Corporate Mobility as a *Valuable* Service?

An Exploratory Study from a Business Model Perspective

SOFIE LINDBLAD

SUSANNA NYGÅRDS
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by

Sofie Lindblad
Susanna Nygårds
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En utforskande studie ur ett affärsmodellsperspektiv

Sofie Lindblad
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In light of globalisation and sustainability challenges, the potential of shared mobility, or Mobility as a Service (MaaS), has been acknowledged as a way to improve mobility and transport both for the individual user and society at large. A specific type of mobility is that of corporate mobility, or how companies enable their employees to transport themselves during the workday as well as to and from work. This is an area where MaaS has previously not been applied, thus potentially creating an unexplored business opportunity for someone to offer shared mobility as a service towards companies in need of efficient corporate mobility.

To investigate the new solution of corporate Mobility as a Service (cMaaS) and the potential to transform it into a service offered to external customers, this study has been carried out as a single case study applying a business model perspective to the pilot project Sustainable Mobility Services Södertälje, where MaaS is applied to an existing corporate mobility solution. Inquiries have revolved around what constitutes a cMaaS service and what value is created from it, as well as what value a potential customer and their potential users envision. Lastly, we investigate practical challenges associated with our specific case, as well as strategic challenges regarding the business model design for cMaaS.

Our findings help to describe the novel concept of cMaaS and propose a definition of it, based on previous definitions of corporate mobility and MaaS. Furthermore, the study concludes that value from cMaaS is multi-dimensional and hard to account for in a single value proposition, both due to the interrelationship between customer and users, and the sustainability value created from it. This is especially critical since cMaaS is a user-centric service. Lastly, the study concludes that the development of a business model for cMaaS is subject to a number of challenges, however this is not a sign that cMaaS is not a promising business opportunity, but rather that it is in an early stage. An experimental approach to it is beneficial, however it is crucial to continue development in an informed way, building on acquired knowledge to improve the experiment and to ultimately decide if cMaaS is an attractive business opportunity and if so, what the most suitable business model is.

**Keywords:** corporate mobility, Mobility as a Service, corporate Mobility as a Service, business model, business model innovation, value, triple bottom line
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I takt med globalisering och ökande hållbarhetsutmaningar har potentialen i delad mobilitet, eller Mobility as a Service (MaaS), fått allt mer uppmärksamhet, som ett sätt att förbättra mobilitet och transporter både för den enskilda användaren och för samhället i stort. En särskild typ av mobilitet handlar om företags interna transporter (Corporate Mobility), det vill säga hur företag kan förbättra transport för sina anställda, både under arbetsdagen och till och från jobbet. MaaS har inte tidigare applicerats på den typen av mobilitet, och det skulle kunna vara en intressant affärmöjlighet att erbjuda delad mobilitet som en service, till företag med behov av välfungerande interna transporter.

Syftet med denna studie har varit att undersöka kombinationen av delad mobilitet (MaaS) och företags interna transporter (Corporate Mobility), kallat corporate Mobility as a Service (cMaaS), och möjligheten i att sälja den som en tjänst till externa kunder. För att uppnå det har studien genomförts som en enfallsstudie där ett affärsmodellperspektiv applicerats på pilotprojektet Sustainable Mobility Services Södertälje, som introducerar MaaS i ett företags existerande interntransportsystem. Undersökningarna har handlat om vad en cMaaS-lösning innefattar och vilket värde det skapar, samt vilket värde en potentiell kund och dess potentiella användare vill ha från det. Dessutom har utmaningar kring att sälja och definiera en affärsmodell för cMaaS undersökts.


Nyckelord: interntransporter, Mobility as a Service, corporate Mobility as a Service, affärsmodell, affärsutveckling, värde, hållbarhet
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<td>corporate Mobility as a Service</td>
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<tr>
<td>ICT</td>
<td>Information and Communications Technology</td>
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<tr>
<td>ITRL</td>
<td>Integrated Transport Research Lab</td>
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<tr>
<td>MaaS</td>
<td>Mobility as a Service</td>
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<tr>
<td>SJE</td>
<td>Scania Job Express</td>
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<td>SL</td>
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Sofie Lindblad and Susanna Nygårds
Stockholm, June 2018
1. Introduction

This chapter introduces the topic of the thesis and sets the practical and academic context for the phenomenon to be studied. The purpose of the thesis is introduced along with the research questions that are to be answered. Both academic and practical contributions are described and delimitations of the study are discussed. Lastly, the structure of the thesis is outlined.

1.1 Background

Even though researchers do acknowledge the environmental impact and resource problems related to vehicular travel, they also recognise that both car ownership and vehicular travel is increasing (Moriarty & Honnery, 2008). This is especially prevalent in developing countries with quickly growing economies, while in the industrial world the trend looks somewhat different. The millennial generation is decreasingly interested in car ownership and the driver’s license rate is dropping in several European countries and the US (Trafikverket, 2014; Klein & Smart, 2017). Technological developments within energy efficiency and new types of fuel can address some the challenges related to emissions. Additionally, development within Informations and Communications Technologies (ICT) coupled with the increased interest in sharing economy can incite the trend of shared mobility, thus decreasing the need for owning a car (Moriarty & Honnery, 2008).

A newly introduced concept of shared mobility is Mobility as a Service (MaaS), which is an integrated solution of various transport modes. MaaS enables users to utilise several transport modes as a single service instead of having to plan trips and purchase tickets from several different suppliers (Hietanen, 2014). The integrated character of the solution — underpinned by digitalization and often in the form of a mobile application — is aimed at creating a seamless experience, higher flexibility and a more customized transport solution (Jittrapirom et al., 2017).

One actor that has acknowledged the emergence of MaaS, as well as the need for a more sustainable transport, is heavy vehicles manufacturer Scania. Consequently, the company has started to investigate business opportunities related to emerging technologies such as electrification and autonomous vehicles (Scania, 2018a). MaaS has thus been identified as a promising field to explore, and more specifically since it may be applied on Scania’s own internal mobility challenges at their production site in Södertälje, Sweden. Each day 15 000 employees work on-site, many of them commuting both from within and outside the region. The facilities cover a large area, where employees need to travel long distances for meetings and other work related tasks. Currently, Scania is testing the
concept of MaaS to improve the mobility of their employees in a project called Sustainable Mobility Services Södertälje (SMSS) (Scania, 2018b).

The challenge Scania is facing regarding the mobility of their employees is not unique to them. Urbanisation and a growing population causes cities to grow and land prices to rise, meaning it can be costly to operate large facilities close to where people live (World Bank, 2014). At the same time competition for qualified employees puts pressure on employers to offer additional benefits to employees. Under these circumstances transport and location can be important competitive advantages to retain and attract employees (Novaco, Stokols, & Milanesi, 1990; Zax & Kain, 1991). This creates an interesting possibility to test a MaaS solution in a previously unexploited market niche. A potential service is hereinafter referred to as corporate Mobility as a Service (cMaaS).

In order to develop a viable business from this potential market niche, it is important to not only invest in developing the technology behind it, but to pay equal attention to the business model, a factor that is often overlooked by companies (Chesbrough, 2010). Scania, as a manufacturing company, has traditionally utilised a business model with the product at the center of the value proposition. Entering a new market to sell cMaaS implies a shift towards a service-based business model, reshaping not only the value proposition, but also impacting several other components of the business model, such as approaching a new customer segment (Kindström, 2010).

In contrast to product development, service development must to be adjusted to the customer’s context and culture to a high extent, which affects the value proposition as well as the value itself, since it is relative to who perceives it (Brax, 2005; Bowman & Ambrosini, 2010).

1.2 Problem Statement

The setup of the internal mobility service at Scania shares several characteristics with a service-based business model, most notably as it comprises a service offering that captures the value as it is created. The value proposition is offered to Scania’s own employees who are the users, and subsequently also the customers, of the internal service.

However, in order to transform cMaaS into a marketable service, Scania will have to sell the service to an external firm that has the need for corporate mobility for its employees. Hence, the customer is no longer the user. The underlying assumption in most business model research is that companies design the value proposition assuming that the paying customer is also the actor who will use the product or service (Osterwalder & Pigneur, 2010; Johnson, Christensen, & Kagermann, 2008). This is problematic as traditional
business model frameworks fail to consider when there is a third actor (i.e. the customer’s employees) who is using the service or product, without being the paying customer. Thus, raising the question of whose needs the value proposition should address — the user’s or the customer’s? Considering the differences between the customer (a firm) and the users (individuals) it is likely to assume that they have different perception of what is valuable in a corporate mobility service.

Bowman and Ambrosini (2000) argue that what firms consider valuable is related to profit-making, meaning that financial performance is the predominant factor in the business model. However, drawing from examples within accounting, it is important to recognise that value may be more multifaceted. For instance, Gimenez, Sierra, and Rodon (2012), suggest that companies should account for both social and environmental performance as well. As cMaaS is not only tightly coupled with a significant sustainability potential — but also imposes a complexity of several actor’s — traditional business model literature may be insufficient to fully evaluate what value is created by this type of service.

1.3 Purpose
The purpose of this thesis is to explore the business opportunity of cMaaS, and how it can be transformed from an internal solution into a marketable service.

1.4 Research Questions
The purpose will be fulfilled through answering the following main research question:

- **MRQ:** How can an internal solution, such as corporate Mobility as a Service (cMaaS), be transformed into a marketable service?

In order to answer the main research question it is also necessary to answer the following sub-research questions:

- **RQ1:** How can cMaaS be described from a business model perspective?
- **RQ2:** How may different stakeholders perceive the various dimensions of value created from a cMaaS solution?
- **RQ3:** What are the barriers and challenges in transforming a cMaaS solution to a marketable service and defining a business model for it?

1.5 Contribution
The thesis contributes with an increased understanding of the novel concept of cMaaS, drawing from corporate mobility and MaaS, by describing it from a business model perspective. This contributes with increased understanding of the business aspects of cMaaS and challenges related to selling and defining a business model for it.
By combining the business model approach with the multidimensional value of the triple bottom line and applying it to the empiric case, the thesis contributes with an empiric example of the complexity of sustainable business models, integrating financial, social and environmental value.

1.6 Delimitations
The investigations of this thesis is limited to only be conducted within one potential customer, Company X. The choice of this company, and evaluation of its suitability or other potential customers were not part of the study.

The primary focus of this thesis will be on an organisational level as described by Blomqvist and Hallin (2014). This applies both to the investigations regarding how the service may be transferable from one company to another, as well as how a cMaaS provider can define and develop its business model.

Corporate mobility and MaaS will be described in order to create an understanding of what they are, and how they relate to cMaaS. We will however neither evaluate the wider, societal implications cMaaS may have nor evaluate it from a user perspective, but will focus on the functional implications for a cMaaS provider.

The business model perspective is applied with the purpose of assessing whether all the value created within a cMaaS system can fit into the value proposition of its business model, or if there are value which may not be captured. We do not aim to design a final business model for cMaaS.

1.7 Thesis Sponsor
This thesis is sponsored by truck and bus manufacturer Scania, a company which was established 1891 in Sweden. Since 2014, the company is part of Volkswagen Truck & Bus, alongside brands such as MAN, Volkswagen Caminhões e Ônibus and RIO (Volkswagen Truck & Bus, 2018). Scania has approximately 49 300 employees in more than 100 countries, with its headquarters still in Södertälje, Sweden, where it was once founded (Scania, 2018a). The thesis is part of the ongoing project SMSS, Sustainable Mobility Services Södertälje, which is a collaboration with actors from both industry, academia and the public sector, including among others: Scania, Integrated Transport Research Lab (ITRL) at KTH Royal Institute of Technology, Veridict and the Public Transport Authority of Stockholm (SL). The SMSS project runs during the period from June 1 2017 until 31 May 2019.

1.8 Disposition of Report
The thesis is structured according to the following outline.
Chapter 1 introduces the topic of the thesis and sets the practical and academic context for the phenomenon to be studied. The purpose of the thesis is introduced along with the research questions that are to be answered. Both academic and practical contributions are described and delimitations of the study are discussed. Lastly, the structure of the thesis is outlined.

Chapter 2 sets the scene, by introducing initiatives within corporate mobility, as well as introducing the concept of Mobility as a Service, from both an academic and practical point of view. Finally the combination of the two, referred to as corporate Mobility as a Service, is discussed.

Chapter 3 provides a theoretical foundation and frameworks, from which the research is constructed. The section starts off with a discussion about the concept of a business model, including a description of the Business Model Canvas. This leads to a discussion of the concept of value and sustainable business models, before research on business model innovation is reviewed. Lastly, our conceptual framework outlines how the theory will be used for analysis and discussion of our empirical case.

Chapter 4 describes the methodology used in the study, including the overall research design and structure, as well as a more detailed account of the conducted literature review and how data has been collected and analysed. Lastly, the validity and reliability of the study is discussed and its ethical considerations are presented.

Chapter 5 describes the setting of the case, and is primarily based on data collected during the empirical study. It starts off with a description of the current mobility solution at Scania, followed by a description of the department Sustainable City Solutions and the project Sustainable Mobility Services Södertälje (SMSS). Lastly, the potential customer is described and subsequently compared to Scania.

Chapter 6 lays out the findings and consequent analysis of the study. It starts off with a description of the concept of cMaaS from a business model perspective, based on the SMSS project. This is followed by a description of the different kinds of value offered by the cMaaS service, in terms of financial, social and environmental value, and from the perspectives of the three actors. Lastly, findings of challenges and barriers to the project are presented.

Chapter 7 discusses the empirical findings and analysis, drawing from both the context of the case and findings in literature, in order to answer the sub research questions. First, the concept of cMaaS is analysed from a business model perspective, in order to increase understanding of the business aspects of it. Then, the various kinds of value identified by
the different actors are discussed, in terms of similarities and differences. Lastly, the challenges in successfully defining a business model for cMaaS, and their potential implications, are discussed.

Chapter 8 concludes the study, by presenting the answer to the main research question and discussing industrial and academic implications the findings of this study may have. Lastly, suggestions for further research are outlined.
2. Emerging Mobility Solutions

This chapter sets the scene, by introducing initiatives within corporate mobility, as well as introducing the concept of Mobility as a Service, from both an academic and practical point of view. Finally the combination of the two, referred to as corporate Mobility as a Service, is discussed.

2.1 Corporate Mobility

In the future, transport may not only be affected by urbanisation, with larger and more dense cities, but also by changing demographics and attitudes. In Sweden, driver’s license rates are declining, a trend which is showing both in the US and Germany as well. However, there are regional variations, for example only 40% of people in the age 18-24 years have a driver’s licence in Stockholm county, compared to 70% in Norrbotten and Västerbotten counties (Trafikverket, 2014).

In the Bay Area, U.S., more than 700 commuter shuttles transport 34 000 commuters to and from their workplaces in the region, each day (Baldassari, 2016; Metropolitan Transportation Commission, 2016). The buses are provided both by employers, but also by external companies that operate lines for several employers. The shuttle buses have been criticised as a way to increase the number of working hours, since it is possible to work on the bus, and for being a contributing factor for dramatically increased housing prices and gentrification in the Bay Area, since the commuter buses are making highly paid workplaces more accessible from a larger area. But it has also been described as a competitive necessity, in order to compete for qualified labour who wants to live in the city (Crucchiola, 2016; Anzilotti, 2016). Amazon and Microsoft offer employee shuttles in Seattle, following the notion of an unreliable public transport system and the unsustainable alternative of cars (González, 2016). The shuttle solution is not only limited to tech giants, but there are also examples of universities providing similar services. In Malaysia, several universities are providing shuttles services to both employees and students as a mean to decrease car commuting (Hashim, Haron, Mohamad, & Hassan, 2013).

Similar initiatives exist in Sweden as well, such as IKEA that during the summer of 2017 provided employee shuttles from Malmö and Lund to the headquarters in Älmhult, due to unreliable public transport (Söderberg & Carlsson, 2017). Truck manufacturer Scania also provides employee shuttles from Stockholm city to their production site in Södertälje. Corporate mobility is not only about transporting people to their workplace, but also ensuring they have good mobility on campus, and between neighbouring sites, when employees need to get to meetings or lunch restaurants etc. The need for corporate
mobility may be due to companies wanting to reduce the number of vehicles on campus, or making it accessible to personnel that does not have access to a private car or other mode of transport. This is true for Scania that also has a well-developed transport system at campus (Scania, 2018c). Likewise, the hospital Karolinska Institutet in Stockholm offers its employees a shuttle between two different campuses in Stockholm (Norbäck, 2018).

As to the best of our knowledge, corporate mobility is a phenomenon that has not been addressed academically to any larger extent. Therefore our description of the concept is primarily based on practical examples and empirical information and is summarised in the following two characteristics; “transport within corporate campus and/or commute” and “transport provided by employer to employee”. Together they describe what corporate mobility refers to in further discussions of this thesis.

2.2 Mobility as a Service
The increasing opportunities within shared mobility has led to a growing number of carpooling, car rentals, city bikes and ride sharing services, and of course well-developed public transport systems. All these different actors have their own platforms, contracts and payment solutions, making it complicated to combine different modes of transport and to find the most convenient route. A MaaS provider can, by bundling these services and offering one single interface for booking and purchasing, provide a more user-friendly transport solution as illustrated in figure 1. It is valuable to mention that an increased usage of MaaS could decrease the need for personal ownership of a car, but would not necessarily decrease the vehicular travel (Bern, Jansson, Nordlund, Nyman, & Westin, 2016).

![Figure 1. MaaS provider bundling services, making it accessible in one interface.](image)

Several MaaS initiatives have emerged globally, where customers are offered bundled mobility services in the form of a monthly subscription payment (Hensher, 2017). Typically they have in common that they include access to public transport, combined with several contracted transport providers such as city bikes, carpools etc.
As part of the Lindholmen Science project Go:smart, the trial of UbiGo was engaging both private, academic and public actors in Gothenburg, Sweden, and was partially funded by Vinnova\(^1\). The purpose of the six months pilot study during 2014 was to test the viability of a business model offering bundled mobility services. They marketed themselves as an alternative to car ownership, and resulted in 83 subscriptions, with 193 participants using the application as their only transport provider (Strömberg, Rexfelt, Karlsson, & Sochor, 2016). A monthly subscription granted access to city bikes, different types of carpools, public transport, taxi services and car rentals. Booking and payment was administered in one application, and if the account was overdrawn, the user would receive an additional invoice. The project was deemed successful, and a continuation of the project is planned in Stockholm, with new funding and new transport providers that have been contracted (Ubigo, 2018).

Another example is Whim, a mobile application provided by MaaS Global, who consider themselves “the world’s first MaaS provider”. Whim was launched in Helsinki, Finland, during 2016, with additional tests ongoing in the UK and Netherlands. By contracting transport providers of public transport, taxi, rental cars and city bikes, they can offer MaaS in three different subscriptions depending on user needs (Whim, 2018). Aided by artificial intelligence, the aim is that the application will incorporate both external data, such as weather reports, as well as historical user data, in order to suggest the most convenient and affordable trip (Lancaster, 2018).

Due to its possible consequences on personal car ownership, the growing trend of shared mobility has attracted the attention of incumbent car manufacturers that have responded with new investments. Volvo for instance launched their new type of ownership, Care by Volvo, which includes a membership in their carpool Sunfleet as well as discounted rental cars (Taylor, 2017; Volvo Cars, 2015). German BMW has invested in the carpools ReachNow (U.S.) and DriveNow (Europe) (ReachNow, 2018; DriveNow, 2018), while Volkswagen has not only invested in the ridesharing application Gett, but also introduced a new company, Moia, with the purpose of “redefining mobility for people living in urban areas” aiming to become a leading mobility service provider by 2025 (Volkswagen Group, 2018).

Another car manufacturer, Daimler, has invested in both carpooling (Car2Go), as well as a series of mobility products called moovel, moovel-transit and moovel-on-demand. Moovel

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\(^1\) Vinnova is Sweden’s government agency for innovation, with the mission to contribute to sustainable growth by improving the conditions for innovation, e.g. by funding innovation projects. [https://www.vinnova.se/en/about-us/swedens-innovation-agency/the-role-of-vinnova/](https://www.vinnova.se/en/about-us/swedens-innovation-agency/the-role-of-vinnova/)
offers services from Car2Go, public transport from three different actors and taxi services, through an application where booking and paying for most services is possible. Moovel-transit is a “white label solution” mobile application, offering transport providers a fully integrated time table and payment solution. Moovel-on-demand is an application for shared taxi services (Daimler, 2018; Moovel, 2018).

It is only during the last couple of years the term Mobility as a Service has started to appear in academic literature and there is not one definition of the concept, but several. The definitions are in many parts agreeing but there are also considerable differences, especially in what part of the concept is emphasized and what approach is chosen to describe it. This can refer to e.g. user needs, sustainability impact or improved efficiency in the transport system (Kerttu, Smidfelt-Rosqvist & Wendle, 2017).

However, throughout these slightly differing definitions, a number of core characteristics of MaaS can be identified. First, that MaaS is based on customer’s needs, and includes service bundling and second, that there are cooperativity and interconnectivity between transport modes and service providers. This is summed up by Hietanen (2014) in one of the first definitions of MaaS, where it is described as “a mobility distribution model that delivers user’s transport needs through a single interface of a service provider, combining different transport modes to offer a tailored mobility package, like a monthly mobile phone contract”.

Kamargianni and Crites (2017) provide a similar definition, emphasizing that MaaS is a user-centric service, where a MaaS provider bundles all mobility services, and supplies them through a single digital platform. Holmberg, Collado, Sarasini and Willander (2016) on the other hand, distinguish between public and private actors, suggesting that MaaS services not only comprise bundling different transport services as a subscription (what they refer to as Combined Mobility Service), but also Integrated Public Transport which simplifies the use of different public transport modes, but not necessarily different actors.

Based on a literature review and study of previous definitions of MaaS, Jittrapirom et al. (2017) presents a number of core characteristics that together paints a comprehensive picture of the concept:

**Integration of different transport modes**, which enables the user to choose among, and utilise different modes of transport for a single trip.

**Tariff options**, by offering the user the possibility to either pay for a monthly subscription based on his or her needs in a “mobility package”, alternatively “pay-as-you-go” which implies paying for each trip or effective use.
One platform, where the services of several different transport providers are bundled, and offered to the customer, with the possibility to plan, book, pay, handle tickets and receive traffic information.

Multiple actors, a key aspect of MaaS is how it enables the cooperation and interaction between different actors, such as transport providers, mobility customers and third party actors, such as public sector, platform provider etc., within a single interface.

Use of technologies, and especially the use of ICT has enabled the emergence of MaaS, making it more accessible through smartphones and tablets, but most importantly through the possibility of e-ticketing, and creating a digital platform where several actors can cooperate and interact.

Demand orientation, which implies that MaaS is a user-centric system, developed to provide a convenient and valuable service to the user, through a multimodal transport solution which includes on-demand services such as taxi.

Registration requirement is a mean to provide the user with access to the platform and tickets, but also poses a possibility to gather personal data and thus design a user experience at a more personal level.

Personalisation is facilitated partly by the registration requirement and use of technology, ensuring a more efficient mean to satisfy user’s requirements and expectations. Based on historical travel data it is possible consider each individual user’s travel patterns, and create a personal experience.

Customisation resembles personalisation, but is rather the possibility for each customer to choose a service package based on their personal preferences and current needs.

2.3 Corporate Mobility as a Service
Corporate mobility addressed in section 2.1 focused on employers providing transport to employees as a benefit, when other transport alternatives are considered insufficient, unreliable or unsustainable, whether it may be for commuting or internal transport. Ongoing corporate mobility that has been previously described have been static routes with scheduled shuttles, and few different choices of transport modes.

Furthermore, the literature review has covered several different suggestions on what MaaS may be, or how it can be characterised. Even so, it has not been addressed in which scope the concept is emerging, or in which setting it would create most value. It has been mentioned that it can be a mean to decrease car ownership, but most current
initiatives are only present in larger cities, where there may already be good access to public transport and shared mobility.

By applying the concept of MaaS on corporate mobility, there may be a possibility to transfer some of the benefits from MaaS onto a smaller customer segment, where there is a need for efficient transport, creating a niche called corporate Mobility as a Service (cMaaS).

cMaaS would imply catering a range of different transport modes through a single interface, but within the scope of corporate mobility, wherein an employer would be providing MaaS for its employees, either as a complimentary service or a subsidised fringe benefit (figure 2).

As to our knowledge, the concept of cMaaS has not been widely explored or addressed academically, but there are a few ongoing practical initiatives in their early stages. Since December 2017 Järfälla municipality is cooperating together with the company SpaceTime to provide their employees with an application to facilitate ride sharing, and to be able to compare different travel alternatives with respect to cost and impact on environment or health. It is also possible to buy tickets for public transport and utilise car pools (SpaceTime, 2018a). Additionally, it is to be investigated whether the municipality can provide their employees with MaaS as a fringe benefit, instead of a company car (SpaceTime, 2018b).

Similarly, the aforementioned project SMSS is investigating how cMaaS can improve the corporate mobility of Scania, both in terms of increasing utilisation rate of the vehicles through making it more user-centric, but also the implications it has related to sustainability and business development.

In order to enable discussion and further development of the concept of cMaaS there needs to be a common ground to understand it. By combining the MaaS characteristics presented by Jittrapirom et al. (2017), with our own characterisation of corporate mobility, we propose the definition of cMaaS as illustrated by table 1.
An important implication of the above definition is related to the relationship between the employer and the employees. For the supplier this has implications on all parts of the business model, as the creation and capture of value are considerably complicated by the fact that the customer is not the same as the users of the service.

From this chapter it can be concluded that corporate mobility and MaaS are two interesting areas to investigate from a business development point of view, which has also partly been done. However, the combination of the two, cMaaS, has been scarcely addressed even though it may present an interesting solution and a promising business opportunity. Applying a business model perspective on cMaaS would allow investigation of what value can be created and captured by the solution, and be especially valuable since cMaaS is a concept that comprise multiple actors. This creates a complexity in issues relating to who captures the value and from whom, as well as how risks and accountability is shared.

<table>
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<th>Corporate Mobility</th>
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<th>cMaaS</th>
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<td>Transport within corporate campus and/or commute</td>
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<td>Provided to employees by employer</td>
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<td>Integration of different transport modes</td>
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<td>Tariff options</td>
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<td>One platform</td>
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<td>Multiple actors</td>
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<td>Use of Technologies</td>
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<td>Demand Orientation</td>
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<td>Registration requirement</td>
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<td>Customisation</td>
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*Table 1. Our proposed definition of corporate Mobility as a Service.*
3. Literature Review

This chapter provides a theoretical foundation and frameworks, from which the research is constructed. The section starts off with a discussion about the concept of a business model, including a description of the Business Model Canvas. This leads to a discussion of the concept of value and sustainable business models, before research on business model innovation is reviewed. Lastly, our conceptual framework outlines how the theory will be used for analysis and discussion of our empirical case.

3.1 Business Models
3.1.1 An ambiguous concept

Lewis (2000) refers to the term business model as a term of art - it may be recognizable by most people, however its true nature is ambiguous and vaguely defined. Subsequently setting the agenda for the current academic approach towards business models research, since academics are struggling to find a common definition of the term. It was not until the late 1990s that the term received increased attention amongst academics, in an attempt to analyse the value creation in the new kind of Web-based companies that emerged with the Internet boom (Zott, Amit, & Massa, 2011).

During the last century, companies have been busy trying to figure out how to perform their business and manage their operations, generating countless of new management theories (Drucker, 1994). In a world where the only constant is change, these theories are not enough according to Drucker (1994), since they are based on assumptions of a static environment. When the customer, the market, or even society is changing, there is a need to also question what to do. This implies that these assumptions have to be continuously questioned in order to stay relevant and understand the questions: “Who is the customer?” and “What does the customer value?”. Magretta (2002) claims that a good business model should not only answer those two questions — defining the value proposition — but also help understand how to generate money from that offering, thus identifying how to capture value.

Demil and Lecoq (2010) suggest that there are two ways of looking at a business model, either as a static or as a transformational approach. The former implies that it is simply a blueprint, an instruction on how a business should structure itself and generate revenue, whereas the transformational approach is rather a tool to address change, both internally as well as externally. Further, Demil and Lecoq (2010) suggest that by adopting a transformational approach it is allowing for a more adaptable business model, which is more resilient to change.
3.1.2 Business model canvas

Though it exists numerous interpretations of what constitutes a business model, Massa, Tucci and Afuah (2017), as well as Zott et al. (2011) highlight the strong consensus among researchers that business models play a key role in creating competitive advantage. A common conceptualisation of the business model framework was developed by Osterwalder and Pigneur in 2010. In their pioneering book, Osterwalder and Pigneur (2010) define a business model as “the rationale of how an organisation creates, delivers and captures value”. In an attempt to abstract this, they propose nine basic buildings blocks to describe the logic of how value activities are rooted in the processes and structures of a company. By analysing the ingoing parts of the business model canvas it is possible to determine how the company’s value chain affects the value proposition (Osterwalder & Pigneur, 2010).

![Figure 3. Visual representation of the business model canvas, adapted from Osterwalder and Pigneur (2010).](image)

The business model canvas is a mean to describe the components of a business model, and identify how value is created, thus also determining where the revenue streams are. Though the value proposition is found at the centre of the model, the customers are at the heart of every action. Without profitable customers it is difficult to build a sustainable company, which is why the value proposition must accurately address the customer demand.

**Value proposition**

The value proposition may be considered the solution to the customer’s problem, and is thus the reason why a customer turns to one company in favour of another. Scholars have highlighted that a company may create value for its customer by providing a service or a product, or a combination of both (Johnson et al., 2008; Osterwalder & Pigneur, 2010).
Customer segments
In order to design a business model it is essential to understand who the customer is, whose needs the value proposition should address. This may be done by segmenting customers with similar demands, and consequently design value propositions based on these segments (Osterwalder & Pigneur, 2010). A company can address several customer segments with different value propositions, but it is necessary to make an informed decision on what customer segments to pursue in order to distribute resources accordingly.

Distribution channels and customer relationship
Chesbrough and Rosenbloom (2002) emphasise that a business model is the means by which a company will be able to deliver and capture an appropriate part of the value created by its technology. This may be done by making potential customers aware of the product or service, and making it available for purchase, by using the proper distribution channels. The firm may use its own channels, for instance by using an in-house sales force or a webshop. Or they can benefit either from indirect partner channels such as retail stores or partner owned websites. The choice of distribution channel is dependent on who the potential customer may be, and will also potentially affect how the value proposition is perceived by the customer (Carayannis, Grigoroudis, Sindakis, & Walter, 2014).

How the value proposition is perceived by customers may also be affected by the level of the customer relationship, where companies can for example invite customers to co-create value. Either by creating content (e.g. Youtube), or by sharing their experience of using a product by writing reviews and thus creating value for other customers, assisting them in their choice, e.g. Amazon (Osterwalder & Pigneur, 2010). Adding a more personal assistance or service as add-ons could also be a mean to create more value for the customer (Kindström, 2010; Osterwalder & Pigneur, 2010).

Revenue streams
For a company to profit from the value it creates and offers to its customers, it is necessary to address how to acquire an appropriate part of that value to the company itself. Johnson et al. (2008) refers to the profit formula as how the firm may capture value, whilst still creating value for a customer. Different customer segments may create different revenue streams, with different pricing mechanisms, such as transactional asset sales, usage or subscription fees, licensing or brokerage fees (Osterwalder & Pigneur, 2010; Chesbrough & Rosenbloom, 2002). According to McGrath (2010) there is also a possibility to capture value without a monetary compensation (or exchange) from the customer, more often than not referred to as free business models. For instance, a recent
example includes the concept of freemium business models, which entails that the company offer a basic version of the product for free with the expectation that a sufficient amount of customers will appreciate the product, and eventually start paying for the full version. This can also be accompanied with advertising, where the customer can utilise the service, and gets exposed to advertisements instead of paying through a monetary exchange (McGrath, 2010).

**Key resources and key processes**

Key resources and key processes comprise what is necessary to create significant value for both the customers and the company. The key resources may be both physical, financial, intellectual, as well as human, and only compose of resources that contribute to the company’s competitive advantage (Johnson et al., 2008). The value is created when combining key resources with key activities, which in manufacturing companies often are activities related to designing, manufacturing and delivering a product. While in a service-based business model the key activities are more likely to be related to delivering a solution to individual customer’s problems (Osterwalder & Pigneur, 2010), implying that the company needs to invest in continuous training, sales and service (Johnson et al., 2008).

**Key partnerships**

Chapman, Soosay and Kandampully (2003) claims that many businesses are becoming more service-oriented, and in order to complement their own competence seek to partner up with specialised organisations. Mass, Tucci and Afuah (2017) also emphasise that recent business model research implies that value is not exclusively created by producers, but also by other actors in their surrounding network, both customers and other partners. The business model canvas component key partnerships comprises not only strategic alliances between non competitors, but also coopetition, joint ventures and the most common partner relationship which is between buyer and supplier to assure reliable access to resources.

**Cost structure**

The aforementioned profit formula by Johnson et al. (2008) suggests that it is suitable to first determine the cost of delivering the customer value proposition, and subsequently setting the price depending on which margins are desirable. Osterwalder and Pigneur (2010) highlight that even though costs always should be minimised in any business model it is suitable to separate business models that are value-driven from those that are cost-driven. The latter focus on delivering a low price value proposition, for customers who are price sensitive, whilst the former target is more focused on value creation and premium value propositions, such as luxury hotels or personalised services.
Despite the ambiguity surrounding the concept of business models and the various approaches to defining and operationalising it, what they share is the focus on value, in one way or another.

3.2 The Concept of Value

3.2.1 Vague but universal

As described by Lepak, Smith and Taylor (2007) the concept of value is of great importance to various fields of research as well as practitioners, however there is no consensus regarding what value actually is and how it can be created. This is confirmed by Bowman and Ambrosini (2010) who argue that part of the confusion around the term “value” is due to the different meanings it has to different people and on different levels, why it is necessary to investigate what value means to different stakeholders. Furthermore, Lepak et al. (2007) describes ambiguities in what value creation and value capture means, respectively, and how they relate to each other as well as the fact that value creation can comprise both the content and the process of value creation.

A commonly adopted distinction is the one presented by Bowman and Ambrosini (2000), between use value and exchange value. Use value is the subjective value as perceived by the individual customer, relating to their individual needs, while the exchange value is more objective, and constitutes the monetary price realised at the time of exchange. As use value is in relationship to the needs of the user, it is subjective and varying. Therefore use value may be most obvious and easily defined in a consumer purchase, however it is equally present when a representative of a company makes a purchase. The need in that case can be harder to picture, but is assumed to always relate to profit-making (Bowman & Ambrosini, 2000). Although use value is subjective it can be translated into monetary terms, as the price a user is prepared to pay for something if there is one single source of supply (Bowman & Ambrosini, 2000).

Another more colloquial definition of value is that it is the difference between perceived benefits and perceived costs (Lindi & Marques Da Silva, 2011). Thus, resembling the subjective use value described previously, but adding the distinction that customers evaluate both perceived benefits and perceived costs. This explicit focus on the customer’s perception of the value is important, and something companies tend to forget when defining their value proposition (Anderson, Narus & Van Rossum, 2006). Hence, many firms simply list their products or services without considering which customer needs they are actually addressing. This entails a risk of including features that the customer do not really need or that are delivered by competitors as well, meaning a lack of differentiation (Anderson et al., 2006).
In other words, value is a multi-faceted term but what most accounts of it share is that it is primarily defined from a financial point of view and measured in monetary terms. There is attention paid to the customer’s subjective perception of the value, but this is translated to their willingness to pay for this perceived value. A reason for this might be the difficulty to measure other kinds of value, especially if they are subject to an individual’s perception of it. In light of the sustainability challenges faced by society today, consequently also facing business and innovation, this might be a shortcoming. To be able to create sustainable and profitable businesses and business models it might be valuable to take a wider approach to the concept of value. This is discussed in the following section.

3.2.2 Sustainability value and the triple bottom line
The rapid population growth and the consequent pressure that is put on the resources of our finite planet has sparked the idea that financial value or profit can not be the only objective if we are to survive in the long term. There is a need for sustainable development, which was famously defined as development that allows humans today to meet their needs without compromising the possibility for future generations to meet theirs (Brundtland, 1987).

Much attention has been paid to sustainable development on a societal level, however researchers and practitioners alike have started to realize that change on this level must be accompanied with change on the organisational level as well. This has been further emphasized in the light of recent global financial crises, raising concerns about what impact companies and their businesses have on sustainable development (Schaltegger, Hansen & Lüdeke-Freund, 2016). The widely adopted definition of sustainable development described previously can be interpreted in various ways, but a common approach is to integrate economic, social and environmental sustainability, sometimes referred to as the triple bottom line. This resonates well with the organisational approach to sustainability, meaning a sustainable business should aim to concurrently achieve financial profit, while creating positive impact on the environment and the society.

The concept of the triple bottom line was proposed by Elkington (1998) and was first viewed from an accounting point of view, implying that companies should not only account for their traditional bottom line of financial profit and loss, but for the two complementing bottom lines of environmental and social performance, respectively, as illustrated in figure 4 (Gimenez, Sierra, & Rodon, 2012; The Economist, 2009). This is also sometimes referred to as the 3Ps; people, planet and profit.
Gimenez et al. (2012) concludes that the financial sustainability is generally better understood and easier to operationalise than the other two. Environmental sustainability is often related to reducing waste and emissions, increasing energy efficiency and reducing use of harmful materials. Social sustainability entails taking into account impact on multiple stakeholders, both internal and external, and can relate to things like diversity, democracy and quality of life (Gimenez et al., 2012).

The monetary, economic view on value has been prevalent in the field of business models as well. Chesbrough and Rosenbloom (2002) describes the business model as what connects the technical potential of a product with the ability to realize its economic value. This is further discussed by Laasch (2018) that explains how the concept of the business model emerged during the e-business boom as a way to represent how to realise market opportunities and capture value, which meant generate profit, and how this commercial background of the concept has caused the commercial market logic to dominate it.

Laasch (2018) further argues for the potential of the business model to not only employ a commercial logic, but other types of logics as well. The study especially highlights the potential to enable sustainable development by integrating sustainability value logic in the business model, and the sustainability potential of innovating business models is argued for by other studies as well (Bocken, Short, Rana, & Evans, 2014; Boons & Lüdeke-Freund, 2013).

In their literature review of sustainable business models Stubbs and Cocklin (2008) set out from the traditional notion that a firm’s main goal is to maximise profits and that social or environmental goals are secondary. They find that there exists research on how environmental performance affects financial performance, but little knowledge on how
business models can serve to operationalise sustainability in the holistic way that seems necessary, integrating financial, environmental, and social performance.

A sustainable business model needs to propose sustainable value not only to the customers and shareholders, but to multiple stakeholders, such as suppliers, partners, and not least the environment and society at large (Baldassarre, Calabretta, Bocken, & Jaskiewicz, 2017), implying multiple dimensions to the concept of value.

Joyce and Paquin (2016) presents a concrete tool to take into account this multiple character of value in business model innovation, the triple layered business model canvas. This tool integrates the business model canvas and the triple bottom line, both described previously. By complementing the regular business model canvas, focusing on financial value, with two more canvases, with a social and environmental focus respectively, they aim to enable design and illustration of a business model’s impact on all three kinds of value. The social and environmental canvases comprise components corresponding to the original canvas components described by Osterwalder and Pigneur (2010), but referring to social and environmental factors instead of financial.

These three layers of the canvas introduce new dynamics to the business model canvas, horizontal and vertical coherence. Horizontal coherence enables an analysis of how the components on each canvas relate to each other and what effect that has on business and sustainability impact. The vertical coherence is how each of the layers, and their respective components, relate to and impact each other and the performance of the business. In testing of this tool, Joyce and Paquin (2016) have found that it has several advantages, e.g. as a visual representation of the business model. This is valuable in that it can help make implicit or tacit aspects of the business model more visible. Furthermore, it was found to be helpful in design of a business model, as it can help visualize how a change in one component or layer affects other components and layers. A drawback identified during testing was that it is rather complex and can sometimes be perceived as overwhelming by the user.

In order to achieve the shift towards more sustainable businesses, changes to a company’s current business model or the adoption of an entirely new business model can be powerful tool. Thus, the next section will address the field of business model innovation.

3.3 Business Model Innovation
Related to the previously described business model research is the more recent research field of business model innovation. In their systematic review of previous research on the phenomenon, Foss and Saebi (2017) identified that the research on business model
innovation is a rapidly growing stream of research, which can have significant impact on management practitioners as well as academia. Though Foss and Saebi (2017) also recognise the novelty of the research stream and consequent research gaps.

Similarly to the business model concept, the term business model innovation is not strictly defined. In an attempt to create such a definition, or at least boundaries to the term, Foss and Saebi (2017) presents scope and novelty as two dimensions that characterise business model innovation, in part influenced by Schumpeter (1911) arguing that any innovation can be dimensionalized by how novel they are. By determining the novelty of a business model innovation, ranging from new to firm to new to industry (sometimes also new to world), and the scope, ranging from modular innovation to architectural innovation, the framework in figure 5 takes shape, distinguishing four main types of BMI. Whereas the modular innovation only affects one or a few components of the business model, the architectural innovation alters the entire structure of it.

Evolutionary business model innovation is the least radical, often described as a fine-tuning process of a certain component of the business model as an effect of some external factor (Foss & Saebi, 2017; Demil & Lecocq, 2010). Adaptive business model innovation is also triggered by external change, but often of a more revolutionary kind, such as a new business model competing in the market (Foss & Saebi, 2017; Teece, 2010). As a consequence, the company may be forced to adopt a completely new business model to the firm itself, although not new to the industry. This stands in contrast to the two other types of business model innovation, related to changes initiated by the firm itself to disrupt market conditions, introducing business models which are new to industry. This implies only transforming particular components of the business model, i.e. targeting a new market, thus performing modular business model innovation (Foss & Saebi, 2017). The most comprehensive type is complex business model innovation, which affects the business model as a whole, for instance when firms make the shift from products to services (Kindström, 2010; Foss & Saebi, 2017).
On the contrary, it can be considered an evolutionary change when established manufacturing firms increase their service offering, and incrementally change their business models. Yet both are presenting a shift from product-centric to service-based business models (Foss & Saebi, 2017), a transformation which Vandermerwe and Rada (1988) refers to as servitization. According to Baines et al. (2007) servitization may imply that the value proposition towards the customer is enhanced thanks to an increased possibility to customise and personalise it. Kindström (2010) highlights the importance of increased interaction and coordination with the customer, in order to gain deeper understanding for its needs and processes, to be able to design customised services, which is also supported by Brax (2005). This is especially important when selling a “solution” as defined by Storbacka, Windahl, Nenonen & Salonen (2013) as a relational process comprising the joint identification and definition of value creating opportunities.

Although Storbacka et al. (2013) mainly focuses on industrial companies transitioning from a product-based business model to a business model of selling a solution. They argue that there are four main characteristics along which the company has to innovate their business model: customer embeddedness, offering integratedness, operational adaptiveness and organisational networkedness (Storbacka et al., 2013). Customer embeddedness is a result of selling a solution, as the relationships with customers are more long-term and the solution is co-created with the customer, in contrast to a product that is more often developed and sold before any interaction with customer, who receives the final product. Therefore it is important to “become embedded” with the customer’s situation and creating value to the customer by supporting their own value creation (Storbacka et al., 2013).

Several scholars have argued that business model innovation may be helpful, if not a necessity, for firms in the face of disruptive technological change (Christensen, 2006; Foss & Saebi, 2017). This might be especially true in the face of potential technology shifts, which historically have proved to be a key aspect in incumbent firms’ failures, such as quintessential examples like Kodak and Nokia. Chesbrough and Rosenbloom (2002), and more recently Tongur and Engwall (2014) argue that it is necessary for incumbent companies to both invest in technological innovation, as well as transforming their business model in order to ensure that it is possible to capture an appropriate amount of the generated value from the technological innovation. The interplay between new technology and business model innovation is vital. This can be especially difficult when the company has built up considerable competencies within a certain technology (Christensen, Raynor & McDonald, 2015), or existing customers which are currently most profitable (Chesbrough, 2010). Sustaining current technologies encourages
incremental change, both regarding product, organisation and business model, with emphasis on existing customers. According to Christensen and Bower (1996) this may contribute to a path dependence, investing in continuous change only, since the firm may miss out on new customers and opportunities in emerging markets or technologies.

This is further emphasized by Chesbrough (2010) who notes that companies often invest heavily in developing new ideas and technologies but fail to innovate the corresponding business models. This can turn out to be a costly mistake, as the business model is what takes the technology or idea to the market, and what to a large extent determines the value made from it.

A strategy to circumvent these potentially devastating consequences may entail strengthening the organisation’s ability to exploit and develop current business while simultaneously exploring new opportunities in order to stay relevant in the current business environment (Tushman & O'Reilly III, 1996; Levinthal & March, 1993). Similarly to Christensen and Bower (1996), it is proposed by Tushman and O'Reilly III (1996) that organisational tensions may restrain companies’ ability to balance these paradoxical innovation strategies. These difficulties stem from the contradictory structures, processes and cultures which apply to either incremental or discontinuous change, which can be hard to address concurrently. Tushman and O'Reilly III (1996) acknowledge that these difficulties may be most effectively addressed if the exploration of disruptive changes is pursued in small disconnected and autonomous groups. By transferring the exploratory activities to sub-units who share the overall corporate vision — but not necessarily the same responsibility towards existing customers — encourage them to take larger risks, pursue smaller markets and develop unproven technologies.

It is imperative for the organisation to explore in an informed manner, thus drawing from the experiences and avoid making the same mistakes (Chesbrough, 2010). In like manner, Sosna, Trevinyo-Rodríguez and Velamuri (2010), emphasise the importance of a management which supports the transformation and is able to utilise the learnings from the incremental changes.

3.4 Conceptual Framework
The purpose of this thesis is to investigate how to create a marketable service of cMaaS, which implies we have to consider both the concept of cMaaS and how it relates to a business model perspective. We first define what cMaaS is, by drawing from previous accounts of the concepts of corporate mobility and MaaS in combination with our empirical case. Furthermore we analyse and describe cMaaS and our empirical case from a business model perspective, integrating a sustainability approach by using the triple
bottom line framework. This section presents the conceptual framework and its ingoing concepts and frameworks, which we will apply throughout the study to facilitate our analysis (see figure 6).

Figure 6. Conceptual framework and its comprising parts.

Corporate Mobility as a Service
Given the novelty of the concept of cMaaS and the scarce accounts of it in previous literature or even real life examples, it was necessary to define what it means in order for further analysis and discussions to be valuable. As cMaaS is the application of MaaS on the context of corporate mobility, it was natural that the definition departs from these concepts.

There are numerous definitions of the MaaS concept, which are aligned to various degrees and more or less specific. One of the most complete and specific descriptions that we have encountered is the framework of MaaS characteristics proposed by Jittrapirom et al. (2017), described in section 2.2. By extending these characteristics with two additional characteristics of corporate mobility, which crystallized from our review of other corporate mobility solutions, we arrive at eight characteristics that together define and describe the concept of cMaaS, presented in section 2.3.

This definition formed a foundation for our entire study as it increased and aligned our understanding of the concept of cMaaS, and helped in directing analysis and discussions of all our research questions. The cMaaS characteristics were most specifically utilised for analysis and discussion of RQ1, in sections 6.1 and 7.1, where they formed a basis for analysis of the SMSS project and the degree to which it actually can be considered cMaaS. Based on this, an analysis of business model aspects of SMSS in particular, and cMaaS in general, were carried out, by combining the characteristics of the definition with a business model perspective, which will be further described below.
A business model perspective

The business model concept may be well debated, and has received criticism for being vague, but it highlights the connections between a customer’s needs and a company’s capability to answer to those needs, enabling a system perspective, rather than solely an internal perspective on how value is created (Chesbrough & Rosenbloom, 2002). The business model canvas offers a representation of a generic firm’s value activities and processes for creating and capturing value (Osterwalder & Pigneur, 2010). The nine building blocks are a scaled-down illustration of how an organisation works, but when it is combined with another perspective it may become too complex. This is emphasised by Joyce and Paquin (2016) as they incorporated a sustainability aspect with the business model canvas, and found that the resulting 27 components was perceived as overwhelming for some of the test groups it was presented to.

With this in mind, the business model canvas has in this study primarily been used as a tool for sorting interview data, and developing interview guides, and not for performing our analysis. For the sake of analysis, we have instead drawn on the work of Teece (2010), Chesbrough and Rosenbloom (2002) and Johnson et al. (2008), to express the components from the business model canvas through the following triad (as illustrated in figure 7):

1. *value proposition*, what value of the services or product that is offered to the customers;
2. *value creation*, how this value is created;
3. *value capture*, how some of this value can be retained by the company.

![Figure 7. Illustration of how the components of BMC can be summarised in the triad value proposition, value creation and value capture.](image)
This framework highlights the essence of the business model canvas components, in a distinct manner, and allows for a holistic business model perspective. This also enables the possibility to combine them with a sustainability perspective without becoming too cumbersome and complex.

**Triple bottom line**

When investigating the value aspects of cMaaS, both within SMSS and from an external point of view, there were indications that the value created is of diverse kinds and potentially difficult to illustrate in a single value proposition. This, combined with the notion that MaaS and consequently cMaaS holds sustainability potential, motivated the use of a wider perspective on value. To fully grasp the sustainability value a triple bottom line approach was used, integrating financial, social and environmental value and further described in section 3.2.2. This primarily contributed to the analysis and discussion of sections 6.2 and 7.2.
4. Methodology

This chapter describes the methodology used in the study, including the overall research design and structure, as well as a more detailed account of the conducted literature review and how data has been collected and analysed. Lastly, the validity and reliability of the study is discussed and its ethical considerations are presented.

4.1 Research Design

Due to the novel nature of the phenomenon being studied and the lack of comparable initiatives, the study was performed as an exploratory single case study based on the SMSS project in Södertälje, further described in section 5.3. The case study is a good choice of method when investigating how or why something is occurring and is especially beneficial in this situation as it can give several actors the chance to provide input from their point of view (Blomkvist & Hallin, 2014). Furthermore, the contemporary nature of this project and the close connections to the real-life context motivates the that the research is performed as a case study (Yin, 1994). The lack of similar, comparable initiatives further motivates the study investigating only a single case, and doing so in an exploratory way.

Due to the exploratory purpose of the study, coupled with the unique nature of the topic, the case of the SMSS project was deemed suitable for the study. This was further motivated by the extensive access to informants and data that was allowed by the close connection to the project, as the research problem is complex and requires rich and detailed data. These factors further motivated the study being carried out as a single in-depth case study (Yin, 1994).

As the investigation departures from a business model perspective and revolves around value of a service when shared with external actors, inquiries were made both within Scania and their ongoing project, as well as within a potential customer. This customer was already decided upon by the beginning of the study, and evaluation of its suitability or scanning for and evaluation of other potential customers were not in the scope of this study. By the beginning of the study an initial dialogue with the potential customer was already ongoing, and we were included and granted access to the contact persons as well as previously collected data.

The first phase of the study consisted of a pre-study, which according to Collis and Hussey (2013) is a good way to orient the research and help direct the case study. The main study comprised inquiries both within Scania and the potential customer, hereafter referred to as Company X, which took place simultaneously and consisted of various methods of data collection, as described in table 2.
4.2 Case Study

4.2.1 Pre-study
The initial stage of the research had the purpose of familiarising ourselves with the project and its participants, as well as the potential customer. This was achieved through conducting several unstructured interviews with Scania employees involved in the project. Additionally, we conducted one interview with a researcher from KTH Royal Institute of Technology, who was involved in the research part of the project, and one initial discussion with representatives from the potential customer.

We also participated in a project meeting of the SMSS project, and made a study visit at the production site of Scania. These activities all served to increase our understanding of the context of the project, its objectives and the associated challenges. Discussions with the potential customer helped to align the vision and objectives of the study and to make an initial plan for the data collection activities. Additionally, we participated in the daily work at the department responsible for the project, where informal interactions and discussions contributed with valuable understanding.

4.2.2 Main study
The main study was conducted at Scania and Company X simultaneously with the purpose of collecting complementary data from both perspectives.

At Scania the inquiries primarily focused on the ongoing project and the associated challenges, as well as what value is created by the current service. The data collection consisted of interviews, documents and extensive participation in various activities. The pre-study helped outline the various departments and stakeholders of interest and suitable informants to interview.

At Company X the inquiries were more focused on the current needs and challenges, what value an improved solution may offer and the potential to implement such a solution. One important factor within Company X was the potential users, the employees of Company X. To address this factor, a survey was conducted with the employees to increase knowledge on general conditions related to the workforce and also
to increase understanding of the needs and attitudes they have related to transport. A number of structured phone interviews were held with employees to complement the survey with a more rich and detailed picture of how they think about their transport.

According to Yin (1994), a strength of a single case study is the depth and detail that can be achieved, which was evident in this study as it included informants from several departments and at various levels in the organisation who could give information from various perspectives. Furthermore, interviews were held with informants from both the ongoing project at Scania and the potential customer. This range of informants not only enabled a more detailed account of events, but could also entail a more accurate result as we triangulated the information collected from different sources (Collis & Hussey, 2013).

To allow accurate comparative analysis, informants from the two companies were chosen to correspond each other in that they held similar roles in their respective organisations. The employees of Company X were thoroughly investigated, whereas Scania’s employees were only inquired using secondary sources, such as previous surveys and investigations. The reason for not investigating the Scania employees as thoroughly, was that they are not critical to the selling of cMaaS externally and were thus outside the scope of this study. One additional interview was held with a representative from Södertälje municipality responsible for corporate relations, in order to increase the understanding of how the municipality view the value created from this kind of service and how they work together with companies in the region in general.

4.3 Literature Review
A literature review was conducted to increase our understanding of previous research within relevant fields. It also helped to direct our case study and define a framework of analysis to be used throughout the study. Furthermore, it was a valuable complement to our primary sources and our case study in general as it could provide a theoretical foundation for the empirical data we have gathered and analysed. Besides increasing our knowledge, the literature review has helped us identify gaps in the previous literature and position our study in relation to current and previous research, as described by Collis and Hussey (2013).

Several topics were reviewed, the primary one being the field of business models and business model innovation. Related to this, articles on servitization and service-based business models were also reviewed.

Furthermore, a review was made within the field of MaaS to provide an overview of the area. This review comprised both theoretical research and more practical descriptions of
actual trials and implementations. This served both to orient our study in relation to previous and current MaaS initiatives, to establish what previous knowledge may be of value to our study as well as where knowledge is lacking.

The literature review was not confined to a specific time period but was continuously revisited throughout the study. As new data or other findings directed our attention to a specific topic that could be of interest to our study, literature on this topic was reviewed and integrated in the study in an iterative manner. The literature was searched for using mainly KTHB Primo, a search tool provided by KTH Royal Institute of Technology, where the majority of the research presented is published in peer-reviewed journals. Beside academic literature, news articles and other editorial material were used. This was mainly the case when reviewing corporate mobility, MaaS and cMaaS as some of those concepts have received limited attention in academic literature. Moreover, it was considered relevant and interesting to complement the academic accounts of the concepts with more empirical accounts.

4.4 Data Collection

The nature of the case study entails the possibility to use a variety of data collection methods and as described by Yin (1994) a combination of several methods is often preferred, as it can produce richer data and more accurate results thanks to the data triangulation it enables. The topic of this study is complex and contains several dimensions, which is why it has been valuable to use several data collection methods. These methods (previously outlined in table 2) and what they have been used for is further described in this section.

As argued for by Yin (1994), all data collected was stored and organized in a systematic way. Notes were stored physically on paper, while all other material was stored digitally in a database accessible to both researchers.

4.4.1 Interviews

Interviewing is a good choice of method when the goal is to achieve a detailed account of a complex phenomenon, and advisable for collecting views and insights from various actors and perspectives (Blomkvist & Hallin, 2014; Yin, 1994), which is why it is a suitable method in this study.

The pre-study interviews had the purpose of orienting ourselves within the project and the research topic, as well as familiarise ourselves with project members, the potential customer and other stakeholders. Therefore, the interviews during this phase were held in an unstructured manner with open-ended discussion topics. The discussion topics and
informants were based on recommendations by our supervisors at Scania as well as our initial findings in literature and other accounts of previous MaaS initiatives. The interviews were held in person and not audio recorded, but both researchers were present and took notes. After the interview the notes were discussed and additional thoughts were noted and saved for future reference. In table 3 below, the data collection activities of the pre-study is outlined.

<table>
<thead>
<tr>
<th>Interview</th>
<th>Actor</th>
<th>Role</th>
<th>Type</th>
<th>Length</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>i</td>
<td>Scania</td>
<td>Business Developer A</td>
<td>Unstructured interview</td>
<td>60 min</td>
<td>20/8/0118</td>
</tr>
<tr>
<td>ii</td>
<td>Scania</td>
<td>Business Developer A</td>
<td>Unstructured interview</td>
<td>60 min</td>
<td>20/8/0123</td>
</tr>
<tr>
<td>iii</td>
<td>Scania</td>
<td>Logistics</td>
<td>Study visit</td>
<td>150 min</td>
<td>20/8/0123</td>
</tr>
<tr>
<td>iv</td>
<td>Company X</td>
<td>Benefit Lead HR Representative</td>
<td>Unstructured interview</td>
<td>60 min</td>
<td>20/8/0207</td>
</tr>
<tr>
<td>v</td>
<td>KTH</td>
<td>Researcher</td>
<td>Unstructured interview</td>
<td>60 min</td>
<td>20/8/0208</td>
</tr>
<tr>
<td>vi</td>
<td>Scania</td>
<td>Project Team</td>
<td>Meeting observation</td>
<td>120 min</td>
<td>20/8/0219</td>
</tr>
</tbody>
</table>

*Table 3. Activities in the pre-study.*

The pre-study helped structure and direct the main study, both in selecting informants and outlining the topics of the interviews. The interviews in the main study were held in a semi-structured manner and interview guides were designed prior to the interviews, outlining topics and questions to discuss. These interview guides were adjusted to the specific role and expertise of the informant to make sure the most relevant and valuable data was gathered at each interview. The guides did however have a similar structure and some common themes, which are accounted for in Appendix I. The questions were open-ended and allowed for discussion and further elaboration if the informant had additional relevant information to share.

All interviews were held in person with both researchers present. After approval from the informant the interview was audio recorded, with occasional notes taken during the interview. After the interview, audio recordings were transcribed and digitally stored in the case study database. Notes, thoughts and ideas raised by the interviews were also stored digitally along with the transcriptions. All informants and the details of the interviews are outlined in table 4 below.
Furthermore, structured phone interviews were held with employees of the potential customer, but as they were conducted in conjunction to the survey they will be further described and discussed in relation to the discussion of the survey, see section 4.4.4.

4.4.2 Participatory observation

Participatory observation has been a prominent part of the data collection of this study. As the study is part of the larger SMSS project and commissioned by Scania, both researchers have had their own work places inside the open-plan office of the responsible department at Scania. This has allowed for participating in weekly meetings of the department and frequent informal interactions and discussions with various project team members.

Furthermore, it has allowed for an extensive insight into the progress of the project as the researchers have participated in various activities related to the project, ranging from project status meetings to the launch of the service at Scania which took place in early May. This resulted in insight into the daily work inside the project, including challenges met and interactions inside the project organisation as well as between the project and its external stakeholders.

These observations and interactions have been frequently discussed between the researchers and insights from the discussions has been noted and stored for later reference. The participation has also to some extent helped to guide and influence the direction of the study.

4.4.3 Documents

Documents were used in all phases of the study for various purposes. Due to the thesis being part of the project, access was granted to a large amount of internal documents.

<table>
<thead>
<tr>
<th>Interview</th>
<th>Actor</th>
<th>Role</th>
<th>Type</th>
<th>Length</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Scania</td>
<td>Head of Property &amp; Transport Project Manager</td>
<td>In person</td>
<td>60 min</td>
<td>20/03/02</td>
</tr>
<tr>
<td>B</td>
<td>Scania</td>
<td>Project Manager B</td>
<td>In person</td>
<td>80 min</td>
<td>20/03/28</td>
</tr>
<tr>
<td>C</td>
<td>Scania</td>
<td>Project Manager C</td>
<td>In person</td>
<td>60 min</td>
<td>20/04/04</td>
</tr>
<tr>
<td>D</td>
<td>Company X</td>
<td>Benefit Lead</td>
<td>In person</td>
<td>60 min</td>
<td>20/04/05</td>
</tr>
<tr>
<td>E</td>
<td>Municipality</td>
<td>Business Relations</td>
<td>In person</td>
<td>50 min</td>
<td>20/04/10</td>
</tr>
<tr>
<td>F</td>
<td>Company X</td>
<td>Environmental Improvement Lead</td>
<td>In person</td>
<td>30 min</td>
<td>20/04/18</td>
</tr>
<tr>
<td>G</td>
<td>Scania</td>
<td>Business Developer B</td>
<td>In person</td>
<td>60 min</td>
<td>20/04/20</td>
</tr>
<tr>
<td>H</td>
<td>Scania</td>
<td>HR Manager</td>
<td>In person</td>
<td>45 min</td>
<td>20/04/24</td>
</tr>
<tr>
<td>I</td>
<td>Company X</td>
<td>Facilities Manager</td>
<td>In person</td>
<td>75 min</td>
<td>20/04/24</td>
</tr>
<tr>
<td>J</td>
<td>Scania</td>
<td>Business Developer C</td>
<td>In person</td>
<td>60 min</td>
<td>20/05/03</td>
</tr>
</tbody>
</table>

*Table 4. Informants in the main data collection.*
related to the project, which were used both in the pre-study and the main study. Additional documents from the potential customer were also made accessible by the contact persons and informants representing that organisation, upon request by the researchers.

In the pre-study, internal documents relating to the project in general were used to increase the understanding of the project, and how this thesis were to contribute to it.

As part of the main study, documents from both Scania and from the potential customer has been collected. Within Scania documents relating to costs and utilisation of transport were collected and analyzed to strengthen the analysis of created value and potential benefit, and documents relating to project planning and evaluation were used to increase knowledge on more general challenges in terms of implementation and organisation. Within the potential customer the documents were related to the current transport solution and their utilisation degree, as well as the time planning of the workforce, to increase our understanding of matters related to schedules and production shifts.

4.4.4 Survey
Due to the nature of the research problem it was necessary to also investigate the potential users of the service, the employees of Company X. In order to achieve a detailed and correct picture of the needs and drivers within that large group a mixed methods approach was used. This enabled collection of data with different characteristics, which can be complementary and help address complex issues (Yin, 1994). Using a quantitative method such as a survey is beneficial in this case as it creates reliable data that can be used for generalization and conclusions of the workforce at large (Blomkvist & Hallin, 2014).

This inquiry comprised a survey complemented by a number of structured phone interviews in many ways resembling the survey, but with the potential to get more detailed answers. The survey questionnaire was constructed with closed-ended questions of which the majority were of a quantitative nature where the respondents were asked to choose one or more alternatives, with the option to add other alternatives or explanations in text form. The questionnaire had three main parts, the first addressing general questions related to the employee, the second posing questions about the employees’ current transport situation and any needs and challenges related to it, and the third and last part contained questions about transport related benefits offered by the employer and the employees’ view on them. The questions are presented in Appendix II.
The questionnaire was designed using the online tool Google Forms, and tested on a test group prior to distribution to minimise the risk of misinterpretations or misunderstandings biasing the results. The survey was distributed via the payroll system of Company X, presented to all employees opening that system. Initially the survey was intended to be open for two weeks, but this was later prolonged to four weeks due to holidays and payroll timing affecting the response rate.

By the closing of the survey, 2847 out of the total 3796 employees had opened the payroll system, thus being presented with the survey, and out of them 404 had responded.

To complement this and enable a richer and more detailed image of the employees’ view on transport, the survey was complemented with eight telephone interviews. The respondents of these interviews were partially provided by our contact person at Company X. Although efforts were made to ascertain that these respondents were representing a variety of employees, in terms of role, workplace etc, the randomness can be questioned as it might have been affected by who the contact person had access to. Furthermore, it was made possible in the survey to express interest in participating in a phone interview, which a number of respondents did and who we consequently also interviewed. This entails a risk of bias as it is primarily respondents that are very committed to the issue that will express this interest. However, these concerns are not deemed to be of any greater impact as the purpose of these interviews was not to draw general conclusions about the entire population, which the survey was utilised for, but rather to complement the survey data with more details and richness.

Prior to the interviews a structured interview guide was designed, see Appendix III. The interviews were held over phone by one of the researchers and audio recorded after approval from the respondent. The responses were processed and sorted in tabular format.

4.5 Data Analysis
4.5.1 Qualitative data
As this case study consists of a single case, it was analysed using a within-case approach as described by Collis and Hussey (2013), including some comparative analysis to identify similarities and differences between Scania and Company X. The within-case analysis allows for a familiarity and unique insight into the specific case and enables unique patterns in it to be discovered (Eisenhardt, 1989) which is valuable to this study.
The data analysis itself has followed the general procedure of qualitative data analysis as described by Miles and Huberman (1994) including the following three steps: data reduction, data display and conclusion drawing and verification.

Data reduction involves selecting, focusing, and simplifying the data, which is crucial in this type of in-depth case study due to the large amount of data (Collis & Hussey, 2013). The process begins already with the data collection, especially considering how it is difficult to record all details of participatory observations, and thus making some reduction necessary. Further reduction has been made when analysing written notes, interview transcripts and other qualitative data, by reducing and restructuring the data thematically. The two researchers have independently processed the documents and added comments and marked any identified themes before discussing them together. This also implied discarding data that was deemed irrelevant.

Further structuring and displaying of data has been made by using tables and matrices, but also frameworks identified in the literature. Beside initial structuring, the business model canvas described in section 3.1.2 was used to analyse and illustrate the data collected. This was done by drawing up a business model canvas for the offering of SMSS which is offered by Scania to its employees. This illustration comprised data from all our data collection methods and gave a descriptive insight into challenges in defining a business model for a service like cMaaS. The business model canvas can be found in Appendix IV.

One of the difficulties that we encountered was to define the full value proposed by the system, which lead us to another framework of analysis, the triple bottom line. By sorting all value we identified in the value categories proposed by the triple bottom line (financial, social and environmental) for each of the actors, we were able to illustrate the various kinds of value created. This illustration and organisation of data has also helped in building towards a structure to present and discuss the findings of the study and ultimately helped to draw and verify our conclusions.

4.5.2 Quantitative data

After initial structuring and reducing of the answers to the questionnaire they were analysed and displayed in diagrams and tables. These results were further analysed, together with text answers and the data from the telephone interviews, in a thematic way. These themes covered both the financial, social and environmental value of the triple bottom line and the business model components of the business model canvas.
4.6 Validity and Reliability

Judging the quality of a scientific study can be done in different ways, but four particular criteria have been proposed and widely used in social science: construct validity, internal validity, external validity and reliability (Yin, 1994; Gibbert, Ruigrok, & Wicki, 2008). In the following section, these criteria will be further described along with a discussion of how this thesis meets them.

Construct validity refers to the extent to which the study actually investigates what it claims to investigate (Gibbert et al., 2008), in terms of how the concept is operationalised and that the procedure is not biased by subjective judgments by the researcher (Yin, 1994). Construct validity can be achieved by establishing a clear chain of evidence and by using triangulation to approach the problem from several perspectives. Triangulation has been done to some extent, by investigating Scania and Company X simultaneously using several methods of data collection at several points in the organisations.

Internal validity is concerned with the logical relationship between what has been studied and the results, and that the reasoning that has lead to the results is strong enough (Yin, 1994; Gibbert et al., 2008). Internal validity is primarily related to data analysis and can be strengthened using a number of methods. Two relevant methods will be described and discussed, in relation to this study. The first one is pattern matching, which means empirically matching the results with predicted results or results from a previous study. The second one is theory triangulation, which entails that the researcher look at the results using various theoretical perspectives. Pattern matching has not been utilised in this study, due to the lack of comparable projects to match with. Theory triangulation has been used as multiple perspectives has been applied in order to discuss the results.

External validity, which is also referred to as generalizability, is the extent to which the results of the study can be expected in other settings than the exact one the study was performed in (Gibbert et al., 2008). This is not likely to be achieved by a case study, if statistical generalization is intended, since a single- or multiple-case study does not produce a sample that is large enough to draw conclusions on the population. However, Yin (1994) among others, argues that case studies can achieve analytical generalization, which is rather a generalization from empirics to theory. According to Eisenhardt (1989) a cross-case analysis should be used, analysing somewhere around 4 to 10 cases to achieve analytical generalization. That means our single-case study can not claim to produce analytical generalization. We do however argue for the rationale of the case selection, how the single case design was chosen due to scarcity of comparable ones, and provide a thorough description of the case context, which according to Gibbert et al. (2008)
increase the reader’s understanding. To conclude, the generalizability of the study is low, but measures have been taken to enable further studies on topics and findings presented in this transport. This is in line with the exploratory purpose of the study, and the novel nature of the issue studied.

The last criteria, reliability, means the degree to which other researchers would be able to come to the same findings and conclusions if they were to repeat the study (Yin, 1994). This can be enabled by striving for transparency and replication. In this study, transparency has been addressed by providing clear and detailed descriptions of the methods used for the different inquiries. Descriptions of how and from whom data has been collected has also been included, as well as a general interview guide and the questionnaire that has been used. A case study database should be established to increase replication, comprising all notes and documents used in the study and which can later be accessed by other researchers (Yin, 1994). During the work with this study, a case study database has been established, however it has not been granted access to other researchers.

4.7 Ethical Considerations
Throughout the design and execution of the study, attention has been paid to ethical concerns as described by Swedish Research Council (2017). All respondents in the empirical data collection have been informed of the purpose of the study, their contribution and how the data would be used. The informants were not obliged to participate but were invited to do so, and their consent was given prior to any data collection. The survey was presented to the respondents as an invitation rather than an obligation, and the respondents were informed of the purpose as well as their choice of whether to participate or not. All data collected was treated confidentially and presented anonymised in any reports. All data and information has been used for the previously stated research purposes only.
5. Case Description

This chapter describes the setting of the case, and is primarily based on data collected during the empirical study. It starts off with a description of the current mobility solution at Scania, followed by a description of the department Sustainable City Solutions and the project Sustainable Mobility Services Södertälje (SMSS). Lastly, the potential customer is described and subsequently compared to Scania.

5.1 Corporate Mobility within Scania

Scania’s main site in Södertälje covers four square kilometres, from Snäckviken in the north of Södertälje, to Södertälje Syd, six kilometres south of Snäckviken, with several additional sites covering up to two square kilometres each in the nearby area (Scania, 2018b). The 15 000 employees who are working on site have access to 7 700 parking spots, which are not charged for. According to a survey conducted in 2015, 69% of employees at Scania Södertälje commute by car at least four days per week. Despite that a majority of the employees have access to a car on a daily basis, Scania struggles with transport in between facilities on site. Informants highlight that it is not a suitable nor sustainable solution to rely on employees’ personal cars for corporate mobility. However, due to the aforementioned large campus, it is a challenge for Scania to provide sufficient transport alternatives for employees who may need to travel between different locations for meetings or other work related tasks, especially for those who do not have their own car.

However, the need for corporate mobility within campus is not a recent issue. It was acknowledged soon after Scania’s campus started to grow in size, with the first shuttle line initiated as early as the 1960’s, when the post truck also started carrying passengers. Since then the demand has increased significantly, meaning the transport system has developed accordingly (Interview A, 2018). As of May 2018, 21 shuttle buses (Rundtursbussar) operate the campus in order to enable employees efficient transport during work hours, frequenting three different routes: from Gröndal, Astra or Karpen to Syd. Even though a sophisticated system is in place on-site, not all facilities are covered by the routes, which is why a taxi service (Komfort) exists as a complementary alternative for employees travelling between facilities not accessible by shuttles buses. The shuttle buses and taxi service are operated by the Service Management department, which is also responsible for managing facilities, parking lots, gardening etc.

Scania’s geographical location and widespread campus do not only cause problems related to corporate mobility, but also affect Scania’s ability to attract talented potential employees. During 2011 the department of Research and Development had difficulties
recruiting personnel due to the insufficient commuting possibilities to Södertälje. Concurrently, there was a need to collect driving data from test buses, and therefore the department opted to initiate a new research project, where Transportlaboratoriet\(^2\) began operating a bus line called the *Research Route (Forskarlinjen)* offering a commuter shuttle between Stockholm and Södertälje (Interview B, 2018). However, in the beginning of 2016, Scania boasted a fleet of approximately 170,000 connected vehicles worldwide, from which they could collect actual customer driving data. As a consequence the test vehicles of the Research Route became redundant, and the research project was terminated. Even though the need for data disappeared, the need for efficient commuting to the Södertälje site remained. Thus Scania kept the commuter service and rebranded it as the Scania Job Express (SJE), today operated by an external transport provider (Interview A, 2018; Interview H, 2018).

Over time the shuttle and taxi services have increased in importance to the corporate mobility and is today considered to be a necessity for efficient on-site transport. Under these circumstances it is important to recognise that this system for corporate mobility is a complimentary service for all employees to use. Informants have also outlined an additional benefit that comes with the system, as the mobility service is operated by Scania employed drivers who, prior to their employment at the Service Management department, have been on sick leave due to occupational injuries and have not been able to return to their ordinary position within production (Interview A, 2018; Interview H, 2018). Scania Job Express, on the other hand, is considered an employer transport benefit which some employees may choose to utilise for a fee, either for a single trip or a monthly subscription. Though it is valuable to mention that a significant portion of the price is subsidised by Scania (Interview H, 2018).

Some departments have a smaller car fleet, with vehicles designated for their staff members. Employees may book the cars in advance, and use them within the company campus (Baid & Seres, 2017). In 2014 a pre-study called *Sustainable Transport for Personnel* was initiated to assess how the internal transport system could be improved, due to the high cost that was associated with the department cars. One department had a utilisation rate of 40%, and many times employees travelled alone in the cars, which also implied there was room for developing a more sustainable transport system. During the study, there was indications from other companies that this was not a problem isolated to Scania, but that similar needs for an efficient internal transport solution existed elsewhere.

\(^2\) *Transportlaboratoriet*: Internal research department responsible for e.g. collecting driving data from vehicles in development (Service Management, 2018).
(Interview B, 2018). When the pre-study was finished, Scania had not only identified possible improvements to their corporate mobility, but also a possible business opportunity.

5.2 Sustainable City Solutions
Scania has acknowledged the challenges that come with increased urbanisation, with larger and denser cities. In order to put less strain on the urban infrastructure, existing transport systems may have to change and adopt to new circumstances. Combined with the development of new technologies, such as autonomous and electrified vehicles, this may dramatically impact the transport industry. To be able to explore sustainable transport solutions for growing cities, Scania established the new department Sustainable City Solutions by the end of 2016 (Interview G, 2018; Scania, 2017).

The purpose of the new department is to explore business opportunities enabled by possible technology shifts. This also implies assessing not only the technology, but most importantly the business models. Several informants within business development imply that it may be beneficial to apply a trial-and-error approach to the business model design in this kind of department, due to the difficulties of testing the viability of business models in a sandboxed environment.

The projects Sustainable Transport for Personnel and the Research Route, were an indication that Scania could create well-performing transport systems which were not based on their core technology. This was especially interesting since the projects were related to growing trends of urbanisation and sustainability, which are two trends that may affect existing transport systems to a large extent. Hence, the results from both earlier projects formed the basis of a new project – Sustainable Mobility Services Södertälje (SMSS) – which was one of the first projects of the new department Sustainable City Solutions.

5.3 Sustainable Mobility Services Södertälje
The project was initiated in 2017 together with academia and several actors from both public and private sector. The purpose of SMSS is to “develop, demonstrate and evaluate a multimodal mobility service for passengers to, from and within Scania in Södertälje, Sweden”, where it will be evaluated on three different levels: individual (user), industrial (business model) and societal (sustainability impact) (ITRL, 2017). This was to be done by applying the concept of Mobility as a Service, with a single interface and several modes of transport, on the context of a company’s internal transport solution. At the initial stage, this does not imply changing the existing shuttle lines or timetables, but the system
as shown in table 5 will be extended with 40 electric bikes at four different stations on campus (Interview C, 2018).

<table>
<thead>
<tr>
<th>Service</th>
<th>Vehicles</th>
<th>Operated by</th>
<th>Price</th>
<th>Passengers/month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Komfort</td>
<td>1 Minivan, 2 Carts</td>
<td>Service Management</td>
<td>free for employees</td>
<td>1 600 on average</td>
</tr>
<tr>
<td>Rundturkbussarna</td>
<td>21 Minivans</td>
<td>Service Management</td>
<td>free for employees</td>
<td>1 1 900 on average</td>
</tr>
<tr>
<td>Scania Job Express</td>
<td>2 Express buses, 1 double-decker bus</td>
<td>Transportlaboratoriet &amp; Bjarne's Bus</td>
<td>380 SEK/monthly ticket, 65 SEK/daily ticket</td>
<td>500 monthly tickets sold, 60-65% utilisation</td>
</tr>
<tr>
<td>Electric Bikes</td>
<td>40 Electric bikes</td>
<td>Service Management</td>
<td>free for employees</td>
<td>No usage data available yet</td>
</tr>
</tbody>
</table>

Table 5. Transport options for employees at Scania.

During the first phase of the project, all the vehicles were connected to provide the possibility of collecting data and connect them to a control tower which can monitor the vehicles and handle deviations. Concurrently, the development of the mobile application *Scania Go* was initiated. Previously, the only accessible timetable was either a pdf file in the Scania intranet, or the mobile application Bussigt that was developed by employees on their own initiative. The application was widely used when it was available, but was later cancelled by the creators. With the new system in place, users will be able to plan their trip and view timetables in the application Scania Go, as well as handle their tickets for Scania Job Express or following the shuttles in near real time, making the system more available to users. In the beginning of 2018 the first test group accessed the application, and in May 2018 the new system was launched to the entire company (Interview C, 2018; Interview ii, 2018).

As part of exploring the business perspective of the project, a company with similar characteristics as Scania regarding size of campus, number of employees, location and interest in sustainability was identified – Company X. The company had showed interest in Scania's earlier employee transport solutions, and was contacted during the project SMSS in order to assess how this transport solution could be valuable to them, and if it is possible to transform Scania's internal service to a marketable service which can be sold to an external customer.

5.4 A Potential Customer: Company X

Company X is a manufacturing company in the same region as Scania, with around 4000 employees. There are two production sites (Site A and Site B) with a shuttle bus frequenting the distance between them (6 kilometres), departing every 40 minutes in each direction.
The survey conducted with employees of Company X indicates that 29% live in Södertälje or nearby town Nykvarn. Similarly to Scania, they also have a large part of commuters from Stockholm urban area\(^3\) (25%). Of both white and blue collar workers more than half are based in Site A (55%), while 44% work in Site B and the rest divide their time equally between the two sites.

More than half of the employees commute by car, and only 18% use public transport for their everyday commute. This implies that it is important that the employer provides a sufficient number of parking spots, which as of today is 3 100. The production work is carried out in up to five shifts, dispersed over a 24 hour period, up to seven days a week. The shifts overlap, which leads to a shortage of parking spots during this short period when workers starting their shift are arriving before the others have finished theirs (Interview I, 2018).

5.5 Scania Compared to Company X

This section concludes the case description presented throughout chapter 5, by placing Scania and Company X next to each other and comparing their conditions and needs as described in previous sections of this chapter. This creates a foundation for the forthcoming analysis and discussion, as similarities and differences between Scania and Company X are critical factors in the opportunity of transferring and selling cMaaS.

<table>
<thead>
<tr>
<th>Scania</th>
<th>Company X</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of business</td>
<td>Manufacturing</td>
</tr>
<tr>
<td>No of employees</td>
<td>15 000</td>
</tr>
<tr>
<td>Operation of current transport</td>
<td>Internal department</td>
</tr>
<tr>
<td>Internal transport system</td>
<td>Yes, 21 employee shuttles and 3 internal taxi cars</td>
</tr>
<tr>
<td>Commuter buses</td>
<td>Yes, between Stockholm/Liljeholmen and Södertälje</td>
</tr>
</tbody>
</table>

Table 7. A comparison of key characteristics of Scania and Company X.

The reason for the choice of Company X as the potential customer of this study was in part due to accessibility, as they had expressed their interest in this kind of service.

\(^3\) Stockholm urban area extends to 11 different municipalities.
previously and they were geographically close to Scania. Furthermore they were deemed a suitable and interesting choice to try this solution on, as they resemble Scania in terms of needs and conditions (Interview ii, 2018). However, during the course of this study some differences have emerged as well, impacting the potential in a transferring of the service.

Both firms are manufacturing companies located in Södertälje but with global reach. They are important employers in Södertälje municipality, and create many job opportunities for workers both with and without higher education. Informants from both companies addressed the increasing difficulties of finding suitable labour, which is also noted by the representative from Södertälje municipality. One of the reasons mentioned is that Södertälje is within commuter distance from both Stockholm and Linköping, which may be more attractive cities even for workers living in Södertälje, due to higher salaries and more job opportunities. On the other hand, people may choose to commute into Södertälje as well, but their decision is often influenced by how well public transport works, or if they have the possibility to have a car (Interview E, 2018; Interview H, 2018; Survey, 2018).

Furthermore, both companies have an explicit strategy for sustainable development and corporate responsibility (Interview B, 2018; Interview F, 2018; Scania, 2018a). This is apparent both directly in their operations but also in a wider context, communicating ambitions to contribute to a sustainable development of the community and the society.

Despite their similarities there are also a number of differences that are valuable to consider. First of all, Scania’s facilities are more widespread with many buildings covering a large area while the facilities of Company X are more concentrated, contained within two main locations that are only accessible to employees. This means the mobility needs of Scania employees can be considered more diverse, as there are innumerable routes that employees may need to travel. At Company X, the main need during the workday is between the two locations, but several informants acknowledged that a commuter shuttle could be beneficial as well.

Both companies have a need for transport between the workplace and train stations, to simplify commuting, but for transport between work and home the needs are more diverse. One of the facilities of Company X is located relatively close to central Södertälje and public transport, while the other is outside the city center and with few public transport connections. Due to Scania’s more widespread locations the distance and connection to public transport varies accordingly.
Both companies operate internal transport currently, however to very different extents. Scania’s solution involves various modes of transport and levels of service and has been described in depth in previous sections. The transport of Company X consists of one shuttle bus operating the distance between the two locations. This is entirely operated by an external supplier. This may imply that the needs of the two companies are not the same, since for Scania the optimisation and improved information might be the largest improvement, while at Company X there is a need for improving quality through increased transport options and routes.
6. Findings & Analysis

This chapter lays out the findings and consequent analysis of the study. It starts off with a description of the concept of cMaaS from a business model perspective, based on the SMSS project. This is followed by a description of the different kinds of value offered by the cMaaS service, in terms of financial, social and environmental value, and from the perspectives of the three actors. Lastly, findings of challenges and barriers to the project are presented.

6.1 cMaaS from a Business Model Perspective

6.1.1 SMSS from a business model perspective

Informants have described SMSS as a trial of a potential cMaaS solution, a previously unexplored business opportunity for Scania. In order to commercialise cMaaS, Scania would have to explore radically different types of business models compared to the business logic the firm currently applies. The project SMSS is an internal solution for Scania, but with an economic rationale similar to a business model. Thus, describing SMSS from a business model perspective, using components of the business model canvas but categorised according to the triad of value proposition, value creation and value capture, may indicate what can be integral parts in an attempt to commercialise cMaaS and define a business model for it. The complete business model canvas can be found in Appendix IV.

Value proposition

According to informants from both HR and the Service Management department, the primary purpose of SMSS is to provide Scania’s employees with accessible and reliable corporate mobility, primarily within campus and, in some cases, also a reliable commuter shuttle to and from the workplace. By applying MaaS on their corporate mobility, it gives employees access to several modes of transport, within the mobile application Scania Go. This enhances the flexibility of the system, and enables the employee to choose the transport modes which entails the most convenient route for them (Interview A, 2018; Interview G, 2018).

From what SMSS looks like today it can be concluded that Scania, thanks to the use of technology, can bundle different modes of transport within a single platform, Scania Go. The mobile application grants employees access to real time information and ticket handling. Even so, the system is not fully integrated, which is why it is still necessary to purchase SJE tickets from the benefit portal, and book the taxi service by calling customer service (Interview G, 2018).
Value capture

The value proposition of SMSS is directed towards a small customer segment — Scania’s employees in Södertälje. Though it is possible to distinguish sub-segments based on transport needs within campus, the most evident is with regards to the employees’ commute. The transport system has developed dynamically, with routes changing accordingly while the campus has grown and transport demand has changed. This has been a way to ensure that the solution is successfully addressing current needs of the employees. Utilising surveys and continuous feedback, Scania has identified different needs and preferences amongst the employees, and has thus identified different customer segments of their corporate mobility (Interview A, 2018; Interview C, 2018). This was especially important during the development of SJE, that was initiated to help attract and retain employees at the R&D department (Interview B, 2018). It was necessary to determine which type of competence was sought-after, where they may need to commute from and which difficulties they experienced during their commute. This resulted in several personas, fictional characters that represent different types of employees or travellers, which may be targeted differently (Interview ii, 2018).

The shuttle service on-site is considered necessary, and should be available for all employees. Instead of grouping different types of users, it is more adequate to consider how personnel is travelling between facilities. Aided by surveys, travel data and personal communication, the service management department consider travel experiences, opinions and data in order to plan routes. This service is complimentary, since Scania deems it important that employees have access to a reliable and sustainable transport solution during work hours, which is supported by informants from both HR and Service Management.

The motivation for operating Scania Job Express is somewhat different, but even so, Scania argues that it is an important part of their corporate mobility. Since they only operate the commuter shuttle from Stockholm, it is only a smaller part of the employees that have the possibility to benefit from the service. Combined with Swedish tax regulations of employer transport benefits, this has contributed to the fact that Scania does not cover the entire cost of SJE. Instead each employee who choose to utilise SJE, pay a monthly fee, or a one day ticket for the occasional shuttle commute (Interview A, 2018). Informants emphasise that even though the cost is not entirely covered by the ticket fees, Scania believes it is important to provide the shuttle service as part of their fringe benefits for current personnel, and as a mean to attract new employees (Interview H, 2018).
Both monthly and daily tickets to SJE are available for anyone who is employed by Scania and has access to the benefit portal. Though it is not necessary to purchase tickets to the other modes of transport, they are limited to only be utilised by Scania employees as well. This implies that the mobile application is not mandatory either, but rather a tool for Scania to bundle all the information regarding the different transport modes and vehicles, provide timetables and real time data (Interview G, 2018).

This concludes that Scania does have the possibility to capture some of the financial value created by SMSS, even though it is not the purpose of the internal service.

Value creation

Whether Scania offer their corporate mobility fully subsidised or not, SMSS inflicts costs associated with both activities and resources that are necessary to deliver the value proposition — accessible and convenient corporate mobility — to its employees.

In order to operate SMSS it is necessary with different types of vehicles, which demand maintenance and drivers. The vehicles that are utilised for the taxi and shuttle services are owned and maintained by the Service Management department at Scania. The drivers are also employees of Scania, who have been transferred from production to service management due to occupational injuries. This has implications on which work hours, and thus accordingly which operating hours, that are possible to withhold, without inflicting additional costs due to work and union regulations (Interview A, 2018; Interview H, 2018).

This stands in contrast to the operations of SJE, where there is a setup with the partners Transportlaboratiet and Björcks Buss, who are responsible for ownership, operations and maintenance of the buses. The former is a Scania owned company, and operates on behalf of Scania’s R&D department, to collect driving data and transport goods between Scania sites. Björcks buss on the other hand is an external partner which operates buses from both Scania and their own fleet, for the commuter shuttle route between Stockholm and Södertälje (Interview A, 2018).

With the introduction of cMaaS at the Södertälje site, a platform was developed by Scania and two external partners. The platform consists of both a traveller interface, to make the different transport modes easily accessible to employees, and a backend module, to enable Service Management to coordinate the vehicles, manage disruptions and communicate with users through the mobile application. This central entity is called a control tower and facilitates a bird’s eye view over the system. It is enabled by real time data sent to the control tower from the connected vehicles, which have been equipped
with devices to be able to send and receive information. The external partners are also contracted to provide technical support for the system (Interview A, 2018; Interview G, 2018).

The platform where employees purchase tickets for SJE is provided by an external benefit partner, and is currently not integrated into the mobile application of SMSS. According to our informant from the HR department, this partnership is not exclusively regarding transport benefits, but was initiated prior to SMSS by the HR department to simplify handling of all fringe benefits.

The electric bikes are supplied by an external partner, but daily maintenance is executed by the service management department. Additional costs inflicted by the electric bike system concerns relocating bikes to ensure that they are evenly distributed on the campus, charging of the batteries and providing employees with bike helmets that are available to loan.

6.1.2 SMSS as cMaaS

The ambition of SMSS is to apply the rationale of MaaS on Scania’s corporate mobility, and identify the possible components of a cMaaS business model. The previous section indicates that SMSS comprises several business model components, with a distinct value proposition, and the necessary activities and resources to be able to create it, as well as processes required to capture an appropriate amount of the value.

It also indicates that, still in the early stages of development, SMSS (as provided by Scania to its employees) holds many of the characteristics of a cMaaS solution, according to our conceptual framework, which is illustrated in table 8.

<table>
<thead>
<tr>
<th></th>
<th>cMaaS</th>
<th>SMSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport within corporate campus and/or commute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provided to employees by employer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integration of different transport modes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tariff options</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One platform</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiple actors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use of Technologies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demand Orientation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registration requirement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personalisation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customisation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 8. A comparison of SMSS and the cMaaS framework.
Scania is providing its employees with transport within campus, as well as a commuter shuttle for some routes. This is done by integrating several different transport modes (e.g. shuttle buses, taxi, electric bikes) from which the employees may choose in order to plan the most convenient trip. They can customise the solution, based on their needs or preferences, and the tariff is affected accordingly. Thus the employees may choose to only use the complimentary options, if they do not benefit from the commuter shuttle, or choose to purchase daily tickets if they only travel on an occasional basis (Interview A, 2018; Interview G, 2018).

The purpose of the newly developed platform is to bundle the different transport modes, but as of now it is neither possible to purchase tickets nor order the taxi service. It serves as one single information interface, but still lacks some functionalities in order to function as the only necessary platform. The backend technology enables a more accurate evaluation of travel data, which can be used to increase the efficiency of the system (Interview A, 2018). According to the cMaaS framework, personalisation could imply utilising historical travel data or a personal profile to create transport offerings based on each individual’s preferences. As of now it is not possible, though each employee can connect their Outlook calendar to the mobile application, which then considers when and where meetings take place when suggesting a route. This requires that the employee grants the mobile application access to his or her calendar, using an access code which is sent to the employee’s email. Any person, even outside Scania, can download the application and view real time data without having to register. Though ticket handling and calendar access requires the user to be employed at Scania and have access to both Outlook and the benefit provider (Interview G, 2018).

Although SMSS has not fully integrated all the characteristics of cMaaS, the system has just been released and is intended to be further developed. Together with the existing rationale of a business model, it implies a need to explore the system further, to investigate what value the system creates and how it may be transformed into a marketable solution for an external customer. It is therefore necessary to examine what value Scania currently perceives from cMaaS and aims to include in an external offering, but also what value is expected by both a potential customer — Company X — and its employees.

6.2 Value from a cMaaS Solution
As described previously, an important characteristic of cMaaS is the more complex relationship than the traditional relationship between supplier and customer. Since the service Scania supplies to the customer is actually to be used by the employees of the
customer, another level of value perception is introduced. There is not the single value proposition towards the customer, but an additional towards the users. To address this, the following section will focus on the value proposition, and outline our empirical findings on what value a cMaaS solution of this kind may entail. Firstly, we investigate the actual value as perceived by stakeholders within and outside the ongoing project at Scania to assess what Scania aim to include in an external offer. This is followed by our findings regarding the potential value as envisioned by Company X and its employees, respectively. The value perceived by Scania employees is important to the implementation and success of SMSS and Scania Go, but is not included here. This is because the focal point of this thesis is the transferring of the service, in which Scania, Company X and the employees of Company X are directly affected in a way that the employees of Scania are not.

6.2.1 What kinds of value do Scania experience?
As described previously, Scania has operated internal transport for quite a while, at least in some form. The below accounts are based on what value is created by the new implementation of cMaaS, but some of the identified kinds of value have also been incentives to previous transport initiatives.

<table>
<thead>
<tr>
<th>Financial</th>
<th>Social</th>
<th>Environmental</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced time waste</td>
<td>Employee benefit</td>
<td>Lower CO₂ emissions</td>
</tr>
<tr>
<td>Attracting and retaining competence</td>
<td>An alternative to sick leave</td>
<td>Aligned with sustainability vision</td>
</tr>
<tr>
<td>Increase the degree of utilisation (existing transport)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduced need of department cars</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Land value</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 9. Value from cMaaS perceived by Scania.

Financial

Reduced time waste
One of the main reasons for the start of Scania’s corporate transport, or its antecedent in the 1960s, was the need for employees to transport themselves between facilities to perform their work tasks during the work day (Interview A, 2018). As the campus has grown, so has this need and along with it the potential gain from solving the need in a good way. According to two of the informants representing the service management organisation, which is currently operating the transports, an efficient transport solution enables the employees to transport themselves between locations quicker, reducing waste in work time which in turn saves money. Not least is this crucial under the current circumstances with a lack of parking spots at many locations throughout the facilities.
That affects employees travelling by car during the work day, due to time wasted on having to look for somewhere to park their car (Interview A, 2018).

**Attracting and retaining competence**
Several of the informants from the HR department mentioned that the transport to and from work has a particular benefit that might have financial implications, namely that of how to attract competence. This is especially challenging since the facilities are located at a distance from Stockholm where several universities are located and Scania has a demand for employees with higher education. When attracting new employees, especially younger academics located in Stockholm, they compete against employers located in or closer to Stockholm with significantly better opportunities to commute to work. The risk of losing potential employees due to them not being able to get to work is one cost, another is the cost of current employees not being happy about their work situation and perhaps even leaving their jobs for other employers with better commuting possibilities (Interview B, 2018; Interview H, 2018).

**Increase the degree of utilisation (existing transport)**
The introduction of the Scania Go application and the new, smarter system intends to increase information and ease-of-use for the employees, which is in turn expected to increase the use of the internal transport (Interview C, 2018). A higher utilisation rate would make the transport more cost-efficient and enable an increased data collection that can be used to improve the service, thus contributing to a higher service quality. As of today however, there is a difficulty in measuring this utilisation degree to any larger extent, meaning the improvement is hard to predict or measure. According to several informants there are great expectations that the app will enable a more extensive and accurate data collection (Interview A, 2018; Interview C, 2018). This could bring insight regarding utilisation and in turn create a more cost-efficient transport solution.

**Reduced need of department cars**
One value that was an important factor in the initial pre-study of SMSS was the large amount of company cars, so-called department cars, that were available. The department cars were assigned to their own department and available for booking by the employees, to go between locations for work-related tasks. Many departments have a number of these cars, and they incur a large cost given that the utilisation degree is only around 40%. Furthermore, they are mainly used by a few people at each department, booked for short trips between locations and then parked somewhere for the majority of the time. This was one of the factors that sparked the will to improve the other internal transports (Interview B, 2018). The company cars’ main purpose is the same as the purpose of the internal shuttle and taxi services, so if they could be improved to perform at a level that
employees are satisfied with, the need and consequential cost of the department cars could be significantly lowered.

**Land value**

The great demand of parking spots has another financial implication, as they occupy a lot of valuable land. The land value alone amounts to large sums given the large number of employees and parking spots needed, and as the company develops and grows this land could be put to better use (Interview G, 2018). This is an issue mentioned by several parties within Scania and it is further acknowledged by an informant from Södertälje municipality, which names land as an important issue in their work with companies in the area, both existing ones and new companies that want to establish their businesses in the region (Interview A, 2018; Interview E, 2018).

**Social**

**Employee benefit**

The challenges of transport of employees is not only a potential risk of losing competence and incurring additional recruitment costs, it is also an opportunity. By solving the transport challenges of employees in a good way, they are presented with a benefit which can increase their contentment with their work and increase the employer’s reputation (Interview C, 2018; Interview H, 2018). This is positive both towards current employees, to create loyalty and contentment, but also to attract potential employees. An additional comment on the same theme came from one person of the project team with a background in HR, who claims it might also have a positive impact that employees see and understand that the company really externalises its values and vision, in driving the shift towards sustainable mobility. This might give the employees a pride and commitment towards the overall vision of the company (Interview C, 2018).

**An alternative to sick leave**

The operations of the internal transport modes (Rundtur and Komfort) are almost exclusively staffed using existing personnel from production. If an employee, for example due to health issues, can no longer perform their tasks in production they have the possibility of being transferred to work with internal transport instead (Interview A, 2018). This is an alternative to sick leave, which is costly and undesirable for both the employee in particular and the company as a whole. This value is hard to measure but still of great importance according to informants from both the operations organisation as well as informants from the HR organisation, and creates value both to the individual employee and the company as a whole (Interview A, 2018; Interview H, 2018).
Environmental

Lower CO\textsubscript{2} emissions

An improved internal transport, both to and from work as well as within the workday, can facilitate the everyday transport for employees. A majority of the employees today use a car for transport within campus, either their own car or internal department cars (Internal Documents, 2018). Regardless of which, if they can instead use an internal transport solution offered by the company the total CO\textsubscript{2} emissions can be reduced (Interview G, 2018). Since the internal transport is also mainly cars or buses that produce CO\textsubscript{2} emissions, the result is dependant on the utilisation of these solutions. To create substantial improvement there needs to be a high utilisation degree and that people actually use these communal solutions instead of riding alone in their car. So, to be able to quantify this improvement there is a need for measuring data on the utilisation degree and changes in the behavior and habits of employees.

Aligned with sustainability vision

Scania is committed to improve their performance within sustainability and their vision is explicitly to “drive the shift towards sustainable transport” (Scania, 2018a). Considering the company is a heavy vehicles manufacturer the most potent approach would be to reduce the products’ environmental impact, both during operations as well as in production. However, by assessing how the environmental impact from complementary processes, such as corporate mobility, can be reduced, Scania is able to embrace their vision fully. Several informants have mentioned the importance of initiatives that highlight how Scania works with sustainability issues, both externally and internally. The latter was emphasized by one informant who stressed the importance that employees see concrete examples of how their employer addresses sustainability challenges. (Interview B, 2018; Interview C, 2018; Interview G, 2018).

To conclude, Scania perceives value in all three categories whilst most identified themes were associated with financial value. The financial types of value are mostly related to cost savings and higher efficiency, but also to the financial value of attracting competence. The social types of value are related to their employees as well, both the more general value of employee satisfaction and contentment created by this type of benefit, and the practical value of giving employees an alternative to sick leave, which ultimately create both social and financial value. Lastly, environmental kinds of value are acknowledged, such as lowered CO\textsubscript{2}-emissions and the contribution to fulfilling Scania’s overall mission.
6.2.2 What kinds of value do Company X envision?

The main incentive for Company X to implement a cMaaS solution, similar to that of Scania, is improving the quality of the internal transport. They do currently provide corporate mobility, but on a much smaller scale compared to Scania. Besides the improved quality and the value that follow, the sustainability improvement is mentioned as an important incentive, both in terms of improved performance and improved reputation. Below, we outline the types of value which we have identified.

<table>
<thead>
<tr>
<th>Financial</th>
<th>Social</th>
<th>Environmental</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced time waste</td>
<td>Employee benefit</td>
<td>Lower CO₂ emissions</td>
</tr>
<tr>
<td>Attracting and retaining competence</td>
<td>Reduced stress for employees</td>
<td>Environmentally friendly employee benefit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Continuous improvements</td>
</tr>
</tbody>
</table>

Table 10. Value from cMaaS envisioned by Company X.

### Financial

**Reduced time waste**

One of the most pressing reasons for a better solution for internal transport is said to be the presumed time savings, and this is mentioned by informants from both the HR organisation, the facilities management and the employees themselves (Interview D, 2018; Interview I, 2018). The potential customer has slightly different conditions compared to Scania. The company is smaller and instead of numerous buildings spread over a large campus there are two main facilities, between which the main transport challenge is during the workday (Interview I, 2018).

Today there is one bus operating the distance between the sites but with only one vehicle the departures are considered too sparse by most employees. Due to this, most employees choose not to use the internal shuttle but their own car, or if they do take the bus it is unnecessarily time-consuming. A more frequent service of the bus and better information in order to plan your trip would save work time for all employees using the bus, which creates better performing employees and less time waste to the employer (Interview I, 2018).

However, due to the current parking situation at the facilities, using the car might be unnecessarily time-consuming as well. Recently the company has sold buildings they previously operated, including the facilities’ parking space. The employees’ demand for parking is unaffected, which has put a lot of pressure on the remaining parking spots (Interview D, 2018; Interview I, 2018). This is further complicated by the nature of the company’s production where the production employees are working shifts, with very varying shift schedules. This creates extra pressure on the parkings as employees arrive
and leave work at different hours, often not timing each other. So, to travel from one facility to the other presents a challenge in finding a parking spot at the other location. According to the facility management informants this is a major issue, repeatedly mentioned by employees as something that takes a lot of time and focus from their work day. This is of course costly and undesirable from the employer’s point of view as well (Interview I, 2018).

**Attracting and retaining competence**

Company X does not operate any transport to and from work, like Scania Job Express. They do however face similar challenges as Scania in attraction and retention of critical competence, for example from universities in Stockholm or Linköping/Norrköping (Interview D, 2018). However, according to informants from HR, this challenge is increasingly prevalent in recruiting of all types of personnel. Therefore, a well functioning transport to and from work can be an important factor in the competition for potential employees.

**Social**

**Employee benefit**

The initiative of an improved internal transport originates from the HR organisation, which considers it as an employee benefit desirable to offer to the employees. According to one of the informants responsible for benefits, benefits related to transport are highly demanded by many employees. Based on requests from employees the benefit of subsidized public transport has previously been implemented, and an improved internal transport system of this kind has the potential to provide even more value to employees, and further improve the transport situation (Interview D, 2018).

**Reduced stress for employees**

Related to time waste is the impact it has on the individual employees. The facility management organisation named the stressful experience of employees as one of the largest problems caused by the current transport situation. The sparse departures of the internal shuttle makes it time-consuming to use for a meeting, and the parking situation makes it hard to plan your time, as you do not know how long it will take to find somewhere to park your car. This stress causes problems related to both health and well-being of the employees as well as safety issues in the working environment (Interview I, 2018).

**Environmental**

**Lower CO₂ emissions**

Lowering emissions is something that Company X works hard to do in all parts of their operations and business, most obviously in the daily operations and production, but they
have also acknowledged the potential in other areas (Interview D, 2018; Interview F, 2018). One such initiative is the exchange of company and employee cars, into a completely green fleet. All standard cars offered to the employees are electrical or hybrid and there are numerous parking spots with charging possibilities for electric cars. This is to enable and inspire employees to make greener choices as well. From this point of view, a transport solution that makes the employees’ transport smarter and more efficient could have positive impact on the company’s total CO\textsubscript{2} emissions. Such improvements are positive from many perspectives, not least the environmental performance and the environmental reputation (Interview D, 2018; Interview F, 2018).

**Environmentally friendly employee benefit**

From an HR perspective the service is considered an employee benefit that encourage sustainability within the workforce. This may prove valuable both in terms of lowered CO\textsubscript{2} emissions, but perhaps more important as a mean to highlight the firm’s sustainability efforts. Informants have stressed that this may both serve as inspiration to current employees to engage in a more sustainable work life, but also as a strategy to attract new talent. (Interview D, 2018; Interview F, 2018).

**Continuous improvements**

All industrial production facilities have legal requirements to fulfill, and due to the nature of the customer’s production (extensive use of chemicals etc.), there are even higher demands put on them by the local authorities and national regulations, related to environmental impact. These are naturally most focused on emissions and impacts directly caused by the production, but in the agreements and permissions there is also a more general requirement that the company works with continuous improvements in their environmental performance (Interview F, 2018). According to informants from both strategic environmental improvement and the HR organisation that proposed this initiative, these kinds of actions related to employees’ behaviour and emissions are of great value in this respect, as it shows that the company works with environmental improvements on many fronts, not just the most obvious ones (Interview D, 2018; Interview F, 2018).

In conclusion, Company X envisions value in all three categories. The social value is related to the employees and their well-being, and the environmental value is both related to improvements in emissions and environmental impact, and the positive impact these improvements have on the company’s reputation as well as their applying for environmental permissions.
6.2.3 What is valuable for the employees of Company X?

A majority of the employees of Company X commute by car. Even though they do not necessarily use it daily, 86% of the respondents have access to a car on a typical work week. 73% commute alone in their car at least two days per week, while 56% do it on a daily basis. Many of the respondents need the car for other things except commuting, such as grocery shopping or running errands (64%) or for leisure activities (59%), and rate this 4 or 5 on a Likert scale, running from 1 Not at all Important to 5 Very Important. But the majority still rate unsatisfactory experiences with public transport as their main reason for having a car, it being too expensive or taking too long (66%) as described in figure 8.

![Figure 8. The proportion of respondents that owns a car and answered the survey question “How important are the following reasons for why you are owning a car?” with at least 4 or 5 on a Likert scale, for each reason.](image)

This correlates with what the respondents value when choosing their mode of transport for their commute, namely that the car offers a reliable (92%) and flexible (89%) mode of transport, that is more time efficient (88%) than public transport.

<table>
<thead>
<tr>
<th>Financial</th>
<th>Social</th>
<th>Environmental</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced time waste</td>
<td>Appreciated benefit</td>
<td>Environmentally friendly transport</td>
</tr>
<tr>
<td>Reduced transport costs</td>
<td>Reduced stress</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Valuable spare time</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Transport that suits work hours</td>
<td></td>
</tr>
</tbody>
</table>

*Table 11. Value from cMaaS envisioned by the employees of Company X.*

**Financial**

**Reduced time waste**

Some employees divide their work time between the two sites, and need access to a reliable and convenient transport option to travel between them. As is shown in figure 9,
60% of the respondents travel between the two sites every month, either by car, public transport or the internal shuttle. Less than half of those 60% rarely use the internal shuttle to do so, yet 60% of them claim that the internal shuttle is a valuable fringe benefit. Based on the answers from our telephone interviews and text answers from the survey, there are indications that employees appreciate that the internal shuttle exists, but few departures during the day make it difficult to be flexible and require that they plan well in advance. As a consequence many of the respondents most often choose to utilise their personal car for transport between facilities instead. However this sometimes has the drawback of spending work time trying to find a parking space, which is considered a larger problem at Site B rather than at Site A.

![Figure 9. How employees are travelling between Company X's two sites, and how they value the internal shuttle as a fringe benefit.](image)

**Reduced transport costs**

Nearly half of the total amount of respondents rate cost as an important factor (4 or 5) when determining mode of transport (42%), with a significant difference between those that currently commute by car and those who use public transport. Only 31% of the respondents commuting in their own car at least twice a week rate cost as an important factor, compared to 68% of respondents commuting by public transport. Nevertheless, answers from both the survey and structured interviews imply that regardless of current mode of transport respondents are interested in any alternatives which could have a lowering effect on their transport costs.

For instance, respondents who travel by public transport from locations outside the region need at least two different travel cards for both trains and buses. Consequently,
they pay full fare price for a travel card they only use for their last-mile transport from the train station. This service has also been reduced since SL cancelled departures on the route to Site A from the train station.

Social

Appreciated benefit

The survey indicates that employees appreciate fringe benefits related to subsidised public transport, and other benefits related to transport, such as commuter buses or internal buses. Despite the appreciation of these benefits that might help decrease the need for using a car, the majority of the respondents still consider complimentary parking space to be valuable to them.

Reduced stress

A recurring comment from employees in the survey is that time is valuable, and that an efficient and reliable option for commuting is necessary. Time efficiency is also an important argument for having a car, reducing the stress associated with not being able to control departure times, or delays caused by public transport. Even so, the car may cause stress during the work day, as informants mention the lack of available parking spaces, which is especially prevalent at Site B. The shuttle bus is mentioned as a solution to this problem, but informants argue that the sparse departures require planning, and does therefore not necessarily decrease stress, since flexibility is affected.

Valuable spare time

Only 15% of the respondents who are commuting by car at least twice each week will not consider any other transport option. For the rest, they claim there have to be significant changes compared to current options of public transport for them to change transport option. Time spent commuting needs to be decreased and there needs to be an increased number of departures and improved timing between bus or train changes to make it more convenient. The survey indicates that a lower price is not enough in the trade-off between car or public transport, since the former is a more convenient and fast mode of transport, and the bus stations are considered to be located too far from the home.

Respondents with children that are in school or pre-school stress the fact that it is difficult to manage dropping off or picking up their children at school without a car, or if they have to spend a lot of time commuting with public transport. Additionally, respondents value their spare time and rather spend it with their family than commuting. Even so, several respondents and informants point out that they appreciate not having to drive, but to be able to use their commute in public transport for other things, such as reading or working.
**Transport that suits work hours**
A recurrent difficulty which is emphasised by respondents who work in shifts, is that public transport is often not operating during shift hours, or that it is not reliable enough. Consequently, they consider a car to be necessary for their commute, even if they live in an area where public transport is accessible otherwise.

**Environmental**
**Environmentally friendly transport**
Results from the survey indicate that respondents rate cost and environmental friendliness relatively similar as factors that affect their choice of transport for their commute. 42% rate cost as a very important factor, whereas 40% rate environmental friendly as a very important factor. A third of the respondents claim that sustainability neither is important nor unimportant (rated 3), but that other factors such as flexibility and reliability are important. This might imply that they are not ready to sacrifice those factors in order to travel more environmentally friendly, but that if there are other more environmentally friendly options that also fulfill those criteria they are willing to change. Only 27% and 25% respectively, consider cost or environmental sustainability as not important or less important factors in their transport choice.

| How important is COST as a factor in your choice of transport to/from and during work? |
|-----------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 1 - Not at all important          | 8.9%            | 18.1%           | 30.9%           | 15.4%           | 26.7%           |
| 5 - Very important               |                 |                 |                 |                 |                 |

<table>
<thead>
<tr>
<th>How important is ENVIRONMENTAL IMPACT as a factor in your choice of transport to/from and during work?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - Not at all important</td>
</tr>
<tr>
<td>5 - Very important</td>
</tr>
</tbody>
</table>

**Figure 10. How cost and environmental impact affect the choice of transport to/from and during work for employees at Company X.**

A small portion of the respondents (13%) commute by bike at least once a month, and both some of these and other respondents that never use the bike express a wish to do it more often, or start doing it, generally because of its environmental and/or health benefits. Better and safer bike roads with good street lighting are highlighted as a factor that would improve the conditions for commuting by bike. A recurrent request from these respondents is also the possibility to store bikes safely during the work day, as well as access to a changing room at work.

Lastly, the value perceived by the employees are slightly different from those perceived by Scania and Company X. Yet they do share a number of them, although from slightly different perspectives. The value perceived by the employees are, naturally, more focused
on the employee situation. Both the financial value and the social value are more focused on the needs and experiences of the individual employee, and the environmental value is a general notion that environmentally friendly transport is good.

6.3 Challenges in Transforming cMaas

The following section describes the various challenges and barriers that have emerged during the study, drawing from data from interviews and participatory observations combined with findings in literature. These challenges have primarily emerged as issues in the specific case of selling the cMaas service to Company X, but have consequently, in combination with findings in literature, raised concerns about the more general selling of the service and defining a business model for it.

The challenges are divided by those associated with the specific case and the more general challenges in selling a cMaas service in a wider context. This includes an attempt to categorise them using a business model perspective, in order to identify challenges related to specific parts of the business model. This categorisation can be found in table 12 and each challenge will be further described below.

<table>
<thead>
<tr>
<th>Transferring to Company X</th>
<th>Defining a business model</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Value Proposition</strong></td>
<td><strong>Optimization or entire set-up</strong></td>
</tr>
<tr>
<td>- Social and environmental value is difficult to account for</td>
<td>- Proof of concept</td>
</tr>
<tr>
<td>- Required service level and customer base</td>
<td>- Social and environmental value is difficult to account for</td>
</tr>
<tr>
<td>- Customer’s data</td>
<td></td>
</tr>
<tr>
<td><strong>Value Creation</strong></td>
<td><strong>Intrinsic value</strong></td>
</tr>
<tr>
<td>- Vehicles</td>
<td>- Aligned with core competence</td>
</tr>
<tr>
<td>- Characteristic set up</td>
<td></td>
</tr>
<tr>
<td><strong>Value Capture</strong></td>
<td><strong>Target customer</strong></td>
</tr>
<tr>
<td>- Do the customer or the user pay?</td>
<td>- Ideal market</td>
</tr>
<tr>
<td>- How does Scania charge for it?</td>
<td></td>
</tr>
<tr>
<td>- Benefit taxation</td>
<td></td>
</tr>
</tbody>
</table>

*Table 12. Challenges and barriers categorised using a business model perspective.*

6.3.1 Challenges in transferring cMaas to Company X

**Value proposition**

*Social and environmental value is difficult to account for*

When structuring the interview data according to the business model canvas, there were indications that it was difficult to grasp the entire value created by the service (to all participants) and define it in a single value proposition. This implies a challenge, but perhaps equally an opportunity, in finding a way to convey this value to the customer, in order to convince them to purchase the service. This also entails a challenge in measuring value and improvements, which can be especially difficult for value that is not strictly financial, but is still important to a potential customer (Interview A, 2018; Interview G, 2018).
**Required service level and customer base**

The value created for the employees by this service is dependent on the level of service it can offer, in terms of e.g. number of routes and frequency of operations, and how that level match the needs and wishes the employees of Company X have in this regard. The service level in turn depends on whether or not Company X’s employees form a customer base that is large enough to motivate the investments needed to create a service that is perceived as sufficient (Interview ii, 2018; Interview D, 2018; Interview I, 2018). This is important in order to make employees use the service, and a sufficient amount of users is necessary in order to justify investments needed to create a good service. This can create a spiral that can either be positive or negative.

**Customer’s data**

To be able to create a service that is well adjusted to the users and their expected service level, it is necessary to have information about the users and their needs and expectations. This is not least true to the kind of service that cMaaS is, dependant on when and where users wants to travel and whose main benefit is supposed to be convenience and flexibility. Company X does collect certain data on these matters, but there is a lack of insight into the employee’s needs and the actual utilisation of the current mobility solution (Interview I, 2018). This could reduce the customer’s motivation to pay for a service they are not sure that their employees needs or wants, and make it more difficult to implement it in a way that is as valuable as possible for both the customer and the users.

It also presents a challenge in what data is needed and how to collect it. This might be partly addressed if the cMaaS service of SMSS is allowed to continue developing, collecting more data on user patterns and becoming more demand-oriented. As of now though, for the specific case a large challenge is to decide on service level, routes, frequency of operations and related issues (Interview ii, 2018; Interview C, 2018; Interview G, 2018).

**Value creation**

**Vehicles**

One specific but crucial challenge that all informants related to business development have mentioned, lies in the difficulty of setting up the complex, internal system in an external context. The previous corporate mobility solution at Scania had grown organically for decades into what it was before MaaS was applied and already included a number of transport modes. In other words, the implementation of MaaS primarily consisted of the improvements presented by the control tower and the app, such as better information and easier access (Interview A, 2018; Interview B, 2018). The potential
customer of this study do operate internal transport currently, however consisting only of a single bus, which is deemed insufficient (Interview I, 2018).

So, implementing everything except vehicles would not create enough value to the customer that wants an overall improved transport for their employees. That means the marketable solution, at least in this specific case, needs to include vehicles as well. This creates a challenge, as the vehicles were already in place at the beginning of the SMSS implementation, but would have to be included in an offer to Company X. In other words, there are a number of questions raised related to the vehicles, such as whether Scania should acquire them, own them and operate them or if that should rather be the responsibility of the customer and Scania only supplies the system and the optimization of the system.

*Characteristic set-up*

Another challenge related to the vehicles and other resources of the solution is the particular set-up at Scania which has been described to us by two informants from the service management department and one informant of HR. As it has grown organically throughout the years, it has developed through a process of testing and adjusting, and thus adopted some uncommon characteristics. One such distinction with the set-up, which has proved to have a positive impact, is the staffing of the transport. Almost all of the drivers currently operating the vehicles are personnel from production. This creates a distinct value to Scania, that can help motivate the cost of operating the mobility system, but is a value that is very difficult to transfer to a customer (Interview A, 2018; Interview H, 2018).

*Value capture*

**Do the customer or the user pay?**

In Scania’s case the majority of the transport modes are offered free of charge for the employees. Scania Job Express is the exception for which the employees pay a smaller part of the total cost (Interview A, 2018). In other words, the users are not charged the full cost in any of the instances. To the potential customer on the other hand, a question of whether or not to offer this free of charge to their employees, or to what extent they wish to subsidize it, emerges (Interview ii, 2018; Interview D, 2018). This will undoubtedly affect the customer’s (and the user’s) willingness to pay, and how Scania should charge for the service.

**How does Scania charge for it?**

The challenge of who pays for the service is further complicated by the fact that the customer is not the same as the users. Normally in the sales of a service, from a company to their customer, the customer’s willingness to pay is determined to a large extent by
their perceived value of the service they are offered (Bowman & Ambrosini, 2000). This is more complex, as the perceived value of the service may vary depending on who you are asking, the customer or the users. Furthermore, the customer’s perceived value will be affected by the user’s perceived value. The user’s perceived value also affects how much the user will like and use the service, which in turn affects the value created for the customer. So, this creates a challenge in two dimensions, first, how big a part of the cost the customer and the users are expected to pay for, respectively. Second, how they can be motivated to do so, given that the perceived value varies between the customer and the users. Finally, this creates a practical challenge in how Scania should charge for the service, and whether to charge the users directly or only charge the customer who in turn charges its employees.

**Benefit taxation**

A challenge that Scania has faced internally, when the Scania Job Express was introduced, was the benefit taxation that transport to and from work incurs, due to Swedish tax regulations. This was to a large part the reason that the Job Express was not also offered free of charge, since that would have incurred taxation (Interview A, 2018). This taxation is something the customer would also have to consider, when offering transport to and from work to their employees. This would most likely affect how Scania charges for the service.

6.3.2 Challenges in defining a business model for cMaaS

**Value proposition**

*Optimization or entire set-up*

When defining the business model of a cMaaS service, it first needs to be defined what service it actually is that should be offered to customers, in other words, what should constitute the value proposition. This was raised as a concern mainly by one informant who claimed it was not evident what was the best option, but that the most profitable business opportunity seemed to lay in the optimisation offered by the cMaaS system, and not in the set-up and operations of vehicles, judging from the low margins of other vehicle operators. Selling the entire system, including vehicles and operations, on the other hand, could entail a larger market and more potential customers (Interview B, 2018).

**Proof of concept**

As was found within the specific case, the lack of data might prove to be a challenge in the wider context as well. First, this relates to the measuring Scania performs on its own mobility solutions, which is crucial in order to determine what value cMaaS can actually create, in terms of improvements and optimisation. Previously, this measuring has been
lacking, potentially affecting both quality and cost control according to informants from the service management department (Interview A, 2018). However, one of the ambitions with SMSS is to improve the ability to measure and collect data on the mobility services. A more comprehensive data analysis could increase understanding of its performance, utilisation and employees’ travel patterns, providing a proof of concept that could be used for future sales. This would also make it possible to account for improvements and effects caused by cMaaS (Interview C, 2018).

Regardless of whether what to sell is the optimisation of an existing transport system or the entire transport set-up, it needs to be clear what value the service will bring to the customer. In order to emphasize that, it is first necessary to prove that the product performs, in order to motivate a customer to pay for it. Furthermore, as previously discussed, some of the value created by the system might not even be possible to measure and therefore hard to define and sell.

**Social and environmental value is difficult to account for**
The challenge of defining social and environmental value discovered in the specific case is applicable to the more general case as well, and needs to be addressed in order to define the product in a way that is attractive and fully account for its benefits. Related to this is value created by the service that we refer to as intrinsic value, which are not only difficult to define and measure, but might be equally difficult to offer an external customer.

**Value creation**

*Intrinsic value*
The characteristic set-up described as a challenge in the specific case, presents a challenge in the more general case as well. The internal service that Scania operates creates enough value to them to motivate the cost. This value includes value that is apparent to Scania, but might not be possible to move to another setting, such as the social value of an alternative to sick leave as described in section 6.2.1. This value that might not be possible to transfer to an external setting will not be appreciated by an external customer, whose willingness to pay might be correspondingly affected.

**Aligned with core competence**
Throughout the study informants have raised questions regarding whether or not this is a business opportunity that Scania should actually engage in, both based on whether or not they have the right competence or position to do so and whether or not it is a desirable position to take, far from their usual business.
Value capture

Target customer

Related to the difficulties of defining what the offer actually is - a complete set-up or an optimization - the question of determining the target customer is also raised. The customers may either be companies that are already operating corporate mobility mainly interested in lowering the costs of it meanwhile improving the quality and accessibility. Otherwise, the customers may be companies that do not currently operate corporate mobility, or operate insufficient corporate mobility, but have a need for it (Interview G, 2018).

Ideal market

Intertwined with the question of the target customer is the question of which market is the most attractive. This concern has been raised by several representatives related to business development within Scania, suggesting Sweden might not be the most suitable market. This is partly due to financial reasons, such as benefit taxation issues impacting the possibility to offer transport to and from work. Aside from financial factors the ideal market choice is affected by other conditions related to the labour market, demographics and travel patterns, which determines the need for a service of this kind and the potential business opportunity of it (Interview B, 2018; Interview G, 2018).
7. Discussion

This chapter discusses the empirical findings and analysis, drawing from both the context of the case and findings in literature, in order to answer the sub research questions. First, the concept of cMaaS is analysed from a business model perspective, in order to increase understanding of the business aspects of it. Then, the various kinds of value identified by the different actors are discussed, in terms of similarities and differences. Lastly, the challenges in successfully defining a business model for cMaaS, and their potential implications, are discussed.

7.1 Business Aspects of cMaaS

In section 6.1 an attempt to describe the concept of cMaaS from a business model perspective is presented. The following section will build on the description in section 6.1, and complement it with our definition of cMaaS from section 2.3. This enables a more general discussion which will help us answer our first research question:

RQ1: How can cMaaS be described from a business model perspective?

This discussion is summarized in table 13, where it is outlined which cMaaS characteristics affect each business model component based on our analysis in the previous chapter.

<table>
<thead>
<tr>
<th>Corporate Mobility as a Service</th>
<th>Value Proposition</th>
<th>Value Creation</th>
<th>Value Capture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport within corporate campus and/or commute</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Provided to employees by employer</td>
<td>●</td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Integration of different transport modes</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Tariff options</td>
<td></td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>One platform</td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiple actors</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Use of Technologies</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Demand Orientation</td>
<td>●</td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Registration requirement</td>
<td></td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Personalisation</td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customisation</td>
<td></td>
<td></td>
<td>●</td>
</tr>
</tbody>
</table>

Table 13. Summary of how the characteristics of cMaaS affect each business model component.

As can be noted in table 13 a majority of the cMaaS characteristics are affecting the value proposition. Three of the characteristics, “demand orientation” and “personalisation” and “customisation”, are especially interesting as they aim to enable a user-centric customisation of the cMaaS service, hence improving the quality and value created to the individual user. This allows a fulfilling of the particular needs of individual users, which is
in line with the notion that the value proposition should focus not only on what the company can offer, but what value they deliver that actually addresses a need the customer have (Anderson et al., 2006; Osterwalder & Pigneur, 2010).

Furthermore, the value proposition should differentiate the value proposed by the specific business from the value offered by competing actors (Anderson et al., 2006). The first two characteristics of cMaaS, which were derived from our review of existing corporate mobility, describe what was offered at Scania before the introduction of Scania Go – “transport within corporate campus and/or commute” which was “provided to employees by employer”. The value proposition of cMaaS constitutes these two characteristics and the seven additional characteristics, derived from the definition of MaaS, as seen in table 13. Comparing the value proposition of corporate mobility, with the value proposition of cMaaS implies a differentiated, and considerably improved, value proposition of cMaaS as compared to previous corporate mobility solutions.

If we instead compare the seven characteristics of the MaaS value proposition, with the nine characteristics comprising the cMaaS value proposition, the difference is less fundamental. Here the differentiation lies within the specific customer segment of companies that have a need for corporate mobility. This is further complicated by the question of whether the receiver of the value proposition is the customer, such as Company X, or the users, such as the employees of Company X. In the latter case, the perceived differences between the value propositions of MaaS and cMaaS will be smaller.

Value creation refers to how the value proposition is created. As described above, one of the focal points of the value proposition of cMaaS is the flexibility and customisation of the transport it aims to allow. This is mirrored in the MaaS characteristics that comprise the value creation, such as multiple actors and integration of transport, as those processes clearly differentiate and improve the service from that of a single transport operator for example. The same is applicable to the characteristics relating to technology, demand orientation and customisation.

However, an interesting note is that none of these factors relate to the actual operating of the vehicles, which in some sense is the foundation of a mobility service. This highlights the characteristic “multiple actors” and the fact that, at least according to Jittrapirom et al. (2017), a MaaS provider does not provide the transport itself, only the enabling interface or system integrating services supplied by other external providers.

In Scania’s case this is not true, neither before SMSS in their former corporate mobility nor after SMSS was implemented, as they do in fact operate all the transport modes.
themselves. This poses a fundamental question of whether this should be the case when selling the service externally as well, or if the sales should only include the system. The answer to this remains to be decided, determining whether operations of vehicles should be included as a characteristic of value creation in cMaaS, consequently posing a major difference from the value creation of MaaS. This will further impact the value proposition from Scania to customers, and influence what customers and markets to target.

The MaaS characteristics of value capture comprise factors that are needed in order to charge for the service, both related to practical issues of payment and more strategic issues of how much to charge. Both the “use of technologies” and the “tariff options” can be said to contribute to a simpler and more flexible service to the user. The “use of technologies” in that it enables an integrated, simple method of payment and the “tariff options” in that it allows the user to only pay for what they need.

Value capture of cMaaS is, just like the value proposition, further complicated by the dual receivers of the service, customer and users. It needs to be determined whether the customer, the users or both will pay for the service and consequently whether Scania captures the value from the customer, the users or from both. The tariff options would likely be applicable if the users were to pay for the service, while the question of how Scania would charge the customer would most likely be of a different nature. This is further discussed in section 7.3.

7.2 Dimensions and Comparisons of Value from cMaaS
In section 6.2 we outline the value from cMaaS, as perceived by Scania, Company X and the employees of Company X. These results will be further discussed in this section, in order to answer our second research question:

RQ2: How may different stakeholders perceive the various dimensions of value created from a cMaaS solution?

The results indicate that there are multiple layers of complexity in defining a business model for a service like cMaaS. Firstly, there is a dual relationship between the customer and the users, where Scania as a supplier has to consider both. Second is the multidimensional character of the value created by cMaaS. This is summarized in table 14, outlining the identified types of value categorised as financial, social and environmental value, as perceived by Scania, Company X and the employees of Company X.
Table 14. Three types of value from a cMaaS service, as perceived by the three actors.

<table>
<thead>
<tr>
<th></th>
<th>Financial</th>
<th>Social</th>
<th>Environmental</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Scania</td>
<td>Company X</td>
<td>Scania</td>
</tr>
<tr>
<td>Reduced time waste</td>
<td>Reduced time waste</td>
<td>Reduced time</td>
<td>Lower CO₂ emissions</td>
</tr>
<tr>
<td>Attracting and retaining</td>
<td>Attracting and retaining</td>
<td>Reduced transportation costs</td>
<td>Environmentally</td>
</tr>
<tr>
<td>competence</td>
<td>competence</td>
<td>reduced transportation costs</td>
<td>friendly transport</td>
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<tr>
<td>Increase the</td>
<td></td>
<td></td>
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<tr>
<td>diagram of utilized cars</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Reduced need of</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>department cars</td>
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<tr>
<td>Total value</td>
<td></td>
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</tbody>
</table>

This categorisation clarifies how the value perceptions of the three different actors relate to each other, and what similarities and differences there are between them. This helps to draw conclusions on whether these value perceptions of cMaaS are aligned and how that might affect the selling cMaaS, or the process of designing a business model for cMaaS.

As the value proposition constitutes a service offered to Company X and their employees it is important that Scania correctly understands the needs of both the customer and users, and develops the service accordingly (Kindström, 2010; Storbacka et al., 2013). Therefore it is important to ensure that the value that Scania are experiencing from their internal cMaaS solution, and want to include in their external value proposition, is also valuable to external customers under the conditions they are operating.

At first sight, there seems to be some alignment between how the different actors perceive the value from a cMaaS solution, with no fundamental differences. All three actors realise at least one similar type of value in each of the categories. The value perceptions of Scania and Company X are slightly more aligned than that of the employees of Company X, however this is only natural since the needs and objectives of this diverse group of individuals will naturally be more diverse than those of employing companies, such as Scania and Company X.

When comparing the financial value that the two companies perceive, we notice that there is an alignment between Company X and Scania. They both highlight a reduction in time waste, and a possibility to attract and retain competence, as possible benefits from cMaaS. However Scania perceives additional types of value, related to land use and an overall more efficient corporate mobility, that Company X does not mention.
either imply that Company X will not experience the additional types of value that Scania does, or that they have not realised how it will affect them. The employees of Company X also perceive reduced time waste as something valuable, but other than that their value perception is quite different from that of Scania and Company X. This is most likely due to the different perspectives of the actors, since the companies are focused on their own financial performance and implications, while the employees are more concerned with their own personal finances.

What stands out most when assessing the social value is the focus on the employees. All types of value that Scania and Company X mention are related to their own employees and the impact on them, and all types of value that the employees mention are related to their own working situation and life in general. This is aligned in the sense that all three actors have similar perceptions of what types of social value is created by cMaaS. The sole focus on employees might imply that the companies and employees fail to realise social value created in a wider context, to the community and society at large, or that they realise it but only consider social impact on the employees important or worth pursuing.

Environmental value from cMaaS is acknowledged by all three actors, to varying degrees. The employees rate environmental impact from their transport as important, but less important than for example that it is flexible and reliable. Scania and Company X, on the other hand, mention both concrete environmental benefits, such as lowered CO₂-emission, and more abstract environmental benefits related to sustainability and public reputation.

7.3 Barriers and Challenges
The results in section 6.3 highlight various challenges, and how they could potentially affect the final direction of this business opportunity of cMaaS. Some of the challenges are specific to the case of transferring the service to Company X, but many of them are relevant to the more general case of selling the service in a wider context as well. Moreover, selling the service and defining a business model for it entails some fundamental questions and concerns that are not critical to the specific case. All challenges have been outlined and described in section 6.3, and the following discussion will take a more general approach and relate the challenges to the implications they might have on the final selling and design of a business model for cMaaS, in order to answer our third research question:
**RQ3: What are the barriers and challenges in transforming a cMaaS solution to a marketable service and designing a business model for it?**

A factor that impacts many of the challenges is the multi-dimensional character of value. Firstly, in terms of the several types of value that cMaaS can create, which we chose to approach from a sustainability perspective, discussing financial, social and environmental value. The main challenge in this relates to the measuring and definition of these kinds of value, and how to account for them fully in order to motivate a customer to pay for the service. Moreover, such value can sometimes be of an intrinsic nature and thus hard to transfer to an external setting to deliver to a customer.

Secondly, there are challenges posed by the dual nature of the value proposition and value perception, as the customer of this service is not the same as the users of it. This is challenging both in defining the value proposition and in capturing the value. The value proposition depends on the needs of the receiver (the customer and the users respectively) and might therefore look very different depending on whether it is defined for the customer or the users. The value capture is affected by this as well, both in the practical sense of whether the customer or the users will actually pay for it, and how large parts they will pay each, and the more fundamental issue of how much they are willing to pay. This is dependant of the perceived value from the service (Bowman & Ambrosini, 2000), which will naturally vary whether you ask the customer or the users.

One of the most fundamental concerns is whether or not this is a business opportunity that Scania wants to engage in at all, or if it is too far away from their core business. Even so, the emergence Sustainable City Solutions is based on a changing environment, where an increasing urbanisation and a growing need for sustainable transport options in cities are important drivers for technology development. As a heavy vehicles manufacturer, development within autonomy and electrification may imply a radical shift for Scania, making current core competence obsolete. In the face of such technology shift, Tongur and Engwall (2014) among others, argue that it is necessary for incumbent firms to manage a balance between nurturing their current core business, while simultaneously exploring new disruptive technologies and business opportunities. This could imply that whether Scania should explore business opportunities outside core business, should not be a concern but rather be considered necessary in order to survive.

This is difficult and, as Tushman and O’Reilly III (1996) argue, the best way to deal with this ambiguity might be to separate the development of new, disruptive opportunities from regular business. This motivates the founding of the Sustainable City Solutions Department, which is geographically separated from the Södertälje facilities.
Furthermore, it justifies their investigation of opportunities related to MaaS and cMaaS even though not closely related to Scania’s core business, as that is one of the purposes of such a separate, exploratory department.

As seen in table 12 the challenges are rather equally distributed between the three business model components: value proposition, value creation and value capture, and between the specific case and the general. This can be seen as characteristic for the early phase this business development is in, and the fact that the first potential customer, Company X, is in fact an experimentation, to evaluate and develop the business opportunity. This is in line with what Chesbrough (2010) argues for, that it is valuable to initially test new business models in an experimental way to be able to gain insight and knowledge, that might be lacking in novel business opportunities.

However, Chesbrough (2010) further stresses the importance of what he refers to as a discovery-driven experimentation, implying that for the experimentation to be valuable it needs to be continually evaluated and improved. There needs to be certain assumptions or ideas motivating the business model experiment, and as new data or insights emerge from one experiment, these underlying assumptions need to be adjusted accordingly to continuously improve the business model, in order to ultimately be able to define a successful one.

This implies it is not a problem that the particular case of this study has faced challenges and raised concerns, but that the key is that these concerns are processed and addressed properly in order to learn and continue improving the business model. Investigating the challenges and answering the questions presented in section 6.3 will not only help guide Scania in their next step of the implementation at Company X, but will help direct the coming steps and experimentations in order to ultimately identify if this kind of service is an attractive business opportunity and if so, what the most suitable business model is.
8. Conclusions

This chapter concludes the study, by presenting the answer to the main research question and discussing industrial and academic implications the findings of this study may have. Lastly, suggestions for further research are outlined.

8.1 Answer to the Main Research Question

This thesis departed from the cMaaS solution Scania has implemented within their internal corporate mobility, and the related business opportunity that has been identified. The purpose has been to explore how to transform the internal cMaaS solution into a marketable service aimed at external customers, and challenges related to designing a business model for that business opportunity. This is summarized by the main research question which will be answered in the following section.

**MRQ: How can an internal solution, such as corporate Mobility as a Service (cMaaS), be transformed into a marketable service?**

The results and analysis of this thesis indicates that cMaaS, when fulfilling all characteristics proposed in section 2.3, is an interesting business opportunity, with a value proposition that meets a need from customers in a way that is superior to that of previously offered solutions. Although SMSS claims to be a cMaaS solution and fulfills the characteristics of the concept, it does not fully meet all of them, thus not delivering the full potential value of cMaaS. This motivates further development of the SMSS value proposition, for Scania to be able to meet the assumed demand and capture the potential market.

Furthermore, in the analysis of business aspects, it was noted that the dual relationship of a customer that is not the same as the users of the service creates a challenging complexity. This complexity implies the existence of multiple value propositions, between the supplier and customer but also between the supplier and the users. This needs to be considered when defining the final business model of the service. In this study the complexity was investigated with a focus on the value proposition, and the perceived value as seen by both the customer and the users. Further investigations of the implications on value creation and value capture is needed.

A related complexity is that of the value proposed by the service and the sustainability potential of it. This was integrated when analysing the value perceptions of a cMaaS service, by using a triple bottom line approach, to better comprehend and account for financial, environmental and social value created by cMaaS. This analysis shows that the value perceived by the three actors are somewhat aligned, although there are differences,
especially when looking at the value perceived by employees. This is important to consider, since the dual relationship between customer and users requires both actors need to find the service valuable in order for it to be a viable service to sell.

The results also highlight that social and environmental value are important to both the potential customer and the potential users of our case study, and those types of value are mentioned as part of the rationale for investing in a solution like cMaaS. Yet it is difficult to integrate such value in traditional business model frameworks, which are usually more focused on financial value.

Also, as the investigation of this business opportunity is in its early stages there are a number of challenges and barriers that needs to be addressed. The challenges identified are also analysed using the business model components of value proposition, value creation and value capture and discussed both in relation to the current case and the more general case of defining a business model for cMaaS.

These challenges are of various kinds and scope, some are crucial in order to evaluate if cMaaS is an attractive business opportunity to pursue at all, while other are less fundamental but will help direct the future development of the business opportunity. The number of challenges is not necessarily a sign that this is not a promising business opportunity, but rather that it is in an early, experimental stage. In order to successfully evaluate this business opportunity it is important to realise this experimental nature of the project, and ensure thorough evaluation of its results. This will help further direct the business development and evaluation of its potential, in order to ultimately define a successful business model.

Furthermore, we conclude that the investigation of new business opportunities is appropriate and valuable for Scania to pursue, in light of sustainability challenges and technological development. It is especially beneficial to conduct these investigations slightly separated from the usual business, which is the case of the Sustainable City Solutions department.

To conclude, for a firm to transform their internal solution into a marketable service, they first have to determine what value it creates, and present data to support this. In Scania’s specific case it could be beneficial to use the current project, including both Scania and Company X, to collect data and establish a proof of concept, which can be used for future sales. It is especially important to support not only the creation of financial value, but also social and environmental value, with quantifiable data, since our
results indicate that this is important to both customer and users. Subsequently, it would also be favorable to be able to integrate sustainability aspects into business models.

Additionally, when transforming an internal solution into a marketable service, it is important to acknowledge the recipients of its value proposition and that they in this case might be several. The value created for the customer, the employer in this case, is dependant on what value the users, the employees, are perceiving. This interrelationship needs to be addressed when designing the business model for the service.

8.2 Implications

8.2.1 Industrial implications

Our findings indicate that firms that are trying to transfer an internal service into a marketable solution need to determine how the customer is supposed to benefit from the value the solution brings. This is especially important when the purpose of the service is to facilitate operations that are outside of the customer’s core business. Our findings suggest that firms may find it valuable with services that deliver not only financial value, but also social and environmental value. An increased interest in sustainability and the emergence of triple bottom line in accounting makes it plausible to believe that it is important to consider how these kinds of value can be incorporated in a value proposition of a business model. Additionally, it is important to provide accurate data, to support that the service actually delivers value it has promised customer.

When selling a service where the intended users are not the same as the intended customer, such as in this case comprising a customer and their employees, businesses should also consider if the customer will benefit from the value proposed by the solution if the users do not find the service valuable. This implies that the firm has to ensure that the value proposition addresses both the customer and the users of the service.

As prior research has implied, it is important for incumbent firms to be able to explore new business opportunities outside current businesses, even though organisational tension may make it difficult. Findings in our study support the notion that exploring new opportunities outside core business is suitable in a separate business unit that does not have the same responsibility towards current customers. It is also important to recognise that this should be done in a structured manner, and continuously adjust the assumptions and ideas related to the business model components.

8.2.2 Academic implications

Results from our study indicate that business model concepts in general, and more specifically the value proposition, does not address the complexity that occurs when the paying customer is not the one utilising the service. Thus, this study supports the notion
that current business model concepts may not be sufficient to describe this relation. Additionally, our results point to that firms do consider financial, environmental and social value when purchasing services, and that these types of value are created but not always included into the value proposition. An incorporation of the concept triple bottom line could be a way to consider these externalities.

8.3 Suggestions for Further Studies
This study has revealed areas in need of increased knowledge and insight, both in the specific setting of Scania trying to define and sell their cMaaS solution as well as more general topics related to business development and business models of services, especially when the service holds sustainability potential.

One area that has been prominent in the findings throughout the study, and which we have not encountered to any larger extent in literature, is the complexity posed by selling a service to a customer when the users of the service are not the same as the customer. This needs to be further investigated from a business model perspective in order to determine how that duality affects separate components of a business model and the overall design of it.

Furthermore, investigations of how to account for and evaluate sustainability value when designing business models could help facilitate the shift towards more sustainable businesses and business models, and would also enable companies in defining business models for products and services with prominent sustainability value.
References


Appendix I  Interview Guide: Semi-structured interviews

The interview guide contains themes we have discussed during our interviews, based on the components of the business model canvas, and additional aspects such as business model development and sustainability. All questions were not discussed with all informants.

Value proposition
- Why do you offer corporate mobility?
  - How is it valuable to the company/employees?
- How is the value proposition affected by the introduction of MaaS?
- Are your employees using it and to what extent?
  - How do you evaluate the system?
- Which routes are you frequenting, at what hours?

Customer segments
- Which employees are utilising your corporate mobility?
- How do you determine which employees, destinations or routes to consider regarding a commuter shuttle?
- What kind of companies can cMaaS be sold to?

Distribution Channels and Customer Relationship
- Where can users buy tickets, when applicable?
- How does the new application affect the customer relationship?

Revenue Streams
- Do the employees pay anything for the corporate mobility, or is it complimentary? (Consider fringe benefits)

Key Resources and Key Processes
- Who owns the vehicles?
- Who is responsible for operations?
  - Is this reasonable, or should it be transferred to some other department?

Key Partnerships
- Which actors are necessary to have working operations, both regarding vehicles, transport planning, platform, payments etc?

Cost Structure
- Which costs are associated with the system?
  - Drivers
  - Vehicles
  - Ticket & payment handling
  - Planning etc.
  - App development
- Are these costs justified?
• Are you trying to reduce costs? How?
• How are the costs affected by the introduction of MaaS to the system?

Additional aspects
• Can you identify other values than what is expressed in the value proposition towards you employees?
• How does the company’s sustainability work affect the corporate mobility?
• How does corporate mobility affect the sustainability work?
• Who should be responsible for corporate mobility?
  • Is it a fringe benefit/employer branding/necessity/sustainability case?
• How does this kind of services affect the region?
• How does land value and regional policies (regarding transport, city planning, sustainability, business) affect projects such as SMSS?
• What challenges are there, related to both your current corporate mobility and the (potential) implementation of cMaaS?

Business Model Development
• What difficulties have you encountered when developing services together with customers?
• Do you focus on value creation/capture or proposition for starting point?
• What are the challenges with transferring one customer solution to another customer?
• How do you balance exploiting current business and exploiting new opportunities?
Följebrev:

Syftet med den här enkäten är att undersöka resvanor hos anställda på [[företagets namn]].

Din medverkan är helt och hållet frivillig samt anonym, men just ditt svar kommer att vara till stor hjälp för vårt fortsatta examensarbete.

Den insamlade datan kommer endast att användas i aggregerad form, vilket innebär att inga enskilda personer kommer att kunna identifieras. Eftersom enkäten är avslutad kommer datan endast att lagras lokalt för forskningssyfte under arbetets gång.

Enkäten kommer att vara öppen från och med måndag 26 mars och vi behöver ditt svar senast fredag 20 april.

Beräknad tidsattgång: 5-10 minuter.

-----------------------------------------------------------------------------------

Vi som står bakom enkäten heter Sofie Lindblad och Susanna Nygård och är studenter inom industriell ekonomi på KTH. Just nu skriver vi vårt examensarbete vilket handlar om mobilets tjänster.

Om ni har några frågor är ni välkomna att kontakta oss via mail:

solinbl@kth.se eller snygards@kth.se

Stort tack för din medverkan!

Världen,
Sofie Lindblad & Susanna Nygård
Del A. Om dig
Några inledande frågor om dig som svarar:

Vem är du?
1. Vilket år är du född? *

2. Kän *

☐ Man ☐ Kvinna ☐ Annat ☐ Vill ej uppgö

Var bor du?
3. Postnummer * 4. Postort *

Var arbetar du?
5. I vilken anläggning arbetar du huvudsakligen under en normal arbetsvecka? *

☐ Site A ☐ Site B ☐ Om annat: __________________________

6. I vilken byggnad arbetar du huvudsakligen under en normal arbetsvecka? *
   Ange namn eller nummer på byggnaden.


7. Vilken typ av anställning har du? *

☐ Fast anställd ☐ Konsult

8. Vilka tider arbetar du? *

☐ Skift (gäller inte till fråga 9) ☐ Fast schema (gäller inte till fråga 10)

☐ Flextid (gäller inte till fråga 10) ☐ Förtroendearbetsstöd (gäller inte till fråga 10)

9. Vilket skiftschema arbetar du för tillfället?

☐ Två skift ☐ Tre-skift ☐ Fem-skift ☐ Om annat: __________________________
Del B. Om resvanor
Den här delen behandlar faktorer som påverkar dina resvanor.

Resor till och från jobbet

10. Hur många dagar i veckan använder du främst följande färddelm under dina resor TILL OCH FRÅN arbetset? *

Markera endast ett alternativ i varje röl.

<table>
<thead>
<tr>
<th></th>
<th>5-7 dagar i veckan</th>
<th>2-4 dagar i veckan</th>
<th>1 dag i veckan</th>
<th>1-3 gånger i månaden</th>
<th>Sällan/ödlig</th>
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<tr>
<td>Kollektivtrafik</td>
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<tr>
<td>Intervissterbuss</td>
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<td>Bil/Ensamkörning</td>
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<td>Bil/Samkörning</td>
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<tr>
<td>Cykel</td>
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<tr>
<td>Gång</td>
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</tbody>
</table>

11. Om andra färddelm, ange nedan:

Resor under arbetsdagen

12. Hur många dagar i veckan använder du främst följande färddelm under dina resor UNDER DIN ARBETSDAG? *

Markera endast ett alternativ i varje röl.

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<tr>
<th></th>
<th>5-7 dagar i veckan</th>
<th>2-4 dagar i veckan</th>
<th>1 dag i veckan</th>
<th>1-3 gånger i månaden</th>
<th>Sällan/ödlig</th>
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<tr>
<td>Kollektivtrafik</td>
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<td>Gång</td>
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<tr>
<td>Andra från att resa och anslutna via telefon eller Skype</td>
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</tr>
</tbody>
</table>

13. Om andra färddelm, ange nedan:
14. Hur viktiga är följande faktorer vid dit val av transport till och från jobbet samt under arbetstiden? *
Markera endast ett alternativ i varje rad.

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<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Mycket viktigt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flexibilitet</td>
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<tr>
<td>Fartighet</td>
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<tr>
<td>Konstnär</td>
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<tr>
<td>Tidigskap</td>
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<td>Bekvämnighed</td>
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<tr>
<td>Återbetalning för mig</td>
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<tr>
<td>Miljövänlig</td>
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</tbody>
</table>

15. Har du körkort för bil? *
☐ Ja ☐ Nej

16. Hur många bilar har ni i hushållet? *
☐ 1 ☐ 2 ☐ 3 ☐ 4 eller fler

17. Har du tillgång till bil för resa till eller från arbetet under en normal arbetsvecka? *

- Ja, egen bil ☐
- Ja, tjänstebil ¹ ☐
- Ja, personnelbil ² ☐
- Ja, bilpool ☐
- Ja, förmånshåll ³ ☐
- Nej ☐

¹ Med personnelbil avses privat leasing via arbetstjanstens förmånsstöd.
² Med förmånshåll avses en bil som du disponerar dygnet runt för resor både i tjänsten och privat.
³ Med tjänstebil avses en bil, vilken är nödvändig i tjänsten och som du disponerar dygnet runt.
18. Hur viktiga är följande anledningar till att du har en bil? *

Markera endast ett alternativ i varje rad.

<table>
<thead>
<tr>
<th>Anledning</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bakom är nödvändigt för mina arbetsuppgifter</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Finns en kollektivtrafik tillräckligt nära min bostad</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Tjänster kollektivtrafiken tar för lång tid att för tänkas</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>För att hämta/föra barn på förskola och skola</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>För att handla göra ärenden</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>För frivilligivärder</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>För att jag har ett intresse för bilar</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

19. Om det finns andra anledningar, beskriv dem gärna nedan:

_____________________________________________________________________

_____________________________________________________________________

20. Vilka faktorer skulle kunna få dig att välja andra transportmedel till och från jobbet? *

☐ Bättre avgångar för kollektivtrafik
☐ Hållbara närmare än jag ska eller även när
☐ Snabbare resor (exempelvis nya busstränen med färre byten eller hållplatser)
☐ Bättre kommunikationer mellan arbetspunkt och stationen
☐ Möjlighet att arbeta på resan
☐ Rabatterat tag eller buskort
☐ Ej aktuellt med andra transportsätt (Ange gärna varför nedan)
☐ Annat, ange gärna

_____________________________________________________________________

_____________________________________________________________________

21. Beskriv gärna mer utförligt vilka förbättringar som skulle kunna få dig att välja andra transportmedel:

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

91
22. Har du tillgång till någon form av buss eller tägkort för dina resor till och från arbetet? *

☐ Ja  ☐ Nej

23. Om ja, vilken typ:

☐ Periodkort, 30 dagar  ☐ Reskassa

☐ Periodkort, 30 dagar  ☐ Movingo 30 dagar

☐ Årskort  ☐ Annat __________________________

Del C. Förmåner

Den här delen behandlar förmåner relaterade till transport.

24. Bocka för de förmåner som du har tillgång till vid genom din arbetsplats. *

☐ Avgiftsfri parkeringsplats

☐ Avgiftsfri parkeringsplats

☐ Personbil - privat leasing via förmånerkontoret

☐ Förmåner - bil som du disponerar dygnet runt för resor till tjänsten och privat

☐ Tjänstebil - bil på din arbetsplats som används kontinuerligt i tjänsten (vanligt för taxsjalmen)

☐ Avtäckningsbil - bil som du kan disponera för enskilda åmnen i tjänsten

☐ Internbuss (transport mellan företagets olika anläggningar och eller skolvable)

☐ Tjänstebil (för transport mellan byggnader)

☐ Personbilen

☐ Pendelbuss från Stockholm City (eller annat ort exempelvis Stenhamra/Nykvarn) till arbetsplatsen

☐ Pendelbuss för närområdet (inom Söderläge t.p.) till arbetsplatsen

☐ Inga förmåner alls kapplats till resor

☐ Annat __________________________

25. Markera hur värdefulla följande förmåner skulle vara/är för dig. *

Markera endast ett alternativ i varje rad

<table>
<thead>
<tr>
<th>Avgiftsfri parkeringsplats</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Mycket viktigt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avgiftsfri parkeringsplats</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personbil - privat leasing via förmånerkontoret</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Förmåner - bil som du disponerar dygnet runt för resor till tjänsten och privat</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tjänstebil - bil på din arbetsplats som används kontinuerligt i tjänsten (vanligt för taxsjalmen)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avtäckningsbil - bil som du kan disponera för enskilda åmnen i tjänsten</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internbuss (transport mellan företagets olika anläggningar och eller skolvable)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tjänstebil (för transport mellan byggnader)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personbilen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pendelbuss från Stockholm City (eller annat ort exempelvis Stenhamra/Nykvarn) till arbetsplatsen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pendelbuss för närområdet (inom Söderläge t.p.) till arbetsplatsen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix III  Interview guide: Structured interviews

This interview guide contains the topics and questions of the structured interviews held over telephone, with employees of Company X, as a complement to the survey.

**About the employee**

<table>
<thead>
<tr>
<th>Name</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Position at Company X</td>
<td></td>
</tr>
<tr>
<td>Year of birth</td>
<td></td>
</tr>
<tr>
<td>Postal code and city</td>
<td>Site A  Site B</td>
</tr>
<tr>
<td>Site</td>
<td></td>
</tr>
<tr>
<td>Building</td>
<td></td>
</tr>
<tr>
<td>Working hours</td>
<td>Fixed  Flexible  Shift  TimeCare</td>
</tr>
<tr>
<td>Number of people in the household</td>
<td></td>
</tr>
<tr>
<td>Number of cars in the household</td>
<td></td>
</tr>
<tr>
<td>What is the car used for?</td>
<td></td>
</tr>
<tr>
<td>Do you have a card for public transport? If yes, what kind?</td>
<td></td>
</tr>
</tbody>
</table>

**About travel patterns to and from work**

- How do you generally get to and from work?
- How much time do you spend on transportation a regular day?
- Do you know how much money you spend on transportation during a regular month?
- Do you think that is worth the money?
- Are you happy otherwise with your mode of transportation?
  - Why/why not?
  - What difficulties/challenges do you experience?
- Would you like to change your mode of transportation?
  - Why/why not?
  - What stops you?
- Would you consider using public transport?
  - Why/why not?
  - How would a good public transport solution look like for you?
- If there were an alternative transport solution, how long time can it take maximum from door to door?
  - What would you be prepared to pay for such a solution?
  - Would you prefer paying a fixed monthly cost for free use or pay each time you travel (Pay-per-use)?
• How often would it have to run?
  • At what time do you usually go to and from work?
  • If this optimal solution existed, would you be prepared to stop using the car?

About travel patterns during the work day
• How often do you need to go between the facilities (Site A and Site B) during a regular work week?
• How do you transport yourself then?
• Do you ever use the car?
  • If yes:
    • How does that work?
    • Would you rather travel in any other way? What would it take for you to do so?
• Do you ever use the internal shuttle bus?
  • If yes:
    • How does that work?
    • Any positive/negative experiences?
  • If no:
    • Why not?
    • What could make you use it?
## Business Model Canvas: SMSS

<table>
<thead>
<tr>
<th>Key Partners</th>
<th>Key Processes</th>
<th>Value Proposition</th>
<th>Customer Relationships</th>
<th>Customer Segments</th>
</tr>
</thead>
<tbody>
<tr>
<td>» Transportlaboriet</td>
<td>» Driving buses</td>
<td>» Seamless and convenient travel experience to/from work, and at the workplace.</td>
<td>» Fringe benefit provider</td>
<td>» Employees</td>
</tr>
<tr>
<td>» HR department</td>
<td>» Maintenance</td>
<td>» Reduced need for car (for employees)</td>
<td>» Internal network</td>
<td>All employees</td>
</tr>
<tr>
<td>» Björks Buss</td>
<td>- Vehicles</td>
<td>» Convenient transport</td>
<td></td>
<td>Everyone who needs to transport themselves within company campus</td>
</tr>
<tr>
<td>» Verdict</td>
<td>- Electrical bikes</td>
<td>» Reduced environmental impact</td>
<td></td>
<td>- shuttle service</td>
</tr>
<tr>
<td>» Bontouch</td>
<td>- Application</td>
<td>» Increased flexibility</td>
<td></td>
<td>- e-bikes</td>
</tr>
<tr>
<td>» Fringe benefit provider</td>
<td>- Information</td>
<td></td>
<td></td>
<td>- taxi service</td>
</tr>
<tr>
<td>» Bike provider</td>
<td></td>
<td></td>
<td></td>
<td>Employees commuting from Stockholm</td>
</tr>
</tbody>
</table>

### Key Resources
- Application
- System
- Drivers
- Vehicles

### Cost Structure
- Vehicles
- Drivers
- Maintenance
  - Vehicles
  - Application including support
- e-bikes
  - Helmets + bike stands

### Revenue Streams
- Terminal costs
- Björks buss
- Transportlaboriet
- Fringe benefit provider

### Distribution Channels
- App store
- Fringe benefit provider

### Employees
- All employees
  Everyone who needs to transport themselves within company campus
  - shuttle service
  - e-bikes
  - taxi service

- Employees commuting from Stockholm
  - Scania Job Express
  - Monthly á 380 SEK
  - Daily á 65 SEK