INNOVATION AND ENTREPRENEURSHIP IN THE ELECTRIC SCOOTER INDUSTRY IN DENMARK

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Abstract

The concepts of entrepreneurship and innovation are complex, and they can be defined and analyzed from various perspectives. The interlinked concepts are dominant phenomena today with the dynamic development in society, the rise of new technology, and changing consumer preferences. This thesis examines the concepts in relation to innovation in the electric scooter industry in Denmark, and how the causes and effects of entrepreneurship and innovation exist on a business, governmental and societal level.

This thesis is conducted from a positivistic and a social constructivistic approach, and utilizes primary and secondary data.

The thesis introduces Lime, an electric transportation company, as the case study. It conducts a company and industry analysis with primary focus on the Danish market, in order to identify and provide suggestions for how Lime can become a successful entrant on the Danish market. The two main identified challenges, when an electric scooter provider decides to enter the Danish market, are legislation and the population's reception of the services. The findings are utilized in the subsequent analyses and discussions regarding the field of entrepreneurship and innovation.

This thesis takes a theoretical approach exploring the concepts and opportunities of entrepreneurship and innovation, causation and effectuation, and strategic partnerships in order to identify suggestions for how the Danish government can support entrepreneurial ventures in developing innovation and advance society. Through the analysis, a main identified gap between the Danish government and its approach on how to handle and prepare for the effects of entrepreneurship and innovation exists. It exists as the current reward structure in society is structured to benefit the Danish government, and the current legislation is not equipped to handle new types of transportation vehicles, and technology.

The identified challenges that the Danish government and Lime face result in missed opportunities. An emphasis on creating a strong partnership between the public and private sector would have a profound effect on the innovative development of society.

1. Introduction

The development and growth of innovative electric and tech products and services from entrepreneurial ventures have skyrocketed in recent years. Tech companies, typically based out of Silicon Valley, tend to focus on aggressive growth strategies by entering into many new markets quickly and boosting their local businesses. The behavior of these tech companies, who typically believe in a free unregulated market, tend to clash politically with governments in the newly entered markets as legislation in most cases has not been established prior to entry or is not geared to handle these new types of businesses. Regulatory challenges are occurring ao. within the technical transportation industry surrounding ride-sharing services, drones, and the soon-to-be reality of everyday self-driving cars, trucks, and buses.

Globally, traffic congestion and pollution is worsening. By 2030, it is estimated that 60% of the world's population will live in cities, up from about 50% today (McKinsey, 2015). The existing urban infrastructure cannot support an increase in vehicles on the road (McKinsey, 2015). Solving the mobility challenge will require coordinated actions from the private and public sectors. In recent years, the interest and development of the electric micro-mobility industry has emerged, and new electric transportation vehicles, such as electric scooters (in Danish: "elektriske løbehjul"), have been making their mark in Europe within the last year (please refer to appendix E for an image of an electric scooter). New entrants have faced challenges as legislation in a majority of cities and countries has not been put into place regarding the use of electric scooters in public. New market entrants offering electric scooter transportation services are therefore meeting regulatory challenges as they compete for new market.

1.1 Problem Identification

Lime, an electric transportation company, with a valuation of over $2 billion ($ in this report refers to USD), placed 200 electric scooters in the streets of Copenhagen in October 2018 knowing it was not legal and, following a clash with the authorities, withdrew them within a week (Berlingske Business, 2019a). After months of debate, the Danish government legalized electric scooters for a one-year trial period in Denmark as of January 17th, 2019 (TRM, 2018). The use of micro-mobility vehicles such as electric scooters may change the cityscape, the citizens' transportation routines particularly in cities, and it may change how governments handle trailblazing companies in the future. Innovative technology and companies will have an impact on how society develops. Governments are dependent on entrepreneurial and innovative companies in order to advance society, yet companies with groundbreaking products or services are met with bureaucratic challenges hindering the speed of their growth.

1.2 Problem Statement

The problem statement for this report is the following:

Which strategy should Lime implement to become a successful entrant in the electric scooter industry in Denmark, and how should the Danish government support entrepreneurial ventures in developing innovation and advance society?

1.3 Concept Clarification and Delimitation

This report will primarily focus on electric scooters. Electric scooters are part of the micro-mobility industry. Micro-mobility refers to personal vehicles that can carry one or two passengers, and small powered micro-mobility vehicles generally run on charged batteries (SkedGo, 2018). Theoretically, micro-mobility encompasses all passenger trips of less than 8

kilometers (5 miles), which account for as much as 50-60% of today's total passenger kilometers traveled in China, the European Union, and the United States (McKinsey, 2019a).

The analysis and discussions throughout the report will to a great extent apply to Lime on a global scale, and consequently also to Denmark. The focus of the case will be on the Danish market when answering the problem statement.

Although the companies mentioned in the competitor analysis (in section 4.3) may offer various alternative electric transportation vehicles, the focus will be on their electric scooters.

1.4 Theory of Science

This report will be conducted from a positivistic and a social constructivistic approach.

The positivistic paradigm has a realistic ontology as it has the belief that there exists an objective reality and truth regardless of our own perception of it. The epistemology is objective, meaning we can obtain the truth and exact knowledge of reality by using the methodologist approach of quantitative data, which is constructed under controlled circumstances (Nygaard 2012, p. 29).
In this report the positivistic approach is used to determine Lime and its competitors' financial situation, and markets entries. The approach is also used when analyzing the quantitative external factors in the environment, such as data regarding the electric scooter industry and its development over a period of time, and the current transportation situation in Denmark.

The constructivist paradigm is in opposition to the positivistic paradigm. Constructivists believe that not only one truth exist because reality is a construction carried out by people. The ontology of constructivism is relativistic as the perception of what is real and true depends entirely on the social, cultural, and linguistic perspective one takes on reality

(Nygaard 2012, p. 36). The epistemology is subjective, and the concept of interpretation is given a central position. Knowledge of the world simply expresses a certain interpretation of the world, and objectivity does not exist as everyone does not interpret the world the same. The belief behind the constructivist paradigm is that reality is a social construction without stabile evidence and therefore reality must be continuously renegotiated in social interaction (Nygaard 2012, p. 38). The methodology focuses on qualitative methods. In this report, the constructivistic approach will be used in relation to qualitative data such as quotations and statements from various sources. This allows the analysis to become nuanced as the problem statement will be analyzed from different perspectives.

1.5 Data Collection & Criticism

The data used in this report will be a combination of primary and secondary data.
This report will consist of primary data in the form of in-depth, qualitative interviews with relevant stakeholders. The stakeholders interviewed are Jakob Næsager, member of the Council (in Danish "Borgerrepræsentationen") of Copenhagen municipality for the Conservative Party (in Danish "Det Konservative Folkeparti") and member of ao. the municipality's Technical and Environmental Committee (in Danish "Teknik- og Miljøudvalget"), Jette Gotsche, President of Danish Cyclists' Federation (in Danish "Cyklistforbundet"), Harry Lahrmann, Associate Professor at the Faculty of Engineering and Science, Division of Transport Engineering and Traffic Safety Research Group and a researcher in traffic and transportation, and lastly, Jakob Meyer, Planning Lead at Autonomous Mobility. The aim has been to include stakeholders of various expertise and opinions to obtain a well-argued and nuanced analysis and discussion. The terms, validity and reliability, will not be applied, as the constructivistic approach in which the qualitative data is used, does not provide an objective reality in alignment with the notion of these terms (Nygaard 2012, p. 132). In addition, the report will be based on information from secondary data. The theories used in the report are from curricula presented at Copenhagen Business School. They are expected to be of a high quality as they are acknowledged within the field.

As Lime was founded in 2017, the majority of all sources used regarding Lime are from no earlier than 2017. Lime is a dynamic company, so the aim will be to include any recent and relevant information in the analysis. The qualitative data used in this report, such as Lime's press releases, are believed to be trustworthy. It is assumed that the reported financial data in this report is reliable and valid. The data is reliable in the sense that an independent person would obtain the same results if the analysis were to be conducted again. The data is valid as it is used in relation to the intended purpose (Nygaard 2012, p. 30).
The aim of using a combination of primary and secondary data is to provide this report with nuanced perspectives and supportive arguments in the discussion and analysis in order to answer the problem statement.

1.6 Theoretical Framework

This report will discuss and analyze **the concept of entrepreneurship and innovation** as well as how this affects society, and analyze and discuss the function of the entrepreneur in economic growth based on theories from Schumpeter, Baumol, Penrose, and Stevenson. This will be followed by an analysis and discussion of **the concept of opportunity in entrepreneurship** based on theory by Shane and Venkataraman, Popp and Holt, and Stevenson to obtain an understanding of how the entrepreneur discovers and exploits opportunities. This report will also include an analysis and discussion of Sarasvathy's theory of **the concept of causation and effectuation** regarding the logic of decision making. In addition, this report will investigate **the concept of strategic partnerships** based on a theory by Baum in order to understand how this affects a company's strategy, and the benefits and risks involved.

The analysis and discussion throughout the report will be based on examples from the case of Lime. The report will start with an introduction to the company, Lime, followed by an internal analysis of Lime and external analysis of the electric scooter industry in Denmark. The internal analysis will consist of an analysis of Lime's **valuation** followed by an analysis

of **the value chain**. The report will then include an analysis of Lime's **competitive capabilities** in order to determine Lime's resources, its core competencies, and which of these fulfill the VRIN criteria in order to determine Lime's sustained competitive advantages. The external analysis will include an analysis of the **industry life cycle** of the electric scooter industry in Denmark followed by a **PEST analysis** identifying the industry's political, economic, socio-cultural, and technological factors. A **competitor analysis** will be conducted in order to identify Lime's competitors, which will result in a **strategic group analysis** to determine where Lime is positioned in the electric scooter market in Denmark. Additionally, the report will look into the **generic competitive strategies** to identify Lime's strategy. This will be followed by a discussion of Lime in relation to **red and blue oceans**. The strategic analysis will be summarized in a **SWOT analysis**, and the factors in the SWOT analysis will then be transferred to a **TOWS analysis**.

Lastly, this report will consist of a **discussion**, and provide **suggestions** for how Lime can become a successful provider to the electric scooter market in Denmark, as well as how the Danish government can support entrepreneurial ventures in developing innovations that advance society. The **final conclusion** will answer the problem statement of this report.

2. Lime

2.1 Introduction to Lime

Neutron Holdings, Inc. dba Lime is a transportation-rental company that allows users to unlock dockless bicycles, scooters, and car sharing systems via a mobile app. Lime was founded in San Francisco, California, in January 2017, and is valued at $2.4 billion as of February 6th, 2019 (Crunchbase, 2019a). Google and Uber are among the company's investors. Both Google and Uber are investing in the development of self-driving technology through their respective companies, Waymo and Otto (Waymo, 2019) (Fortune, 2018). In November, 2018, just 15 months after Lime's launch, Lime had served 5 million users

globally who had taken over 14 million trips (TedTalk, 2018). Lime's mission is "to provide on-demand transportation solutions that are affordable, convenient, and environmentally-friendly," and they aspire to be a mobility platform that solves the first and last-mile problem (Lime, 2018). The "first and last-mile" connection describes the beginning or end of a trip made primarily by public transportation. Lime's co-founder, Brad Bao, states that "we're trying to solve the future urban transportation and traffic congestion, and the pollution that comes with it," and that the main goal for Lime and its peers is to increase the percentage of traffic that uses clean energy alternatives (TedTalk, 2018). Lime is "taking a bet on humanity" and, in order to succeed, they will need the support from riders, cities, communities, and non-riders (TedTalk, 2018). Lime's focus is on the three "As": meaning making urban transportation universally Available, Accessible, and Affordable. Availability in terms of smart deployments, and increasing density, so a scooter is available "whenever, however, and wherever users need it" (TedTalk, 2018). Accessibility in terms of easily locating the scooters through GPS and connectivity, the ability to remotely unlock the scooters for users without smartphones, and the ability to pay with cash. Through a pilot program called Lime Access which targets low-income users, Lime is experimenting with cash payments and discounts which are tied to Lime Access' app-less payment method, so users without a smartphone can access the Lime scooters (The Drive, 2018). Lime's focus is on inclusivity and the mass majority rather than focusing on tech-savvy urbanites. Lastly, the affordability factor means including insurance, so people feel safe, and offering low prices to target a broader market (TedTalk, 2018). As of April 2019, Lime operates in 22 countries, and over 150 cities worldwide (Lime 2019). As of November 2018, Lime was launching in one new city per day (TedTalk, 2018).

Electric scooters have been legalized for a one-year trial period in Denmark as of January 17th, 2019. On April 10th, 2019, Lime legally entered the Danish market by releasing 250 electric scooters in Copenhagen (Berlingske Business, 2019a). Lime has placed their scooters in the outskirts of the inner city in Copenhagen, and has a team of 10 employees who collects defective and misplaced electric scooters, and repairs them, so they are safe to drive on.

Additionally, Lime will have a user-community, where people can sign up, collect the electric scooters, and charge them overnight (Berlingske Business, 2019a). One reason for Lime's launch at this particular time was that active operators renting out dockless electric scooters in Denmark were invited to a workshop on April 10th with the Transportation Ministry and representatives from Copenhagen, Odense, and Århus municipalities. According to the Transportation Ministry, the purpose of the workshop was "to set the framework for how to handle the special issues related to the management of the Danish Road Act's section 80 in relation to rental concepts, where there is no rental from permanent establishments" (Berlingske Business 2019b). In order for Lime to potentially participate in this meeting and be a part of the conversation, they needed to become active operators (Berlingske Business, 2019a). Despite the fact that Lime was technically an active operator on the day of the workshop, VOI and Tier were the only electric scooter companies in attendance (Berlingske Business, 2019b). Since the legalization of electric scooters in Denmark, Lime has been in dialogue with the Copenhagen municipality and the Transportation Ministry, but they have waited a few months to enter the Danish market hoping that the Copenhagen municipality would decide how to regulate the new rental services. When no regulations were decided and with the announcement of the workshop for active operators, Lime decided to enter the Danish market (Berlingske Business, 2019a). In his capacity as a member of the Technical and Environmental Committee of Copenhagen municipality, Næsager has been in dialogue with Lime. He states that Lime will focus on launching in the four largest cities in Denmark, which are Copenhagen, Århus, Odense, and Aalborg (Appendix A).

2.2 Lime's Electric Scooter & App

This report will solely focus on Lime's electric scooters (Appendix E), which are part of the micro-mobility industry. Lime's electric scooters are dockless, meaning that when they have finished their ride the users can place the scooters wherever it is convenient for the user and allowed by law. The vehicles are equipped with a GPS, so they can easily be located by the next user through the Lime app. The electric battery-powered scooters have a maximum

range of 50+ km, a maximum speed of 25 km/hour, and can be unlocked through the app. The user's price for a ride is currently DKK 10 to unlock, and DKK 2 for every minute to ride (Neutron Holdings. Inc., 2019, Finans, 2018 and Appendix G) even though according to Lime's app the price varies depending on city, weekday and time of day. The scooters are monitored remotely by local staff, and are recharged by an independent team of "Lime Juicers" who are freelance people who collect the scooters, charge the battery, and then redeploy them in the city (Lime, 2019).

In October 2018, Lime introduced its sixth iteration of the scooter, the Generation 3 model, which is designed in-house by engineers in California and China, and built by four different, unpublicized manufacturers (Wired, 2018). It is designed to be safer, longer-lasting through extended battery power and more durable for what the sharing economy requires. The scooter weighs 18-20 kilos, and is waterproof. It has 25 cm wheels to better handle potholes and uneven roads, and the battery sits under the user's feet for improved stability (Wired, 2018). The scooters are built to last up to over a year, and are partly modular, so Lime's mechanics can fix the hardware by removing just a few screws. The scooters' aluminum frame is substantial and the scooters no longer have exposed cables or wires. This also cuts down on vandalism as this was an easy way to damage the scooters when protesting the electric scooter share companies (Electrek, 2018). The scooter has built-in suspension, multi-modal braking, an enhanced night-light, a light to flash below the deck, and built-in sensors enabling virtual parking zones to make sure users leave the scooters in approved areas (PC Mag, 2019). Lastly, the color display screen shows speed, battery status, and other relevant data.

The Lime app is free, simple and user friendly (please refer to appendix G for screenshots of the Lime App). The home page on the app shows a map of the area where the user is located, and on the map the user can see the location of available Lime scooters nearby. By clicking on a scooter on the map, the user can among other see the price for unlocking the scooter, the price per minute to drive the scooter and the scooter's remaining driving range. The scooter is unlocked by activating the user's smart phone's camera via the app, and scanning the

scooter's QR-code. At the end of the ride, the user must park the scooter in a permitted area as shown on the app's map, which activates the app's "end trip"-button. The user must then take a photo of the parked scooter and upload it to the app, which will lock the scooter making it ready for the next user to ride it. The ride is automatically paid for via the user's credit card which has been pre-entered into the app.

2.3 The Trial Period in Denmark

The one-year trial period of electric scooters which took effect January 17th, 2019 in Denmark will be evaluated on a yearly basis (Berlingske Business, 2019a). In Denmark, the electric scooters may only be used on bike lanes, and the users must be 15 years old unless the driver is accompanied by an adult. The legal maximum speed is 20 km/hour wherefore Lime's scooters' maximum speed of 25 km/hour has been reduced. Use of the scooters are subject to the road traffic legislation (TRM, 2018). The scooter companies must obtain permission from each municipality for the cities where they wish to operate (Appendix A). The municipality of Copenhagen has demanded that the electric scooter companies in Copenhagen remove their scooters from the municipalities' public areas, such as sidewalks and bicycle stands. Copenhagen municipality is demanding that the scooters can only be rented out and delivered in areas, where the rental is specifically permitted, and that this is reflected in their respective apps (KK, 2019). If the electric scooters are required to be removed from public areas, this will materially compromise their chances of success, since it is necessary that there is easy access to the electric scooters or they will not be used. The Transportation Ministry disagrees with Copenhagen municipality on their interpretation of the Road Act and how to apply the law to restrict the renting out of the electric scooters. Therefore, Copenhagen municipality's demand is currently pending until the Transportation Ministry has provided clarity on how Copenhagen municipality can use the Road Act in its existing form to regulate this type of rental vehicle (Berlingske Business, 2019b).

3. Internal Analysis

3.1 Valuation & Financial Analysis

The value of a business is based on its capacity to generate cash flows. For startups, the expected cash flows are in the distant future, and estimating them will require making assumptions about how the market and the competition will evolve (Investopedia, 2018b). One way to value a company is to estimate the present value of its future cash flows. Lime's future cash flows depend on the size of Lime's potential market, and the size of Lime's share in that market (Investopedia, 2018b).

Lime is not a publicly traded company, and they have not published their financial reports. It is difficult to value newly emerging companies with little data to analyze, and as there exists uncertainty in how the company will develop. Valuation is the outcome of a negotiation process, and companies are worth the amount investors are willing to invest in them. The two components of any valuation are cash and control, meaning how much money investors are willing to invest into a company, and how much equity are entrepreneurs giving up in return (Investopedia, 2018b). As of February, 2019, Lime's total funding amount was $765 million (DKK 5,01 billion), obtained through a total of six funding rounds (Crunchbase, 2019a). The initial seed round took place on March 15, 2017 showing that Lime has managed to obtain investments at a rapid speed. On February 6th, 2019, Lime's latest Series D round raised $310 million which now values Lime at $2.4 billion. Lime's total funding amount of $765 million at a valuation of $2.4 billion means that the total investor percentage is 31.9%. Lime is considered a unicorn company, which is defined as a privately held startup company with a current valuation of $1 billion or more (Divestopedia, 2019). As of April 2018, Lime's run rate, which is the financial performance of a company based on using current financial information as a predictor of future performance (Investopedia, 2018a), was on track for $25 million annually. That would increase to $100 million by July, 2018, and $500 million by December, 2018 (Investor's Business Daily, 2018).

Purchasing electric scooters with premium technology is estimated to cost between $400 to $600 per scooter (Investor's Business Daily, 2018). The software platform used to rent the scooters require additional investments. Due to regular use as well as vandalism, the electric scooters require considerable maintenance and repair costs. Bao states that it is less than 1% of the scooters that are exposed to vandalism (TedTalk, 2018). As mentioned earlier, Lime hires freelance "Juicers" who pick up the GPS-tracked scooters when they are low on battery, recharge them, and then redistribute the newly charged scooters into the city again. Lime's additional expenses include credit card fees, city permits, marketing, and more (Investor's Business Daily, 2018). In a detailed report from McKinsey, it is stated that on average an electric scooter is economical after four months or approximately 114 days. The key revenue is approximately $3.65 per scooter per trip, which includes the $1 fixed fee (presently DKK 10 in Denmark) to unlock the scooter, and $0.15 per ride a minute (presently DKK 2 in Denmark) on an average ride duration of 18 minutes costing the user $2.65. The key expenses total $2.95 per scooter, which includes charging the scooter ($1.72), customer support ($0.06), repair ($0.51), insurance ($0.05), credit-card fees ($0.41), and city-permit fees ($0.21). This results in an average profit of $0.70 per ride. McKinsey uses a $400 vehicle acquisition cost as an example, and a utilization rate of 5 rides a day resulting in an electric scooter being economical after approximately 114 days or 4 months (McKinsey, 2019a). This means a daily profit of $3.5 per scooter per day. This analysis is based on operations in the US, and therefore the revenue and expenses may differ in Denmark. It may be expected that the current expenses will be slightly higher in Denmark primarily due to higher wages for employees in customer service and repairs. Such possible higher costs in Denmark have not been included in the analysis in the next paragraph. Lastly, based on conversation between Næsager and representatives of Lime in Denmark, Lime confirms that their service is considered successful if an electric scooter is used 5 times per day (Appendix A).

On April 10th, 2019, Lime released 250 scooters in Copenhagen (Berlingske Business, 2019a). The cost of 250 scooters at a rate of $400 per scooter totals $100,000. Based on

McKinsey's cost estimations, the key revenues total $3.65 per scooter and the key expenses total $2.95 per scooter resulting in an average profit of $0.70 per ride (McKinsey, 2019a). If all 250 Lime scooters are used 5 times a day, this will lead to a daily profit of $3.50 per scooter, or $875 in total. This means, that on average, Lime will break even around the 114th day of operating in Copenhagen. If Lime were to purchase scooters at a rate of $600 per scooter, the break even point would be around the 171st day. As the cost to unlock the scooter and the cost per ride a minute is slightly higher in Danish kroner, and as the operating expenses are expected to be higher in Denmark, the break even point may remain the same when operating in Copenhagen. Both calculations indicate a quick break-even point, which allows Lime to reinvest profits and grow quickly as the acquisition costs of scooters are low. It is crucial that Lime focuses on keeping their operational costs low in order to become profitable as they scale. Lime's Generation 3 model, which is more durable, safer, and has an increased battery life, may help keep operational costs low.

Other factors, such as the impact of competition from competitors, can affect the profits upwards or downwards. Lime's current competitors on the Danish market are VOI and Tier. VOI has released 200 scooters in Copenhagen (TV2 Lorry, 2019), and it is not publicly known how many scooters Tier has released in Copenhagen. Without further financial information, it would seem reasonable to conclude that Lime's and VOI's cost per scooter and running expenses per scooter are rather similar to Lime's. The reason being that today, their scooters are quite similar in design and quality, they have placed approximately the same number of scooters on the market, their service set-ups are similar and other types of expenses such as charging, repair, and insurance can be expected to be similar. Today, the key difference between Lime and VOI may be how many times a day their respective scooters are used on average. It will make a big difference when they meet their break even points whether their respective scooters are used on average eg. 4½ or 5 times per day. Factors such as brand awareness and their scooters' availability are key to the number of daily uses.

Since the electric scooter providers meet the break-even point quickly, it will allow them to reinvest their profits and grow quickly as the cost of scooters is low.

A key factor to take into consideration is the lifespan of an electric scooter. The more trips and kilometers a scooter can cover, the more beneficial it is for the scooter companies. An analysis from Quartz determines that the average lifespan of a scooter is 28 days (Quartz, 2019). Another report states that the average life of scooters varies based on scooter model, and can range anywhere from 82 to 155 days (LA Times, 2019). Uncertainty around this data does exist, but the data indicate that the scooters are not very durable, and break quickly. This is a crucial issue as based on the previous analysis, the break even points range from being met on the 114th to the 171th day depending on various factors. This means that a great percentage of scooters may not meet their break even point, and result in becoming a loss for the electric scooter providers. With the massive investments being made in the electric scooter industry, it is quite likely that the average lifespan of an electric scooter is, or in the nearer future can be expected to be, substantially longer than the day of break-even.

To a large extent, the value of Lime will depend on how fast it can build scale. If Lime can continue to roll out its business in a new city every day (TedTalk, 2018), its potential is substantial. It is crucial that Lime at the same time focuses on driving down the manufacturing cost (purchase price) per scooter, improving the average life span per scooter, and keeping their operating expenses low.

Investors in Lime may also anticipate that Lime will enter into new industries beyond the electric scooter and micro-mobility industry in the future. Lime could expand their existing product portfolio of electric bikes (Evening Standard, 2019), or expand their portfolio and introduce new forms of electric mobility and transportation vehicles, such as electric self-driving cars and trucks, automated robots, and more. Lime could enter into the industry of delivery services from restaurants, same day package delivery, or similar markets, and in order to help make large or diesel-fuelled vehicles redundant. There are a number of

subsequent industries which Lime could enter or create after having established a strong position in the electric scooter industry.

Industry convergence, when a new technology allows established companies from different industries to compete in each other's product markets, can yield great opportunities for a company (Benner & Ranganathan 2013, p. 378). Lime's valuation indicates that investors in Lime are optimistic about Lime's future and believe that there are many possibilities for Lime to grow.

3.2 Value Chain

The following contains an analysis of the value chain in order to identify where Lime is creating customer-perceived value in its value chain. The value chain identifies nine strategically relevant activities that create value in a specific business (Kotler et al. 2018, p. 34). The five primary activities consist of inbound and outbound logistics, operations, service, and marketing and sales. The four support activities consist of firm infrastructure, human resource management, technology development and procurement (Kotler et al. 2018, p. 34).

All nine activities create customer-perceived value for Lime. This report will focus exclusively on marketing and sales, technology development, and firm infrastructure.

Marketing and sales are activities that make a product available for buyers to purchase and induces them to buy, e.g. promotion, sales forces, and channel selection (Henry 2018, p. 88). The main channel in which users can rent the Lime scooters is through the Lime app. Google and Uber are both investors in Lime. Google has included Lime scooters as a transportation option in Google Maps (Appendix F). If a Lime vehicle is available nearby, on the map the user will see how long it will take to walk to the vehicle, an estimate of how much the ride will cost, and the total journey time and estimated time of arrival. This functionality is

currently available in a total of 80 cities worldwide, and Google plans to include more cities soon (Google Blog, 2019). The strategic partnership between Lime and Google means that Lime can reach a much larger audience, and become more accessible to users. This is an extremely powerful marketing and sales channel for Lime. If renting out electric scooters in Denmark becomes legal on a permanent basis, the Lime functionality in users' Google Maps may include cities in Denmark.

In November 2018, Lime launched a $3 million new safety initiative called "Respect the Ride" to educate riders on safety practices and distributed 250,000 helmets (CNN Business, 2018). This is a substantial investment in marketing, which benefits users and also attempts to meet the criticism Lime has received when some of its scooters were recalled causing users to have safety concerns. Lime has also introduced Lime Hero, in which customers can opt in to a donation program where a portion of their ride fare will go to a local nonprofit organization. Lime is aware of the challenges it is meeting in its growth, and they are therefore attempting to portray a cooperative and positive image (The Verge, 2018b).

Technology development is a support activity that covers an organization's "know-how," its procedures, and any use of its technology that has an impact upon product, process, and resource development (Henry 2018, p. 89).
Until the pilot program, Lime Access has been implemented (see 2.1 above), the only way to rent Lime scooters is through the Lime app. In the future, Lime plans to utilize augmented reality through the app to help people know where to park their scooters by, for instance, projecting a virtual box or two poles to frame an area (TechCrunch, 2018a). The scooter is equipped with a LED battery status light, and the 7.1 cm color screen shows mapping with WiFi-enhanced GPS, and flashes reminders about riding safely. In the future, Lime plans to update the screen with navigation, the capability to alert users when riding on the sidewalk, the ability to warn users if their scooters are improperly parked, and notify users if inclement weather has been detected and caution should be taken (Wired, 2018). Lime is currently building software to collect data to determine if users are tossing the scooters on the streets

instead of neatly parking them, and if they are being stolen (Quartz, 2018). There is currently no public information to what extent Google and Uber have shared their know-how with Lime but, if they have, this collective knowledge and know-how, and network, is deemed a valuable activity in Lime's value chain.

Firm infrastructure consists of activities which usually support the entire value chain, such as general management, planning, finance, accounting, and quality management (Henry 2018, p. 89).
A valuable resource for Lime is their management and employees who discuss and negotiate for Lime's presence on both a national and local governmental level when legislation is not in place. In Denmark, they have managed to obtain legalization for a trial period, which eventually either will become permanent or dismissed. Lime currently operates in 22 countries and continues to focus on entering new markets which indicates that, despite challenges, they have managed to continue to increase their presence globally (Lime 2019). In addition, Lime's substantial rounds of funding also indicate that the Lime team is talented in raising the needed funds to pursue their strategy. Obtaining the right personnel is crucial as the electric scooter industry is growing rapidly, and the ability to enter new markets quickly can have immense benefits.

3.3 Competitive Advantages

A *sustained competitive advantage* occurs when an organization implements a value-creating strategy that is not being implemented by current or potential competitors and when these competitors are unable to imitate the benefits of this strategy (Henry 2018, p. 115). An organization's resources must fulfill the VRIN criteria, which is that it must be valuable, rare, difficult to imitate, and non-substitutable, providing the potential for a sustainable competitive advantage (Henry 2018, p. 122).

An identified value-added activity is Lime's intangible resource of strategic partnerships with Uber and Google, the technological innovation and development, and firm infrastructure. Technological resources include an organization's ability to innovate and the speed with which innovation occurs. Innovation is critical as the external environment constantly changes, it has the ability to create new markets, and it can become a source of competitive advantages (Henry 2018, p. 120). Through these partnerships, Lime is able to reach large audiences, both users and non-users, and the collective knowledge between all partners provides Lime with the ability to innovate quickly. Lime's partnerships with Uber and especially Google are unique, and therefore valuable, rare, non-substitutable, and difficult to imitate, and provide Lime with a sustained competitive advantage.

Lime and its employees possess an intangible resource of valuable tacit knowledge as they have benefitted from first-mover advantages in other countries, which refers to organizations that benefit from the learning and experience they acquire as a result of being first in the marketplace (Henry 2018, p. 118). Lime has entered into 22 countries, which is significantly more than its competitors, as Tier has entered 11 countries, Bird has entered 8 countries, and VOI has entered 6 countries (Lime, 2019, Tier, 2019, Bird, 2019, Venture Beat, 2019). Although Lime is not the first electric scooter company to enter into the Danish market, if one disregards its initial illegal entrance in October 2018, Lime can make use of the knowledge they have gained from their first-mover advantage from other countries. Lime has the most experience with entering new countries, and therefore is most experienced in communicating with various governments and navigating cultural challenges. This knowledge and experience will provide Lime with a smoother transition when entering into the Danish market. Lime is able to bring valuable insights into the dialogue between them and the government and municipalities, and share their extensive data and knowledge to a greater extent than its competitors. Tacit knowledge cannot readily be transferred and competitors therefore have a difficult time imitating, making it a core competence for Lime.

In some instances, first-movers benefit in terms of permits as the government and municipalities will only give out a certain number of permits. This will not be the case in Denmark if electric scooters become legalized on a permanent basis. Næsager states that according to Danish law, the government is not allowed to limit the number of permits. All electric scooter service providers must be treated equally, and it is necessary that they all have the same opportunities (Appendix A). The electric scooter companies may benefit from a first-mover advantage on a municipality level, however. Since regulations are still being discussed, the only requirement is that the electric scooter companies need permission from the municipalities (Appendix A). During the trial period, the individual municipalities in Denmark are allowed to only offer a certain number of permits, if they wish. Copenhagen municipality has chosen not to limit the number of permits it issues, but the municipality of Århus has. Lime applied to obtain the rights to be the only electric scooter provider in Århus municipality, but Swedish VOI won the exclusive rights (Berlingske Business, 2019b).

Other first-mover advantages may include the creation of greater brand awareness by users making the entry barrier for competitors higher (Henry 2018, p. 118). Moreover, the head start Lime has in collecting feedback and data collection prior to their competitors means that Lime is able to iterate and innovate at a faster pace, including improve the scooter itself and the scooter app. The knowledge and experience Lime has from dealing with local laws, dialogues with various governments and navigating various cultures is a great benefit to expanding quickly into new countries and cities.

Furthermore, a company such as Lime with an actual or potential substantial first-mover advantage is also likely to attract more investments which, in itself, may give the company a first-mover advantage. Lime has attracted more investments than any other scooter company. More capital provides the company with the opportunity to expand its business in current locations, making its scooters even more accessible to the users. This results in more availability and shorter pick-up times, the ability to enter new cities more rapidly, and spend more on R&D. In addition, a first-mover company may more easily attract investors of

strategic relevance to the company who not only can help the company in breaking into local markets by for instance opening the doors to local governments, but who can also provide the company with a unique platform to move into new related industries once such opportunities mature (see ao. under 3.1 above). Having Google and Uber as investors undoubtedly has benefitted Lime in this respect. Even though Lime entered the Danish market three months after VOI and Tier, Lime's competitors do not have significant first mover advantages compared to Lime.

In conclusion of the internal analysis, Lime has raised substantial investments, and the economics of the electric scooter industry ensure low break-even points making it easy to scale quickly as acquisition costs are low. Lime creates value for their users in the activities such as marketing and sales, technology development, and firm infrastructure. Value is created with Lime's strong strategic partnerships, intellectual property, and technological innovation and development making Lime a strong long-term provider in the Danish electric scooter industry. These resources provide Lime with core competencies, which fulfill the VRIN criteria providing Lime with sustainable competitive advantages. Lime is implementing a value-creating strategy.

4. External Analysis

The external analysis will focus on the electric scooter industry.

4.1 The Industry Life Cycle

The industry life cycle suggests that industries go through four stages of development: *introduction*, *growth*, *maturity*, and *decline* (Henry 2018, p. 70).

The introduction phase is characterized by slow growth in sales and high costs as a result of limited production. Profits will be negative as sales are insufficient to cover the investments in R&D (Henry 2018, p. 70). In the beginning of the 21st century, the interest in electric

scooters increased. The electric scooters were more useful and more expensive than the kick scooters (Citylab, 2018). The introduction stage of the electric scooter industry was in the beginning of the 21st century.

The growth stage is characterized by rapidly increased sales as the market grows allowing vehicle companies to benefit from economies of scale. Increasing sales results in greater profits attracting new entrants to the market (Henry 2018, p. 71). With the introduction of rideshare companies and GPS-powered dockless scooter rent services, the electric scooters gained recognition as they began appearing in cities worldwide in 2017 (Citylab, 2018). The demand for space in larger cities, the decreasing price of batteries and GPS trackers, and the popularity of smartphones has paved the way for electric scooters to make its mark. The expansion of electric scooters means that the infrastructure for these vehicles are currently being discussed or developed. In conclusion, the electric scooter industry is currently in its growth stage as sales are rapidly increasing resulting in greater profits which is attracting new entrants to the market.

4.2 PEST

A PEST analysis is a tool to scan the general environment in order for organizations to identify trends and weak signals (Henry 2018, p. 44). PEST includes the political, economic, social, and technological factors.

The *political factor* of PEST deals with the effects of government policy, e.g. taxation policy and government regulations (Henry 2018, p. 44). A major political factor that influences the electric scooter industry in Denmark is the government policy.

Firstly, the government needs to decide whether electric scooters will become legalized permanently. As mentioned under section 1.1, Lime's brief illegal introduction of electric scooters in October 2018 provoked political debate and caused that the politicians decided it

was a relevant discussion and concept, wherefore the electric scooters became legalized three months later in January, 2019. The Ministry of Transportation is positive towards the electric scooters, and states that they have a large mobility potential, because they can be combined with public transportation. They will promote shared economy and green transportation, and therefore benefit the environment and reduce congestion on the roads (DR Indland, 2018). As Næsager states, due to safety concern the trial period can go on for years before the government commits to legalizing the electric scooters (Appendix A). Currently, the one-year trial period is evaluated on a yearly basis. This is a challenge as the government and municipality are expecting to require the electric scooter providers to invest in infrastructure in Denmark, such as bicycle stands and new bike lanes. These large investments will need a certain earnings period for the providers, which they will not achieve from a yearly evaluated trial period. Næsager states that "if we really want shared electric scooters, we will have to provide the providers with realistic, timely terms. The trial period must have a length so it is beneficial for the providers to invest in it. If we do not get a free market, we cannot make a real attempt" (Appendix A). If private companies were to invest in public infrastructure, it would be highly beneficial for the government and municipalities in Denmark.

Secondly, each municipality will have to issue permits for each electric scooter company. The municipality of Copenhagen has demanded that the electric scooters may only be rented and dropped off from private areas, which compromises the concept of the accessible and flexible solution to solving the "first and last mile" issue. As mentioned under section 2.3, this is currently blocked by the Ministry of Transportation as they attempt to finalize regulatory requirements. Jakob Meyer, Planning Lead at Autonomous Mobility, which currently offers autonomous busses, and Næsager both confirm, that the laws in today's society is a major challenge as it does not take the technological development and the many new forms of transportation vehicles into consideration (Appendix A, Appendix D). Additionally, the Danish government owns the electric ride-sharing bikes which have monopoly in Copenhagen municipality till 2024 (Berlingske Business, 2019b, Bycyklen, 2019). The service has not been profitable, and thus the government may not want additional

electric vehicle competition on the market to take market share from the governments service offerings. In order for it to have been a profitable project, each electric bike should have been ridden on average 8 times per day (Appendix A). Næsager likes the concept of shared electric bicycles and scooters, and believes that the city bikes in Copenhagen need competition (Appendix A). If the government refuses to permit the electric scooter companies to legally operate in Denmark, the government will run a small scale monopoly on the electric ride sharing service. Næsager believes that the government has no interest in being the main electric scooter provider in Denmark as the ride sharing bicycles are viewed as a failure by the government (Appendix A). The government has a history of favoring industries that benefit its institutions more than the free market. For instance, for years Uber has attempted to enter the Danish market, but they have met challenges due to the government protecting the Danish taxi industry. Similarly, the Danish government also owns high stakes in the train-, metro- and bus transportation system.

In terms of the *economic factor* of PEST, the electric scooters are part of the ride sharing concept in the micro-mobility industry. This makes them more accessible to a larger group of the population as the entry barrier to renting and riding a scooter is low. Citizens in larger cities become less in need of owning vehicles as more ride sharing services are offered on the market. By comparison, the cost of owning a car is high, and the fluctuating price of gasoline is another economic factor that can either attract or prevent consumers from purchasing private motorized vehicles. The demand for transportation will grow as the population increases, especially in cities, and the greenhouse gas emissions could rise proportionally (McKinsey, 2019b). Traffic congestion can cost as much as 2-4% of national Gross Domestic Product (GDP) when measuring factors such as lost time, wasted fuel, and increased cost of doing business. Transport creates emissions of greenhouse gases, and the smog can create public health issues (McKinsey, 2015). Seamless mobility, such as electric scooters, could be cleaner, more convenient, and more efficient than the existing transportation options, accommodating up to 30% more traffic while cutting travel time by 10%. It could cost 25-35% less per trip, making it more affordable, increasing the number of trips by 50%,

making it more convenient, and even lowering greenhouse gas emissions by up to 85%, making it more sustainable (McKinsey, 2019b).

The *social factors* of PEST include cultural changes within the environment (Henry 2018, p. 47).
The population in Copenhagen municipality has increased every year for the past decade, and in January, 2018, Copenhagen had 613,000 residents (KK, 2018). Copenhagen is already experiencing a lack of space in the infrastructure due to the increasing population and this means that, regardless of the entrance of the new electric micro-mobility vehicles, the municipality of Copenhagen is being forced to think of the future regarding its infrastructure.

Founder of Lime, Bao, referred to Copenhagen as an inspirational city where the use of clean alternative transportation, such as 41% of the Danish population using bicycles, is a successful and integrated part of the Danish culture (TedTalk, 2018). Director of Lime in Denmark, Niklas Joensen, states that they have been looking forward to launch Lime scooters in Copenhagen as it is one of the world's leading cities within green transportation. In addition, he states that there has been a large demand as thousands of users have made use of electric scooters in Copenhagen since the legalization (Berlingske Business, 2019a). According to CEO of VOI, Frederik Hjelm, the people of Copenhagen have received the electric scooters well. From January to end of March, 2019, VOI had around 50,000 users (Berlingske Business, 2019c).

Despite bicycles being an integrated part of the Danish culture, Jette Gotsche, President of Danish Cyclists' Federation, is worried that electric scooters may affect the bicycle culture in the long-term (Appendix B). Gotsche distinguishes between active and passive transportation, and categorizes bicycles as an active transportation form, and electric scooters as a passive transportation form. Being physically active positively affects the health of the citizens. In alignment with the Danish government's goal of promoting public health and encouraging the people to bike, Goetsche argues that the government should prioritize the infrastructure to

support and benefit active transportation vehicles (Appendix B). By allowing electric scooters on the bike lanes, it disrupts the flow of traffic, negatively affecting the bike culture in Denmark. Especially children and older people may feel unsafe riding their bicycles on an already crowded bike lane with electric scooters that accelerate differently. Older people may switch to other safer transportation methods such as public transportation or a car, which would reduce their biking activity and could affect their health and quality of life. To ensure that the bike culture continues in to the next generation in Denmark, it is crucial that children learn to bike. In order for parents to allow children to bike to school or after school activities, parents must feel that biking is safe. If children do not learn how to bike, Denmark will lose its strong bike culture in a few generations. Goetsche concludes by saying that if fewer people ride bicycles, it could potentially have the negative effect that more people would make use of cars, which would then increase traffic and pollution in the city. It is important that people are physically active in their everyday lives to improve public health and avoid lifestyle diseases (Appendix B).

Meyer mentioned that it has been more difficult for Autonomous Mobility to obtain permission to drive their self-driving busses on public roads in Denmark than the neighboring countries of Sweden and Norway (Appendix D). President of Autonomous Mobility, Peter Sorgenfrei, states that they have been fighting for permission for 637 days in Denmark so far, but the permission was granted in Oslo in a maximum of 60 days (Berlingske Internationalt, 2019). Meyer states, that the Danish government is "not as open to new forms of innovation as Sweden and Norway, which are countries that we usually compare ourselves to" (Appendix D). He believes that this also influences the citizens' reception of new forms of products and services. He states that in order for new electric forms of vehicles to achieve a successful entrance in the Danish market, they must gain the recognition and acceptance of the citizens. Not until this happens, can it be expected that regulation will be more flexible towards such new vehicles. Introducing innovative products and services in Denmark requires time consuming regulatory changes, thereby slowing down the introduction and growth.

Finally, the *technological factors* of PEST create major changes in the general environment and have an impact on the competitive environment (Henry 2018, p. 47).
Besides the increased use of internet, a technological factor impacting the popularity of electric scooters is smartphones. According to a report by eMarketer, Denmark is the number one country in the world with most smartphones compared to the size of its population. The report states that 77.3% of all Danes own a smartphone while on a global plan almost a third of the world's population uses a smartphone today (Finans, 2017). These numbers will increase.

Finally, transportation is expected to diversify toward on-demand mobility services and data-driven services, and a rise of new mobility services such as car sharing and e-hailing is expected to occur (McKinsey, 2016). Consumers' new habit of using tailored solutions for each of their needs will lead to new segments of specialized vehicles designed for specific needs. The changing consumer preference, challenging regulation, and technological advancements will create a fundamental shift in individual mobility behavior as individuals will use multiple modes of transportation to complete their trip (McKinsey, 2016).

4.3 Competitor Analysis and Strategic Group Analysis

The competitor analysis will focus on electric scooters in order to identify Lime's main competitors. This is relevant in order to determine Lime's current positioning in the industry.

The following will be a *strategic group analysis*, which is a structural analysis within the industry in order to identify Lime's main competitors who possess similar resource capabilities and are pursuing similar strategies. Companies in the same industry are not necessarily competitors, as there exist different strategic groups of organizations (Henry 2018, p. 72). The strategic group analysis will also help identify Lime's potential competitors as Lime becomes established in the Danish market.

The strategic group analysis will be based on how Lime compares to its electric scooter competitors. The current providers in Denmark are offering a new service and concept that has not previously been present on the Danish market. The electric scooter is the first dockless electric transportation service being offered in Denmark. The primary competitive factors in the electric scooter industry are technological innovation, product performance, investments, market entries, and price. The following table compares Lime to its main electric scooter competitors both in Denmark and internationally.

Table 1: Electric Scooter Vehicles

Company	Starting- and minute price in the US (USD)	Starting- and minute price in Denmark (DKK)	Scooter range	Plans to enter Danish market?	Countries entered	Capitalization
Lime	$1 to unlock + $0.15/ 1 min	10 kr. to unlock + 2 kr./ 1 min	48 km	Present	22	$765M USD
VOI	N/A	10 kr. to unlock + 2 kr./ 1 min	Unknown	Present	6	$82.9 USD
Tier	N/A	10 kr. to unlock + 1.50 kr./ 1 min	Unknown	Present	11	$30.6M USD
Bird	$1 to unlock + $0.15/ 1 min	N/A	24 km	Unknown	8	$415M USD
Spin	$1 to unlock + $0.15-$0.25/ 1 min	N/A	24 km	Unknown	1 (US only)	$8M USD
Jump	$1 to unlock + $0.15/ minute after the 5th minute	N/A	Unknown	Unknown	1 (US only)	$11.6M USD

(Source: Lime, Donkey Republic, Tier, Bird, Spin, Jump respective websites and apps, 2019, Crunchbase, 2019b, Cnet, 2018, TechCrunch, 2018c, VentureBeat, 2019).

Currently, Lime, VOI, and Tier are the only players in the electric scooter industry in Denmark. Internationally, the main players also include Bird, Spin, and Jump.

There are several key similarities between the electric scooters on the market. In the US, it generally costs $1 (6,66 kr.) to unlock the scooter, and $0.15 (1 kr.) for every minute, or after the fifth minute. It is currently unknown if Bird, Spin, and Jump will enter the Danish market.

In Denmark, all the scooters presently have similar price points as in most cases it costs 10 kr. to unlock the scooter, and 2 kr. for every minute following that. Operating expenses are likely higher in Denmark, and because of the similar pricing in the US, it can be expected that the prices which Bird, Spin, and Jump would offer, if they decide to enter the Danish market, would be price competitive with Lime, VOI, and Tier. The maximum speed of all the scooters are all around 24-25 km per hour. Since the legal maximum speed is 20 km per hour in Denmark, speed is not a valuable differentiating point.

In addition, there are only a few electric scooter manufacturers and they may source identical or almost identical scooters to competing businesses. The market for electric scooters is relatively new, so there currently exists a limited number of scooter suppliers, and most of the scooter companies are renting out rebranded versions of existing electric scooter models that are already for sale (Vox, 2018). Lime does not publicize their manufacturers, but it is rumored that they use five suppliers based in China. One known supplier that Lime used was Beijing-based Ninebot Inc. Ninebot Inc. is the single-biggest source of scooters deployed in U.S. cities and the world's largest short-distance vehicle manufacturer. Lime has stopped buying from Ninebot Inc. and from several other suppliers after their electric scooters had to be recalled (Vox, 2018). One can assume that several of the electric scooter brands share the same suppliers, and in effect have very similar scooters in terms of capabilities. This is a weakness in terms of product development because the electric scooter companies are dependent on the suppliers, and dependent on creating a good relationship with them. It also forces the electric scooter companies to differentiate themselves on other points than capabilities.

Lime's Gen 3 is technically superior to its electric scooter competitors because it has the furthest range when fully charged. Since the electric scooters are meant to solve the "first and last mile" transit issue, the capability for the Lime scooter to be able to drive a range of 48 km would not seem relevant. According to the US Department of Energy, 59.4% of all electric scooter trips are less than 10 km, and 17.3% of trips are between 10-16 km, and 8.4%

of trips range between 17-24 km. Only 4.9% of all trips range more than 48 km (Vox, 2018). However, it is a clear advantage for Lime if their scooters do not need to be charged as often as their competitors' scooters since each Lime scooter is more available for use than the competing scooters.

With regards to capital resources and strategic partnerships, Lime is in a strong position with investments of $765 million, and its partnerships with Google and Uber. Lime is able to raise a great amount of investments, and negotiate partnerships with beneficial players, to a large extent because of its first-mover experiences and its talented personnel.

Lime and Bird are the only two U.S.-based electric scooter companies that have gone international. Bird has investments of $415 million (TechCrunch, 2018b). Lime is the electric scooter supplier that has entered into the most markets, 22 countries, and is, thereby, pursuing a first-to-market strategy to benefit from first-mover advantages. It is crucial for the electric scooter providers to establish and continuously work on obtaining a healthy relationship with government institutions to create beneficial dialogs. One main differentiator that will be crucial is which provider has more scooters in the city. The more scooters available makes the pick-up time shorter, and the scooters more accessible. In addition, since the payment is set up and paid for through the app, no cash is needed and time is saved from going to pay at eg. a shop. When each provider becomes more established in the market, the pick-up times will continue to fall. The geographic area will grow, and an enlarged coverage area will increase the number of potential customers.

In conclusion, Lime's main competitors on the Danish market are VOI and Tier. Bird could become a strong competitor in the future if they decide to enter the Danish market. Lime differentiates from its competitors by being the provider with the longest lasting batteries, having valuable knowledge gained from having entered 22 countries, and having the largest investments. Finally, Lime has the potential to occupy valuable smartphone screen real estate if Google Maps includes Lime as a transportation option in the Google Maps app. This would

result in Lime reaching a broad audience. Lime's Gen 3 electric scooter is placed in the strategic group currently competing against VOI and Tier in Denmark where the focus is on offering a low price. The strategy is to increase the volume of electric scooters released in order to reach a large audience and grow quickly.

5. Positioning

Lime is positioned in the micro-mobility industry, and more specifically in the strategic group of electric scooter providers offering a low price. They continuously increase the number of electric scooters in order to make the electric scooters more accessible and to solve the "first and last mile" transit issue. Meyer emphasizes that electric scooters are positioned in the mobility industry, and not the transportation industry (Appendix D).

An organization must be capable of producing consumer-perceived value recognized as being superior to its competitors. This can be done by focusing on one of Porter's *generic competitive strategies:* differentiation, overall cost leadership, or focus strategy (Henry 2018, p. 145).

Lime's competitive scope is focused on targeting a broad audience, and industry wide (Henry 2018, p. 146). In terms of the competitive advantage, Lime is currently pursuing an overall cost-leadership strategy, which implies a high market share and standardized products that utilize common components (Henry 2018, p. 147). This allows the organization to achieve economies of scale and reduce costs, which occurs when a firm increases its volume of production so its average cost of production falls (Henry 2018, p. 147). In order for Lime to compete on a low-cost strategy, it is crucial that Lime reduces its operating expenses in order to further reduce its prices. If Lime successfully manages to reduce its operating expenses in comparison to its competitors, they will earn a larger profit which they can then use to reinvest in the company. Another approach to reduce the expenses is to invest in R&D in order to, for example, make the scooter's range more efficient. The longer a Lime scooter can

drive without having to charge its batteries, the longer it will be on the road generating income. As mentioned, Lime's strategy is to offer low prices and to pursue the mass majority (TedTalk, 2018). The more scooters Lime releases, the higher the chance of a percentage of the population adapting and using the scooters. As Lime has been met with legislative challenges, it will become easier for Lime to make a strong argument if the public simultaneously receives the electric scooters well and Lime has collected positive data supporting their presence in Denmark.

In conclusion, in terms of *generic competitive strategies,* Lime is currently pursuing an industrywide overall cost leadership strategy.

6. SWOT

A SWOT analysis refers to strengths, weaknesses, opportunities, and threats, and is an examination of the internal and external environment in order to determine the extent of an organization's strategic fit between its capabilities and the needs of its external environment (Henry 2018, p. 93).

Strengths and weaknesses refer to the organization's internal environment over which the organization has control. Opportunities and threats refer to the organization's external environment over which the organization has much less control. Strengths are where the organization excels in comparison to its competitors while weaknesses are where the organization may be at a comparative disadvantage (Henry 2018, p. 94). Based on the internal analyses, we can identify Lime's strengths and weaknesses.

One of Lime's *strengths* is their strategic partnerships with Google and possibly Uber, and the technological innovation and development. This allows them to ao. reach a much broader audience through Google's platform, and these unique partnerships are difficult for competitors to imitate and compete against. They may also benefit from their partners'

extensive know-how. Another strength of Lime's is its intangible resource of valuable tacit knowledge gained by being a first-mover in most of the 22 countries they have entered. The knowledge and experience Lime has from being in dialog with various governments, and navigating various cultures is a great benefit. The continuous feedback and data Lime receives means that they can iterate and innovate at a faster pace. Lastly, Lime employs skilled personnel who have proven that they are able to raise substantial investments in a short period of time. This makes it possible for Lime to invest heavily in resources, and grow at a rapid speed.

One of Lime's *weaknesses* is its lack of product differentiation. Lime's electric scooters are similar to its competitors. Users will not necessarily select Lime's scooters based on their capabilities. Another weakness of Lime's is the potential long-term conflict of interest with their strategic partners, Google and Uber. Uber owns an electric scooter company, Jump, which is currently only present in the US. In addition, Uber and Google both own self-driving car companies, respectively Otto and Waymo (Fortune, 2018) (Waymo, 2019). Rivalry within the partnerships may occur in the future if Jump expands globally, and if Lime expands its product portfolio to include self-driving cars.

Based on the external environment we can identify opportunities and threats that Lime should be aware of. An *opportunity* for Lime is that the electric scooter industry is in its growth stage resulting in a continuously changing environment. Lime may be able to identify and take advantage of the opportunities that arise as the external environment changes, and create a strong position on the market. Another opportunity for Lime is to establish valuable relationships with politicians and governments by investing in the Danish infrastructure. Lime should also pursue the opportunity to invest heavily in R&D for its products and technical needs. It could invest in an in-house engineering team to develop longer lasting batteries, more durable scooters, and other product advancements. Finally, Lime could enter into new industries once they have established their presence in the electric scooter industry.

The next phase of micro-mobility is meeting the localized needs of the mass market consumer with new services such as food delivery.

A potential *threat* for Lime is that government policies may not be favorable towards the industry. In Denmark, the government has only legalized electric scooters for a trial period wherefore electric scooters could become illegal if the government finds the trial period unsuccessful. This is a threat for all the electric scooter providers, including Lime, and would mean that they would have to exit the Danish market. An additional threat for all the electric scooter providers is that the electric scooter industry has low entry barriers, meaning that it is easy for new entrants to enter the market and reduce renting prices. Since the cost of electric scooters are low and they are easily available, it can be expected that more electric scooter providers will enter the market in the future. Another threat for Lime is the fact that they are not first movers in Denmark, which could mean that users are already loyal to either Tier or VOI. This is in particular the case in Århus where VOI won the exclusive rights to release their electric scooters, whereas Lime in Copenhagen entered the market only a few months after Tier and VOI. An additional threat for is the lack of suppliers in the electric scooter industry because it is still so new. The limited number of suppliers means that the electric scooter providers make use of the same few suppliers. There is therefore a risk that quality issues may arise with the electric scooters which may affect the entire industry. As the electric scooter industry is developing, it can be expected that new product issues will arise. If scooters do not have a stable presence in the local markets, consumer interests may disappear. A final external threat for the industry is the weather conditions in Denmark which may cut the season for renting scooters short. It tends to rain a lot in Denmark and users riding on electric scooters are not very well protected. It may feel unsafe to ride on an unfamiliar electric scooter in the rain or during winter, especially if the user's alternative is car or public transportation rather than bike.

7. Solutions (TOWS) and Recommendations

This report will now look into solutions for Lime in order to answer this report's problem statement regarding which strategy Lime should pursue to become a successful entrant in the electric scooter industry in Denmark.

In order to identify solutions for Lime, the report will look into the TOWS matrix. The TOWS matrix is an extension of the SWOT analysis and can be used to identify options that address a different combination of the internal factors (strengths and weaknesses) and the external factors (opportunities and threats). The TOWS matrix suggests that a company uses its strengths to take advantage of an opportunity (Henry 2018, p. 96).

There are several competitors in the electric scooter mass-market (see table 1 in section 4.3) with an expectation that new entrants will intensify the rivalry in the near future. Therefore, the mass-market segment for electric scooters can be characterized as a potential red ocean. In a red ocean, a company competes in existing market space and tries to outperform their rivals in order to grab a greater share of existing demand. As the space gets crowded, the prospects for profits and growth are reduced (Henry 2018, p. 159). Therefore, it is generally not beneficial to pursue a red ocean strategy. With a blue ocean strategy, a company makes the competition irrelevant and therefore competes in uncontested market space benefiting from the opportunity for profitable growth (Henry 2018, p. 159). Companies who create blue oceans focus on value innovation making the competition irrelevant by placing equal emphasis on both value and innovation and pursuing a differentiation and low cost strategy at the same time (Henry 2018, p. 160). The providers who are able to successfully pursue a blue ocean strategy will most likely be one of the few successfully operating providers in the electric scooter segment in the future.

Lime's blue ocean strategy - Invest in R&D, in-house engineering and manufacturing.
In order for Lime to pursue a blue ocean strategy, Lime must focus on value innovation by pursuing a low cost strategy and a differentiation strategy at the same time. As Lime continues to enter new markets and increase its market share, Lime should focus on differentiating themselves more from their competitors. A differentiation strategy is aimed at a broad market and involves the organization competing on the basis of a product or service that is recognized by consumers as unique (Henry 2018, p. 150). Lime can pursue this strategy through product design or brand image, advanced technology, marketing abilities, reliability, customer service, and more (Henry 2018, p. 150). A differentiation strategy can provide the organization with higher margins that enables it to deal more easily with cost pressures from suppliers, and a successfully differentiated product has customer loyalty that protects the organization from the use of substitutes. The more difficult it is for competitors to imitate the differentiation, the more likely it will be for the organization to achieve a sustainable competitive advantage (Henry 2018, p. 151). A strategy that Lime could pursue, in order to differentiate themselves more, is to use their strength of talented personnel and their substantial investments to invest in R&D, and in-house engineering and manufacturing. Lime could develop swappable battery technology to speed up scooter charging, logistics, and scaling. Lime could develop technology to guide users through augmented reality (AR) on how to best park their scooter to not block pedestrians or inconveniently park the scooters, or help alleviate traffic congestion. Lime will have the ability to develop technology that lets them collect data on user's behavior, which they can share or sell to the government, and through technology and investments in the infrastructure help optimize users' behaviors. As the speed of innovation increases, the software-based electric scooter systems should be upgradable from remote. They should develop over-the-air updates to their scooters, so the vehicles appreciate rather than depreciate in value over time by adding new features, and develop technology that can be patented. Software competence is an important differentiating factor in areas such as safety, connectivity, and information sharing. Lime should collect data on how the specific users ride, and how they treat the scooters if allowed under data protection laws. This could give Lime the ability to acknowledge well-behaved users, and

punish or deny usage for users who damage the scooters often, or ride on the sidewalk. Lime should continuously aim to improve their scooters to make them more durable and safer, and improve their technological development. This would minimize or eliminate Lime's weakness in terms of lack of product differentiation, and remove the threat of Lime being dependent on the few electric scooter suppliers that exist.

Make use of know-how and establish valuable relationships with governmental institutions. Lime should make use of its strengths to exploit opportunities. One of Lime's strengths is its intangible resource of valuable tacit knowledge as they have obtained knowledge from being first-movers in other countries, and have entered the highest number of countries compared to its competitors. Lime should use its strength to take advantage of the continuously changing environment in Denmark as the electric scooter industry is in its growth stage. Lime should establish valuable relationships with Danish governmental institutions by sharing its knowledge and experience with them, and investing in the Danish infrastructure. Lime could invest in scooter stands, and new bike lanes similar to The Green Path (in Danish "Den grønne sti") in Copenhagen. The casual return of many scooters seems to be a concern of politicians (Appendix A), so Lime could develop its app to include a feature whereby the rental meter of the scooter will continue to run until the user has parked the scooter properly in a designated area, or at least outside prohibited areas. This could improve the reception of the electric scooters, and Lime would succeed in being portrayed as a collaborative partner focusing on the overarching goal of promoting alternative green mobility vehicles instead of being portrayed as an exploitative intruder who does not care about people and their safety. If Lime succeeds in having a positive relationship with governmental institutions, the threat of electric scooters becoming illegal will be minimized, and Lime's image as a responsible company in the general public view and the view of its actual and potential customers will increase.

Use strategic partnerships to establish presence and enter into new markets.

Lime's strength of establishing valuable strategic partnerships and the collective know-how, such as its relationship with Uber and Google, can be exploited by pursuing the opportunity of expanding into new industries once it has established a dominant presence in the electric scooter industry. There are currently several companies in the electric scooter market. Given the low entry barriers and the rapid adaptation of electric scooters by consumers, many more new players are likely to enter the market especially cash-rich high-tech start-ups. These new entrants are likely to generate interest around new mobility forms if they decide to extend their product portfolio and lobby for favorable regulation of new technologies. In order for the electric scooter providers to succeed in the future, they will have to adapt to a continuous process of anticipating new market trends, exploring alternatives and complements to the traditional business model, and exploring new mobility business models and their economic and consumer viability. This will require scenario planning and agility to identify and scale new attractive business models. In the future, consolidation may occur and there may only be a few players left in the electric scooter industry. The providers who are capable of building reliable products, optimizing their operations, establishing a positive relationship with governmental institutions, and maximizing the impact of new technology, will benefit the most. Benefitting from the platforms of Google, Lime could expand its service into a food ordering and delivery platform, and a postal and messenger courier platform. Lime could also expand its existing product portfolio of electric bikes, or expand its portfolio to include electric mopeds, and in the future perhaps also include small self-driving electric cars. Through Lime's strategic partnerships with Uber and Google, they can collectively build open, scalable ecosystems. Once Lime has invested in infrastructure such as in Denmark, and built a strong foundation in the electric scooter industry and established strong governmental relationships, Lime has the opportunity to discover and exploit opportunities to expand into new industries.

8. Conclusion on Internal and External Analysis

Through the internal and external analyses of Lime, the first part of the problem statement focusing on which strategy Lime should implement to become a successful entrant in the electric scooter industry in Denmark can be answered. Lime has raised substantial investments, and is currently valued at $2.4 billion indicating investors' anticipation of future earnings and understanding that there exists a limitless amount of possibilities for Lime and its growth. Lime creates value for its users in the value chain activities such as marketing and sales, technology development, and firm infrastructure. Value is created with Lime's strong strategic partnerships with Google and Uber, intellectual property, and technological innovation and development making Lime a strong long-term provider in the Danish electric scooter industry. Lime benefits from its experience and knowledge it has gained from its first-mover advantage from other countries. These resources provide Lime with a sustainable competitive advantage as they are valuable, rare, difficult to imitate, and non-substitutable. The electric scooter is currently in its growth stage characterized by rapidly increasing sales resulting in greater profits attracting new entrants to the market. Political factors such as governmental and municipality regulations have an impact in the electric scooter industry in Denmark. Currently the most crucial political factor affecting the industry in Denmark is whether or not electric scooters will become legalized on a permanent basis. As for economic factors, traffic congestion and pollution are continuously increasing. In terms of social factors, the population of Copenhagen is increasing annually, resulting in lack of space in the infrastructure. The electric scooter industry is heavily affected by the technological factors such as the internet and innovative development of technology. Furthermore, Lime and its competing providers' break-even point is quickly met as acquisition costs of scooters are low resulting in low entry barriers to the electric scooter industry. Low acquisition costs also mean that Lime is able to scale quickly due to its large capitalization and quick return on investment on the many scooters it has already supplied to the market. Lime's Gen 3 is currently positioned in the strategic group of offering low cost, accessible electric scooter vehicles where the focus is a first-to-market strategy, and quick growth. Lime is primarily

competing against its competitors on scalability and accessibility. Lime benefits from high investments, and talented personnel communicating with governmental institutions. In order for Lime to further differentiate from their competitors, they should invest in R&D, and in-house engineering and manufacturing, as Lime will be able to become technically superior to its competitors and scale up quickly. Lime should also make use of its extensive knowledge gained from their experiences of having entered 22 countries by sharing it with the Danish governmental institutions. Lime should invest in the infrastructure in Denmark, such as bike stands and new bike lanes. Lastly, as Lime becomes an established provider in the Danish electric scooter market, they should expand into new industries such as food and delivery platforms, and postal and messenger courier platforms, or expand their product portfolio further. These solutions will make Lime a successful entrant in the electric scooter market in Denmark.

9. Entrepreneurship and Innovation

9.1 The Concept of Entrepreneurship and Innovation

Today's economies are dramatically changing, triggered by development in emerging markets, the rise of new technologies, sustainability policies, and changing consumer preferences. Industries are being revolutionized by digitization, increasing automation, and new business models. In order to investigate how the Danish government should support entrepreneurial ventures in developing innovation and advance society, one must first attempt to understand the concept of entrepreneurship and innovation.

Joseph Schumpeter, a main theorist within the field of entrepreneurship, defines the entrepreneur and its function as "the doing of new things or the doing of things that are already being done in a new way (innovation)" (Schumpeter 1947, p. 151). Schumpeter distinguishes the entrepreneur, as someone who "gets things done," from the owner or manager who leads a company, to an inventor, who "produces ideas" that may not embody

anything that is new or act on the produced ideas (Schumpeter 1947, p. 152). Schumpeter sees the dynamic development of the market as governed by the process of creative destruction. He argues that changes in a capitalist system happens as capitalism is an evolutionary process, and that the basic dynamic that drives this process is new competition that destructs old forms. Schumpeter defines five forms of innovation that keep "the capitalist engine in motion." It is 1) the introduction of a new good or a new quality of a good that consumers are not yet familiar with, 2) the introduction of a new method of production, 3) the opening of a new market, 4) the conquest of a new source of supply, and 5) the carrying out of the new organization of any industry (Schumpeter 1944, p. 83). It is this process that revolutionizes the economic structure from within, destroying the old structure, and creating a new one. Schumpeter states that the competitiveness of the company is given by its ability to manage the process of creative destruction, and he differentiates between creative and adaptive responses to change. An adaptive response is when the economy, industries, or companies do something that is within its existing practice, and creative response is when they do something that is outside of the range of existing practice (Schumpeter 1947, p. 150). He argues that "creative response changes social and economic situations for good. ...it creates situations from which there is no bridge to those situations that might have emerged in its absence" (Schumpeter 1947, p. 150). Creative response has three essential characteristics. First, it can almost never be predicted by applying the ordinary rules from the pre-existing facts and, therefore, one must investigate each case. Schumpeter refers to Knight's concept of uncertainty, which deals with the difficulty of making decisions that involve a future that is unknown. A situation is truly uncertain when not only the outcomes, but even the probability models that govern them, are unknown. It is a lack of any quantifiable knowledge about a possible event, as opposed to the presence of quantifiable risk (Knight 1921, p. 19). True uncertainty may give rise to extraordinary profits. Secondly, creative response shapes the whole course of subsequent events and the long-term outcome. Thirdly, creative response, the frequency of its occurrence in a group, its intensity, and success or failure, is affected by the quality of the personnel available in a society, the relative quality of personnel, that is, with quality available to a particular field of activity

relative to quality available, at the same time, to others, and by the individual decisions, actions and patterns of behavior (Schumpeter 1947, p. 150). Schumpeter concludes that the mechanisms of economic change in capitalist society pivot on entrepreneurial activity.

This conclusion is fundamental for understanding how society advances. It is also crucial for understanding the relationship between the public and private sector, and how they interact. In the current structure of the public transportation industry in Denmark, The Traffic Agency (in Danish: "Trafikstyrelsen") being part of the Danish government to a large extent controls and subsidizes the bus, train, and metro industry. These industries involve substantial public investments and subsidies, and generate substantial operational income and expenses. The Traffic Agency's accounts for 2018 show an income of DKK 263.3 million, receipt of public subsidies (in Danish: "bevilling på finansloven") of DKK 135.9 million, and expenses of DKK 377.1 million, generating a net loss of DKK 22.1 million (Trafikstyrelsen, 2019). In the micro-mobility industry, three municipalities in Greater Copenhagen and the Danish State Railways (in Danish: "DSB") have subsidized the rather unsuccessful 1,850 electric bikes operated in Copenhagen by "Bycyklen," with DKK 95.8 million over 8 years (Bycyklen, 2019). The government has substantial political and economic interest in protecting these industries while simultaneously creating high entry barriers making it difficult for new entrants to enter the markets and for competition to occur, making these industries near monopolies. According to Schumpeter, in order for innovation and dynamic development to occur in the transportation industry and to move forward the development and economy, the government or the companies within the monopoly-like industries would have to pursue creative destruction. This would be beneficial for the government as a substantial percentage of the population in urban areas makes use of public transportation on a daily basis.

One could argue that the Danish government could be defined as entrepreneurial as their purpose is to "get things done" by for example passing laws, and not just lead the country or institution, or produce ideas. Schumpeter states that the dynamic development of the market is governed by the process of creative destruction, and that changes in a capitalist system

happen as capitalism is an evolutionary process, and that the basic dynamic that drives this process is new competition that destructs old forms. The government does not create new competition that destructs old forms within its institutions. The government often makes it even more difficult for competition to occur, and therefore does not provide any of Schumpeter's five forms of innovation that keep "the capitalist engine in motion." As a bureaucratic institution with multiple stakeholders' opinions to consider, the government rarely introduces new goods or new quality of goods, new methods of production, opens a new market, discovers new sources of supply, or carries out new organizations of any industries. These forms of innovation are the process that revolutionizes the economic structure from within, destroying the old structure, and creating a new one. The government is pursuing adaptive response, which is when the economy, industries, or companies do something that is within its existing practice. The government and its politicians do not pursue creative destruction or provide entrepreneurial activity, which pivot the mechanisms of economic change in capitalist society.

Lime can be defined as entrepreneurial as they "get things done." In contrast to the government, Lime pursues the innovation of introducing a new good, the dockless electric scooters, which are emerging on the Danish market. Schumpeter defines creative response as when companies do something that is outside of the range of existing practice, and argues that "creative response changes social and economic situations for good. ...it creates situations from which there is no bridge to those situations that might have emerged in its absence." Lime's identified activities in the internal analysis, such as its strategic partnerships and valuable knowledge, may lead to creative destruction in the electric scooter industry in Denmark. If electric scooters are permanently legalized, Lime and its competitors will have changed the social, legal, and possibly the economic situation in Denmark for good. The Danish population will have the option to use a new mobility vehicle, and there will exist laws surrounding micro-mobility vehicles that may affect related laws. The economic situation may change as the concept of dockless rental providers may pave the way for new innovative service providers that will then affect the economic situation. In comparison to the

Danish government, Lime can with a greater sense of certainty be defined as an entrepreneurial venture, and its entrepreneurial activity is to a greater extent able to make an economic change in our society.

William Baumol, an American economist, expands on Schumpeter's theory of economic growth, and explores what influences entrepreneurs to pursue innovation. Baumol states that the allocation of entrepreneurship, meaning how the entrepreneur acts at a given time and place, must be considered, and this allocation of entrepreneurship depends heavily on the reward structure in the economy (Baumol 1990, p. 894). Baumol argues that entrepreneurs often make no productive contribution to society at all, and in some cases even play a destructive role. The reward structure in the economy may push entrepreneurs towards productive activities such as innovation, unproductive activities like rent seeking, or even destructive activities like organized crime. People are said to seek rents when they try to obtain benefits for themselves through the political arena. They typically do so by getting a subsidy for a good they produce, for being in a particular class of people, or by getting a special regulation that hinders their competitors (Baumol 1990, p. 893). This occurs when the structure of payoffs in an economy gives unproductive activities the opportunity to become more profitable than productive activities. The institutions of society regulate the allocation of entrepreneurial activity. Baumol states that it is "the set of rules and not the supply of entrepreneurs or the nature of their objectives that undergoes significant changes from one period to another and helps to dictate the ultimate effect on the economy via the allocation of entrepreneurial resources" (Baumol 1990, p. 894). Baumol states three propositions. First, the rules of the game that determine the relative payoffs to different entrepreneurial activities change dramatically from one time and place to another. Secondly, entrepreneurial behavior changes direction from one economy to another in a manner that corresponds to the variations in the rules of the game. Finally, the allocation of entrepreneurship between productive and unproductive activities can have a profound effect on the innovativeness of the economy and the degree of dissemination of its technological discoveries (Baumol 1990, p. 898). Baumol believed that the prevailing rules that affect the allocation of entrepreneurial activity can be

observed and described, and the government can modify and improve these. Baumol, like Schumpeter, proposes making use of historical analysis because the process of economic development is slow and can only be understood based on actual results rather than forecasts.

The Danish government subsidizes the transportation industry, including electric bicycles, and therefore benefits from the industry making it difficult for new entrants to enter the market and innovate. The current reward structure in the transportation industry in Denmark is organized through legislation by the government to benefit the government itself and its partnering transportation companies. The government and its transportation partners pursue unproductive activities as they are rent seeking. This results in them obtaining benefits through the political arena by subsidizing their goods. Additionally, the taxi industry in Denmark has obtained special regulation from the government and impeded companies, such as Uber, from entering into the market, and becoming a competitor. These types of unproductive activities occur when the structure of payoffs in an economy gives unproductive activities the opportunity to become more profitable than productive activities. Lime is pursuing innovation, which is a productive activity. As the institutions of society regulate the allocation of entrepreneurial activity, the reward structure in Denmark needs to shift, so that it benefits productive activities, and ultimately has a positive effect on the development of society. Baumol states that it is "the set of rules and not the supply of entrepreneurs or the nature of their objectives that undergoes significant changes from one period to another and helps to dictate the ultimate effect on the economy via the allocation of entrepreneurial resources" (Baumol 1990, p. 894). In order to create this shift, the rules that affect the allocation of entrepreneurial resources need to be identified, so the government can modify and improve upon these. Since the current reward structure in Denmark is set up to benefit the government and its partnering transportation companies, the challenge occurs as the government may view a shift in the reward structure to be unfavorable to the government. If the Danish government readjusts its reward structure to benefit and attract entrepreneurs pursuing productive activities, it will have a profound effect on the innovativeness of the

economy, and distribution of its technological discoveries. Additionally, the companies will pay taxes to the government.

In a report from KPMG (KPMG, 2018), Sweden was scored as the fourth most prepared country in the world for self-driving vehicles, also known as autonomous vehicles (AV). The report concludes that a country's economic development correlates strongly with its preparedness for AVs. Although the report focuses on AVs, it is an indication that Sweden highly values, invests, and supports innovation in order to create a society where innovation is encouraged. Meyer, Planning Lead at Autonomous Mobility, believes that the Danish government is not very willing to pursue risk (Appendix D). He states that it is crucial that new products and services are being used and tested in public in order for companies to receive valuable feedback. Meyer quickly received permission to operate Autonomous Mobility's self-driving busses on public roads in Sweden. In contrast, Meyer describes the process of obtaining permission to operate the self-driving busses in Denmark as extremely frustrating, as it is still ongoing after two years (Appendix D). He believes that the Danish government dislikes change. Despite this, Meyer is positive that regulation will change to benefit Autonomous Mobility, and self-driving busses will operate on public streets in Denmark in the near future (Appendix D). The Danish government should study Sweden as an example of a government that has successfully shaped their reward structure to support entrepreneurial innovation.

Theory by Edith Penrose, a British economist, focuses on how the concept of entrepreneurship and the role of entrepreneurial services may be linked to the growth of the firm, and the growth of new ventures. She argues that the concept of entrepreneurship is fundamental for understanding firm growth as it drives the exploitation of resources in the company. The growth is governed by a creative and dynamic interaction between a firm's productive resources, and the opportunities in the market. The available resources limit a company's expansion, whereas unused resources, including technological and entrepreneurial, stimulate and determine the direction of expansion (Penrose 1960, p. 1). A

company planning to expand considers its acquired or inherited resources, and the resources it must obtain from the market to carry out its strategy. A company is a pool of productive resources, and it grows when resources are put to service in the pursuit of productive opportunities. A productive opportunity "...comprises all of the productive possibilities that its [the firm's] 'entrepreneurs' see and can take advantage of. A theory of the growth of firms is essentially an examination of the changing productive opportunity of firms" (Penrose 1960, p. 28). The unused productive services together with the changing knowledge of management create productive opportunities, which are unique for each company. The unused productive services are an opportunity for the company to innovate, an incentive to expand, and a source of competitive advantage (Penrose 1960, p. 2). A company's inherited resources and productive services affect a company's ability or limitation to expand, because productive opportunities are shaped and limited by a company's ability to use its already existing resources. A company's ability to expand relates to its resources, its accumulated experience and knowledge, and the opportunity it investigates when it considers expansion (Penrose 1960, p. 3). It is also affected by existing management even if other resources are obtainable in the market. The growth of the firm is fundamentally constrained by the knowledge and experience of its existing personnel (Penrose 1960, p. 22). The managerial services relate to the execution of entrepreneurial ideas and proposals, and to the supervision of existing operations, whereas the quality of entrepreneurial services include entrepreneurial versatility, fundraising ingenuity, entrepreneurial ambition, and entrepreneurial judgment (Penrose 1960, p. 28). In spite of the importance of technological and market considerations, the entrepreneurship of a company will largely determine how imaginatively and how rapidly it exploits its potentialities (Penrose 1960, p. 23). The company's managerial and entrepreneurial resources put a limit to its growth.

Lime's growth is governed by the interaction between its productive resources, which is ao. its strategic partnerships and tacit knowledge, and the opportunities in the market. As Lime is a young company, they have a substantial number of unused resources. These resources could be unused know-how among their investors or personnel, an unutilized network, or lack of

investments in a certain category. Lime's unused resources, including technological and entrepreneurial, will determine the direction of expansion. The entrepreneurship of Lime will determine how rapidly Lime can exploit its potentialities. Lime's managerial and entrepreneurial resources are the limit to their growth.

Theorist Howard Stevenson focuses on the concept of corporate entrepreneurship, and establishes a link between entrepreneurship, and corporate entrepreneurship and management. Stevenson identifies three main categories, which are what happens when entrepreneurs act, why they act, and how they act (Stevenson 1990, p. 18). The first point, what happens when entrepreneurs act, focuses on the effects and results of the actions of the entrepreneur, and tends to be dominated by economists. Entrepreneurship is viewed as the act of starting new businesses, and as the function by which growth is achieved. The focus is on the net effect upon the general economic system of the actions of the entrepreneur, and the role the entrepreneur plays in the development of the market. This aligns with Schumpeter, who considers entrepreneurship the process by which the economy as a whole goes forward, and that it is the carrying out of new combinations that constitutes the entrepreneur. The new combinations refer to Schumpeter's identified five forms of innovation (mentioned in section 9.1). Stevenson states that the effects of entrepreneurship abstracts from the individual entrepreneur, and the entrepreneur's actions, to focus on the process by which those actions affect the economic environment. It recognizes the entrepreneurial function as responsible for economic improvement in our society due to its innovations, and it creates a distinction between the roles of investor, the manager, and the entrepreneur (Stevenson 1990, p. 19). The second point, why entrepreneurs act, focuses on the causes of entrepreneurship within the disciplines of psychology and sociology. The focus is on the entrepreneurial individual in order to understand those who provide economic improvement, and to understand entrepreneurship from its causes (Stevenson 1990, p. 19). Stevenson states that it is extremely difficult to link particular psychological or sociological traits to patterns of complex behavior, such as entrepreneurship (Stevenson 1990, p. 20). Despite this, the contributions of the "entrepreneurship from its causes" approach is still relevant when attempting to understand

corporate entrepreneurship. Stevenson states that it is individuals who carry out entrepreneurial activities, regardless of their definition, and their characteristics, such as personality, background, skills, do matter. The environmental variables are relevant as they provide opportunities to exploit market inefficiencies, as in the economists' approach, and also because different environments are more or less conducive to entrepreneurship, and can be more favorable to the new venture's success (Stevenson 1990, p. 21). The last point, how entrepreneurs act, focuses on the managerial behavior of the entrepreneur, meaning what do entrepreneurs do or how does one succeed at being an entrepreneur (Stevenson 1990, p. 21). The focus is on the different life cycles through which new ventures pass and the problems entrepreneurs face as their companies mature, and tries to find predictors of success for new ventures (Stevenson 1990, p. 21).

According to Stevenson's theory, Lime as an entrepreneurial company pursuing innovation will drive economic growth in society. The entrepreneurial individuals of Lime is its founders. Lime's founders Brad Bao and Toby Sun graduated from Berkeley University, and are based in Silicon Valley, California (LinkedIn 2019a) (LinkedIn 2019b). There is limited information available about either founder, and it seems as if there is not yet a fascination with the Lime founders like that endured by the late Steve Jobs, or Elon Musk. The Lime founders are skilled at carrying out entrepreneurial activities and "getting things done," and their characteristics, such as personality, background, and skills matter. In relation to environmental variables, they likely have a valuable network for raising capital, exploiting know-how, and utilizing connections, which are favorable to Lime, as they have graduated from Berkeley, and are based in Silicon Valley. There exists limited information about the style of management, personnel, and company culture at Lime, because it is still a young company. Based on the internal analysis, Lime has successfully been able to raise a great amount of capital, establish strong partnerships, and enter into a vast amount of markets. This indicates that Lime's management and personnel consist of entrepreneurial minded people.

In conclusion of the concept of entrepreneurship and innovation, Schumpeter provides his definition of the entrepreneur and its function, the five forms of innovation, and argues that the dynamic development of the market is governed by the process of creative destruction. Lime can be defined as an entrepreneur as it "gets things done," and pursues the innovation of introducing a new good, the dockless electric scooters. Baumol states that the allocation of entrepreneurship depends heavily on the reward structure in the economy. In order to achieve the greatest benefits, the Danish government should readjust its current reward structure to attract entrepreneurs pursuing productive activities, such as innovation. Penrose focuses on how the concept of entrepreneurship and the role of entrepreneurial services may be linked to the growth of the firm, and the growth of new ventures, and states that growth is governed by a creative and dynamic interaction between a firm's productive resources and the opportunities in the market. Lime grows when resources are put to service in the pursuit of productive opportunities. Finally, Stevenson focuses on the concept of corporate entrepreneurship, and studies what happens when entrepreneurs act, why they act, and how they act. Lime benefits from a strong network, which is is favorable to a new venture's success, as its founders graduated from Berkeley, and are based is Silicon Valley. In order to extend the discussion and analysis further, the report will investigate the concept of opportunity in entrepreneurship.

9.2 The Concept of Opportunity in Entrepreneurship

Theorists, Shane and Venkataraman, present the discovery view, and define the field of entrepreneurship as the examination of how, by whom, and with what effects opportunities to create future goods and services are discovered, evaluated, and exploited (Shane et al. 2000, p. 218). The field involves the study of sources of opportunities, which are the processes of discovery, evaluation, and exploitation of opportunities, as well as the set of individuals who discover, evaluate, and exploit them (Shane et al. 2000, p. 218). The framework focuses on 1) why, when, and how opportunities for the creation of goods and services come into existence, 2) why, when, and how some people and not others discover and exploit these opportunities,

and 3) why, when, and how different modes of action are used to exploit entrepreneurial opportunities (Shane et al. 2000, p. 218).

Firstly, Shane and Venkataraman state that, in order to have entrepreneurship, one must first have entrepreneurial opportunities. Entrepreneurial opportunities are defined as situations in which new goods, services, raw materials, and organizing methods can be introduced and sold at greater cost than their cost of production (Shane et al. 2000, p. 220). Although recognition of entrepreneurial opportunities is a subjective process, the opportunities themselves are objective phenomena that are not known to all parties at all times (Shane et al. 2000, p. 220). Within product market entrepreneurship, three different categories of opportunities exist. They are 1) the creation of new information, for example the invention of new technologies, 2) the exploitation of market inefficiencies that result from information asymmetry, for example what occurs across time and geography, and 3) an opportunity that arises as a reaction to shifts in the relative costs and benefits of alternative uses for resources, for example what occurs with political, regulatory, or demographic changes (Shane et al. 2000, p. 220). Opportunities arise on a regular basis when economic conditions are liable to change.

Secondly, an individual must discover entrepreneurial opportunities as they can only earn the profit if they possess prior information necessary to identify an opportunity, and have the cognitive properties necessary to value it. The prior information should be complementary with the newly obtained information, which can trigger an entrepreneurial speculation. The information necessary to recognize an opportunity is not widely distributed across the population because of the specialization of information in society (Shane et al. 2000, p. 222). Shane and Venkataraman state that, the discovery of entrepreneurial opportunities is not an optimization process where people can make calculative predictions in response to various alternative options imposed on them. People must be able to identify new means-ends relationships that are generated by a given change in order to discover entrepreneurial opportunities (Shane et al. 2000, p. 222). Means-ends refers to a framework in which the

solution to a problem can be described by finding a sequence of actions that lead to a desirable goal (Encyclopædia Britannica 2019).

Finally, the potential entrepreneur must decide to exploit the discovered opportunity, and the decision relies on the nature of the opportunity, and individual differences. Entrepreneurs tend to exploit opportunities that have a higher expected value. Exploitation is more common when the expected demand is larger, industry profit margins are high, the technology life cycle is young, the density of competition in a particular opportunity space is neither too low nor too high, the cost of capital is low, and population-level learning from other entrants is available (Shane et al. 2000, p. 223). The decision to exploit an opportunity involves considering the costs for obtaining the resources necessary to exploit the opportunity, the strong social ties to resource providers facilitating the acquisition of resources, the transferability of information from prior experiences, and the downside risks, such as time, effort, and money (Shane et al. 2000, p. 223). Additionally, individual traits, such as optimism, self-efficacy, and a need for control or achievement can determine if an individual decides to exploit entrepreneurial opportunities (Shane et al. 2000, p. 224).

In contrast to Shane and Venkataraman, theorists, Popp and Holt, present the creation view, and define the experience of opportunity recognition and pursuit as a constant interplay of person, becoming and place, set within the experiential flow of history (Popp and Holt 2013, p. 10). Entrepreneurial opportunities are processes, rather than objects or events. These processes unfold based on the creativity of the entrepreneur, and it cannot be separated from the entrepreneur's ongoing experience of life (Popp & Holt 2013, p. 23). An opportunity emerges when the entrepreneur imagines a new future or "... a world where history comes into being," and this is done under conditions where the future is unknowable (Popp & Holt 2013, p. 24). Popp and Holt refer to Shackle, who states: "A fully structured history leaves nothing to be created, nothing to be done by human decision, no room for the truly and strictly inceptive thought…. History may indeed be fully structured, but if so it is not interesting to talk about decision…" (Popp & Holt 2013, p. 17). Since history is not fully

structured, Popp and Holt state that imagination is necessary. An entrepreneur creates an opportunity by drawing on experience from the past and imagination of the future, and thus creates an opportunity in the present (Popp & Holt 2013, p. 24). An entrepreneur therefore interrupts history, and the entrepreneurial decision-maker becomes an active rather than a passive figure (Popp & Holt 2013, p. 19). The entrepreneurs "think the world anew" by drawing on disclosive spaces, meaning a web of meanings (Popp & Holt 2013, p. 19). A disclosive space is any set of practices for dealing with oneself, other people, and things that produces a relatively self-contained web of meanings. It is from within disclosive spaces that entrepreneurs act to realize imagined opportunities (Popp & Holt 2013, p. 19).

When the image of a new future is worked into a new venture, the entrepreneur uses the cognitive strategies: articulation, cross-appropriation and reconfiguration, to make that task more concrete. Articulations are acts that "help us to retrieve a way of dealing with ourselves that has lost its prominence and relevance...and finding a new way of making it worthwhile" (Popp & Holt 2013, p. 20). "Articulations" re-emphasize the need for a community to focus on its basic values and practices. Lime manifests its values and practices by continuously articulating its mission, and the importance of promoting green alternative mobility vehicles in order to solve traffic congestion in cities, and minimize pollution. Secondly, "cross-appropriation" is the "bringing of practices into contexts that could not generate them, but in which they are useful" (Popp & Holt 2013, p. 20). "Cross-appropriations" combine values and practices from different parts of social life in new patterns that change the form of the world we live in. Lime is making use of cross-appropriation as they are creating a movement and changing consumer behavior, as consumers are becoming more aware of how they mobilize themselves in their everyday lives through their choice and use of transportation vehicles. Finally, "reconfiguration" merges from all the playful practices that seem not aimed at increasing "productivity, truth, maturity, quality, or fall under any of the other terms that signify seriousness" (Popp & Holt 2013, p. 19). Reconfiguration is the process in which a marginal practice is modified, or made into a dominant practice. Lime is achieving reconfiguration by launching, and releasing electric scooters, that sets new ways of

life. Entrepreneurs can envision ways in which the world around them might be reshaped by using their imagination, and with a set of practices and styles, and alert to deviations in their environment that suggest opportunities. Entrepreneurs can draw from their accrued experiences, and attempt to make their visions more concrete knowing that the future is far from assured (Popp and Holt 2013, p. 20).

An extension of Stevenson's theory focuses on the opportunities within entrepreneurship. Stevenson defines entrepreneurship as "a process by which individuals, either on their own or inside organizations, pursue opportunities without regard to the resources they currently control," and he defines an opportunity as "a future situation which is deemed desirable and feasible" (Stevenson 1990, p. 23). The concept of opportunities is relativistic as individuals have different desires, and capabilities, that vary over time. An individual's desires depend on its current position and future expectations, whereas capabilities depend on skills, training, and the competitive environment (Stevenson 1990, p. 23). Skills are accumulated knowledge from experiences. Stevenson states that one needs to understand the nature of entrepreneurial processes in order to understand how to foster entrepreneurship (Stevenson 1990, p. 23). This approach includes both individual and organizational entrepreneurship in order to link the findings upon the outcome of entrepreneurial ventures to the field of corporate entrepreneurship.

Stevenson states that the level of entrepreneurship within the firm, i.e. the pursuit of opportunities, is critically dependent on the attitude of the individuals within the firm, below the ranks of top management. The essence of corporate entrepreneurship is that opportunities for the firm has to be pursued by individuals within it. An employee's ability to recognize an opportunity depends on i.e. its knowledge of the market, the technologies involved, and customer's needs. Entrepreneurial behavior correlates to a firm efforts to position and train individuals to detect opportunities, and reward them for doing so. Management should minimize the impact of discouraging to entrepreneurial behavior, for instance the fear of the consequences of failure to the employee's career, as "firms which make a conscious effort to

lessen negative consequences of failure when opportunity is pursued will exhibit a higher degree of entrepreneurial behavior" (Stevenson 1990, p. 24). Stevenson states that, "not only the success rate, but the very amount of entrepreneurial behavior will be a function of the employees' subjective ability to exploit opportunities." A firm must invest in managerial and technical ability, and acknowledge that the different stages of a firm may require different managers. Additionally, Stevenson states that "organizations which facilitate the emergence of informal internal and external networks, and allow the gradual allocation and sharing of resources, will exhibit a higher degree of entrepreneurial behavior" (Stevenson 1990, p. 25).

The detection of the opportunity, the willingness to pursue it, and the confidence and the possibilities of succeeding are key components in the process. Entrepreneurship will not emerge without an environment that fosters the detection of opportunities. The motivation to pursue opportunities, and its facilitation, influence the final outcome. The factors reinforce each other, and emphasize the need for an entrepreneurial culture within the firm (Stevenson 1990, p. 25).

In order to determine Lime's opportunity, which is "a future situation which is deemed desirable and feasible," one must first identify Lime's long-term strategic goal. Lime's mission is "to provide on-demand transportation solutions that are affordable, convenient, and environmentally-friendly." Lime's mission combined with its growth strategy and high investments indicate that Lime's desirable and feasible future is to become a dominant actor in the global micro-mobility industry. Lime has successfully raised a great amount of capital, established strong partnerships, and entered into a substantial number of markets indicating that Lime's personnel consist of entrepreneurial minded people. It is crucial that Lime continues to hire entrepreneurial minded individuals as "the level of entrepreneurship within the firm, i.e. the pursuit of opportunities, is critically dependent on the attitude of the individuals within the firm, below the ranks of top management." Lime's personnel are a differentiating factor, and it is therefore essential that Lime continues to makes an effort to lessen negative consequences of failure, and establish a culture where individuals are willing

to pursue opportunities, have the confidence, and the possibilities of succeeding. Lime's entrepreneurship will not emerge without an environment that fosters the detection of opportunities.

In conclusion of the concept of opportunities in entrepreneurship, Shane & Venkataraman argue for the discovery view, where opportunities are seen as given by structural development. The entrepreneur sees and exploits opportunities, and does so based on prior knowledge, and personal traits. Popp & Holt represent the creation view, where opportunities are seen as imaginative and historically embedded processes. The opportunity emerges as the entrepreneur is an active player and imagines a new future under conditions where the future is unknowable, and when the entrepreneur constructs an opportunity by imagining a new future. The entrepreneur does so in the context of the webs of meaning in which the entrepreneur exists. Lime pursues the creation view as they are actively constructing an opportunity by imagining a new future with electric scooters. Finally, Stevenson argue that, the detection of the opportunity, the willingness to pursue it, and the confidence and the possibilities of succeeding are key components in the process. Entrepreneurship will not emerge without an environment that fosters the detection of opportunities. It is crucial that Lime continues to hire entrepreneurial minded people, and create an environment where personnel detects opportunities, are willing to pursue an opportunity, and have the confidence and the possibilities of succeeding.

In order to obtain a greater understanding of the logic of decision making in the start-up process, the following will look at the concept of causation and effectuation.

10. Causation and Effectuation

The concept of effectuation, a theory by Saras Sarasvathy, proposes a logic of decision making in the start-up process, which can also be used to explain decisions and behavior in general. Sarasvathy states that "in economics and management theories, scholars have

traditionally assumed the existence of artifacts such as organizations and markets. I argue that an explanation for the creation of such artifacts requires the notion of effectuation" (Sarasvathy 2001, p. 243). Sarasvathy differentiates between causation and effectuation logic. Causation and effectuation processes are integral parts of human decision making, and can occur simultaneously and overlapping over different contexts of decisions and actions (Sarasvathy 2001, p. 245). Unlike in causation models, which are usually static and in which decision makers are assumed independent, in effectuation a dynamic decision environment involving multiple interacting decision makers is assumed.

Causation processes consist of many-to-one mappings, and take a particular effect as given and focus on selecting between means to create that effect (Sarasvathy 2001, p. 245). Causation processes focus on the predictable aspects of an uncertain future, and it claims that to the extent that the future can be predicted, it can be controlled. Causation processes are effect dependent, rest on a logic of prediction, and are excellent at exploiting knowledge. Causation models may be preferred when pre-existing knowledge, such as expertise in new technology, forms a competitive advantage.

Effectuation processes consist of one-to-many mappings, and take a set of means as given, and focus on selecting between possible effects that can be created with that set of means (Sarasvathy 2001, p. 244). The effectuation strategy focuses on controlling an unpredictable future, and it claims that to the extent that the future can be controlled, it does not need to be predicted (Sarasvathy 2001, p. 253). Sarasvathy expands on Popp and Holt's conceptualization of opportunity, and states that, "the effectuating entrepreneurs' vision appears to involve more than the identification and pursuit of an opportunity; it seems to include the very *creation* of the opportunity as part of the implementation of the entrepreneurial process" (Sarasvathy 2001, p. 249). Sarasvathy argues that, effectuation is most suited for making decisions under circumstances of uncertainty. She states that, "human life abounds in contingencies that cannot easily be analyzed and predicted but can only be seized and exploited, and, therefore, effectuation processes are far more frequent and very

much more useful in understanding and dealing with spheres of human action. This is especially true when dealing with the uncertainties of future phenomena and problems of existence" (Sarasvathy 2001, p. 250). The strategies of effectuation consist ao. of affordable loss, rather than expected returns. It predetermines how much loss is affordable, and focuses on experimenting with as many strategies as possible with the given limited means. The preference is to create more options in the future instead of maximizing returns in the present. An effectuation strategy also emphasizes strategic alliances and precommitments from stakeholders as a way to reduce and eliminate uncertainty, and to build entry barriers.

Lime's decision making is based on an effectuation logic. Lime is utilizing its means and focusing on selecting between possible effects that can be created with that set of means. As Lime is a young company focusing on aggressive growth, it can be expected that it is currently operating with affordable loss, rather than maximizing its present returns. Additionally, Lime has established strategic alliances with Google and Uber, and likely precommitments from stakeholders, in order to reduce and eliminate uncertainty, and to build entry barriers. Lime is pursuing an one-to-many mapping, and is focusing on controlling an unpredictable future. In relation to Popp and Holt, Lime is not only identifying and pursuing an opportunity, but also creating the opportunity. By pursuing an effectuation strategy, Lime is creating a strong position if it decides to expand into new markets, or expand its product portfolio in the future.

In conclusion, effectuation processes are placed as the fundamental decision units in explanations of how economic artifacts, such as firms, markets, and economies come to be. Effectuation begins with a given set of causes, and the focus is on choosing among alternative, desirable effects that can be produced with the given set of means, thereby eliminating the assumption of preexistent goals. The four principles of effectuation, in contrast with causation, involve 1) affordable loss, rather than expected returns, 2) strategic alliances, rather than competitive analyses, 3) exploitation of contingencies, rather than pre-existing knowledge, and 4) control of an unpredictable future, rather than prediction of an

uncertain one (Sarasvathy 2001, p. 259). Lime is pursuing an effectuation logic, which involves a one-to-many mapping, and its focus is on the controllable aspects of an unpredictable future. Lime is likely currently operating with affordable loss instead of focusing on maximizing returns in the present, and focusing on strategic alliances and precommitments from stakeholders.

11. Strategic Partnerships

Theorists, Baum, Calabrese, and Silverman (Baum et al.), predict that startups can enhance their early performance by, at the time of their founding, 1) establishing an alliance network, 2) configuring the network to provide efficient access to diverse information and capabilities with minimum costs of redundancy, conflict, and complexity, and 3) allying with potential rivals that provide more opportunity for learning, and less risk of intra-alliance rivalry (Baum et al. 2000, p. 267).

Firstly, a startups' performance is affected by its founding organizational and environmental conditions. Key members are typically in unfamiliar roles and new work relationships at a time when organizational resources are stretched to the limit. Additionally, new firms are assumed to lack the foundation of influence and endorsements, stable exchange relationships with important external stakeholders, and perceptions of quality, reliability, and legitimacy that years of experience grant more established suppliers (Baum et al. 2000, p. 268). Since new firms tend to be small, the liability of newness could also be seen as a liability of smallness. In both cases, it is assumed that uncertainty in product or service quality, a lack of social approval, stability and sufficient resources, raise the risk of failure. Therefore, an important predictor of a startup's initial performance trajectory is its alliance network at founding (Baum et al. 2000, p. 269). Startups with strategic alliances at founding can mitigate the risks of newness, because the knowledge, resources, stability, and associative legitimacy that partners grant on the startup, will tend to compensate for the disadvantages of organizational inexperience (Baum et al. 2000, p. 270). The value of interorganizational

relationships include accessing complementary assets and resources, and creating competitive advantage. The advantages include access to strategic and operational knowhow, possession of exchange relationships, and innovative capabilities (Baum et al. 2000, p. 269). It also includes external endorsement of its operation, and the perceived quality and reliability of its products and services among potential customers, suppliers, employees, collaborators, and investors.

Secondly, the composition of a startup's alliances may contribute significantly to its performance. Redundancy, internal conflict, and complexity are likely to influence the effectiveness of a startup's alliance configuration. The growth in number of a firm's alliances increases potential partner redundancy as alliances are redundant if they provide access to the same information or complementary capabilities. Increasing the number of alliances without considering partner diversity can create inefficient configurations that return less diverse information and capabilities, and can lead to conflict among a firm's partners as duplication creates rivalry among a firm's alliance partners (Baum et al. 2000, p. 270). More efficient alliance configurations, that provide access to more diverse information and capabilities per alliance, and produce desired benefits with minimum costs of redundancy, conflict, and complexity, will prove most beneficial to startups. A risk of strategic alliances may be that the expected property rights associated with alliance output and profits are undefined within the strategic alliances. Collaborators can risk opportunistic exploitation by their partners, including leaking proprietary knowledge, or losing control of important assets (Baum et al. 2000, p. 271).

Finally, a startup can enhance its early performance, and gain access to tacit knowledge to strategy, technology, and operations critical to their success, by allying with potential rivals that provide more opportunity for learning, and less risk of intra-alliance rivalry. The effect of a startup's alliances with its potential rivals, and its potential risks and opportunities, vary from partner to partner. Asymmetric learning incentives arise when one partner gain a larger private benefit than the other partner. Private benefits are when a partner gains by applying

what it learns to its operations outside the scope of the alliance. Therefore, the relative scope of allies' market domains captures the incentives each partner has to invest in learning and act competitively, versus cooperatively, within the alliance (Baum et al. 2000, p. 272). Alliance benefits include ao. utilizing partners who possess leading-edge technology and production capabilities, the ability to acquire advance knowhow, and the transfer of status and resources.

Lime's strategic alliances include ao. Google and Uber. Lime's partnership with Google is mutually beneficial. Lime is an attractive partner for Google as Google will likely benefit from high dividends, knowledge and revenue from data collecting, and the ability to associate themselves with Lime, a young, fast growing company. As mentioned, Lime benefits from its partnering with Google as it can reach a large audience through the Google Maps app, utilize Google's high investments in Lime, benefit from the know-how and network, and being associated with a dominant tech company. A potential rivalry may occur in the future as Google owns the self-driving vehicle company, Waymo. If Lime decides to expand its product portfolio to include electric self-driving vehicles in the future, this may create a conflict of interest within the strategic partnership as Google and Lime will likely become rivals, and avoid sharing sensitive knowledge with each other.

Lime's partnership with Uber could also become a challenge in the future. Uber owns the electric scooter company, Jump, which currently only operates in the US. It is, therefore, an interesting strategy for Uber to invest in Lime, and support its growth. In July 2018, Lime published a blog post announcing that the Lime scooters would be available to rent in the US through the Uber app. The blog post has since been removed from Lime's website, and in the Uber app, users are now able to rent electric scooters from Jump owned by Uber (Uber, 2019). This indicates that Lime is no longer available to rent through the Uber app, and it is a pivot from the original strategy. Therefore, it is relevant to understand how Uber benefits from investing in Lime, while simultaneously operating its Jump electric scooters. Although Jump is currently only operating in the US, it can be expected that it will eventually expand globally. Uber has had difficulties with governments in the past when entering into new

markets with its car-sharing service, because its aggressive growth strategy disregarded regulations in the entered countries. For example, Uber is years later still attempting to enter into the Danish market, but now with the strategic approach of cooperating with the Danish government (Information, 2018). Uber is still illegal in Denmark. Uber's past aggressive growth strategy has likely given Uber the image of being a difficult company, and one of the bad companies of Silicon Valley, where growth and revenue is valued higher than beneficial partnerships, and safety. This will likely affect the trajectory of future businesses that Uber owns and promotes, such as Jump. CEO of Uber, Dara Khosrowshahi, has promised to repair ties with urban officials damaged from years of sparring over ride-hailing. Rachel Holt, the Uber executive in charge of bikes and scooters, state that Uber has evolved, and "the ride-sharing business is quite different from the bike and scooter business" (Bloomberg, 2018). Uber is likely investing in and supporting Lime in order for Lime to pave the way, and challenge legislation in hopes that legislation will be changed to benefit electric scooters. Uber can avoid sitting at the negotiation table with government officials in parallel to Uber discussing the future of Uber's presence in Denmark. A conflict between Uber and Lime's partnership may occur in the future, when Uber decides to focus on Jump's growth, and expand globally. Uber has the platform through their app to reach a large audience, so Uber will be in a strong position to aggressively grow Jump once legislation is in favor of electric scooters. It is unclear how the strategic partnership between Uber and Lime will develop. In the future, they might not have a partnership, or Lime could be acquired. Currently, both Uber and Lime are benefitting from the strategic partnership in terms of capital, know-how, and network.

In conclusion, partnerships are a form of risk management which facilitates complex business models with a variety of components, but they also come with risk, including over-dependence on individual partners. Startups that fail to configure effective alliance networks at founding are likely to suffer conditions of resource scarcity (Baum et al. 2000, p. 288). A startup should carefully consider the configuration as well as the number of partners they cultivate as multiple alliances with similar partners may yield fewer benefits than

alliances with differentiated partners. A startup should also consider which potential rivals make the most beneficial partners as the startup is likely to be exposed to the effects of intra-alliance competition. Allying with an appropriate potential rival may enable a startup to trade its specialized knowledge for access to the potential rivals' technological knowhow (Baum et al. 2000, p. 288). Liabilities of newness and smallness, to a large extent, result from a lack of access to resources and stable exchange relationships. Lime's strategic partnerships include alliances with Google and Uber, and it will benefit from partnering with Google in terms of audience reach, investments, know-how and network, and being associated with a dominant tech company. Intra-alliance competition may occur, if Lime expands its product portfolio to include electric self-driving vehicles in the future, or if Jump expands internationally.

12. Conclusion on Entrepreneurship and Innovation

In conclusion of the concept of entrepreneurship and innovation, a dynamic development of the market is governed by the process of creative destruction, where new competition destructs old forms. The Danish government does not create new competition within its institutions that destructs old forms, and therefore cannot be defined as providing innovation that keep "the capitalist engine in motion." Lime "gets things done," and pursues the innovation of introducing a new good, the dockless electric scooters. Lime can be defined as an entrepreneurial venture, and its entrepreneurial activity is to a greater extent able to make an economic change in society compared to the Danish government.

The allocation of entrepreneurship depends heavily on the reward structure in the economy, and the reward structure may push entrepreneurs towards productive activities, unproductive activities, or destructive activities. The current reward structure in the transportation industry in Denmark is set up through legislation to benefit the government and its partnering transportation companies, who are pursuing unproductive activities. Lime is pursuing productive activities, such as innovation. The Danish government needs to readjust the

reward structure to attract entrepreneurs pursuing productive activities, which highly benefits society. The Danish government should look to Sweden for inspiration as they are well-prepared and supportive of new transportation vehicles.

A firm's growth is governed by a creative and dynamic interaction between a firm's productive resources, and the opportunities in the market. Within every company there exist pools of unused productive services and these, together with the changing knowledge of management, create a productive opportunity which is unique for each company. Lime's productive resources consists ao. of its strategic partnerships, and valuable knowledge. Its unused resources could be unused know-how among its investors or personnel, unutilized network, and lack of investments in a certain category. Lime is a pool of productive resources, and it grows when resources are put to service in the pursuit of productive opportunities. The entrepreneurship of Lime will largely determine how imaginatively, and how rapidly Lime can exploit its potentialities.

Lime, an entrepreneurial company pursuing innovation, will help drive economic growth in society. In relation to environmental variables, its founders graduated from Berkeley University, and is based in Silicon Valley providing Lime with a strong network, that is favorable to a new venture's success. Although there exists a lack of information surrounding Lime's style of management, personnel, and company culture, it can be concluded that Lime's personnel has successfully raised capital, entered into new markets quickly, and established beneficial strategic partnerships.

The discovery view focuses on opportunities as given by structural development, and the entrepreneur sees and exploits opportunities based on prior knowledge and personal traits. In contrast, in the creation view, the opportunity emerges when the entrepreneur imagines a new future, in the context of the webs of meaning in which the entrepreneur exist, under conditions where the future is unknowable.

Entrepreneurship will not emerge without an environment that fosters the detection of opportunities, which exists beyond the current activities of the firm. As opportunities must be pursued by individuals within the firm, it is crucial that Lime continues to hire entrepreneurial minded people, which they have previously done as they have successfully raised high capital, established strong partnerships, and entered into a substantial amount of markets. Lime should invest in managerial and technical ability, and it must create an environment where personnel detects opportunities, are willing to pursue an opportunity, and have the confidence and the possibilities of succeeding.

The concept of logic can be distinguished between causation and effectuation. Lime is pursuing an effectuation logic, which involves a one-to-many mapping, and its focus is on the controllable aspects of an unpredictable future. Lime takes the set of means as given and focuses on selecting between possible effects that can be created with that set of means. Lime is most likely currently operating with affordable loss instead of focusing on maximizing returns in the present, and focusing on strategic alliances and precommitments from stakeholders.

Strategic partnerships are a form of risk management which facilitates complex business models with a variety of components, but they also come with risk. Lime's strategic partnerships include alliances with Google and Uber. Lime will benefit from partnering with Google as it can reach a large audience through its platform, utilize Google's high investments in Lime, benefit from the know-how and network, and being associated with a dominant tech company. Intra-alliance competition may occur between Lime, and Google and Uber, if Lime decides to expand its product portfolio to include electric self-driving vehicles in the future. The strategic partnership between Lime and Uber may become a challenge, if Uber's electric scooter company, Jump, expands internationally becoming Lime's competitor.

13. Discussion & Suggestions for the Danish Government

The analysis and discussions throughout the report have been approached from the positivistic and social constructivistic paradigm, which has provided a nuanced perspective to the problem statement.

In the positivistic approach, the belief is that there exists an objective reality and truth regardless of one's own perception of it. The positivistic approach is reflected in the use of quantitative data used in the report, such as financial data, markets entries, and electric scooter industry related data. The epistemology of positivism is objective, meaning we can obtain the truth and exact knowledge of reality by using the methodologist approach of quantitative data, which is constructed under controlled circumstances (Nygaard 2012, p. 29). Therefore, if one were to construct the quantitative data used in this report again, the result would be the same. Since Lime is a young company, and the environment surrounding electric scooters in Denmark is dynamic, the amount of quantitative data related to the scooters is constantly being collected, and increasing. It would be relevant to revisit this topic on a yearly basis to evaluate the quantitative data, and to understand how Lime and the electric scooter industry based on this data develops over time. By making use of the positivistic approach, a strong foundation is created in which analyses and discussions can be further expanded upon.

The analyses and discussions have also been approached from the social constructivistic paradigm, which is reflected in the use of qualitative interviews and secondary qualitative data obtained. In a social constructivistic approach, there does not only exist one truth. The epistemology of social constructivism is subjective, where the concept of interpretation is important. The knowledge of the world simply expresses a certain interpretation of the world and objectivism does not exist as everyone does not interpret the world the same. This also applies in relation to the four respondents' answers to the interview questions prepared for the thesis because the questions reflect how the thesis views the analysis object. Additionally, the

interviewees' opinions depend entirely on their social, cultural, and linguistic perspectives. The analyses and discussions focus to a great extent on the importance of changes within organizations, and it is important to approach the thesis from a perspective that takes changeability into account.

The social constructivist approach supports this as it focuses on processes that continually create organizational reality rather than stable structures (Nygaard 2012, p. 43). This is relevant as the focus of this thesis, Lime and the Danish society and government, are dynamic and considered to be continuously changing. The social constructivistic approach is also reflected to a large extent in the analyses and discussions of the concept of entrepreneurship and innovation. For example, theorists Popp and Holt argue that an entrepreneur creates an opportunity by drawing on experience from the past and imagination of the future, and creates an opportunity in the present (Popp & Holt 2013, p. 24). When entrepreneurs "think the world anew" (Popp & Holt 2013, p. 19), the entrepreneur does so by drawing on disclosive spaces meaning a webs of meaning, and a disclosive space, meaning any set of practices for dealing with oneself, other people, and things that produces a relatively self-contained web of meanings (Popp & Holt 2013, p. 19). This aligns with the belief behind the constructivist paradigm where the focus is on how individuals construct their worlds, and that reality is a social construction without stabile evidence and so reality must be continuously renegotiated in social interaction (Nygaard 2012, p. 127). Reality and what is considered to be true varies in terms of social communities and within different cultures (Nygaard 2012, p. 36).

In terms of this thesis, I am aware that the analysis and discussions reflect a social construction of reality rather than a definitive truth. Therefore, the reality of the thesis could have various outcomes due to the thesis' social constructivist nature.

Based on the theories and analysis, an attempt to answer the second part of the problem statement - how should the Danish government support entrepreneurial ventures in

developing innovation and advance society - will be made. The two main identified challenges, and barriers to mainstream adoption, when an electric scooter provider decides to enter the Danish market, are legislation and the population's reception of the services. Legislations are more challenging as mainstream adoption of scooters require easy availability, and therefore significant volume.

Generally, there exists an agreement between the four stakeholders interviewed that the concept of shared electric scooters and bicycles are great as it promotes green alternative transportation, and supplements public transportation well (Appendix A, B, C, D). Despite the general agreement, the following, in addition to recommending suggestions to the Danish government, will also address the concerns and arguments towards the concept of electric scooters that have become apparent through conversations with stakeholders, and research.

When looking to the past, one can easily conclude that Denmark, its government, and society, have evolved over time. Changes have occurred moving society forward. In the near future, various forms of new electric or self-driving vehicles will become a reality. Gotsche, President of Danish Cyclists' Federation, states that we have to accept that the introduction of new vehicles will be a reality, so instead we have to focus on developing rules and frameworks so we can navigate the new vehicles under reasonable conditions (Appendix B).

In order for Denmark to become an attractive market to enter, and for the Danish government to support the current challenge surrounding electric scooters, the reward structure in society must be adjusted. The government should engage and support electric scooters, and other alternative mobility vehicles in alignment of Copenhagen municipality's goal of becoming the world's first CO2-neutral capital (KK, 2017). The electric scooters represent a change in society, and this change is driven by the ongoing technological changes that have transformed many areas of life. Society and its citizens need to be willing to embrace change in order to obtain a better reality in terms of sustainability, and mobility. A benefit of the electric scooters is that it will force a larger conversation of whom or what the government should

prioritize when designing cities. In order to achieve the greatest benefits, the Danish government needs to readjust its reward structure to attract entrepreneurs pursuing productive activities, such as innovation, and prepare for a future with new forms of vehicles. The new vehicles can be defined under Schumpeter's innovation, since it is an introduction of a new good or a new quality of a good that consumers are not yet familiar with. A country's economic development most likely correlates with its preparedness for a future with new transportation vehicles.

In order to prepare for the future, the Danish government should focus on technology and innovation, infrastructure, policy and legislation, and consumer acceptance.

Firstly, the government should establish a Mobility Commission. This commission should solely focus on new mobility vehicles, such as electric scooters, self-driving vehicles, drones, and robots, and discuss and implement processes. Its job is to effectively pass new laws surrounding mobility, and be legally efficient in challenging regulations. It is a major challenge to apply existing laws to new technology. Meyer and Næsager state that the laws that we currently have are not ideal for the technology today, or the future (Appendix A, Appendix D).

A Mobility Commission should create an agile process when introducing new vehicles, and prepare the population on their uses, and the laws surrounding them. Sometimes disruptive technology needs to disrupt regulation as well as industries, because of the specialized rules that have been set in the past. If the Danish government is not flexible in terms of regulations, Denmark may lose out, or be delayed in exploiting opportunities. Harry Lahrmann, researcher in traffic and transportation, states that the government should be proactive and establish and communicate required demands to the electric scooter providers prior to the providers being present in the market (Appendix C).

In order for the Mobility Commission to be as effective and efficient as possible, it must establish partnerships and consult with industry experts. These partnerships should include unbiased partners, such as engineers who specialize in product safety, city planning architects, and foreign politicians from countries similar to Denmark. The partnerships should also include partners, such as representatives from the various electric scooter providers, to create a cooperative process and an open dialogue to achieve the greatest benefits. Embracing partnerships between government and the private sector can speed up technology development, while helping ensure that the introduction of the electric scooter vehicles meet public policy objectives. In addition to sharing know-how, the Danish government should require the private electric scooter providers to invest in the Danish infrastructure such as bike and scooter stands, and new bike lanes.

The electric scooter providers have achieved substantial growth in terms of capital investments. A focus on entrepreneurship will encourage innovation, and it will also encourage the entrepreneurial companies, such as Lime, to think about new ways they can solve a city's unique transportation challenges. Having the providers invest in the infrastructure would create long-term engagement, support a collaborative approach between the public and private sectors, and ideally benefit all stakeholders involved such as the government, the providers, and the users.

A concern mentioned by Lahrmann and Gotsche is the safety of the electric scooters' product design, and the accidents that they incur (Appendix B, Appendix C). Lahrmann distinguishes between risk, meaning the likelihood of an accident, and security, meaning the security using the transportation vehicles, and the security for those around. He states that, soft road users have a much greater risk of accidents than hard road users, such as people in cars (Appendix C). The Mobility Commission should investigate the risk and safety of the electric scooter vehicles, such as being able to turn the handlebar, its lights, reflexes, and brakes. The Mobility Commission should also require the electric scooter providers to collect and release

its data to obtain a greater understanding of i.e. number of accidents, and product defects, so the government and the providers can develop and resolve targeted issues.

If the electric scooter providers were to engage and commit to the long-term, and if the Danish government were flexible and open to innovation, it may have several benefits. If the providers were investing in the infrastructure, and engaged in the development and growth of alternative mobility, cities in Denmark could become entrepreneurial hubs where private innovative companies would benefit from establishing an office i.e. targeting the Nordic market. A strength of Lime's is their talented personnel, and their ability to raise large capital, and quickly enter new markets. If Lime were to establish a major office in Denmark, this may bring talented international people as well as inspire and attract talented Danes to join the company, obtain new knowledge, and become upskilled, which in the long-term would benefit Denmark. It would create jobs, strengthen the economy, create and promote a culture of entrepreneurship and innovation, and provide employees with new knowledge.

The interviewed stakeholders highlighted other main concerns. The main concerns were traffic congestion in the large cities, and safety. It is a reality that more people are moving to the larger cities as for instance the population in Copenhagen has increased every year for the past decade, and will most likely continue to increase in the future (KK, 2018). Næsager states that the discussion surrounding if there is enough space for the new vehicles is irrelevant as with the growing population in the cities who will also make use of a transportation vehicle, there will either circumstance not be enough space (Appendix A). Therefore, the conversation should focus on how to make use of and optimize the space to the greatest extent. As the population grows in large cities, there will be more congestion in the busses, metros and trains, on the roads, and also on the bike lanes and pavement. The government and municipalities are attempting to solve this by i.e. widening the bike lanes, and developing new bike lanes (Appendix A). This way, the capacity will be extended, which will benefit the new vehicles as well. This becomes a reactive approach to solving the congestion issue, but at some point it may not be possible to solve the issue by continuously

building more bike lanes. Therefore, the Danish government should look to proactive solutions attempting to predict and solve the issue prior to it occurring.

The Danish government should take a proactive approach, and include the private electric scooter providers to a greater extent in the discussions surrounding the issues, and possible solutions. The electric scooter providers have a substantial amount of capital, and are able to invest to a great extent in order to solve the solutions if it were to benefit the providers in the long term. The providers are not reliant on immediate returns. The Danish government should therefore to a greater extent include and cooperate with the private electric scooter providers to solve the current issues, and prepare for a future where new vehicles will be present in Denmark. The representatives of the electric scooter providers should be offered a seat in the Mobility Commission.

The car is a transportation vehicle that often only transports one or two people, and has the most space in the infrastructure. It does not necessarily transport the corresponding ratio compared to the vehicles on the bike lanes. The cars on the streets are not being optimized, making them inefficient, and a part of the traffic congestion issue. As mentioned under section 4.2, traffic congestion can cost as much as 2-4% of national Gross Domestic Product (GDP) by measures such as lost time, wasted fuel, and increased cost of doing business (McKinsey, 2015). Gotsche states that more people bike in central Copenhagen than drive cars yet cars have the majority of the space (Appendix B). She states that the government must prioritize the space, and what type of activity and mobility they are striving for, and readjust. Gotsche is a proponent for prioritizing active mobility, such as bicycles, rather than passive mobility (Appendix B). The government would benefit by relying on private companies, such as Lime, to solve the traffic congestion issue. Electric scooters would cause challenges as a new type of vehicle, but it would not create the problems that cars have in cities such as pollution, and congestion. The public and private sector should work together, and delegate responsibility in order to efficiently make use of resources to solve an issue, such as traffic congestion primarily caused by cars.

As Lime obtains a strong position on the Danish market and grows, it will likely invest in R&D, and technological development. The Danish government could benefit from Lime developing intelligent technological solutions. It would be beneficial to first test the technological solutions on a small scale, such as intelligent parking for electric scooters, prior to releasing it on a municipality level to i.e. include cars. Lime could patent certain technological discoveries and developments, and benefit to a great extent from cooperating with the Danish government. The Danish government should include the electric scooter providers in the conversations, in order to for the private companies to work on ao. software solutions, infrastructure challenges, and cooperating with public transportation.

Another solution to traffic congestion is to create a car-free city center. Meyer proposes that one solution is to close the center of Copenhagen for car traffic. If a range of micro-mobility vehicles, such as electric scooters, were introduced, and shared vehicles were allowed, it would be easy to be mobile in the central of Copenhagen without privately owned non-shared cars (Appendix D). He emphasizes that, the focus should be on mobility rather than transportation, so it is easy to utilize multiple vehicles, and conveniently get the destination.

Næsager confirms that there is currently a hearing being processed in regards to what extent the center of Copenhagen should be fully or partly free of cars (Appendix A). He explains that out of three models, the most extreme model consists of 85% of the traffic in central Copenhagen shall cease, so it is primarily ambulances and cars with disabled badges that are allowed to drive there (Appendix A). In Oslo, the city has successfully transformed the city center towards a car-free future by replacing 700 parking spots with bike lanes, plants, parks, and benches (Fast Company, 2019). To help support the shift, the city added new train and metro lines, more frequent departures, and lowered the cost of public transportation tickets. Additionally, it has built a better-connected bike network, and built more bike lanes. Oslo municipality sees the transformation to a car-free city center as successful (Fast Company, 2019). If the government and municipalities were to focus on transforming central

Copenhagen to being car-free, it would solve the traffic congestion issue to a great extent. This would free up space in the infrastructure that could be used for micro-mobility vehicles, and shared electric vehicles. The fewer cars there exists, the less congestion, and the better it is for the environment. This would likely make the micro-mobility users feel safer as they would have more space, and the streets would be dominated by smaller vehicles, such as electric scooters and bikes. It would be beneficial to give the smaller vehicles more space as for instance bicyclists, such as younger children and elders, would feel safer, and there would be enough space for both active and passive transportation vehicles. This would likely also motivate people who used to drive cars to ride an electric scooter or a bike. If a car-free city center were to become a reality, the municipality owned electric bicycles would likely also gain more usage converting it to become a profitable and successful project for the government.

As mentioned under section 9.1, the government has substantial political and financial interest in several of the public transportation offerings. This would be a great opportunity for the government to refocus and reinvest in public transportation, and add more trains, metros, and bus lines, make them more reliable, have more frequent departures, and lower the cost of the tickets. Optimizing the public transportation system in Denmark in addition to offering various micro-mobility vehicles would create an efficient transportation system focused on shared transportation, and green, alternative energy. This would create a beneficial partnership between the public and private sector, and the government would utilize the private sector to its greatest extent. The electric scooter companies could invest in micro-mobility hubs near public transportation stations, such as trains, metros, and busses, where the electric scooters can be dropped off in order to make the transition between the vehicles seamless. In addition, the electric scooter providers could sell tickets to public transportation through their respective apps emphasizing the concept of utilizing the first and last-mile with public transportation. The electric scooter providers could include information about the public transportation options, their schedules, and prices in their apps. This would provide the users with more convenience and flexibility. These initiatives would also

communicate to the public that the government and electric scooter providers are collaborating, and supporting each other.

Another major challenge, which is crucial to meet, is the population's reception and acceptance of new electric vehicles including electric scooters. It is not just enough to have the support from the government and legislation, as the population must also accept the vehicles in order for them to become a success.

If the population does not accept the new electric scooter vehicles, the Lime scooters could end up as Segway, a two-wheeled, self-balancing personal transporter, which received great attention initially, but ended up being viewed as a failure. Now, Segway is only a novelty device for tourists in big cities (Forbes, 2015).

Meyer states that it is important to introduce new vehicles quickly to get the population's feedback sooner, so the providers can iterate and improve the products and services based on the feedback (Appendix D). It is important that the government and the electric scooter providers listen to the feedback given, and attempt to solve some of the issues without compromising the core concept of the service, and values of the brand. Currently, a main complaint from the population is that the scooters are dockless, so they are often parked in inconvenient locations blocking the way for pedestrians, or vehicles trying to pass.

This complaint could be met by the providers by i.e. investing in electric scooter stands, developing AR technology guiding the user on where to park the scooter, having the user upload a photo of their parking on the app, and issue fines to users who park the scooters incorrectly. As Lime is a young company, these features are currently not implemented, but it should be a priority in order to cooperate with the population, and gain their acceptance. Meeting and solving complaints early is crucial as it is easier to do so on a smaller scale, and it will allow Lime to grow more frictionless, so when they release more electric scooters, the more people will use them, and this will lead to a general acceptance of the electric scooters.

The government should publicly support the use of green, alternative vehicles. The government could partner with ao. the electric scooter providers, and arrange events where the public can stop by, and the providers' personnel can explain how the scooters are used, and the rules. The public could try the scooters accompanied by the various providers' personnel to make them feel safe, and get answers to any questions they may have. In alignment with Lime's "Respect the Ride" campaign, the providers could even distribute helmets for free, and educate riders on safety practices. This could minimize fear that some potential users may have. In addition, the government could distribute campaigns around the city promoting their support for the use of alternative, green vehicles, as well as offer discounts for a certain period on the electric scooters. Lastly, the Danish municipalities could also install hubs to make the interchange between micro-mobility and public transport more convenient. All these initiatives should be fully or partly paid for by the electric scooter providers.

The population is more likely to be positive and open towards the new types of electric vehicles, such as scooters, if the government publicly supports them. This will increase the likelihood of the population accepting and using the electric scooters.

14. Final Conclusion

This thesis focuses on innovation in the electric scooter industry in Denmark. This report's problem statement is: *Which strategy should Lime implement to become a successful entrant in the electric scooter industry in Denmark, and how should the Danish government support entrepreneurial ventures in developing innovation and advance society?*

In the following, the problem statement will be answered based on the antecedent theoretical and strategic analysis. The topic has been discussed and analyzed based on various theories, and it has been examined through the case of the electric scooter company, Lime.

To conclude, there exists a challenge as the legislation in Denmark is currently not compatible with new and innovative electric micro-mobility vehicles, such as the newly introduced electric scooters, entering into the Danish market.

The first part of thesis introduces Lime as the case study. Through an internal company analysis of Lime, and an external analysis of the current electric scooter industry in Denmark, the thesis emphasizes how Lime, by making use of its strengths, can exploit opportunities in the industry, and minimize weaknesses and threats.
Lime is focusing on an aggressive growth strategy, and is currently in a strong position to succeed on the Danish market due to its high capital investments, high amount of entered countries, higher scooter range than competitors, talented personnel, and strategic partnerships with Google and Uber.
Lime operates in the electric scooter industry, which is currently in its growth stage in Denmark. This creates challenges, for example lack of legislation surrounding electric scooters. Lime is operating in a market with an unknown future as electric scooters may not become legalized on a permanent basis. Other challenges include the limited number of electric scooter suppliers, which results in a lack of product differentiation, as well as the challenge of low entry barriers to the industry due to low acquisition costs and the quickly met breakeven point.

In order for Lime to become a successful entrant in the electric scooter industry in Denmark, they should implement the following strategies.

Firstly, Lime should pursue a blue ocean strategy, and focus on value innovation by simultaneously pursuing a low cost strategy and a differentiation strategy. Lime should invest in R&D, and in-house engineering and manufacturing in order to develop the electric scooters, and its technology. The developments could include swappable battery technology, parking guides through augmented reality, data collection on user's behavior, and technology

that can be patented. Lime could also develop over-the-air updates resulting in the vehicles to appreciate in value over time by adding new features. Further, Lime should continuously improve upon the physical product to make it more durable and safer. These suggestions will help differentiate Lime from its competitors, and eliminate Lime's weakness in terms of lack of product differentiation.

Secondly, Lime should use its valuable knowledge to identify and pursue opportunities that occur in the dynamic electric scooter environment in Denmark. Lime should establish a beneficial dialogue with the Danish government, and share its knowledge and experiences. Additionally, Lime should invest in the infrastructure, such as bike lanes. This would likely minimize the threat of electric scooters becoming illegal in Denmark.

Lastly, Lime should expand its product portfolio, and expand into new industries once it is established in the Danish electric scooter market. Factors crucial for Lime's long term success include anticipating new market trends, exploring new business models, building reliable products, optimizing its operations, and establishing a beneficial partnership with the Danish government. Lime should utilize its strategic partnerships to expand its service into new markets, and it should expand its product portfolio to include more micro-mobility vehicles.

These suggestions will provide Lime with the opportunity to discover and exploit opportunities to expand to new industries.

The second part of the thesis focuses on the concepts of entrepreneurship and innovation, and how it relates to Lime and the Danish government. The goal is to identify what entities can be defined as entrepreneurial, how entrepreneurship relates to the concept of innovation, and how it affects society. Based on this, suggestions on how the Danish government should support entrepreneurial ventures in developing innovation and advance society are made. The government should focus on technology and innovation, infrastructure, policy and legislation, and consumer acceptance.

The Danish government cannot be defined as entrepreneurial, whereas Lime can be defined as entrepreneurial as it is introducing a new service to the market. The dynamic development

in the market is governed by the process of creative destruction when new competition destructs old forms. The Danish government subsidizes several companies in the transportation industry shaping the reward structure to benefit the government and its partners creating high entry barriers to the industry, and making it difficult for new competition to destruct old forms. In order to attract entrepreneurial ventures pursuing productive activities which highly benefits society, the Danish government must readjust its reward structure. This is a challenge as the government is benefitting from the current reward structure supporting unproductive activities.

It would benefit the Danish government to establish a strategic partnership with Lime. Lime as an entrepreneurial company pursuing innovation plays a role in the development of the market, and will drive economic growth in society. Lime and the Danish government should establish a beneficial partnership by collectively identifying Lime's unused resources, and determine its direction of expansion in a way that would benefit Lime, the Danish government, and society. Additionally, Lime utilizes the creation view, and effectuation logic. Lime's entrepreneurial minded employees are able to construct opportunities by imaging a new future, if the environment allows for it. The effectuation logic allows Lime to take a set of means, and focus on selecting between possible effects that can be created with that set of means. Lime also benefits from its current strategic partnerships with Google and Uber. The government would benefit from partnering with Lime, as these utilizations provide Lime with beneficial opportunities in the future.

The main identified challenges when entrepreneurial ventures, such as Lime, decide to enter the Danish electric scooter market are 1) the lack of legislation supporting the electric scooter industry, and 2) the population's reception of the products and services.
In order for the Danish government to benefit from the dynamic mobility industry, it must prepare for a future where new mobility vehicles will be present on the Danish market.
The government should establish a Mobility Commission, which sole focus is on new mobility vehicles. Its job is to effectively pass new laws surrounding mobility, and be legally

efficient in challenging regulations. The Mobility Commission should create an agile process when introducing new vehicles, and prepare the population on their uses, and the laws surrounding them. The Mobility Commission should establish partnerships and consult with industry experts, such as engineers, city architects, politicians, and the electric scooter providers. The Danish government should proactively include the electric scooter providers to solve the current issues, which will create a cooperative process between the public and private sector, and help achieve mutual benefits. The Danish government should encourage the providers to create long-term engagement, and find new ways to solve a city's transportation challenges by utilizing the providers to invest in the infrastructure, and intelligent software technology. Additionally, the government should reinvest and optimize public transportation. Other initiatives include establishing micro-mobility hubs near public transportation, and selling public transportation ticket through the providers' apps. This would support an efficient transportation system, and green, alternative energy. In order to gain the population's acceptance of the electric scooters, the government should publicly support mobility vehicles using green, alternative energy. Lime should proactively prioritize and resolve the populations' concerns by continuously developing their scooters and technology in order to gain their acceptance. Resolving the populations' concerns on a small scale will allow Lime to grow more frictionless likely leading to an acceptance of the electric scooters.

The purpose is that the suggested strategies will make Lime a successful entrant in the electric scooter market in Denmark. Finally, the recommended suggestions will provide the Danish government with strategies to become supportive of entrepreneurial ventures in developing innovation and advance society.

15. Further Research

As the electric scooter industry is new and currently very dynamic in Denmark, there are great opportunities for further research within this field. It would be relevant to make an

in-depth investigation on how Lime's electric scooters have been received in countries similar to Denmark. Lime has not been present in Denmark or the rest of Europe for long, but the analysis should preferably be done in countries that have had electric scooters for a longer period of time than Denmark. It would be relevant to collect data from cities that are similar to Copenhagen and Århus. By analyzing data collected over a longer period of time, it would further support argumentations and predictions on what Lime's future will look like in Denmark. Secondly, it would be beneficial to further investigate the Danish policies surrounding electric transportation, and the government's plans for how to handle these in the future. It would be interesting to conduct extensive, in-depth qualitative interviews with other politicians and stakeholders within this field to further identify the challenges and understand the various opinions related to the topic of micro-mobility and its future in Denmark. Finally, it would also be relevant to further investigate what opportunities Lime has to expand its product portfolio, and enter into new industries and markets. Lime's substantial investments and high valuation indicate that investors have high expectations for Lime's future growth, and therefore, a more in-depth analysis and discussion regarding Lime's future would be highly relevant.

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17. Appendix

17.1 Appendix A: Stakeholder Interview with Jakob Næsager

Stakeholder Interview with Jakob Næsager, member of the Conservative Party (in Danish "Det Konservative Folkeparti") and member of the Technical and Environmental Committee (in Danish "Teknik- og Miljøudvalget"). Interview conducted on Monday, March 11th, 2019.

IM: Først kunne jeg godt tænke mig at høre om du selv har prøvet at køre på et elektrisk løbehjul i byen? Hvad synes du om konceptet og hvordan var din oplevelse?
JN: Jeg har ikke prøvet dem, men jeg har set dem rigtig mange steder i København. Angående selve konceptet, er jeg lidt tvedelt i situationen. I København har vi jo kommunalt støttet bycykler. Jeg synes egentlig konceptet om delecykler og dele-løbehjul er rigtig fint, så det støtter jeg. Jeg synes også, at der er behov for at bycyklerne i København får noget konkurrence. Konceptet om dele-transport og grøn transport synes jeg er rigtig fint, og jeg tænker også at det kan supplere den kollektive trafik rigtig fint. Derimod så oplever at sådan som det er rigtig mange steder i verden, så fungerer det lidt på Wild West principper, forstået på den måde at rigtig mange af brugerne efterlader både cyklerne og løbehjul total random. Jeg har set både i København og i Sydney at de er blevet i fodgængerfelter, og det duer naturligvis ikke.
IM: Findes der et bestemt antal tilladelser til de her nye elektriske løbehjul, og hvis ja, hvor mange? Hvor mange udbyderen tror du der reelt kan være på et marked som det danske?

JN: Vi må ikke have lov at lave begrænsninger. Sådan som de danske regler er så skal vi behandle operatørerne lige, og derfor er det nødvendigt at alle får samme mulighed. Staten har truffet afgørelser om at man må have lov til at bruge elektriske løbehjul i Danmark, men vi skal først på mandag i Teknik- og Miljøudvalget tage stilling til under hvilke vilkår at man må have lov at udbyde løbehjul, cykler, og scootere fra kommunale arealer. Så i øjeblikket er der ikke nogle regler for udlejning bortset fra at man skal have kommunens tilladelse, og der er flere cykeludlejere, og der er flere løbehjul udlejere, som ikke har indhentet kommunens tilladelse, og derfor kører det efter sådan Wild West principper.

IM: Har du andre bekymringer udover at løbehjulene bliver stillet alle de her ubelejlige steder?

JN: I København mangler der cykelstativer, så jeg synes at en mulighed var at vi stillede som vilkår, at hvis ikke cyklerne var placerede i cykelstativer, men var placeret ulovligt, så skulle operatørerne skulle fjerne dem, men også at operatøren skulle være med til at finansiere nogle cykelstativer i København.

IM: Altså til selve løbehjulene, eller kun cyklerne?

JN: Til cykler og løbehjulene. Ja, i og med at der er mangel på cykelstativer, så er det jo en af grundene til at de placeret hvor folk er ved at falde over dem.

IM: Tror du at de elektriske løbehjul bliver lovliggjort på permanent basis?

JN: Staten er meget fokuseret på at det skal være lovligt, så man fremmer deleøkonomien og grøn transport. I bystyret i København er der stor modstand blandt de røde partier, fordi de ønsker at det skal være det offentlige der driver bycyklen og de ønsker ikke bycyklen skal have konkurrence.

IM: Tror du det offentlige ville være interesseret i at gå ind og udbyde elektriske løbehjul? Eller er det ikke noget de er interesseret i?

JN: De bycykler der er i øjeblikket der er kommunalt støttet, det er ikke nogle success, så derfor tænker jeg at man kaster næppe flere penge efter sådan en fiasko.

IM: Ved du hvorfor det ikke har været en succes?

JN: Jamen man har regnet med at hver cykel skulle genere 8 ture i døgnet for at være økonomisk rentabel, og når jeg taler med de professionelle udbyder bl.a. Lime, så siger de

hvis et transportmiddel bliver betalt 5 gange i løbet af et døgn, så er det meget stor succes. Jeg tror det er nogle urealistiske forventninger den offentlige bycykel er bygget på.

IM: Hvad er detaljerne omkring den her prøveperiode? Ved man hvor lang tid den kommer til at foregå, hvordan den bliver evalueret, hvilke parametre er det at man vurdere om den skal blive permanent eller ej?

JN: Jeg tænker at med Folketinget, så er det nok et sikkerhedsmæssigt spørgsmål fordi der er der også tale om privatejede cykler og løbehjul, om de er blevet tilladt. Så for at se på om de er udgør en sikkerhedsmæssig risiko. Fra kommunens side, synes jeg ikke, at det skal være en prøveperiode, fordi dem der står bag de her løbehjul og cykler, de laver meget store investeringer, og hvis vi ovenikøbet beder dem om at investere i cykelstativer, så er det meget stor investeringer som de skal tilvejebringe. Så kan vi ikke tillade os at sige at det bare er for 20 minutter.

IM: Så du synes slet ikke den her prøveperiode bør eksistere?

JN: Jo, jeg synes det er fint nok at man kigger på de sikkerhedsmæssige aspekter af det, men ud fra et kommercielt perspektiv, hvis vi reelt ønsker delecykler og dele løbehjul, så er vi nødt til også at stille dem nogle realistiske, tidsmæssige vilkår. Jeg synes, at prøveperioden må have en længde så det også kan betale sig at investere i det. For hvis ikke vi får et reelt frit marked, så bliver det ikke et reelt forsøg.

IM: Det lyder som om at det så kunne være flere år, som den her prøveperiode løber over?

JN: Ja, men det er nødvendigt. Jeg har læst at nogle af de her investorer, de laver investeringer for op til 500 mio. kroner, så har de også behov for at der er en vis indtjeningsperiode.

IM: Sådan noget som tidsperiode er slet ikke blevet fastlagt endnu?

JN: Ikke i kommunen, nej, men jeg ved ikke om staten har fastlagt et tidsperiode.

IM: Jeg har talt med en medarbejder hos en virksomhed der udbyder selvkørende busser. De har ikke haft nogle problemer med at få tilladelse til at køre dem på offentlig vej i Sverige, og regner også med at få tilladelse i Norge nemt. Ham jeg talte med nævnte at de har snart forsøgt sig i 2 år med at få tilladelse i Danmark. Hvordan kan det være at det er meget

sværere at få tilladelse til de her nye former for produkter og services i Danmark end Sverige, som ellers er et land vi ofte sammenligner os selv med?

JN: Jeg er bekendt med to forsøg i Danmark. Det ene var et forsøg ude ved Bella Centeret i forbindelse med en ITS (Intelligent Trafik) konference i efteråret, og så er der et forsøg nede på Køge Sygehus. Det er de to jeg er bekendt med. Jeg er ikke bekendt med at nogle har søgt i København om at få lov.

IM: En virksomhed som Uber har forsøgt at indtræde på det danske marked i en lang periode nu. På et eller andet tidspunkt må de her nye former for produkter og service lykkes med at komme ind på markedet, og vi kommer nok også til at se selvkørende biler, robotter, og andet inden alt for længe. Skal vi ikke have opdateret vores love og politik så den er mere egnet til dagens og fremtidens teknologi?

JN: Jo, helt klart.

IM: Okay, og hvordan gør man det?

JN: Altså i København er vi Konservative meget positive overfor det. Jeg har også indtrykket af at de andre partier er meget positive. Det må bare ikke være på bekostning af sikkerhed. Det er ikke sådan at vi sætter cyklisterne og fodgængernes liv på spil for at få det testet af. Det skal foregå under nogle vilkår hvor at det ikke sætter folks liv og førlighed på spil. Derfor kunne det måske være smart at man testede det andre steder end lige rundt om Rådhuspladsen i København. Jeg forestiller mig at man sagtens kunne finde strækninger i København hvor det var super egnet til at teste det af.

IM: Jakob fra Autonomous Mobility som jeg talte med forslog at man kunne f.eks. etablere en mobilitetskommission, som specialiserer sig i de her transportformer. Er der andre mere konkrete ideer eller forslag udover at teste væk fra Rådhuspladsen?

JN: Man kunne sagtens forestille sig at teste meget mere ny teknologi af indenfor intelligent trafikstyring f.eks. henvisning til ledige parkeringspladser, ruteanvisninger hvor man med fordel kunne køre for at få den kortest mulige transporttid. Man kunne også forestille sig at man kunne koble sig op på et net så bilerne bliver delvis selvkørende, og på den måde holdt afstand til hinanden, og på den måde kunne man øge kapaciteten betydeligt i de store byer.

Man kunne også lave trafiklysene så de bliver styre afhængig af hvor meget trafik der var. Så der er rigtig mange muligheder for at lave intelligente trafikløsninger.

IM: Tror du det er noget der kommer indenfor den nærmeste fremtid? Eller er det inden for de næste 20-30 år?

JN: Det tænker jeg kommer meget, meget hurtigt. Det med digital trafik henvisning eller parkeringshenvisning har vi allerede et forsøg med i dag. Det med ruteanvisningen er der også små forsøg med, så jeg tænker ligeså snart at udbyderen er klar, hvis man kan enes om en pris, så kan de gå i jorden.

IM: Okay, og tror du selve vejene, altså infrastrukturen i Danmark, her tænker jeg specifikt i de større byer, om den kommer til at ændre sig? Hvordan ser det ud i fremtiden?

JN: Ja, det tror jeg helt klart. Altså regeringens udspil om at uddrive de fossil drevne biler tror jeg vil fremme rigtig meget forskning med biler med andre typer drivmidler, men også med anden teknologi. Når stor set hele Europe uddrever fossildrevne biler, så tror jeg at bilindustrien ser et enormt marked i at udvikle, ikke alene nye drivmidler, men også nye intelligente løsninger, så man kan transportere sig på helt nye måder. Jeg tror også at selvkørende biler kommer langt hurtigere end vi regner med.

IM: Hvad kan Lime gøre for at success og bliver accepteret på det danske marked, og for at tilfredsstille flest mulige parter?

JN: Jeg synes de har et godt koncept, men jeg savner en løsning på hvad de vil gøre med hensyn til regeringens situationen, og jeg synes også at de mangler at komme med et svar på hvad de vil gøre for at begrænse mængden af ulovligt parkerede cykler og løbehjul.

IM: Men ellers er du åben overfor idéen generelt?

JN: Ja, ja. Altså det der med at man placerer et løbehjul på fortovet lige foran et fodgængerfelt, så det reelt blokerer for at man kan komme ud i fodgængerfeltet, det duer ikke. Jeg spurgte dem, da jeg havde møde med dem, om de brugere de har bliver bonnet hvis de placeret dem ulovligt eller uhensigtsmæssigt. Det vil de se arbejde på eller se hvordan de kan finde en løsning på.

IM: Ja, jeg læste at de vil forsøge at udvikle deres app så der var AR, så man ligesom kunne sætte et virtuel cykelstativ op, så brugeren fik nogle guidelines for hvor de skulle parkere løbehjulet.

JN: Ja, men også uploade et foto af hvorhenne de har parkeret deres løbehjul.

IM: Nævnte de noget med en mere overordnet strategi? Jeg går ud fra at de primært fokuserer på København og Århus til at starte med?

JN: De fire største byer, siger de.

IM: Jeg går ud fra at man kommer til at meget mere af dem her i 2019.

JN: Ja, det afhænger af beslutningen på mandag i Teknik- og Miljøudvalget. For de siger at de allerede er gået i luften i Malmø, men de afventer hvilke regler der kommer i København på mandag. Hvorimod deres to konkurrenter, VOI og Tier, de er allerede gået i luften i København.

IM: Okay, så du tror det der sker på mandag måske have en indflydelse på om de ikke træder ind på det danske marked?

JN: Det har nok indflydelse på hvor hurtigt de træder ind på det danske marked.

IM: Hvor hurtigt de træder ind. Men de kommer nok stadigvæk ind uanset hvad?

JN: Ja, det tænker jeg.

IM: Okay. Hvordan står det til med idéen om bilfri København? Der var tale om at der ikke måtte køre biler i indre by om søndagen. Er det stadigvæk en samtale?

JN: I øjeblikket er der en høring i gang om i hvilket omfang Middelalderbyen i København skal være helt eller delvist bilfri. Der er tre modeller, hvoraf den mest yderliggående siger at 85% af trafikken af Middelalderbyen skal ophøre så det primært er ambulancer og biler med handicapskilt der får lov til at køre i indre by.

IM: Synes du der er plads til alle de her nye former for elektriske transportmidler herunder elektriske løbehjul, skateboards, de ethjulede decks, osv.?

JN: Det er et meget stort, og et meget svært spørgsmål, fordi hvis ikke at de kører det på de her nye transportmidler så var der nok en del af dem der så kørte på ordinære transportmidler eller cykler, og man må bare sige at når København er vokset med 100.000 indenfor de seneste år, og vil vokse yderligere 100.000 de næste år, så København går fra 500.000 til

700.000 indbyggere, så er der simpelthen ikke plads på cykelstien, hverken til cykler eller el-cykler. Så uanset om de nye transportmidler kom, så var pladsen begrænset. Jeg tænker egentlig at det er lidt en irelevant diskussion, under ingen omstændigheder vil der være plads nok, så spørgsmålet er bare hvordan vi vil udnytte den plads der er bedst muligt? Jeg har ikke noget imod at vi prøver ny teknologi af.
IM: Så man skal vente med at se på hvordan man dealer med det på en case-by-case basis?
JN: Jamen vi udvider cykelstierne og laver nye cykelruter, vi laver nye grønne cykelruter rundt om havnen. Vi laver grønne ruter forbi nogle af idrætsfaciliteterne, så man får nye cykelstier hvor der ikke er cykelstier i dag. På den måde forsøger vi at øge kapaciteten, og det kommer jo også de nye transportformer til gode. Der bliver mere og mere trængsel i busserne, der bliver mere trængsel i metroen, der bliver mere trængsel på vejene, og det gør der også på cykelstierne og på fortovene. Hvis vi vil den trængsel til livs, og der ikke er plads til at bygge os ud af det, så vil vi i givet fald skulle sige til nogle at de ikke må have lov til at komme ind til København, og det tænker jeg ikke er en vej at gå.
IM: Super, det var alle mine spørgsmål. Tusind tak for din tid!
JN: Det var så lidt! Hav det godt.

17.2 Appendix B: Stakeholder Interview with Jette Gotsche

Stakeholder Interview with Jette Gotsche, President of Danish Cyclists' Federation (in Danish "Cyklistforbundet") conducted on Friday, March 1st, 2019.

[The interview begins with an introduction followed by IM describing the topic of the thesis, and providing definitions].

JG: Som du kan se er det også noget som vi går op i. Det er noget [emnet omkring micro-mobility] der diskuteres jævnligt, især lige for tiden. I den artikel fra Politiken er det ikke Lime, men andre det handler om, men det har du måske set.

IM: Ja, og det er også helt fint. Det er interessant at se hvordan folk forholder sig til el-løbehjul generelt.

IM: Først kunne jeg godt tænke mig at høre hvad din rolle som landsformand er i Cyklistforbundet?

JG: Jamen det er den folkevalgte øverste i organisationen, uanset om det er en NGO eller virksomhed, så er der en bestyrelse, og i en NGO som Cyklistforbundet har vi landsmødet hver år som har en bestyrelse, og så er jeg blevet udvalgt som formand, hvilket jeg har været siden 2013. Det er en 5-6 år efterhånden. Så er vi en bestyrelse på 8 mennesker, og vi har et sekretariat ansat. Så min rolle er at samle en bestyrelse, og lede Cyklistforbundet, sørge for udvikling, og så har vi ansat en direktør og sekretariat. Sekretariat er dem der er udførende, de laver kampagner, og pressearbejde, og kontakter til at få hjælp til vores afdelinger. Men et serviceorgan kan man sige. Mange tror vi er en organisation funderet af finansloven, og der har uanede midler, det har vi bestemt ikke. Men vi lever primært af kontingentindtægter, men af vores aktiviteter, og dækkede af sponsorer og projektopgaver.

IM: Har I haft en aktiv rolle i optakten til de her nye former for elektriske transportmidler? Har I haft mulighed for at dele jeres holdninger?

JG: Altså vi har ikke været med i, hvad skal man sige, det at få nye transportformer ind, vi har nok primært en holdning til det fordi altså vores opgave er at sørge for at skabe så gode forhold til cyklister som muligt, og det gør vi af flere forskellige årsager, dels at cykling er jo en helt almindelig transportform i Danmark, og vi mener jo at desto flere der cykler, jo færre biler er der på gaden. Jo mindre trængsel vi får, jo bedre bliver det for klimaet. Jo bedre bliver det også med folkesundhed generelt for hvis du er aktiv, fysisk aktiv, så kan det være du undgår nogle livsstilssygdomme. De tre ting er jo egentlig vores primære årsag til at man sørger for at der er nogle gode forhold, det er det vi kæmper for på alle de måder vi kan. Vi er ikke sådan nogle der sidder og finder på nye transportmidler. Når de så er der, der har været så meget nyt det sidste år, nu er der jo også kommet el-biler og dele-tanken er jo også nyt indenfor det sidste år, og så har de sidste par år også være fokus på speed pedi decks på forsøgsbasis, men det er alt sammen noget der skal være på cykelstien. Og det har vi en holdning til.

IM: Har I bekymringer I mener der ikke har været nok opmærksomhed omkring ift prøverperioden og de her nye former for elektriske transportmidler?

JG: Altså der har været meget opmærksomhed omkring dem. Der har været nogle høringer i forbindelse med løbehjulene, og der har vi (Cyklistforbundet) været enige med Rådet for Sikker Trafik og politiet, og faktisk også FDIM. Der hvor det har været relevant, at det er farligt at have dem på cykelstierne. Så der har været meget opmærksomhed omkring på det, og der har været mange skriverier og debatter i det hele taget, altså specielt cyklister er bange og utrygge for at der kommer til at ske uheld på cykelstierne fordi specielt de hurtig kørende cyklister, de har jo en anden rytme end cykler har, og det kan være utrygt, og når der i forvejen er mange der er utrygge på cykelstierne fordi der er så mange cyklister, det gælder selvfølgelig primært i de største byer. Hvis du kommer lidt længere ud på landet i de mindre byer, så det er jo ikke den samme oplevelse man har der, men du kører rundt i København og på Frederiksberg hvor der er rigtig mange cyklister, så hvis sådan en hurtigkørende cyklist eller et løbehjul som kører og fylder på en anden måde, det vil være utrygt for mange. Det der så er vores pointe (Cyklistforbundet) er jo at dels at der vil ske nogle uheld, dem kan man måle og veje kan man sige, men alle de mennesker der går hen og bliver utrygge ved at cykle, det kan du ikke måle på samme måde. Der sker bare det at så holder de op med at cykle stille og roligt, og det går jo så ud over, det jeg nævnte før med klima og trængsel, og folkesundhed, så ender de måske i bil i stedet for, og dem der typisk er utrygge er børn som ikke har så meget træning i at cykle, men det er også de ældre som måske så ikke får den motion og den bevægelse, den aktiv i hverdagen som de havde mulighed for og bliver måske lidt dårligere på en fysisk hurtigere end de ellers havde været blevet udover at det går ud over livskvaliteten at man ikke kan komme ud og bevæge sig. Så det er alle de ting som vi egentlig er urolige for. Det er svært at måle, og det er også svært at vide om vi får ret, men det er bare den slags ting vi er lidt bange for.

IM: Det kan jeg sagtens forstå. Nu når den her prøveperiode er kommet op og stå, hvordan følger I processen? Samler I f.eks. data ind? Nu siger du det er svært ift. tryghed, osv, men er der nogen form for data som I samler ind nu når prøve perioden kører?

JG: Nej, men altså, vi har ikke mulighed for at samle data ind, f.eks. uheld det jo kan være politiet, der noterer hvor mange ulykker der er sket. Vi har i mange år fået noget der hedder Skadestuedata, altså hvis der kommer nogle til skade i trafikken, såsom cyklister, så vil vi rigtig gerne have at skadestuen noterede at nu var der en cyklist der kom til skade fordi hvis det er et stort, alvorligt uheld, så skal det nok blive registreret, men hvis man falder på sin cykel og bare slår knæet eller hul i bukserne, så bliver det ikke registreret nogen steder, men det er sådan nogle ting vi gerne vil have en eller anden statistik på, hvor mange kommer der reelt til skade, og hvor henne, fordi så kunne man gribe ind de steder hvor det er alvorligt. Men vi er jo ikke en myndighed på den måde, og vi har heller ikke en kapacitet til at samle ind, så det er jo de her almindelige myndigheder, det er politiet og andre der laver den slags statistikker, så vi har ikke noget andet end det vi får. Vi har fået rigtig mange henvendelser på mail, og der er også mange der har debatteret på Facebook, og følt sig utrygge ved det. Det er det vi har.

IM: Hvad håber I generelt bliver resultatet af prøveperioden? Håber I at de her elektriske transportmidler kommer ind i danskernes hverdag, eller er det bare cykelstierne I gerne vil have de holder sig væk fra? Hvad er jeres ønske?

JG: Det at det er en dele-ordning synes vi principielt er en god ide ift. vores forbrug og resources. Det vil jo også holde folk lidt væk fra tage bilen i stedet for. Det vi primært er utrygge ved er at vi skal dele cykelstierne med så mange andre som kan skabe ulykker og uheld, men også det hvis man virkelig mener, og det siger vores regering jo en gang imellem at de gerne vil have folk over på cyklerne, så nytter jo ikke noget at man laver nogle tiltag mere eller mindre betyder det modsatte. Vi får ikke færre til at cykle hvis de smalle cykelstier der er i forvejen, hvis de skal bruges af mange flere trafikanter. Det vi egentlig også skrev i den høring… Det kan godt være at et løbehjul ikke vil køre mere end 20 km/timen, men hvis den kan køre 50, så vil der sikkert være nogle der kører lidt hurtigere. Da jeg var barn var der knallerter ude på landet, hvor jeg kommer fra, det kan godt være de ikke må køre mere end 30, men det var nogle der var rigtig gode til at bruge dem, så de kunne køre 50, og det vil jo også ske med de her løbehjul. Det samme med el-cykler, de må ikke køre mere end 25 km/timen men der er nogle der kan køre mere, og den cykeltype der kan køre 40 km/timen de

vil være farlige på cykelstien, og det der har været FDM's bekymring, det er jo også vores bekymring, det er at bilisterne er ikke vant til at forholde sig til noget der er så hurtigtgående på cykelstierne. Hvis det er noget der er hurtiggående så er det ud på vejen. De må jo gerne være der i et eller andet omfang, men hvis man skal bare tænke på hvad det her kommer til at betyde for os alle sammen sikkerhedsmæssigt. Det er svært at finde et godt svar på det fordi mange steder er det også et problem at der står mange cykler rundt omkring på gaderne, og folk er måske ikke så hensigtsfulde ift. hvor de stiller dem, hvis de skal ind i supermarkedet eller i biografen. Det problem bliver jo ikke mindre når der kommer et transportmiddel mere når der f.eks. heller ikke er et stativ til løbehjul, så de vil bare stå alle mulige stedet, og det er sådan nogle ting vi tænker på, hvordan kommer vores bybillede til at se ud.

IM: Synes du staten bør gå ind og opsætte afgrænsede områder hvor folk skal sætte deres el-scootere eller elektrisk transportmiddel? Vil det være en del af løsningen, eller er det stadigvæk ikke godt nok?

JG: Altså et af problemerne med at Lime rent faktisk trak sig tilbage der i efteråret, det var at Københavns kommune, at det var ikke godkender endnu, og så respekterede de faktisk det regelsæt og venter vi til at det bliver godkendt først i januar som forsøgsordning. Det at stille et løbehjul som erhvervsdrivende rundt omkring på gaden, specielt i København, det er egentlig ulovligt. Man må som erhvervsdrivende ikke bare sætte noget op f.eks. en pølsevogn eller noget andet fordi det skal man have tilladelse til, og det har de sådan helt set bort fra. Der er i hvert fald tre selskaber i øjeblikket, og Københavns kommune, de gør jo rigtig meget for at der skal være cykelstativer, så dem der vil sætte der cykler i cykelstativ, de kan få lov til at gøre det. Så den oprydning de har og prøver på at strukturere, den går lidt i fløjten hvis der er nogle der bare stiller andre ting rundt omkring. Det gør det jo også svært for kommunerne. Det jeg så også kommer til at tænke på, det er at nu er vi i Danmark et land der har rigtig mange cykler, hvor løbehjulene så egentlig kommer ind og bryder lidt ind i den kultur vi har hvad det angår. Der kunne være mange andre lande og byer hvor man enten ikke har en kultur for cykler, at løbehjulene bliver modtaget på en anden måde, fordi man ikke havde noget som de ikke vil tage noget fra kan man sige. Så nu blander de sig i en kultur som

er stærk, man kommer ind og måske betyder mere på vores cykelstier end den vil gøre mange andre steder hvor der ikke er så mange andre cyklister på gadeplan.

IM: Har du noget indtryk af hvor succesfuldt de elektriske cykler som har været i Danmark i noget tid nu har været?

JG: Altså jeg må indrømme at jeg har ikke set nogle af de der meget hurtigkørende cykler. Altså nu bor jeg på Frederiksberg, og når jeg skal på arbejde, så kører jeg lidt udenfor København. Som cyklist, kan det være svært for mig at vurdere om det er en af de hurtige eller det bare en generelt er end der cykler hurtigt på en helt almindelig cykel. Jeg har ikke rigtig oplevet dem, og har ikke hørt om ulykker i forbindelse med dem.

IM: Der kommer højst sandsynligt til at være mange flere former for de her elektriske transportmidler i fremtiden såsom selvkørende biler, og robotter på vejen. Kræver lovliggørelsen af de her nye former for transportmidler, hvordan kommer Danmark til at se ud i fremtiden ift infrastruktur? Tror du kommer til at have flere forskellige slags cykelstier, bliver vores veje bredere, eller bare generelt hvordan tror du infrastrukturen kommer til at se ud i fremtiden? Eller hvad vil dit forslag være?

JG: Altså det kommer jo an på hvilke politikere vi vælger. F.eks. elbiler, der skal man jo også tænke sig grundigt om, altså det kan godt være de ikke bruger så meget energi, men hvis alle bare får elbiler i stedet for benzinbiler, og kører én i hver bil, så får vi jo ikke færre biler af den grund. Så samkørsel vil jo nok være vejen frem, hvis det er elbiler eller noget andet. Det er mere vigtigt at vi har samkørsel end vi har biler hvor der bare sidder en person i. Det jeg gerne ville det var at man prioriterer cykling, den aktive mobilitet mere end den passive mobilitet. Der kan man sige, løbehjulene, så længe de er el-drevne, så er det jo en passiv aktivitet, så det vi gerne vil foreslå at man fremmer det er den aktive mobilitet for det har jo også noget med sundhed at gøre. Der kan det jo gøre være at el-cykler er også okay, fordi der aktiviteter man også sig selv. F.eks Nørrebrogade, hvis det siger der noget, der er jo meget brede cykelstier, de er jo rigtig gode, for så vil der måske også være mere plads til cykler, og nogle af de løbehjul eller hvad der ellers måtte være, som åbenbart skal være på cykelstierne i fremtiden. Hvis man fordeler den plads der er, og man prioriterer hvad man gerne vil have, f.eks. er det aktiv mobilitet eller passiv mobilitet, vil vi gerne fremme cykling og den aktive

mobilitet, jamen så må vi give dem plads. Der er jo flere der er på cykel end i bil i centrum af København, og pladsmæssigt har bilerne jo mere plads. Så en prioritering af pladsen, find ud af hvad vil du bruge den til, og hvad er det for en aktivitet og mobilitet man vil have, og så indrette det efter det, og så turde prioritere fordi det er nok også ubehageligt som politiker. Det er jo derfor de er der.

IM: Jeg synes det er interessant det du siger at cykelkulturen er virkelig dansk, og vi er jo et cykelland. Tror du ikke det er svært at ændre noget der sidder så dybt i danskerne? Tror du ikke at vi altid vil cykle?

JG: Jo, både og. Hvis man skræmmer folk væk fra cykelstierne eller der hvor man skal cykle, f.eks. ude på landet hvor man nogle gange ikke har cykelstier, så vil der ikke gå særlig mange generationer så er der ikke nogle cyklister mere. Det der er vigtigt det er at få børnene til at cykle, og børn vil gerne cykle fordi det er sjovt, men hvis du skal have børnene til at cykle til f.eks. institutioner, til skole, til fritidsaktiviteter så skal det være så trygt at deres forældre tør lade dem gøre det for det er jo ikke børnene der bestemmer. Hvis børnene egentlig ikke lærer at cykle, jamen så går der ikke særlig lang tid, så har vi skræmt det væk, og er vi ikke stærke på den kultur mere. Det er vigtigt at vi har grundlaget i orden. Nogle af dem jeg har set der kører på de der løbehjul, det ser ud til at være helt almindelig pære-danske unge mennesker primært. Hvis de får smag for at købe på løbehjul i stedet for at cykle, altså det jo ikke på nogen måde i flertal endnu, men altså man skal bare passe på hvordan vi indretter byrummene, men også hvordan den mulighed man får for at fortsætte med at cykle, fordi hvis det bliver trængt, jamen så vælge folk noget andet. Jeg vil da håbe at man i hvert fald fortsætter med cykling eller en anden aktiv mobilitet på en eller anden måde.

IM: Det håber jeg bestemt også. Jeg tror vi har været igennem alle mine spørgsmål, og du fik svaret på flere uden jeg behøver at stille dem, så det var dejligt. Er der noget andet du tænker kunne være relevant at vide ift. det her emne?

JG: Jeg tror jeg har været alt det igennem, som jeg ville have sagt. Det er jo nogle nye tiltag og vi skal finde nogle regler og rammer hvor det kan være. For det nytter heller ikke noget at vi siger at det vil vi ikke have fordi de kommer jo alligevel, så må vi prøve at finde ud af det bliver under fornuftige forhold.

IM: Det her var meget brugbart, og tak for din tid.

JG: Jamen det var så lidt. Får vi lov til at læse din opgave på et tidspunkt?

IM: Det må I meget gerne. Jeg skal aflevere den den 15. maj, så jeg kan sende til jer derefter. Er det i orden at jeg bruge citater fra dette interview med dit navn?

JG: Det må du meget gerne, tak! Held og lykke med det.

IM: Tak, hav en god dag!

17.3 Appendix C: Stakeholder Interview with Harry Lahrmann

Stakeholder interview with Harry Lahrmann, Associate Professor at the Faculty of Engineering and Science, Division of Transport Engineering and Traffic Safety Research Group and a researcher in traffic and transportation. Interview conducted on Monday, March 4th, 2019.

IM: Hej Harry!

HL: Hej! Du må undskylde forsinkelsen.

IM: Det er helt i orden. Jeg så du er blevet citeret i flere aviser i forbindelse med Lime og elektriske transportmidler, så jeg tænkte det kunne være interessant at tale med dig. Jeg sætter pris for at du tog dig tid! [Forklarer om kandidatspecialet og emnet].

IM: Har du fulgt processen og diskussionerne i optakten til legaliseringen af de nye elektriske transportmidler der nu er blevet lovliggjort i en prøveperiode? Har du bekymringer du mener der ikke har været nok opmærksomhed omkring?

HL: Ja, det har jeg. Omkring de her nye elektriske transportformer, der er jo ligesom to ting i det. Det ene er trafiksikkerheden og trygheden i det. Når vi snakker om trafiksikkerheden, så snakker vi om risiko og tryghed. Risiko er jo sandsynligheden for en ulykke, og tryghed, det er jo tryghed for dem der er på transportmidler, og tryghed for dem der er rundt omkring. Det er ligesom den ene del af det. Den anden del af det, hvad kan man i en transportmæssig sammenhæng, bruge de her transportmidler til? Til det sidste, kan man sige, at der er ikke nogen tvivl om, at de på en eller anden måde, så giver de jo en mulighed for at løse det

problem den kollektive jo altid har haft, det vi kalder "the last mile" problem. Altså det der med at den kollektive trafik det har en den egenskab at det går fra et punkt hvor du ikke er til et punkt hvor du ikke skal hen. Det har jo altid være den kollektives trafik's problem. Det er klart, kan man med de her små elektriske dimser der ligesom give folk et transportmiddel til den der last mile? James så er der mange der vil synes at det er ret fedt. Plus at de her typer af transportmidler, de er måske sådan meget appellere til et segment af moderne bymennesker der cruiser rundt i et eller andet bymiljø. Det er sådan ligesom den der transport del af det. Så i forhold til sikkerheds delen af det, der er det jo at sikkerheds forskningen inklusiv mig selv er dybt bekymret for trafiksikkerheden med de her køretøjer. Vi ved i forvejen at de bløde trafikanter, de har en meget større risiko end andre grupper. Hvis vi bare tager de cykler, de klassiske køretøjer for en blød trafikant, jamen så er risikoen jo mange gange større end for eksempel at køre i en bil. Vi ved også at, når vi bare ser på de officielle ulykkestal, men når vi begynder at kigge ind til skadestuerne og hospitalerne, så bliver det endnu værre. Begynder vi ovenikøbet at lave befolkningsundersøgelser, hvor vi spørger folk efter deres trafikulykker, så bliver det endnu, endnu værre. De her transportmidler, hvor man ikke er beskyttet, som man er i en bil, der har vi trafikmæssige udfordringer. Det har vi altid haft, og så er det jo sådan, at med de her køretøjer, så bliver sikkerheds udfordringerne sandsynligvis endnu værre. Det er jo ligesom for at tegne, kan man sige et billede, for på den ene side så er der ikke tvivl at der er altså noget der der vil blive et pres for, og et pres for en mobilitet, og det er fordi der er et efterspørgsel efter den mobilitet som de kan tilfredsstille, og så på den anden side er der de her sikkerhedsudfordringer.

IM: Hvad håber du bliver resultater af den her prøveperiode? Hvis det bliver lovligt på en mere permanent basis, har du nogle ønsker til ændringer som du er blevet gjort opmærksom på fra prøveperioden?

JN: Jeg har holdninger til hvordan man håndterer det her på. Den er fuldstændig tåbelig. Jeg synes at hvis man vil introducere sådan nogle nye køretøjer, så bliver man nødt til fra myndighedernes side og tage fat om det, og sige hvilken objektiv risiko og sikkerhed er der med de der? Altså f.eks. hvad med bremserne på dem, er de gode nok, hvordan skal de være for at de er gode nok? Hvad med lys og reflekser på dem, osv. Ligesom man jo gør ved biler,

der er jo en bekendtgørelse som en virkelig lang, hvilke krav en bil og dens bremser og lygter, osv skal opfylde, og der er i øvrigt også en lang liste for cykler med hvad de skal opfylde. Her der siger man bare, vi må se hvad der sker. Der synes jeg at i den grad sætter befolknings førlighed på spil for at teste det her. Pointen er jo at når man ser sådan noget her, så skal man gøre noget ved det som offentlig myndighed. Man bliver jo nødt til så at sætte sine folk, i det her tilfælde færdselsstyrelse i Ribe, som har ansvaret for de her ting, så må man sætte dem i gang med at finde ud af det, og finde ud af hvilke undersøgelser er der i udlandet. Det er jo også de her elektriske cykler, osv., så man burde blive meget mere proaktiv ift. de krav man stiller for at de her cykler og løbehjul kan blive rimelig sikre. Hvis du ser på hvad man bruger af tid på og sætte krav til de her forsøg der nu skal være med selvkørende busser, det er jo virkelig mange krav man stiller og på mange måder helt urimelig krav i stedet for at komme ud og få nogle erfaringer med det, og så bagefter begynder at stille nogle krav. Men her der bliver man bare det hele los uden overhovedet at stille krav til noget som helst.

IM: Og hvorfor tror du det er? Hvorfor tror du det har været nemmere for elektriske løbehjul end selvkørende busser og biler?

HL: Det ved jeg faktisk ikke. Det er måske at vi ikke har haft så meget tradition for det. Jeg ved det ikke. Det har måske noget at gøre med at vi har en minister fra Liberal Alliance som har den grund ide at hvis folk vil slå sig ihjel, det må de selv om det.

IM: Tror du forbrugere i Danmark kommer til at benytte sig af el-scootere for sjov, praktiske årsager, eller andet? Er det kommet for at blive eller mere en kortvarig trend?

HL: Det kommer an på hvordan kommunerne kommer til at modtage dem. Jeg tror helt klart ift "last mile", så tror jeg helt sikkert at der et hul i transportmarkedet, hvor man sagtens kan se dem have en funktion. På den måde kan man godt sige, at der er en efterspørgsel efter dem. Baseret på artikler jeg har læst fra USA, der er et marked for dem, og det tror jeg sådan set også at der er i Danmark. Kommer det så til at ske? Jamen det kommer helt an på hvordan det offentlige reagerer, og det kommer også meget an på hvordan kommunerne kommer til at tage det her til sig. Hvis de organisere parkering af det, og få plads til dem i byrummet, og gå ind i det, vil de modarbejde det, det ved vi jo ikke ret meget om. Hvordan kommer til at spille

sammen med cyklerne på cykelstierne? Hvor stort et problem bliver de på fortovet og på gågaden? Jeg mødte en på en gågade hvor en 30 årig fyr mellem gågængerne. Hvis det bliver anvendelsen af det, så tror jeg kommunerne siger at det vil de da ikke have, at vores fodgængere skal være utrygge. Så vil de nok begynde at bryde rammerne. Det kommer lidt an på hvordan de kommer til at spille sammen med den øvrige trafik. Det synes jeg er svært at sige på nuværende tidspunkt.

IM: Der har været flere ulykker i relation til el-scootere i udlandet hvilket mange mener er grundet uegnet infrastruktur. Er infrastrukturen i danske byer ikke mere egnet til nye elektriske transportmidler?

JN: Nu kender jeg ikke til hvilke ulykker der er sket, men det er klart at hvis vi tager et traditionel by i USA, så er der kun to modes - det ene er bil-mode og det andet er fodgænger-mode i byerne. Det er klart hvis du så lægge en ny transportform til, i det her tilfælde de her elektriske elektriske løbehjul og de så kører ude på vejene, så er det klart at bilerne og dem vil køre sammen på et eller andet omfang. Sådan vil det være. Ligesom vi har flere typer transport på vejene i Danmark, så skal man dele om pladsen på vejene. Det er helt sikkert. Der er en anden ting ved de her som jeg synes er mindst lige så interessant, og det er, for det første, at man kan forsøge at indrette infrastrukturen efter de her nye transportformer, men det man ikke kan gøre noget ved, det er deres grundlæggende design. Det vil sige at de kan hverken dreje eller bremse, og den måde som de ligesom er tænkt på, det er jo heller ikke tænkt på at man skal have sikkerhedsudstyr som en hjelm for at køre på dem. Det gør at deres grundlæggende design sikkerhedsmæssigt er simpelthen problematisk. De der små hjul med en lille ujævnhed i vejen så står de jo på hovedet. Der er simpelthen så mange problemer med dem ud fra et grundlæggende design til at et køretøj kan være sikkert med hvordan de er designet som de er i dag. Men måske kunne man godt lave et elektrisk køretøj af en eller anden smart eller let konstruktion som man kunne tage med sig i den kollektive trafik, som også var mere sikkert. Det jeg har set i dag, det tror jeg sådan set ikke meget på. Vi må jo også se hvad det er for nogle ulykker der kommer jo.

IM: Ja, det kommer der jo nok desværre. Hvordan kan man skabe de mest hensigtsmæssige fysiske rammer for de nye elektriske transportmidler herunder el-scooteres, biler og robotter?

HL: Jamen det er selvfølgelig det der er problemet. Skal de nu være på cykelstien eller på kørebanen eller på fortovet? Lige meget hvor du putter dem hen, så vil de trafikantgrupper der er der i forvejen, de vil synes at de skal være et andet sted. Hvis du tager et dansk perspektiv, så har man besluttet at de skal være på cykelstien, og det er nok også den bedste beslutning. Hvis man tænker på København eller andre store byer, så kan der være trængsel på cykelstierne. Hvis du have de nye pedo decks, el-cykler, og almindelige cykler, og jeg skal komme efter der, og så kommer der endnu et type kørekort, så bliver der lidt trængsel på cykelstierne. Det er måske ikke det smartest.
IM: Der vil højst sandsynligt blive introduceret flere former for elektriske transportmuligheder i fremtiden, såsom selvkørende biler og robotter på vejene. Kræver lovliggørelsen nye former for infrastruktur? Hvordan kommer vejene i Danmark til at se ud i fremtiden? Hvad vil dit forslag være?
HL: Vi har jo problemer i forvejen med cykel ulykkerne og det skyldes jo også at vi har cykelstier, forstået på den måde, at i traditionel dansk trafik vej, den består af noget kørebane, cykelsti og et fortov. Altså en urban vej. Det går jo meget godt, så lang tid at vi ikke er ved krydset hvor der er krydsnings behov. Så snart vi er ved krydset, jamen så er det at problemet er der, for så skal bilerne på tværs af cyklernes- og forgængernes bane, og omvendt skal cyklerne og fodgængerne jo også krydse kørebanen, osv. Der er det jo lige præcis at alle undersøgelser viser at det er der ulykkerne sker. Der er en lang række undersøgelser der viser at vejen med cykelstier er faktisk farligere end byvejen uden cykelstier. Det kan man jo måske undre sig lidt over, men hvis man tænker efter, så er det måske ikke så underligt. Hvis du har en vej uden cykelsti så er cyklerne og bilerne mere opmærksomme på hinanden og de erkender at de skal deles om det samme areal. Hvorimod hvis du har en cykelsti, så tænker cyklerne at her har jeg jo plads og her har jeg jo ret, og bilisten tænker jo ikke på cyklen, fordi den ikke er på hans kørebane, men når han så skal svinge til højre, så hovsa, der var lige en cyklist og ham havde jeg ikke set. Der kan man sige at det allerbedste ville være et vejtrafik system i byerne hvor du havde styr på bilernes hastighed, og man skulle sørge for at få bilernes hastighed ned. Hvorfor sætter vi ikke bare en hastighedsbegrænsning altså inde i bilerne? Efter vi har fået GPS, så ved vi jo godt hvor bilerne er, og så hvis vi også ved hvad

hastighedsgrænsen er, så kan vi bare lave bilerne så de ikke kan køre hurtigere end hastighedsgrænsen. Så har da i hvert fald løst en stor del af problemet. Ovenikøbet, hvis vi har sådan et system, så vil det også være meget nemmere at lave nogle brede veje, hvor bilerne må køre stille og roligt op og ned af de her veje med god tid til at holde øje med fodgængere og cyklister. I dag er det jo sådan at hvis du har en bred vej, så kan bilisterne ikke lade være med at træde på speederen fordi når man sidder inde i en bil, så oplever man jo ikke hastigheden. Det er mit bud på fremtidens system. Man skulle lave det sådan så det var vej designeren der bestemte hvor hurtigt bilerne må køre på en konkret vej.

IM: Det her er lidt i forlængelse af det du taler om, men hvordan kommer IT og tech til at påvirke trafikken i fremtiden? Hvad bliver deres rolle?

HL: Jamen det bliver jo netop sådan noget som det her, som at få bilerne til at køre med en specifik hastighed. Der er ingen der kan forestille sig at en person i en selvkørende bil vil have mulighed for selv at bestemme at han vil have mulighed for at køre 20 km over hastigheden. Det er vel det ene. Det andet, på et tidspunkt får vi langt højere grad at bilerne taler sammen med hinanden, og de signalreguleringer der er, og måske også og helst også taler sammen med de bløde trafikanter. Vi havde faktisk et lille forskningsprojekt, hvor vi kiggede lidt på hvordan man kunne undgå de her højresvingsulykker, og der ville vi sætte en lille radiosender på cyklerne og bygge dem ind i de her blinkende cykellygter, så radioen hele tiden sender en lille besked ud om at "her er jeg", og så kunne vi også sætte nogle radioer i bilerne, så via triangulering så kan bilen beregne om der er cykler på højre side. Det var jo bare det første skridt på at teknologien også skal involvere de bløde trafikanter, og ikke kun fokusere på bilerne. De bløde trafikanter skal tale sammen med de hårde trafikanter, så vi kan undgå nogle ulykker.

IM: Tror du fremtiden er 100% førerløs, og deleordninger tager helt over?

HL: Nej, det tror jeg ikke. Det jeg lige har beskrevet for dig er så forbandet svært, så tror jeg der kommer til at gå rigtig mange år inden vi i byområderne vil få selvkørende biler.

IM: Hvad er dine holdninger ift. hvor meget staten bør gå ind og regulere markedet? Her tænker jeg specifikt på Uber, som ikke måtte indtræde på det danske marked, for at beskytte den danske taxa industri. Udvikler vi så ikke samfundet i langsommere grad?

HL: Jo, staten skal jo i stedet være proaktiv og i stedet gå ind og stille nogle betingelser til de her Uber, Lime, eller hvad det nu er. Det er det det handler om. Så er det jo at vi kan komme videre, og hvis staten ovenikøbet var så proaktiv at de på forhånd inden de her systemer for alvor ligesom dukker op kan stille nogle krav op og sige, "hvis I vil ca. det og det og det, så stiller vi de og de krav". Der er nogle der kalder det technology forcing. Jeg tror at det var i Californien hvor man stillede krav om at om 5 år så skal bilerne have katalysatorer på bilerne, og så lykkes de med det problem med katalysator og dele-industrien.
IM: Okay, super. Det var rigtig brugbart. Tusind tak!
HL: Selvtak du! Held og lykke med det!

17.4 Appendix D: Stakeholder Interview with Jakob Meyer

Stakeholder interview with Jakob Meyer, Planning Lead at Autonomous Mobility. Interview conducted on Friday, March 8th, 2019.

JM: Hej Isabel! Hvordan går det? Jeg går ud fra du er i New York et sted.
IM: Hej Jakob! Ja, det er jeg. Du er i København?
JM: Ja, vores kontor er på DTU i Lyngby, så der er jeg nu.
IM: Jeg var virkelig interesseret da jeg hørte at du arbejder med selvkørende busser, og har læst en masse artikler om virksomheden og kigget på opdateringerne på jeres LinkedIn. Så jeg er nysgerrig for at høre mere og hvordan det går med det hele? Jeg kan se at I har problemer med at få lov til at køre i offentligheden, men I kører på Køge sygehuse. Og det har været nemmere at få tilladelse i Sverige?
JM: Jeg vil sige at nu har du selvfølgelig læst om det. Det der er vores store problem er at der er lavet en lovgivning at man vil gerne lave et forsøg med selvkørende busser eller selvkørende køretøjer i Danmark. Det er en forsøgsordning som skal gælde i nogle år, og får at man ligesom får en godkendelse af forsøgsordningen, så skal man godkendes af transportministeren. For at man kan godkendes af transportministeren, så skal man have en godkendelse fra en tredjepart som man kalder for en assessor. Det er dem som ligesom

vurderer sikkerheden i sådan et her projekt. Det i sig selv er en udmærket ide. Jeg har lige skrevet noget til en journalist her i sidste uge, som jeg lige kan sende dig, som ridser det meget godt om. Det kan jeg lige sende dig. Det der er problemet med sådan en assessor, det er at hvis ikke de her personer ved præcist hvad det er de skal kigge på, så er det meget svært at sige, at det her skal bare være sikkert. Så ud fra hvilke kriterier? Og man kan sige, hvis man kører med selvkørende biler, det er meget sikrer end at køre med almindelige biler, men det er jo ikke hundrede procent sikker. Så det vil sige at du er nødt til ligesom at finde en gradbøjning af hvornår er det ligesom okay at vi kan køre med en selvkørende, og hvornår kan vi ligesom acceptere at der sker fejl med det her? Og der har Danmark altså et kæmpe problem i at vi er ikke særlig risikovillige. Vi er ikke særlige villige til at sige "okay venner, vi har et nyt projekt, og det skal vi bare have ud og teste". Der er ingen tvivl om at der hvor man ligesom får erfaringen og får viden, det er når de her produkter er ude og køre. Det er først der at vi rent faktisk lærer noget. Det er sjovt nok i Sverige, som man ellers altid hører er en streng stat der går op i regler, de er faktisk meget, meget risikovillige, fordi de er et meget mere producerende land. F.eks. har de volvo og Zap, og jagerfly, og hvad de ellers producerer af tung industri, og det vil sige at staten er vant til at man kommer med noget nyt som man kan få lov at teste. Det gør at vi har fået tilladelse i Sverige, meget, meget hurtigt, og i Norge, har vi netop sendt ansøgningen for en måned siden, og den forventer vi også at få her i næste uge. I Danmark fedter de rundt i det. Det er totalt kaotisk, og vi bliver spurgt om de mest vanvittige ting. Altså et spørgsmål vi har fået er "hvordan håndterer bilen en brændende oliepøl?". Altså en brændende oliepøl. Hvor tit er det at man støder på en brændende oliepøl når man er ude og køre bil? Det vil sige at vi kan ikke håndtere alle tænkelige scenarier der overhovedet kan forekomme. Det er det som den danske ved at hvis ikke vi kan beskrive hvordan vi har tænkt os at håndtere hver enkelt situation, så giver de os ikke tilladelse.

IM: Hold da op. Okay.

JM: Så det er vanvittig svært. Det har været så problematisk. Vi er nødsaget til at sætte en chauffør ind i det her køretøj. Det er sådan set okay. Det er så ham der ligesom skal sørge for at hvis der nu er en brændende oliepøl, så kan han så trykke på stopknappen. Så det har gjort

det uhyrt vanskeligt at få lov og køre i Danmark. Vi har så få lov som du siger at køre på Køge sygehus, og det er fordi det er uden for offentlig vej. Vi må gerne køre på private områder. Vi har f.eks. en testbane hernede på DTU, som er privat område. Der må vi gerne køre. Henne på sygehuset, der må vi også gerne køre, hvis sygehusledelsen giver tilladelsen. Så Danmark er sku ikke glad for forandringer. Du kan også selv høre i befolkningen, folk er ikke positive overfor de her nye tiltag der kommer. Vi kan bedst lide at gøre tingene som det altid har været.

IM: Hvor langt er I kommet i Sverige? Kan I komme med nogle succeshistorier og bruge det som argumentation her i Danmark, og vil det hjælpe på nogle måder?

JM: Vi har kørt i Sverige siden 3. maj. Vi har pause lige nu fordi vi skal skifte område. Det kan godt hjælpe på nogle punkter. Det kan hjælpe at vi kan vise de her assessorer, som typisk er nogle rådgivende ingeniørfirmaer, og så sige til dem, ud af 10 dage har vi haft kun 1 dag med nedbrud, og 1 dag med den fejl, osv. For at gøre det mere sikkert. Så det har hjulpet på det, men at de svenske myndigheder kigger på det og har sagt okay for det er ikke ensbetydende med at den danske stat siger okay for det. De siger at vi har en lovgivning, og det vil sige vi har en lov, og den lov den skal bare holdes til punkt og prikke. Så det er mere tidligere i processen at man skulle have set "Hvad gør Sverige med den her lov? De har tænkt sig at gøre sådan her". Så synes vi at vi skulle gøre noget tilsvarende og gøre det sådan her.

IM: Der kommer jo flere nye innovative produkter og services. Tror du den danske lovgivning kommer til at ændre sig? Skal loven ikke på et eller tidspunkt ændre sig, og støtte op om de her nye tiltag?

JM: Jo, det skal de helt sikkert. Der er lige kommet en opgørelse hvor det er 20 eller 30 lande der er mest klar til selvkørende teknologier, og Norge er nummer 2, og Sverige er nummer 4, og Danmark er slet ikke på listen. Der må sidde nogle ministre, der tænker at "det kan vi gøre bedre". Jeg er helt sikker på at lovgivningen kommer til at blive ændret så det bliver favorabelt for os.

IM: Jeg så også at jeres CEO havde udtalt sig at "vi har brug for en mobilitetskommission, så vi ikke indretter et samfund der passer til nutidens trafik og gårsdagens teknologi". Er der andre måde som staten kan støtte op om nye tiltag omkring elektriske transportmidler?

JM: Nej, men jeg synes at det her med at vi skal lade vær med at tale om transport, og i stedet tale om mobilitet. Der kommer jo Lime godt ind i billedet. Det skal jo være sådan at vi skal ikke være låst fast til en bil eller være låst fast til et eller andet specifikt transportmiddel, men vi i bare nemt og bekvemt kan komme her fra DTU ind til Kongens Nytorv. Det kan gøres på delebil, og så kan vi sætte den her, og så kan vi overtage Lime scooteren det sidste stykke, eller sådan noget. Altså det er den måde som vil være smart. Det vil være super hvis vi kan få en mobilitetskommission der tog affære på det her.

IM: Hvad er din holdning til de her elektriske scootere? Synes du der er plads til dem i bybilledet? Nu kommer der jo en del af de her micro-mobility transportmidler ind, så der kommer jo også elektriske skateboards, uni decks. Der kommer jo til at komme rigtig mange forskellige former for transportmidler og forskellige hastigheder. Synes du der er plads til alle? Eller hvad er din generelle holdning til det her?

JM: Ja, altså jeg synes der er plads til alle. Jeg synes det skal være super nemt at køre rundt på alle former for transportmidler. Jeg synes nu at det ser lidt farligt ud, fordi de altid kører uden cykelhjelm. Jeg så to drenge nede på Klampenborgvej nede på et elektrisk skateboard med fuld fart. Jeg tænker bare shit mand, der skal bare en lille småsten før de flyver af. Men det må man selv om. Jeg tænker bare personligt, at det skal mine børn ikke have lov til uden cykelhjelm. Men selve transporten er jeg super stemt for. Nu tænker jeg på en Drive Now dele bil, som man så bare kan stille på en parkeringsplads hvor der er adgang, og så tage et løbehjul og tage det sidste stykke af vejen. Så kan man tage ind til byen og køre rundt. Altså jeg synes jo at København skal lukkes for biltrafik, og der bare skulle være alle mulige former for transport så man nemt kan komme ind. Det kunne være mega sejt. De har jo talt om at man skal lukke den gamle bydel af København, så der ikke må køre nogle biler. Det eneste der må køre er delebiler, delecykler, og dele løbehjul. Så nej, jeg er meget positiv stemt overfor det. Jeg har set dem rundt omkring i byen, og set folk på dem, og folk er meget negative stemte overfor dem. De synes de står over det hele, og det er grimt. Jeg synes jo personligt at biler er grimme, og de fylder jo simpelthen så meget. Bilfrit Købehavn, og så massere af løbehjul, massere af delebiler, massere af delecykler, så man nemt kan komme rundt derinde. Men at kigge på alle de her biler, det er forfærdeligt synes jeg.

IM: Tror du fremtiden er 100% førerløs?

JM: Det tror jeg. Fremtiden er 100% førerløs. Det er jeg helt overbevist om. Men det kommer til at tage tid primært pga. lovgivningen, teknologien er længere fremme end lovgivningen er. Jeg tror på at fremtiden er at det f.eks. er en mobilitets app du har på din telefon, der siger jeg at jeg skal fra A til B, og så kommer der så noget og henter dig her, og kører dig måske over til et tog, som lige passer, og så videre ind til byen, og så er der allerede reserveret et løbehjul, så du i sidste ende kan komme frem eller noget i den dur. Jeg glæder mig, men der er lang vej. Vi må lige tage fat i de små skridt først, som de her busser som kan køre 18 km i timen. Men hvis vi ikke kan komme ud og køre med dem, så er det også svært at få den her erfaring og presse til noget.

IM: Hvad tror du tidslinjen er for jeres virksomhed til at de elektriske busser bliver en normal service i danskernes hverdag?

JM: Det kommer til at ske gradvist. Om 2 år kan du sidde i din bil på motorvejen og hverken have hænderne på rattet eller pedalerne, og så kan det køre af sig selv, overhaler, holder afstand, osv. Så der kan du køre flere hundrede kilometer på motorvejen med den her. Efter det går der yderligere 5 år før du kan gøre det samme, altså køre af sig selv, inde i byerne, men der er lige nogle ting hvor den ikke kan. Det er alle de der ekstreme tilfælde som den ikke kan. Det vil der gå yderligere 3-5 år med. Jeg vil sige i 2030, der er det mit bud på at vi har et førerløst samfund med 90% af køretøjerne. Der kommer selvfølgelig noget udfasning på de eksisterende biler, men du kan få køretøjet som kan køre der rundt, jeg vil sige i 90% af den kørsel du har brug for. Der kan være noget bjergkørsel, eller noget terrænkørsel, eller noget ekstrem kørsel som de ikke kan håndtere endnu. Men sådan den generelle ting som frem og tilbage til arbejde, og til sportsklubberne, kørsel i byerne, osv. Det vil om 10 år bliver håndteret førerløst. Det er mit bud, men det kræver at der er nogle lovgivninger der siger god for det og giver os lov til det her. Men her inden for nogle par år, der er rigtig mange bilproducenter der taler om det her, men først om 3-5 år så vil du se en flodbølge af biler, som kommer på markedet og kan alverdens ting. Så er de testet igennem, men der går lige nogle år.

IM: Lige for at vende tilbage til et spørgsmål som vi har været lidt inde på, men den her mobilitetskommission, hvad helt specifikt ville jeres forslag være at deres funktion skulle være?

JM: Specifikt skulle de kigge på at man skal ligesom tage og vende transport lidt på hovedet, og sige at i dag bliver vi transporteret i en type køretøj, og den type køretøj, der har vi en bestemt type lovgivning. Det der med at få ny teknologi ned i eksisterende lovgivning, det er fuldstændig umuligt. Det er virkelig, virkelig svært. Man er nødt til at simpelthen at vaske tavlen ren med en kommission som siger "okay, for at det her ligesom kan lykkes for os, så er vi nødt til at sige okay, vi er nødt til at lave en ny færdselslov der indeholder førerløse biler, løbehjul, skateboards, whatever, droner. Vi er nødt til at tænke det her samfund som transport om på ny, så vi kan få alle de her former med, sådan så vi, som et lille firma som os, ikke skal bruge 1.5 år fra loven trådte i kraft, og vi er ikke engang ude og køre endnu. Vi er simpelthen nødt til at have et mere agilt system at arbejde i for at komme på markedet. Så en kommission skal være med at se og gennemtænke en helt ny lovgivning indenfor mobilitet.

IM: Så Lime er nu i den her prøveperiode. Har du nogle forslag til hvad de kan gøre for at få en succesfuld indtræden på det danske marked?

JM: De skal ligesom blive accepteret af befolkningen. Vi er nødt til at ikke bare lade det tage til så folk synes det er irriterende at de er parkeret overalt, og jeg læste en eller anden historie om den her kvinde som flyttede de her løbehjul fra uden foran hendes butik. Det er jo enormt smart med de her løbehjul at du bare kan sætte dem hvor du vil, men det kan også være at det ikke er så pænt at man kan bare kan stille dem hvor som helst, synes folk. Man bliver nødt til at lytte til befolkningen. Hvad er det? Det er jo en ting som de siger er irriterende, og så prøve at imødekomme det nogle steder. Ikke fuldstændig gå på kompromis, men så nogle steder bliver det acceptabelt og folk synes det er en god ide. Sådan så man ikke bare fordi loven tillader det, at man smider flere og flere løbehjul ud på gaden. Det tror jeg kan være et problem. Omvendt, hvis der er let tilgængelig og det kan bruges af alle, og de hele tiden er der overalt, jamen så bliver folk mere og mere glade for det, og så kommer folk til at bruge det mere og mere, og den vej, så tror jeg også det er en generel accept af dem.

IM: Så du nævnte at i Sverige er de mere vant til at se de her nye produkter og service oftere. Tror du ikke den danske stat påvirker forbrugerens kultur her i Danmark fordi vi jo ikke ser nye service og produkter så ofte, så vi har sværere ved at acceptere det eller være åbne overfor det i samme grad som svenskerne?

JM: Det tror jeg da er et stort problem. Det er klart at hvis man ligesom får lov til at teste de her ting tidligt, så kan det være at man får lov til hurtigt at få lov til at høre folks syn på hvor det er godt, og hvor er det skidt, og ikke bruge flere år, som vi har, med at komme ud med førerløse biler, og først der kan vi ligesom få folks reaktion. Det gælder om så vidt muligt bare at få tingene ud i test. Ud på vejene, så vi kan få noget erfaring med det her.

IM: Super! Tusind tak for din tid Jakob. Det her var enormt brugbart, og du har rigtig mange gode pointer som jeg glæder mig til at skrive om.

JM: Det er godt. Hvis der er noget Isabel, så skriv eller ring, så vil jeg meget gerne hjælpe dig.

IM: Er det i orden at citerer dig i min opgave?

JM: Det er intet problem, nej.

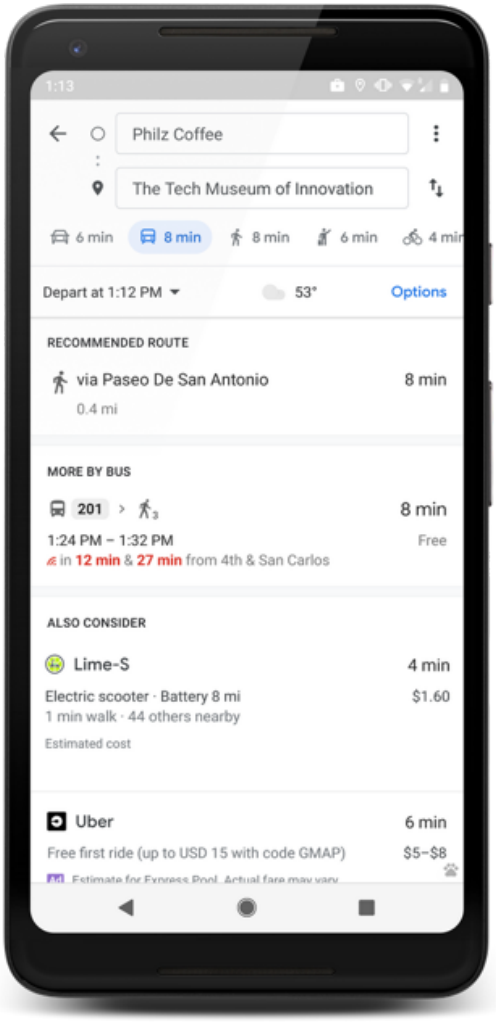
IM: Super, tak for din tid. Hav en god dag!

JM: I lige måde. Vi ses!

17.5 Appendix E: Images of Lime Scooter

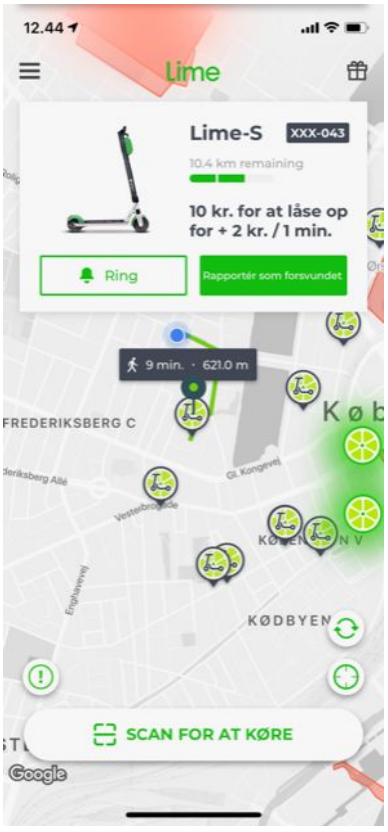
Source: Lime, 2019.

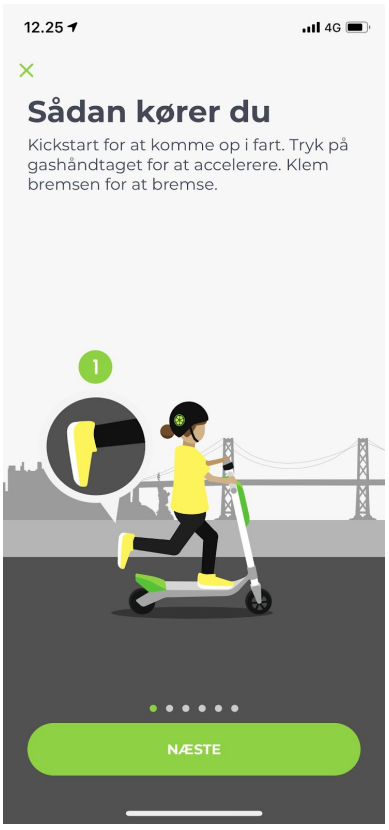
17.6 Appendix F: Google Maps with Lime Option

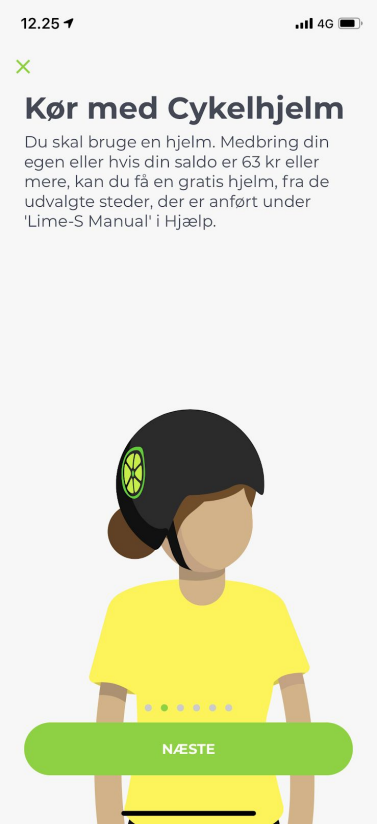


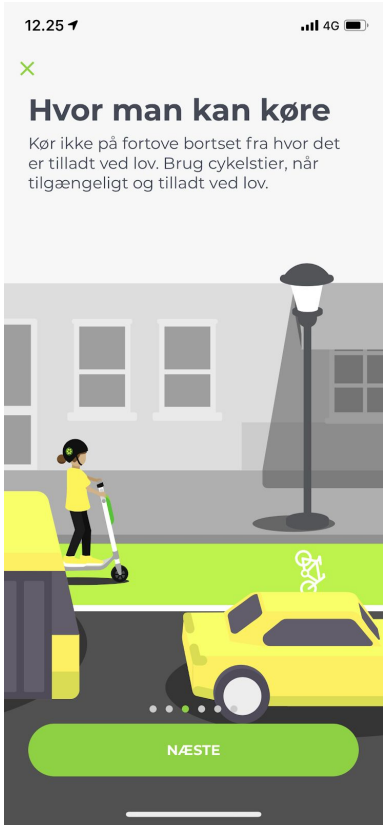
Source: Google Blog, 2018.

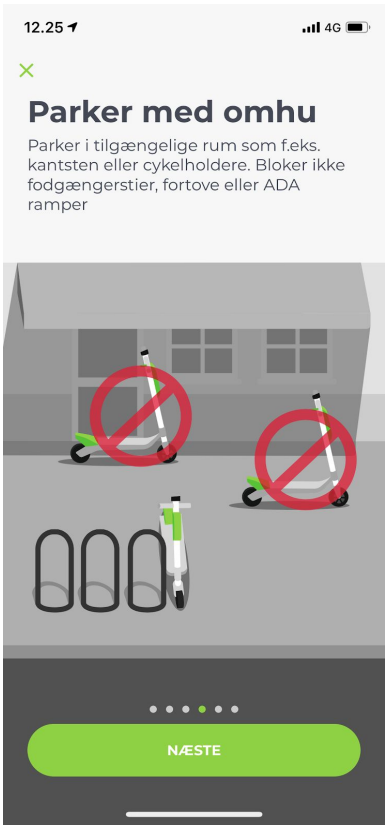
17.7 Appendix G: The Lime App

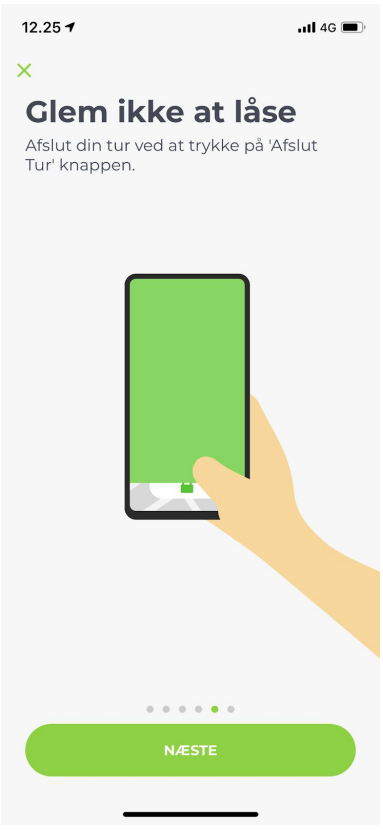


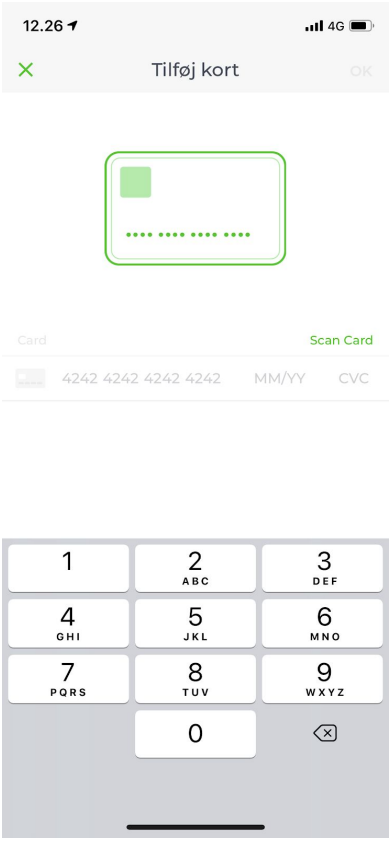





12.25
4G
Hvor man kan køre
Kør ikke på fortove bortset fra hvor det er tilladt ved lov. Brug cykelstier, når tilgængeligt og tilladt ved lov.
NÆSTE


12.25
4G
Parker med omhu
Parker i tilgængelige rum som f.eks. kantsten eller cykelholdere. Bloker ikke fodgængerstier, fortove eller ADA ramper
NÆSTE


12.25
4G
Glem ikke at låse
Afslut din tur ved at trykke på 'Afslut Tur' knappen.
NÆSTE


12.26
4G
Tilføj kort
OK
Card
Scan Card
4242 4242 4242 4242
MM/YY
CVC
1
2 ABC
3 DEF
4 GHI
5 JKL
6 MNO
7 PQRS
8 TUV
9 WXYZ
0


12.31
4G
Lime
Turen er i gang
521-043
Længde
0.5 km
Tid
04:22
Rækkevidde
-- km
Sådan kører du
Vil du afslutte din tur?
Vi kan låse køretøjet midlertidigt, mens du tager en kop kaffe. Du kan beholde din tur og fortsætte den senere.
SÆT TUREN PÅ PAUSE
AFSLUT TUR
Vesterbrogade
Vesterbros Torv
LÅS
Google
Saxopark