosystem of all platforms also gives them a competitive advantage that enhance these barriers. However, if Cox and Meineke are the most prominent partners in this case can be discussed, but the insight of the advantageous market position that strategic partnerships can create is an important aspect.

Learning outcomes:

- B2B2C is an effective way to reach users for a company with scarce resources
- The use of co-branding is a good way to avoid confusion about platform belonging
- An open platform enables growth on the supply side
- The use of exclusive partners can affect Vinli's growth potential

### 4.3 Case C - Mojio

The American company Mojio is one of the leading open platforms for connected cars and offers a white-labeled or co-branded product for businesses that want to create their own connected car solution. The Mojio platform is used by Deutsche Telekom which sells the product (dongle and platform access) to private car owners and fleet owners in US and the Czech Republic, branded as their own (T-Mobile SyncUP Drive). As for now, Deutsche Telekom charges an upfront cost of 149.99 USD for the product without data. However, if the

product is purchased with a leasing agreement (>\$20/month for 2 GB), no upfront price is charged. Mojio is using a revenue sharing model on the user side and gets a small share of the monthly fee that users pay the internet provider (Shore, 2016). How Mojio makes money when the dongle is sold without a monthly fee and how they generate revenues from the developer side are somewhat uncertain but it is likely that revenue sharing models are used there as well.

Users get, apart from basic connected car features such as car tracking, vehicle diagnostics, trip logging etcetera, also access to a growing marketplace of 3rd party connected car applications and services. The marketplace is managed by Mojio who lets developers use car data in their new applications via APIs and mobile SDKs. The data collected from users is stored by Mojio in the cloud and the users can decide whether they want to share the data or not. If they do not want to share the data, they might not get access to services and promotions from application providers. Fleetleed, a fleet management system for families and businesses that has developed an app to the platform, also sells the Mojio dongle (Mojio branded) in Canada through their website. Moreover, until mid-2015, Mojio had raised over 10 MUSD (Lardinois, 2015), and with another round in late 2016 consisting of a 15 MUSD raise from Deutsche Telekom and Amazon among others (Falconer, 2016), Mojio now has raised over 25 MUSD.

#### 4.3.1 Analysis of business model

Mojio also uses a B2B2C strategy to reach users in the mass market. The advantages of using a telecom carrier as Deutsche Telekom (or T-mobile as they are branded in the US) are its well-renowned brand, large user base and ability to provide data. Telecom carriers have good prerequisites to distribute the product and reach a critical mass of users quickly as mentioned in the case of SpringWorks and Telia. Since Deutsche Telekom brands the product as their own, it is likely that it gives trust to potential buyers and hence increase the adoption rate. Nevertheless, white-labeled products also bring the pitfalls mentioned earlier with the lack of awareness of a unified platform. If every distribution partner brands the product as their own, users and developers might not realize the solutions are based on the same platform which could harm network effects. However, Deutsche Telekom mentions “powered by mojio” when advertising the product, which will mitigate this risk. If all distribution partners will do the same thing, the awareness of a unified platform will increase significantly.

Deutsche Telekom sells the product, either with an upfront cost, or without an upfront cost if a leasing agreement is entered into which gives customers the choice to pick the alternative they prefer. Both price alternatives create lock-in effects in some ways. An upfront cost because it will decrease customers’ willingness to switch to another platform since they already have spent money on one, and the leasing agreement because the customer is tied to the pay plan for 24 months as in this case. It is however uncertain whether Mojio can influence the distribution partners’ pricing strategies or not. As pricing and subsidizing strategies can be an effective way to control the platform, this could be an important factor to consider.

Mojio facilitates an open platform and developers can provide applications via their Developer Center with open APIs and SDKs. All apps must be registered to Mojio, allowing them to control the content ex ante, but it is unclear whether Mojio uses this kind of government system

or not. As mentioned in the literature review, there might be a tradeoff between many apps and good quality. Mojio could either block applications that does not fulfill certain criteria, but at the cost of less applications available to users, or they can publish all apps which will grow the app library, but increase the risk of the lemons problem.

Mojio's partnership with Deutsche Telekom can be highly valuable if managed correctly. If they can reach out to their large user base with the Mojio brand visible, the platform has good prerequisites to be an attractive platform for developers. The product requires data traffic, which means that a data provider (usually telecom carriers) is a necessary player to get the product working. By allowing the data provider to also distribute the product, there is one less party to share revenues with. It is however relevant to know whether Deutsche Telekom is an exclusive distribution partner or not in the US. If they are exclusive and other telecom carriers or companies would like to offer their customers a similar product, the competitors need to provide a new or another platform. Competition among the different platforms will thus occur which erode the advantages of network effects for both users and developers. If the industry is to settle on one specific platform for the connected car, non-exclusive agreements for distribution partners are therefore preferred.

Another interesting aspect of the partnership with Deutsche Telekom is the revenue sharing model. When Deutsche Telekom sells the product with a monthly fee, Mojio gets a share of that fee. When the product is sold with only an upfront cost, Mojio's revenue is somewhat uncertain, but it is likely that a revenue sharing model is used there as well. By using revenue sharing Mojio and Deutsche Telekom creates common incentives to sell the product. However, the model does not necessarily cause common incentives to grow the platform's user base. Deutsche Telekom may prefer to sell fewer units at a higher price which would be profitable for both companies (due to revenue sharing) in the short run. However, a high price limits the user base's growth rate. The value of Mojio's platform depends on the number of users and developers and it would thus be preferable to create common incentives to grow the user base, especially if Deutsche Telekom has exclusivity on using the platform in some geographical regions.

Learning outcomes:

- Telecom carriers are efficient distribution channels and partners
- Importance of co-branding to increase the awareness of Mojio
- Deciding upon exclusivity of distribution partners is important

#### 4.4 Case D - Automatic

Automatic is a San Francisco based platform company offering connected car services and applications to car owners in the US. There are two different versions of Automatic; Lite and Pro. The Lite version costs 79.95 USD and includes basic features such as trip logging, vehicle diagnostics, gas fill-up logging, Bluetooth syncing, limited number of 3rd party apps etcetera. The Pro version costs 129.95 USD and includes, apart from all Lite features, also crash alert, parking tracking, live vehicle tracking, access to all available 3rd party apps, unlimited 3G syncing etcetera. Both versions are Automatic branded and sold through their website, Amazon and Best

Buy. Since the start, Automatic has raised over 32 MUSD in capital from investors (Almeida, 2015).

Their two-sided business model also targets 3rd party developers who are allowed to develop applications to the platform. Automatic provides SDKs and thorough documentation in order to simplify for developers. All apps are up for review before they are published in the app gallery and especially well-made and useful apps may be promoted by Automatic in the app gallery and on their website. Data gathered from users is originally owned by the users themselves and stored by Automatic. However, users can decide whether 3rd developers should get access to the data or not. Moreover, Automatic uses aggregated, anonymized data to do research and sell industry reports based on vehicle performance and driving patterns.

#### 4.4.1 Analysis of business model

Compared to the previously analyzed case studies, Automatic applies a direct distribution strategy to reach users in the mass market. Automatic is thus selling their products using a B2C strategy. The advantage of this strategy is that Automatic possess full control of distribution, including marketing and pricing. The company can therefore use various subsidizing methods to control the platform and enhance positive cross-side network effects. The disadvantage of using this B2C strategy is however that Automatic does not have the same resources and brand awareness as for example Deutsche Telekom and Meineke have. This also means that Automatic does not have any marquee users to leverage on. This could harm the adoption rate, so even if this distribution strategy enables control of subsidizing, it could result in difficulties reaching potential customers.

Automatic charges an upfront cost for the dongle, without monthly payments. One can argue that a high upfront cost means that customers who have bought the product is more likely to be locked-in to the platform. A large upfront cost could however harm the rate of adoption and obstruct that a critical mass is reached since users do not want to pay a high price for a product they do not know anything about. An upfront fee without monthly payments also means that subsidizing the user side gets more risky since customers can accept a cheap product, but then stop using it.

All users of the Automatic platform will be aware that they use the same platform since it is not sold white-labeled or co-branded. As discussed earlier, this mitigate the risk of confusion about a unified platform. This will make it easier for developers to find the platform (if it takes off). Automatic is open for all developers and their SDKs and APIs help 3rd party developers producing content to the platform. All apps are up for review before they are published on the platform, enabling Automatic to control the quality of each app, hence reducing the previously mentioned lemons problem. Automatic provides feedback about user experience patterns, design elements etcetera to help developers get their apps approved. If necessary, a commercial agreement is signed. Even though this hard-ex ante governance strategy helps controlling the quality of the platform, it might harm the quantity of applications available to users.



Interesting to notice is that Automatic has identified a revenue stream stemming from selling industry reports based on anonymized user data that does not seem to be used by the other four case companies. This could potentially be an important revenue source as data on vehicle performance, driving patterns and so on could be of great interest for many companies including insurance companies, OEMs, auto repair shops etcetera.

Learning outcomes:

- Internal distribution allows for full control, but requires more resources and a different organization
- Controlling 3rd party apps before they are published mitigates the risk of the lemons problem
- Selling industry reports based on aggregated driving data can be an important revenue stream

## 4.5 Case E - Automile

Automile offers a connected car solution with a hardware and a platform that makes fleet management easier and gives customers access to compliance and mileage logging as well as vehicle tracking. All apps and features on the platform are developed by Automile and the platform is closed for 3rd party developers. Data collected from users is owned by the users themselves but Automile may use aggregated and statistical anonymous data internally in order to develop their apps and services. The target customer segment is businesses with car fleets (i.e. a niche market). Automile has today over 7000 companies using their platform services, most of them in the US. The product is sold through Automile's salesforce and through Automile's website. Since the start, Automile has raised over 112 MSEK in venture capital from various investors including the Skype founder Niklas Zennström (Leijonhufvud, 2016).

Automile has three different pricing alternatives which all include data. The "Starter version" costs 995 SEK upfront combined with a monthly fee of 69 SEK/month and is not equipped with remote services. The "Pro version" costs 169 SEK/month and is equipped with remote services and the most expensive one, the "Enterprise" version, costs 239 SEK/month and includes advanced fleet management services (e.g. vehicle utilization, speed adaptation etcetera). Automile's activities are thus stretching over the whole value chain, from development and maintenance of the platform and its features to sales, marketing and support to end customers.

### 4.5.1 Analysis of business model

Automile uses a different growth strategy than their competitors as they target a niche market, i.e. businesses with the need of fleet management services. By approaching a niche market they have the opportunity to more easily secure a critical mass (Cennamo & Santaló, 2015). Automile already has a fairly large user base (7000 companies) which gives them a good standpoint in the competition of a dominant design within their niche. Automile uses their own distribution channels and sells the product directly to customers. In this way, a B2B strategy is used giving Automile the opportunity to have a direct relationship with their customers. The fact that

Automile is targeting a niche market and using a B2B strategy gives good preconditions for building a brand and create brand awareness within the niche.

A strategy where a company has direct interactions with their customers often requires comprehensive resources, especially in the case of B2C. However, as Automile is using a B2B strategy and only targets companies, the amount of resources needed are reduced as each new B2B customer (fleet owner), potentially will generate a lot of new users (car users). Thereby, the B2B niche strategy gives Automile an opportunity to reach a fairly large user base with limited resources. Moreover, by selling B2B through own distribution channels, Automile can decide upon pricing and subsidizing strategies that can be used to grow the user base even faster. Since Automile does not need to consider distribution partners' objectives, they have freedom to operate and the opportunity to always operate in the platform's best interest. For example, Automile's strategy to give potential customers 30 days free trial to increase the adoption rate would perhaps not be supported by a distribution partner.

Automile uses what Evans and Schmalensee (2016) refer to as a two-step growth strategy; first they focus on getting enough material on the supply side of the platform before trying to bring on users on the demand side. In order to get enough material on the supply side, they used a self-supply strategy and developed all material in-house. As Automile targets a niche market, the initial focus was aimed at providing sufficient material to the platform based on the niche market's specific needs and wants. Moreover, by providing all material themselves, Automile can control the quality of the material on the platform and avoid the lemons problem.

However, since the platform is not open for external developers, two problems appear. The first one is that a closed platform erases the presence of cross-side network effects. The second one is that even though the platform has sufficient material to attract users initially, Automile will have difficulties in growing the amount of material on the platform in the same pace as the number of users. This internal development will also require a lot of resources. On the other hand, Automile has the opportunity to open up the platform to external developers later on if they want to create cross-side network effects and increase the material supplied to the platform. Such strategy was used by Apple when they launched the Iphone. Initially Apple's App Store was filled with only in-house developed material. However, when the user base grew, the platform became more attractive for external developers and after a while, Apple opened up the platform. It is not unlikely that Automile will use a similar strategy by first creating a large user base within their niche and then open up the platform for external developers as the value for them will increase when a large user base is already in place. Thereafter, when they have built a substantial supply side with developers and applications, they have the opportunity to open up the platform and approach not only the targeted niche market, but the whole mass market.

Learning outcomes:

- Focusing on a niche market is an effective strategy to reach critical mass
- A self-supplied niche market strategy gives options for future diversification and scale up
- In a closed platform it is more difficult to provide content at the same pace as the number of users grows

- The decision whether or not to open up the platform for 3rd party developers and the mass market will have great impact on the future growth of the platform

## 4.6 Summary of case studies

After completion of these five case studies of Company's Alpha's competitors, several important learning outcomes have been gained which are summarized in *Table 1* below. Even though all case companies offer similar products, they differ in many ways. First of all, the strategies of reaching end customers (i.e. car users) include both direct sales as in the case of Automatic and Automile, and using distribution partners as in the cases of Vinli, Mojio and SpringWorks. The conducted analyses concluded that using distribution partners is an effective way to reach a large user base for a company with limited resources, but it decreases the MSP company's ability to control the platform by using various pricing and marketing initiatives for example. By leveraging on a distribution partner's brand and existing user base, a critical mass of participants can hence be reached more quickly. However, when using a distribution partner, it is necessary to decide whether the partner is exclusive or not. If exclusive, the performance of the platform is tied to the performance of this partners which further stresses the importance that the MSP company and the distribution partner have common incentives related to the platform. Handling sales and distribution internally allows for more control but requires further resources and a larger organization.

*Table 1. A summarization of the learning outcomes from the case studies.*

Case company	Learning outcomes
SpringWorks	<ul style="list-style-type: none"> <li>- Using a telecom carrier as distribution partner is a time and cost effective way to reach users, but affects the platform provider's control</li> <li>- It is important to decide who is in charge of the platform and ecosystem</li> <li>- Pricing and subsidizing strategies may be obstructed when using B2B2C strategies</li> <li>- Using a limited number of developers limits the growth potential of the platform</li> </ul>
Vinli	<ul style="list-style-type: none"> <li>- B2B2C is an effective way to reach users for a company with scarce resources</li> <li>- The use of co-branding is a good way to avoid confusion about platform belonging</li> <li>- An open platform enables growth on the supply side</li> <li>- The use of exclusive partners can affect Vinli's growth potential</li> </ul>
Mojio	<ul style="list-style-type: none"> <li>- Telecom carriers are efficient distribution channels and partners</li> <li>- Importance of co-branding to increase the awareness of Mojio</li> <li>- Deciding upon exclusivity of distribution partners is important</li> </ul>
Automatic	<ul style="list-style-type: none"> <li>- Internal distribution allows for full control, but requires more resources and a different organization</li> <li>- Controlling 3rd party apps before they are published mitigates the risk of the lemons problem</li> <li>- Selling industry reports based on aggregated driving data can be an important revenue stream</li> </ul>
Automile	<ul style="list-style-type: none"> <li>- Focusing on a niche market is an effective strategy to reach critical mass</li> <li>- A self-supplied niche market strategy gives options for future diversification and scale up</li> <li>- In a closed platform it is more difficult to provide content at the same pace as the number of users grows</li> <li>- The decision whether or not to open up the platform for 3rd party developers and the mass market will have great impact on the future growth of the platform</li> </ul>

The products are in these cases sold either self-branded, co-branded or white-labeled (branded by the distribution partner). As mentioned above, leveraging on a well-renowned distribution partner's brand name might increase the rate of adoption since customers can buy the product from brands they trust. However, by not mentioning the MSP's brand name, the awareness of the platform is affected negatively which could be harmful if many distribution partners are to be used. Also, an unknown platform brand might harm the attraction of developers since they will not know where to go if they want to develop content to the platform. A co-branding strategy (e.g. "powered by") might therefore be a useful strategy for both leveraging on partner's brands as well as creating brand awareness of the platform itself.

Regarding the developer side of the business model, a majority of the case companies (Vinli, Mojio and Automile) offer an open platform and a facilitating an attractive environment for developers. By doing so, they enable a growing supply of applications and services to the platform and thus network effects. Having an open platform however might require a quality governance system to avoid the lemons problem. If this is done before the applications are published to the platform, the quality can be ensured but it will limit the supply of applications. In most cases, the developers are managed by the MSP company. However, in the case of SpringWorks it seems like their distribution partner Telia manages the developers. SpringWorks hence act as a platform provider rather than a facilitator of an ecosystem. Deciding who is in charge of the ecosystem is hence an important decision between the platform company and the distribution partner(s).

Automile is different from the other case companies since they focus on a niche market and develops all content internally. This is an efficient strategy to reach critical mass within the niche but the growth of applications is limited to the performance of Automile since the platform is closed for 3rd party developers. However, Automile possess an option to open up the platform at a later point in time which is a decision that is likely to have a great impact on the future growth of the platform.

In all cases, apart from Vinli, data generated from using the product is owned by the users themselves. Users can then decide what 3rd party developers and companies they want to share it with. The users often get tangible benefits for sharing data, for example access to certain applications or services. Some case companies own the rights to use and share anonymized and aggregated data from their users which could be a revenue stream for the MSP company. Other revenue streams are somewhat uncertain since it was considered confidential information by many of the case companies, but it is likely that some kind of revenue sharing takes place on the developer side. On the user side, it depends on whether the company is using distribution partners or not. If a distribution partner is used, it is possible that revenue sharing occurs on the user side as well as was seen in the case of Mojio.

## 5 Business environment and requisites for Company Alpha

In this chapter, Company Alpha's specific business situation is presented and analyzed. First, the company's strengths and weaknesses are dealt with. Thereafter, external factors that could be advantageous for Company Alpha are discussed.

### 5.1 Company Alpha's strengths and weaknesses

Even though Company Alpha is not an incumbent firm, they possess comprehensive software developer skills stemming from the years the company has been active, as well as from the employees' previous jobs. Apart from the connected car device and platform Company Alpha is currently developing, the firm has since its foundation been providing software products to the automotive industry. This has given them necessary experiences, skills and resources needed to develop their connected car product. However, the company is still relatively newly emerged, allowing them to be a flexible player which is seen as a strength in this case as the connected car industry is still in an early phase and standards are still to be set.

Another strength of Company Alpha includes their network with potential partners. Their previous involvement in the automotive industry has given them business relationships with OEMs that potentially could be useful for the commercialization of the platform. Being located in an automotive cluster could also be seen as a strength if strategic partnerships with other players in the industry are to be formed. However, OEMs development of similar products could also result in a threat for Alpha if they are not invited to collaborate since it will result in increased competition.

Company Alpha currently has a dialogue with a major Nordic telecom carrier regarding a collaboration of a connected car product. As data providers are necessary partners for this kind of product, and telecom carriers have existing distribution channels and a large user bases that can be exploited, the dialogue could be of great importance for Alpha if it is managed properly. As was seen in the case studies in Chapter 4, there are other firms with similar products that have partnered up with leading telecom carriers as distribution partners.

One of the main weaknesses of Company Alpha is their lack of resources needed to distribute and commercialize the product. First of all, Alpha's brand is unknown, partly because it is a relatively new company, but also because their previous business activities have been of B2B character. This could harm Alpha's potential to attract developers to the platform and affect potential customers' willingness to purchase the product from Alpha due to lack of trust. Also, Alpha does not have any physical stores, nor online sales channels, which means that heavy investments are needed in order to realize a B2C distribution network. The management team has further stated that they prefer not to handle sales and distribution activities internally as they do not have the necessary resources and does not want to raise external capital. Alpha does neither have the ability to provide customers with the data traffic needed for the product. This

means that Alpha is dependent on telecom carriers as data providers to realize their product, which could be seen as a potential weakness and a threat.

It can be concluded that Company Alpha possess some capabilities and strengths that are necessary for developing and commercializing the product, but they lack other important resources such as a well-renowned brand, distribution channels, a sales force, cash etcetera, which result in weaknesses for the company. There are three main strategies Alpha can apply in order to handle this situation. The first strategy is through internal development. The second strategy is to acquire the necessary resources from external sources, and the third strategy is to partner up with other players that possess these necessary resources and capabilities that Alpha misses. Internal development and acquisition from external players require a lot of time and cash, which Alpha does not possess. The third option is a more cost and time efficient strategy, but it will increase Alpha's dependency on other firms. It will also result in more companies sharing the potential revenues generated by the platform.

## 5.2 Should Company Alpha worry about competitors?

When designing Company Alpha's business model it is important to consider the external environment that the company operates in. By reviewing competition worldwide it can be concluded that competitors exist, but that most of them are somewhat small. The most interesting ones have been dealt with in the presented case-studies in Chapter 4. Looking at the Nordic market, which will be the primary market for Company Alpha, it can be seen that two major competitors exist; SpringWorks and Automile. Worth mentioning is that none of the competitors' platforms in the Nordics or worldwide have taken off yet. This creates an opportunity for Alpha, not only to take a good position on the Nordic market, but also to expand globally. The opportunity is even more propitious if the aftermarket for connected car products is to settle on one or a few platforms. However, if that is the case, there is a risk that the industry settles on another platform than Alpha's, making it obsolete. This could happen if one of the existing competitors get network effects going or if a new player from another industry (e.g. Google, Apple etcetera) develops their own solution and use their existing platform and user base to compete with more specialized connected car platforms like Alpha's.

It is also important to remember that the importance of first mover advantages, according to literature, often are overestimated and it is thus no rush for Alpha to become large fast and focus solely on growth. Instead Alpha should focus on designing a competitive business model and have a clear strategy for how they should grow each side of their MSP in order to outperform competitors. To design a competitive business model, it is vital to understand the specific characteristics for the connected car market where one of the most important ones is to investigate whether the market will consolidate to one or a few platforms, or if it will be served by a large number of them.

## 5.3 Will the connected car industry consolidate to only one platform?

The literature review in Chapter 3 discussed characteristics of MSP markets and it was indicated that most MSP markets are served by several platforms. However, there are exceptions and when

deciding upon a business model for Alpha it is vital to predict the number of potential platforms in the specific market. As presented in the literature review, Eisenmann et al. (2006) mention three characteristics that when fulfilled, indicate that an MSP market is likely to be served by only one platform:

*The costs of multi-homing are significant for at least one side of the platform* - A review of the MSP's different sides indicate that the costs of multi-homing are significant, at least for the user side. These costs are high for the user side due to the fact that only one dongle can be plugged into the car at once. It is not difficult to change dongle but it is expensive to have more than one and the value of many of the available applications and services is that they log data over time (i.e. adapted insurance policies, mileage logging etcetera), hence the value is erased when the dongle is changed often.

By reviewing the developer side of the MSP, it can be seen that it possibly exists high costs of multi-homing there as well. The reason is that if there are several platforms available, each developer needs to develop or adapt their application or service to each platform. Even though it might not be technological difficult, it might be different characteristics and demands that are required on each platform. Thus, the first of Eisenmann et al.'s (2006) market characteristics is considered met.

*Network effects are positive and substantial, at least for the side with significant multi-homing costs* - By reviewing network effects, it can be seen that the MSP's cross-side network effects are positive and substantial. Users will get additional value if more developers join the MSP and the platform will be more attractive to developers if the number of users increases. However, the same-side network effects are a bit more difficult to assess. For the user side, there are no obvious same-side network effects present. It might be possible to create them by using some sort of gamification, connect it to social media or build a user community around the platform. The developer side on the other hand has potential to be subject to negative same-side network effects as most developers will not be pleased with too many direct competitors joining the MSP. Nevertheless, the potential negative effects of increasing competition could be outweighed by the positive effects of participating on a popular platform. Thus, it can be concluded that there are substantial and positive cross-side network effects present, but that the same-side effects are somewhat insecure. However, there is potential to create positive same-side network effects on the user side, the side with the highest multi-homing costs, which will make this second criteria fulfilled as well.

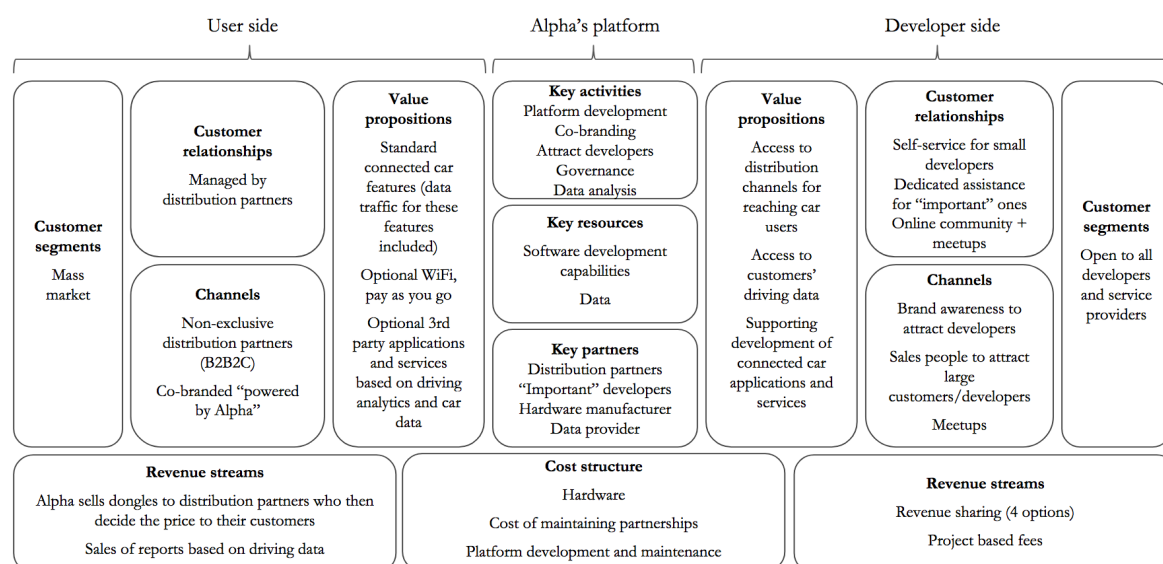
*Neither side of the platform has a substantial demand for special characteristics or features* - The demand for special characteristics is likely to be low for each side. The only identified scenario that points at the need for special features is if there is a need for a niche solution, for example for companies requiring fleet management services. However, a lot of the fleet management users will also have same demands as the mass market. Thus, it is likely that the version for the mass market will have features similar to the one for the niche market, eventually making the niche market version obsolete. An illustrative example of this scenario is the case of Blackberry as mentioned in the literature review (Chapter 3.2.1). Thus, the demand for special characteristics and features are limited which indicates that the market fulfill the third characteristic as well.

By reviewing all three characteristics, the information available about Company Alpha's MSP market indicates that it eventually will be served by only one or a few platforms. There are however a few questions that need to be answered, i.e. if same-side network effects can be created on the user side, and how fleet management users' needs and wants differ from the ordinary users'. Overall, it is however unlikely that there will be a lot of different platforms serving Company Alpha's MSP market. Instead it is suggested that the connected car industry in the Nordics will consolidate to one or at the most a few different platforms.



## 6 Company Alpha's suggested Business Model

In this chapter, Company Alpha's suggested business model will be presented. The business model, which is summarized in *Figure 7*, is based on the important factors according to the literature review (Chapter 3), the case studies (Chapter 4) as well as Alpha's business environment and preconditions (Chapter 5). The following chapter is divided into 14 parts based on each building block of the MSP framework.



*Figure 7. An overview of Company Alpha's suggested business model.*

### 6.1 User side - Value propositions

Alpha's value proposition to the user side is recommended to be standard connected car features, including functionality such as vehicle health monitoring, mileage logging, driving analytics and vehicle tracking to name a few. Data traffic needed for these basic features should be included, but if car users want in-car WiFi, more data traffic can be purchased in the app. This data might be purchased either as a subscription or as a "pay as you go" variant. Apart from the basic functionality, optional 3rd party applications and services based on driving analytics and car data should be available on the platform.

### 6.2 User side - Customer segments

Alpha's connected car product is recommended to target all kinds of car users, hence the mass market. The main reason for this is because of the broad array of applications it can provide. Even though car owners use their vehicles differently, Alpha's product could be customized and therefore able to create value in several ways. Also, due to cross-side network effects, Alpha's platform will be more attractive and valuable if it has a large user base. Targeting the mass market is therefore a suitable strategy.

## 6.3 User side - Channels

As concluded in the case studies, Alpha's competitors and peers use different channels to reach their customer segments. Due to Alpha's limited resources and brand awareness among consumers, the company is recommended to use non-exclusive distribution partners to reach customers. By doing so, Alpha can leverage on the distribution partners' brands and existing customer bases which will enhance the adoption rate and allow Alpha to reach a critical mass of users more quickly. This strategy is also more aligned with Alpha's existing organization and capabilities.

There are three main reasons for having non-exclusive distribution partners rather than an exclusive one. The first reason is because several partners reach more users which foster the adoption rate and hence network effects. The second reason is that using a single distribution partner ties the performance of the platform to the performance of this partner, as described in Chapter 4. The last reason is due to the fact that the Nordic connected car industry is likely to be settled on one, or at most a few platforms, according to the analysis conducted in this study. If only one distribution partner is used, other potential distributors might come up with competing platforms. By allowing many partners to distribute Alpha's platform it is more likely to be the dominant one.

The distribution partners are allowed to brand the product as their own, but Company Alpha's name should be visible too, for example by using a "powered by Alpha" phrase in all marketing. In this way, customers will be aware that they get access to Alpha's platform and library of apps, no matter from which distribution partner they purchase the product from. Also, the increased brand awareness this co-branding strategy enables is useful for attracting developers to the platform. This is because developers will know where to go if they want to produce content to the platform, and they will also know that if they go to Alpha they will reach the users of all distribution partners' products at once.

It is of great importance that Alpha and the distribution partners share the same incentives related to the platform in order for a win-win situation to occur. Alpha benefits from reaching a large amount of users since it will make the platform more attractive for the developer side, i.e. cross-side network effects. By having several distribution partners, Alpha expose them to competition which will delimit the partners' ability to charge a premium for the product. By doing so, the product will be available to a lower price which probably will increase the rate of adoption.

## 6.4 User side - Customer relationships

All kinds of customer relationships and interactions will be managed by the distribution partners. Therefore, the customer relationship might vary depending on where the customers purchase the product from.

## 6.5 User side - Revenue streams

The revenue model proposed for the user side of the platform is that Company Alpha sells the hardware with a low margin to their distribution partners who then have the right to set their own prices to end customers. By doing so distribution partners can choose the pricing model that suit them best. Telecom carriers may prefer to sell the product with a monthly paid data plan without an upfront cost while other distributors may prefer other pricing models.

An indirect revenue stream from the user side is to monetize on data generated by the users' vehicles. Alpha is recommended to secure authorization to use this data anonymously (see Chapter 6.12) so that it could be aggregated, analyzed and sold as for example reports containing insights about vehicle performance and driving behavior to interested actors in the industry. It could be argued that this business make up a third side of Alpha's platform, but to avoid confusion by presenting an additional side of the MSP at this stage, it is included in the user side as an indirect revenue stream in this case.

## 6.6 Developer side - Value propositions

Alpha's platform will enable a distribution channel for developers, service providers and various companies to reach car users with their connected car offers. It will also give these players access to customers' driving data. Alpha is recommended to facilitate a supporting development environment of connected car applications and services so that developers can produce content on their own. For those companies or service providers who do not have the necessary capabilities and resources to develop their own applications, Alpha can provide consulting services to assist them with the development.

## 6.7 Developer side - Customer segments

The platform is suggested to be open for all kinds of developers including for example software developers, service companies, insurance companies, retailers etcetera. By providing an open platform, Alpha will act as an aggregator for all kinds of actors that want to participate in the connected car ecosystem.

## 6.8 Developer side - Channels

If Alpha uses co-branding when they sell their product to car users as described in Chapter 6.1.3, Alpha's brand awareness is likely to increase which hopefully will attract developers to the platform. Alpha could also host various meetups and lectures to gather developers and inform them about the platform and the possibilities it enables. If Alpha manages to reach a large user base by using several distribution partners, cross-side network effects will further increase the attraction of developers.

Just relying on developers to come to the platform with limited effort by Alpha is however a bit naive. The company is therefore suggested to approach companies and developers with a few internal sales people as well. These could focus on attracting large, and perhaps more strategically

important companies to the platform (i.e. marquee users). It is likely that many companies are unaware of the opportunities related to the connected car and Alpha's sales people can therefore inform them about how they can use the platform to create value for users. These people could also focus on attracting potential distribution partners.

## 6.9 Developer side - Customer relationships

Company Alpha's customer relationships will vary depending on type of developer. A developer portal including APIs, SDKs and an online community where developers can share their experiences and help each other will facilitate a self-service developing environment. Alpha's software developers can answer questions and help developers solve some of their problems on the online community for everyone to see.

For more "important" developers however, more dedicated assistant, or even consulting services, is recommended to be provided. For example, if the sales people presented in Chapter 6.8 approach a service company without the capabilities, nor the resources, to develop their desired application to the platform, Alpha can work closely with this company in order to help them realize their application or service to the platform.

The previous mentioned meetups that Alpha could host is another way to maintain a relationship with existing customers, as well as attracting new ones. By enabling developers to communicate, share their experiences and help each other, same-side network effects will be fostered since developers will benefit from an increased number of other developers.

## 6.10 Developer side - Revenue streams

The proposed business model for Company Alpha is designed to be open and attractive to developers. Thus, it is not proposed that Alpha is charging developers to get access to the platform as it might limit the number of developers that are willing to join the platform, especially in an early stage. Instead, Alpha is proposed to use a revenue sharing model on the developer side. Revenue sharing is as previously mentioned a good way to create common incentives at an MSP and thus a win-win ecosystem. However, the services and applications on the platform will vary a lot in how they work, monetize and interact with users. It is therefore not viable to use one universal revenue sharing model. Instead, four different revenue models based on the type of service or application provided on the platform are suggested:

*Purchase of applications* - It is not unusual that users have to pay the developer of an application a fee in order to get access to it. The recommended way for the platform provider (i.e. Alpha) to generate revenue in such cases is to use an ordinary revenue sharing model where they take a share of the fee that the developer gets paid from the user.

*Purchase of digital content or physical services through the platform* - Example could consist of purchases of parking, fleet management services etcetera. The purchase could be as a single transaction or as a subscription service. The revenue model recommended for this kind of services is an ordinary revenue sharing model where Company Alpha gets a share of the transaction value.

*Position based services and promotion to customers* - Example of such applications could be a gas station which sends a push notice to a car owner with a discount on gas when the fuel level is below a certain point. In this case, a pay-per click royalty is suggested so when the user decides to use the promotion and go to the gas station, Alpha gets a royalty from the gas station. As no transaction is made on the platform, an ordinary revenue sharing model would not be viable. However, this pay-per click royalty model can be associated with high monitoring costs for Alpha.

*Applications without transactions between the developer and the user* - Example could be fun to use applications or different types of games. Such applications do not generate any transaction between the user and the developer. Instead, developers often use advertising from third parties in their applications and the recommended revenue model is that Company Alpha takes a share of the advertising revenue that the developer of the application gets.

Besides the four mentioned revenue sharing models above, Alpha is suggested to provide affiliate services to third party actors by offering their expertise in software development to developers or companies that want to join the platform but that do not have sufficient knowledge or resources to do it by themselves (as described in Chapter 6.9). An example could be that Alpha helps a large company that wants to reach car users with their offerings or services to develop an application to the platform. By doing so, Alpha will generate additional revenue from consulting fees, but they will at the same time add value to their own platform as a new application will be added. Moreover, by selling consulting services Alpha also lower the entry barriers for joining the platform.

## 6.11 Company Alpha - Key activities

The business model presented in this study will position Company Alpha as an aggregator of a connected car ecosystem rather than just a technological platform provider. Alpha's key activities will hence include platform development and maintenance as well as facilitating an attractive environment for developers and companies that want to develop applications and services for the connected car. As described in Chapter 6.9, Alpha should enable tools so that developers can develop applications by themselves, but also provide consulting services for those developers and companies that do not possess the necessary capabilities and resources for developing in-house. Brand awareness and meetups will contribute to the attraction of developers, but Alpha's key activities should also include approaching companies using their own sales people as described in Chapter 6.8.

Alpha's suggested open platform increases the risks associated with the lemons problem. To ensure that the poor applications do not affect the quality and value of the platform, a proper governance system is recommended. As described in the literature review, this could be done either before or after the applications are published on the platform. This decision is somewhat dependent on what types of applications that will be developed and by whom. If only large, well-known software developers provide content to the platform, one can argue that the need for a thorough quality control system is less compared to the case of which several, unknown developers without previous track-record would develop content. However, Alpha is at this stage

recommended to review applications before they are published to ensure that all content fulfils a certain standard required by Alpha. The applications that pass this review will be published on the platform and the community of users can then rate and review all applications which will further separate well-made and useful applications from poor ones.

Alpha's key activities related to the user side will be to attract distribution partners, help them do their own version of the product and get their business going. Since a co-branding strategy is recommended, Alpha might be included in some marketing campaigns together with their distribution partners. A last key activity for Company Alpha will be handling and analyzing data. As described in Chapter 6.5, Alpha is suggested to sell industry reports based on vehicle performance and driving analytics which will require certain activities.

## 6.12 Company Alpha - Key resources

As for now, one of the most necessary resources Alpha needs for this business model is employees with software development capabilities, i.e. human resources, which is a resource Alpha already possess. Beyond software development capabilities, previous experiences of B2B activities are of importance since the suggested business model will place Alpha in a position where B2B (and not B2C) relations must be managed.

Once Alpha has introduced the product on the market, a large user base will be a key resource. By using several non-exclusive distribution partners, Alpha has good prerequisites to grow a large user base with help from these partners. The recommended business model will hence leverage on both Alpha key resources as well as on those of its distribution partners'.

As previously pointed out, data generated from users and their vehicles could be an important intellectual resource for Alpha. Data is suggested to be owned by the user who generates it for privacy reason and the user can then decide which 3rd party developers and service companies that should get access to it. It is likely that users will get access to tangible benefits if they share it. Alpha will therefore not be the owner of the data generated by its users but the company should ensure authorization to use the data anonymously. This will then be a key resource for Alpha since it can be used to develop more functionality to the platform, as well as to monetize on it by selling reports as described in Chapter 6.5.

A problem might occur if distribution partners also want access to this data. If so, Alpha is recommended to share the data of their specific users to them anonymously. Alpha will however always get access to all users' data. By doing so, distribution partners achieve increased incentives to sell products to more users since it will mean that they get access to even more data, which is also beneficial for Alpha. Thus, a win-win situation occurs that will enhance the value of the platform for all participants.

## 6.13 Company Alpha - Key partners

Company Alpha will have four main groups of key partners. The first group is the distribution partners that market, sell and distribute Alpha's product. The distribution partners will also

handle all types of customer interaction and relationships. The second group of key partners is those developers of significant importance for the platform that require more dedicated and personal assistance. The third group is the hardware manufacturers that produces the dongle. The last group of key partners is data providers. The relationship with data providers is important as some of the distribution partners may not be telecom carriers and thus need someone that supplies data. Distributors could have contacts with data providers directly, but in order to simplify for distributors and take advantage of Alpha's potentially higher bargaining power, it is proposed that Alpha manages this partnership.

## 6.14 Company Alpha - Cost structure

The main costs associated with company Alpha's business model can be divided into three categories; the cost of the hardware, the cost of maintaining partnerships and the costs associated with platform development and maintenance. The cost of the hardware refers to the purchase and distribution of the dongle from the hardware manufacture to the distribution partners. The cost of maintaining partnerships contains costs associated with managing and upholding relationship with the four key partners mentioned in Chapter 6.13. In the development cost of the platform, costs related to providing an attractive development environment, attracting new developers as well as maintaining the relationship with incumbent developers are included, while the maintenance costs are related to for example, keeping the platform running, storing of data as well as upgrades of the platform. This category also includes other internal costs for Alpha, such as salaries for employees.

## 7 Areas to discuss before conclusions can be drawn

After reviewing and investigating the research questions there are several aspects that need to be discussed before conclusions can be drawn. In this chapter, a discussion regarding each research question is presented.

### 7.1 Limitations of the suggested framework

A framework is as previously mentioned an easy and structured tool to use when designing and discussing business models. The framework used in this study has several similarities with the BMC which was beneficial as Alpha's management team had worked with BMC before, making it easy for them to understand the new framework. However, the framework used is designed for a universal MSP, and there are some problems to capture the complexity of the specific conditions and relationships for Alpha and its product. For instance, the framework has some problems to capture the complexity of a B2B2C strategy, especially regarding the revenue streams from the user side. Problems to model the relationships on the user side in the B2B2C strategy, makes it difficult to display how revenues go from the user, to the distribution partner, to Alpha. On the other hand, one can argue that the distribution partners are in fact the customers on that side of the platform, but that would not capture the whole picture with all involved actors which was desired in this case. For this reason, the framework is considered to be one of the most suitable ones for mapping MSP and could be used adequately in this study.

### 7.2 The areas to consider for an MSP depend on its nature

Based on previous research, eight important areas for an MSP to consider could be identified. The factors could then be used when designing Alpha's business model. The factors should however not be seen as the only factors relevant for an MSP. Factors to consider might vary from case to case and are highly dependent on how the platform solution is designed and what preconditions it has. For instance, it could be difficult to just copy Facebook's growth strategy and try to implement it for an MSP like the one Alpha has since it requires users to buy or get a hardware. However, the eight factors give indications and areas to consider and think about when designing a business model and were thus useful in this study

### 7.3 Five case companies - five different business models

By reviewing the five case companies, it can be seen that none of the companies are using the same business model even though their products are somewhat similar. Automile sells the product under their own brand but targets a niche market, Automatic sells the product under own brand but targets a mass market while SpringWorks, Vinli and Mojio targets a mass market by using a distribution partner strategy (B2B2C).

The fact that the business models differ could depend on at least three factors. The first one is that all companies have different preconditions and resources which influence the business models. Some of the companies have for example raised significant amounts of money while other have used more resource efficient strategies. The second factor has its base in the nature of



an MSP. MSP businesses differ a lot from traditional firms with traditional products as there are more actors involved which opens up for new and different ways to create and capture value. The third factor that could explain the differences in business models is that the market is new and immature and there are many different actors on the market while the industry has not yet settled on any standards, which contributes to a wide range of different business models. It is therefore important to remember that since the industry has not settled on any standards and no competitors' business have taken of yet, it is difficult to say if the competitors' business models are successful or not. Nevertheless, reviving and compare them with insights from literature and Company Alpha's preconditions gave important insights for the researches and Alpha's management team.

## 7.4 Company Alpha, its resources and preconditions - implications for the business model?

By reviewing competitors business models a lot of new ideas could be generated for Company Alpha. The preconditions for Alpha is however a bit different than for the companies reviewed. For instance, Company Alpha is not interested in raising capital from external investors which delimits their opportunities to build a brand, sell and distribute the product by themselves etcetera. Instead, the management team prefers to focus on the company's core competencies (i.e. software development and maintenance), which had to be considered when designing the business model. The decision to focus on their core competencies and do what they are best at seems like a reasonable strategy for Alpha. The market potential for Alpha's product is substantial and it is easy to be blindfolded by the potential and believing that one should take a large share of it by oneself. Alpha is therefore encouraged to accept their limits and use partners in areas outside their core competencies which most likely increases their chances to take a substantial market share.

The decision to not raise external capital may however be questioned. In order to reach the market quickly and make sure that the product is at least as good as the competitors', resources are needed. Moreover, by having one or several investors, the bargaining power against distribution partners will most likely increase and some minor, but still important problems related to credit periods, fast scale-up, stock quantities etcetera, may disappear. However, the suggested B2B2C strategy is resource effective and gives opportunities for fast growth with limited resources.

## 7.5 The pros and cons with the suggested business model

Since Alpha lacks resources to interact with customers directly, a distribution partnership strategy is suggested which enables Alpha to use the distribution partners existing customer bases, brands and distribution channels to reach users. In return, the distribution partners are allowed to sell the product branded as their own. However, it is proposed that Alpha's name is mentioned in the branding through a co-branding strategy in order to inform users that no matter from which distribution partner they buy the product from, they get access to Alpha's platform.

By designing the business model this way, Alpha will have the opportunity to reach a critical mass quickly, although with limited resources. At the same time, they will also build a brand and market their platform as they will be mentioned in the co-branding with distribution partners. Nevertheless, using such a strategy entails two problems. Firstly, the more actors involved, the more actors to share revenues with. Automatic and Automile, who sell their products under own brands probably generate more revenues than Alpha, but this strategy requires substantially more resources. Secondly, by using distribution partners, Alpha's success is dependent on the distribution partners' success. It is thus argued that the distribution partners should be non-exclusive, meaning that more than one company can sell the product as this will reduce Alpha's dependency on one specific partner.

A few of the competitors are using exclusive distribution partners. The benefits of using an exclusive partner is that the partner is keen to bring on new users and developers to the platform as the platform then gets more valuable, which also make the value proposition that the partner sells more attractive to users. If the distribution partner is performing well and have common incentives with the platform provider, such a strategy can be advantageous and resource effective for the platform provider. However, by using an exclusive partner such as a telecom carrier, other telecom carriers might come up with their own connected car solutions. Thus, competition among different platforms will occur which can erode the advantages of network effects for both users and developers.

There is also another aspect to consider when deciding on the distribution strategy and that is if the connected car market in the Nordics will consolidate to only one platform. The analysis presented in Chapter 5 shows that it is most likely that the market in the Nordics, and probably later on also the international market, will consolidate to one or a few platforms. If the market will consolidate to one or a few platforms it is important to already in the beginning design the business model around Alpha's platform so it has the potential to be the dominant one. That is also the reason to why the suggested business model is open on both sides. By providing a platform that all telecom carriers (and other distributors) can join, and thus avoid that everyone creates their own platforms, Alpha's platform has potential to reach a large user base quickly, which through network effects will make it attractive for developers and grow the ecosystem faster. An open platform will also enable scalability which is preferable when network effects kick in.

However, a problem with this strategy is to sign up the first telecom carrier or distribution partner. It is likely that no one is willing to be first as it is associated with some risks. If a distribution partner would be given exclusivity, they would most likely be more interested in taking such risks. But now, the first partner will take the risks while their competitors can wait and join the platform later if it is proven to be successful. Thus, Company Alpha has to put a lot of focus initially on signing the first partner.

Overall, the proposed business model is designed as the best possible one for Company Alpha considering their preconditions and competitors, as well as the market conditions and success factors taken from previous research about MSPs, and can be seen as a desired future state for the company. However, the study has somewhat black boxed the actual implementation to reach

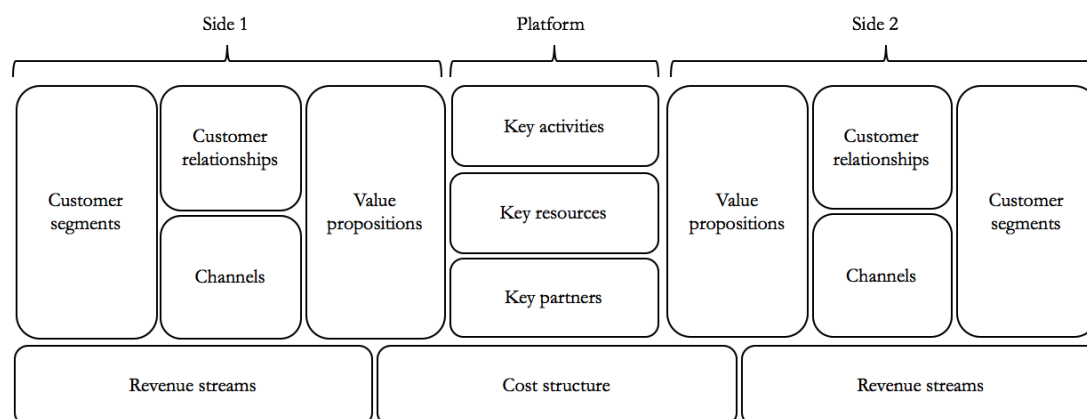
the desired business model, as no contacts with potential partners, customers etcetera have been made. Nevertheless, Alpha's management team, which has talked and negotiated with potential partners, has been questioned regarding their view of the execution of the business model in order to verify its feasibility. Thus, the proposed business model is supposed to be feasible overall even though some changes might initially be needed in order for Alpha to get along with other involved actors. However, when the platform is up and running, final changes can be made in order to reach the proposed business model.

## 8 Conclusions - suggesting a business model for Company Alpha's product

The purpose of the study is to suggest a business model for Company Alpha's product. To fulfil this purpose, five research questions were formulated. In this concluding chapter, these research questions are answered in a concise manner. Suggestions for further investigation are also presented.

### 8.1 How can an MSP business model be mapped into a framework?

An effective way to map MSP business models is to use the framework in *Figure 8* below. It is based on the Business Model Canvas (BMC) by Osterwalder and Pigneur (2010), but modified by Fielt (2011) to capture the dynamics of an MSP. In the case of a connected car platform, one side could for example be car users and the opposite side developers. If necessary, more sides can be added to the framework.



*Figure 8. Framework for mapping an MSP business model (Fielt, 2011).*

### 8.2 What characterize a successful MSP business model according to previous research?

There are eight areas of importance when developing and operating an MSP business model. Those are (1) The importance of a clear growth strategy and identification of your customers, (2) Importance of network effects, (3) Securing the critical mass, (4) Evaluation of first mover advantages and winner takes it all characteristics, (5) Creating a win-win environment for all involved actors, (6) Pricing strategies and the importance of subsidizing, (7) Governance and strategies to avoid quality pitfalls and (8) Keeping competitors out of the game.

### 8.3 What insights can be gained from competitors' business models?

Even though there are companies offering a similar product as Alpha, their business models differ in many ways according to the conducted research in this study. A distinguishing factor is how to reach end users. Some competitors use internal sales channels while other use

distribution partners that sell their product and handle all customer interactions. Internal sales enables more control in terms of pricing, marketing etcetera, but requires more resources. The use of distribution partners on the other hand is more efficient since the company can leverage on the partner's resources, brand and customer base. The drawback is however less control and it is thus important that the MSP company and the distribution partner(s) decide who is in charge of the ecosystem. Also deciding upon exclusivity is crucial. If the distribution partner is exclusive, the performance of the platform is tied to the performance of this partners which stresses the importance common incentives. If non-exclusive, more distribution partners can be added which would increase sales and thus network effects. A co-branding strategy (e.g. "powered by") is beneficial when using distribution partners for both leveraging on partners' brands as well as creating brand awareness of the platform.

The majority of the studied companies provide an open platform and facilitates a supporting environment for development. This foster network effects but might include risks since the quality of the applications is determined by the developers rather than the MSP company. Therefore, having some sort of quality control can be favorable for mitigating the risk that poor applications damage the overall perception of the platform.

Even though making money is the main objective of the studied companies, it is somewhat unclear exactly how they generate revenue and from whom. It is even more complicated when using an open platform with distribution partners. However, three main revenue streams were identified in these cases. The first stream derives from the user side of the platform and implies that a share of revenue generated from sales of dongles and subscriptions goes back to the MSP company. The second stream also implies revenue sharing, but from revenue generated on the developer side of the platform. This could for example be purchases of applications and services or advertising. The last revenue stream derives from monetizing on the data collected from car users. The data could for example be aggregated, analyzed and sold as industry reports to various companies as was conducted by one of the studies firms.

Since data collected from car users can be a valuable resource it is necessary to decide who the owner of it is. The dominant strategy according to the study is that the car users own their data and then decides which 3rd party developers that should get access to it. However, in some cases the MSP company is allowed to use the data anonymously in order to develop applications and services, and to sell those above mentioned reports on for example vehicle performance and driving patterns.

## 8.4 What are the company specific requisites for Company Alpha?

Company Alpha possess comprehensive software development capabilities and experiences, even though it is a newly established firm. Being in this early stage is likely to make them more flexible than incumbents which is considered an advantage as the connected car industry is still in its emerging phase and standards are not yet set. However, being a newly established firm means that the company has limited resources and no brand equity to leverage on. The fact that the management team has expressed that they are not willing to raise external capital, the financial situation of the company limits the options of their expansion and business model for

their product. The dialogue the company has initiated with a major Nordic telecom carrier could however be used to leverage on since the telecom carrier possess many resources and capabilities that Alpha does not, e.g. distribution channels, a well-renowned brand etcetera.

By reviewing competition worldwide it can be concluded that competitors exist, but that most of them are somewhat small. The same situation applies to the Nordics. Even though Alpha faces competition, the fact that no other platform has not really taken off yet is an opportunity for the company to gain a lucrative position on the Nordic market, but also to expand globally. The study however shows that the importance of first mover advantages often are overestimated and therefore, Alpha should not rush to become large and gain market shares before a competitive business model and a clear growth strategy has been formulated.

An important aspect to consider for MSP industries is whether the industry or market is to settle on one platform or not as it will have great impact on how to design the business model. This study concludes that the connected car market, especially in the Nordics, fulfills many of the criteria of a market that is to be consolidated to one, or at most a few, platforms.

## 8.5 What is the most suitable business model for Company Alpha's product?

The most suitable business model for Company Alpha according to this study is presented in *Figure 9* below. Briefly described, the business model suggest that Alpha should focus on facilitating an attractive open platform for developers and various companies that want to produce content and services related to the connected car. Alpha should then use non-exclusive distribution partners who sell the product and thus manage marketing and customer relationships. The product is recommended to be sold co-branded, i.e. the distribution partner can sell the product under their name but "powered by Alpha" (or similar) is mentioned. Alpha primarily makes money on revenue sharing from purchases within the platform and project development fees. Alpha can also generate revenue by selling industry reports based on aggregated driving data from users. For this reason, data should be anonymously available to Alpha, but it is owned by the user itself who also decides upon which 3rd party developers that will have access to it.

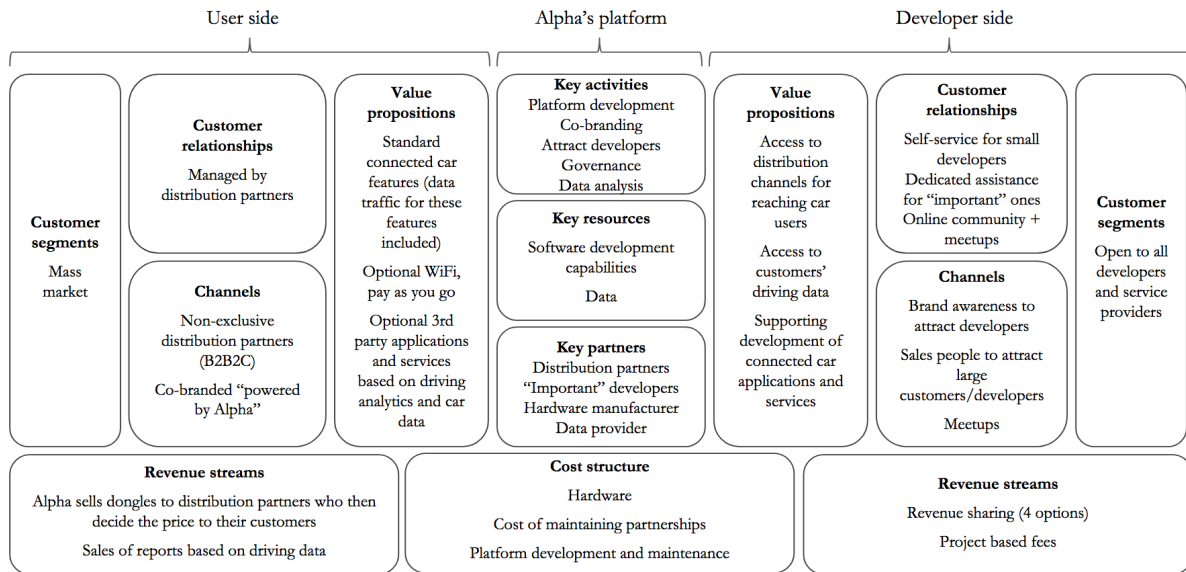


Figure 9. Company Alpha's suggested business model.

## 8.6 Suggestions for further investigation

The recommended business model for Company Alpha represent a snapshot of a desired future state. The implementation and execution for how to reach this future state was not the primary focus of this study which allows for more thorough investigation. This study also focused on a aftermarket product, even though OEMs were briefly discussed in the report. Suggestion for further work hence include to elaborate on how Alpha's platform could be integrated with OEMs and their connected car solutions.

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# Appendix 1

Side	Building block	Automatic	Mojio	Vinli	Automile	SpringWorks
Side 1	Value propositions	Lite: Basic Trip logging Business tagging Engine light diagnostics Fill-up logging Access to third party apps Web dashboard Bluetooth® syncing Pro: All Lite Features Crash Alert Parking tracking Live vehicle tracking Event-based apps Streaming apps Unlimited 3G syncing	Access to one of the largest app ecosystems In car WiFi (4G) Family safety - tracking of loved ones Vehicle safety - Fuel and battery levels - Live diagnostics - Maps to nearby mechanics Vehicle security - Find your car - Alerts if the car is disturbed Smarter driving - Review your trips afterwards - Set speeding alerts - Log business trips	Basic connected car functionality Access to world's largest automotive app store (>50 apps and integrations) In car-WiFi	Starter: Mileage log, trip statistics and simple expense management Pro: Starter + realtime services Enterprise: Complete fleet management system All data needed for the services are included	A connected car solution In-car WiFi (20 GB/month) Access to third party applications: - customized insurance - offers from selected companies - positions based services (roadside assistance, maps to closet workshop) Basic functions: - where is my car - alarm notification - driving journal - Notifications (low battery, breakdown warnings, no-parking zone (sthlm), time for vehicle inspection)
	Customer segments	Car owners Fleet owners	Car owners Fleet owners	Car owners	Fleet owners	Car owners
	Channels	Automatic's website (free simulation of the product's features online) Amazon.com (online) Best buy (online and in selected stores)	T-Mobile's distribution channels in USA and Czech Republic (carrier-branded)	Through partners' websites and retail stores (Meineke and Cox)	Own website Own salesforce	Telia's distribution channels (stores and website)
	Customer relationships	Online community Mail support Retail partners have their own customer relationships	Managed by distribution partner	Managed by distribution partner and Vinly help Center/ Vinly care team	Self-service on website Personal assistance for selected customers	Managed by distribution partner
	Revenue streams	Price to end customer: Lite - 79.95 USD Pro - 129.95 USD Sales of industry reports based on car data and driving analytics	Mojio gets a share of the monthly fee users pay the distribution partners Price to end customer: 149,99 USD (without data) No upfront cost if	Revenue streams to Vinli unknown Price to end customer: Meineke 99.99 USD (incl. data needed). Data for surfing can be purchased in the	Price to end customer: Starter: 995 SEK + 69 SEK/month Pro: 0 SEK + 169 SEK/month Enterprise: 0 SEK + 239 SEK/month	Share from Telia Telia's revenues. Price to end customer: 1495 SEK upfront and a monthly fee of 99 SEK

			you buy it from T-mobile with a leasing agreement (>\$20/month for 2 GB)	app		
Side 2	Value propositions	Access to distribution channels for reaching car users  Access to car users' driving data  Supportive environment for developers	Access to distribution channels for reaching car users  Access to car users' driving data  Supportive environment for developers	Access to distribution channels for reaching car users  Access to car users' driving data  Supportive environment for developers	No opportunity for 3rd party developers (yet)	Access to distribution channels for reaching car users  Access to car users' driving data  Supportive environment for developers
	Customer segments	All developers	All developers	All developers	No opportunity for 3rd party developers (yet)	Selected developers/service providers (niche)
	Channels	Own website Brand awareness	Own website Brand awareness	Own website Brand awareness Blog Meetups for connected car developers	No opportunity for 3rd party developers (yet)	Own website Brand awareness
	Customer relationships	Self-service (SDKs)  More personal contact once the app is up for review	Self-service (SDKs and documentation)  Forum Partnerships	Self-service (Vinli Developer Portal, SDKs, documentation)  Meetups	No opportunity for 3rd party developers (yet)	Partnerships / co-creation
	Revenue streams	N/A	N/A	N/A	No opportunity for 3rd party developers (yet)	N/A
Platform	Key resources	Software development capabilities  Data  Brand  Distribution channels  Cash	Software development capabilities  Data  Brand  Cash	Software development capabilities  Data  Brand	Software development capabilities  User base (>7000 companies)  Data  Brand  Distribution channels	Software development capabilities  Data
	Key activities	Platform development and maintenance  Sales, marketing and distribution  Promote 3rd party applications	Platform development and maintenance  Co-branding	Platform development and maintenance  Co-branding	Platform development and maintenance  App-development  Sales, marketing and distribution	Platform development and maintenance  Collaboration with partner developers
	Key partners	Retailers Hardware supplier Data-supplier	Deutsche Telekom/T-mobile Hardware supplier	Meineke and Cox Hardware supplier Data supplier (T-mobile)	Data-supplier Hardware supplier	Telia Hardware supplier Partner developers

	Cost structure	Hardware Platform development and maintenance Sales, marketing and distribution	Hardware Platform development and maintenance	Hardware Platform development and maintenance	Hardware Platform development and maintenance Sales, marketing and distribution	Hardware Platform development and maintenance
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