

SHARED URBAN MOBILITY

Corporate Entrepreneurship & Design
Report - MUO-E9009

voi. & SHARENOW ✓

case analysis

INTRODUCTION

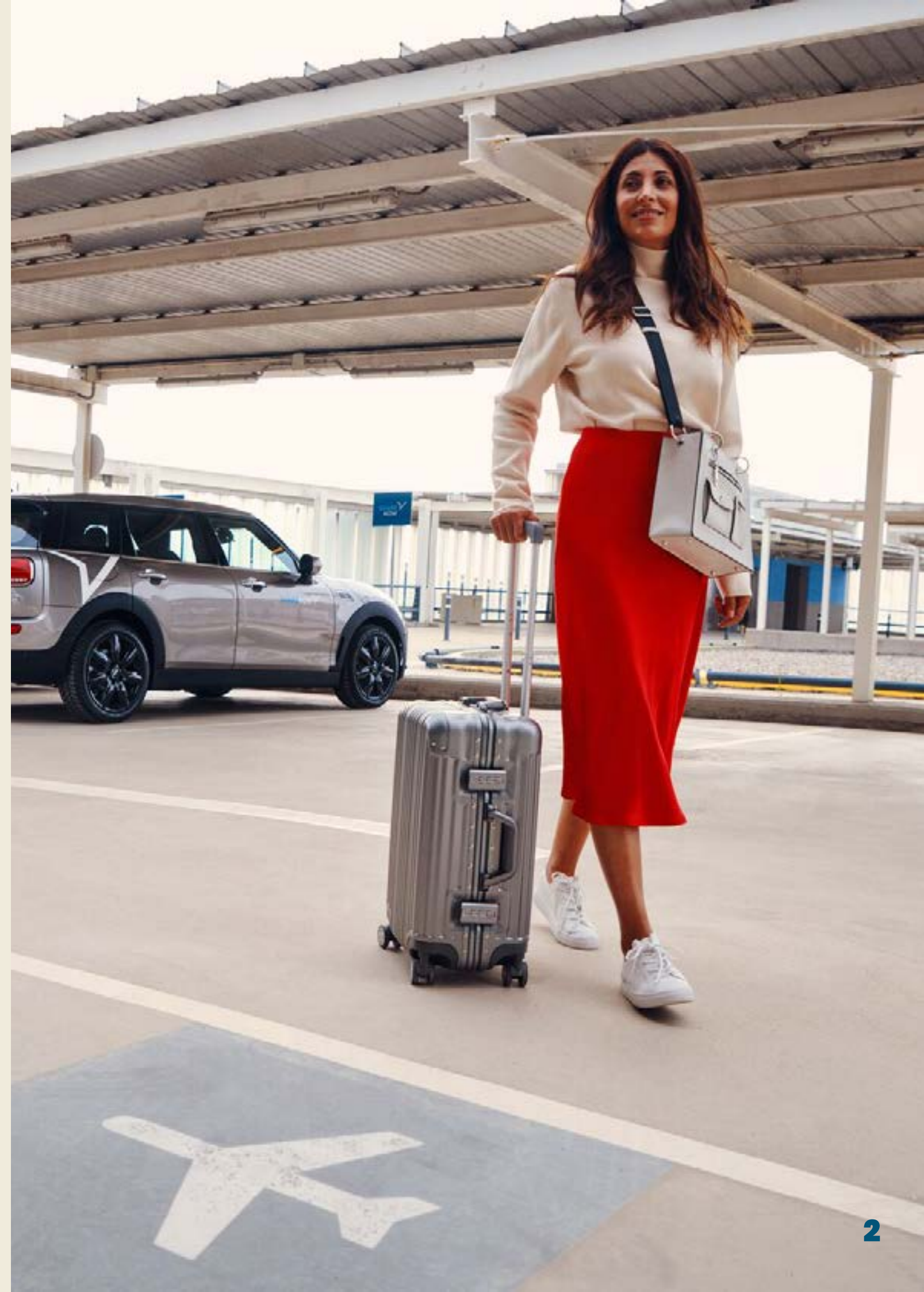
This report is created as a deliverable of the Aalto University course Corporate Entrepreneurship and Design. It aims to provide insight as to how corporate innovation compares to innovation in a startup environment, to highlight key similarities and differences of these two environments as well as to analyse the impact of design on business success. We chose to set this analysis into the context of the shared mobility industry.

The potential growth of the shared mobility industry “holds profound changes for cities, both in air quality and urban design, as well as for vehicle manufacturers hoping to survive a rapidly-evolving era where automobile consumption is increasingly influenced by urbanisation, high technology and the sharing economy” (Tart et al., 2017). For this reason, we chose to address the two companies SHARE NOW and Voi.

- SHARE NOW being a joint venture of two large corporations in the automotive industry trying to remain innovative and to explore forward-thinking modes of transportation and
- Voi being a startup aiming to exploit the same trend, but instead by leveraging another part of an integrated mobility network, helping end users to better overcome micro distances.

We will first provide an overview of both companies and their areas of operation. Subsequently, we will compare the two case companies in regard to their design practices and sustainability measures. – we define sustainability as, not only concerning environmental actions, but also social responsibility and community welfare. Third, we will analyze the strengths and weaknesses of our chosen companies. Finally, we dive into future foresight for the shared mobility industry. We address how design could improve the business and help mitigate possible threats as well as leverage opportunities.

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1.0 COMPANY INTRODUCTIONS

2019 Car2go (2008) and Drive Now (2011) became SHARE NOW

<1000 employees

8 countries

16 cities

12 000 cars in Europe

3 300 electric cars

One current problem of the automotive industry, as the German Environment Agency (Umweltbundesamt) states, is that as on average, an owned car is used approximately one hour a day and the number of people owning a car is increasing – therefore parking spaces are becoming scarce and streets are overfilled (Umweltbundesamt, 2020).

One car-sharing car, on the other side, is used by approximately 173 customers and replaces 1–20 owned cars depending on the urban area (WDR, 2017). In addition, these service-cars are usually newer than the average owned car, which reduces carbon emissions (Umweltbundesamt, 2020). Therefore, offering cars as a service seems to be an important building block of the future of automotive transport.

SHARE NOW is two big players in the car-sharing market (both corporate ventures) joining forces, Car2go (Daimler) and DriveNow (BMW) (Randall, 2018; Car2go, 2019). These companies merged to form the largest car-sharing service provider in Europe, bringing the advantage of offering customers to use a single application.

“[Their] mission is [our] personal freedom: To make it possible for [us] to drive in the city without breaking the bank – or the environment (Car2go, 2019)”. SHARE NOW positions themselves as a premium service. The cars they use are the most desired ones that Mercedes-Benz, BMW, smart and MINI manufacture.



But the fusion didn't just create SHARE NOW. The joint venture is combined in a network. The two car manufacturers not only merged the car-sharing fleets of Car2go and DriveNow, but in the process also created joined ventures in the following supporting industries:

Park Now: Digital parking space management / parking meter

Charge Now: E-charging stations

Reach Now: Route planner

Free Now: Arrangement of passenger transport / taxi app

BMW and Daimler expect that the consolidation of the mobility services and car-sharing services will help subdue the costs, while supporting growth and innovation. Additionally, the fusion is an open challenge to Uber and other car-sharing service providers, who began encroaching on the automobile manufacturer's business some time ago (Randall, 2018).

HOW IT WORKS

The service aims to be a stress-free, more sustainable solution compared to owning a car. Users merely install the application and upload their driver's license, after which they are ready to go. Upon validation of the uploaded driver's license, any of the cars provided by the service can be used at any time. As the user's smartphone functions as the key, there are no opening hours and the car can be parked in any desired location (considering traffic rules and restrictions).

Insurance, maintenance, parking fees, fuel and charging are all included. Depending on the rate of insurance and the pass chosen, rates start from 0,19€/min. onward. The service lets users choose between paying by minute, by hour or by day. Upon booking the car for a day or more, SHARE NOW will even reserve a car for you and bring it to the desired address.



For heavy users, there is the SHARE NOW Pass; a monthly subscription plan that lets users enjoy a discounted minute rate on all trips, which can come in very useful in situations where several frequent short trips are required or as an alternative to public transportation (Share Now, 2020e).

SHARE NOW operates a free floating car-sharing model, meaning that there are no stationary points users have to return the car to and cars can basically just be parked right in front of one's doorstep. Nevertheless, cars must be operated within a specific area restricted by the operator – while cars can be driven from one city to another, the session cannot be stopped by parking the car if it's located outside of the area of operation.

THE TYPICAL USERS

Customer segments:

- People in urban areas who don't own a car but see the value of using a car
- Has a drivers licence but do not own a car
- Corporate customers (the ones that also use Uber)
- One way travellers (e.g travelling to airport)
- Eco-conscious individuals
- People on-the-go with last minute reservations
- Families
- Driver's who want a premium car model
- Disabled people / people travelling with disabled people
- Average user: urban, young, male, above-average level of income and intellect

What is especially interesting about car-sharing users is that they are typically users of multiple ways of commute. Without the inviting character of an owned car, users reflect about which means of commute to take ahead of each journey (Diez, 2018). As this model works especially well in rural areas, this is where the typical car-sharing user lives.



USER MOTIVES

Although the initial reason for the invention of the service was **ecological**, today **economic** reasons are paramount for the users (Diez, 2018), as using a private car is associated with high acquisition and maintenance costs.

Additionally, car-sharing allows for more **flexibility**. If there is no need to worry about parking a car or getting it back home, there is little reason not to combine it with other means of transport.

Users tend to intensify their use over time. This suggests happiness with the service and habitus. Car-sharing could therefore turn from a mobility model currently used in one phase of life to a mobility concept, which is retained later (Diez, 2018).



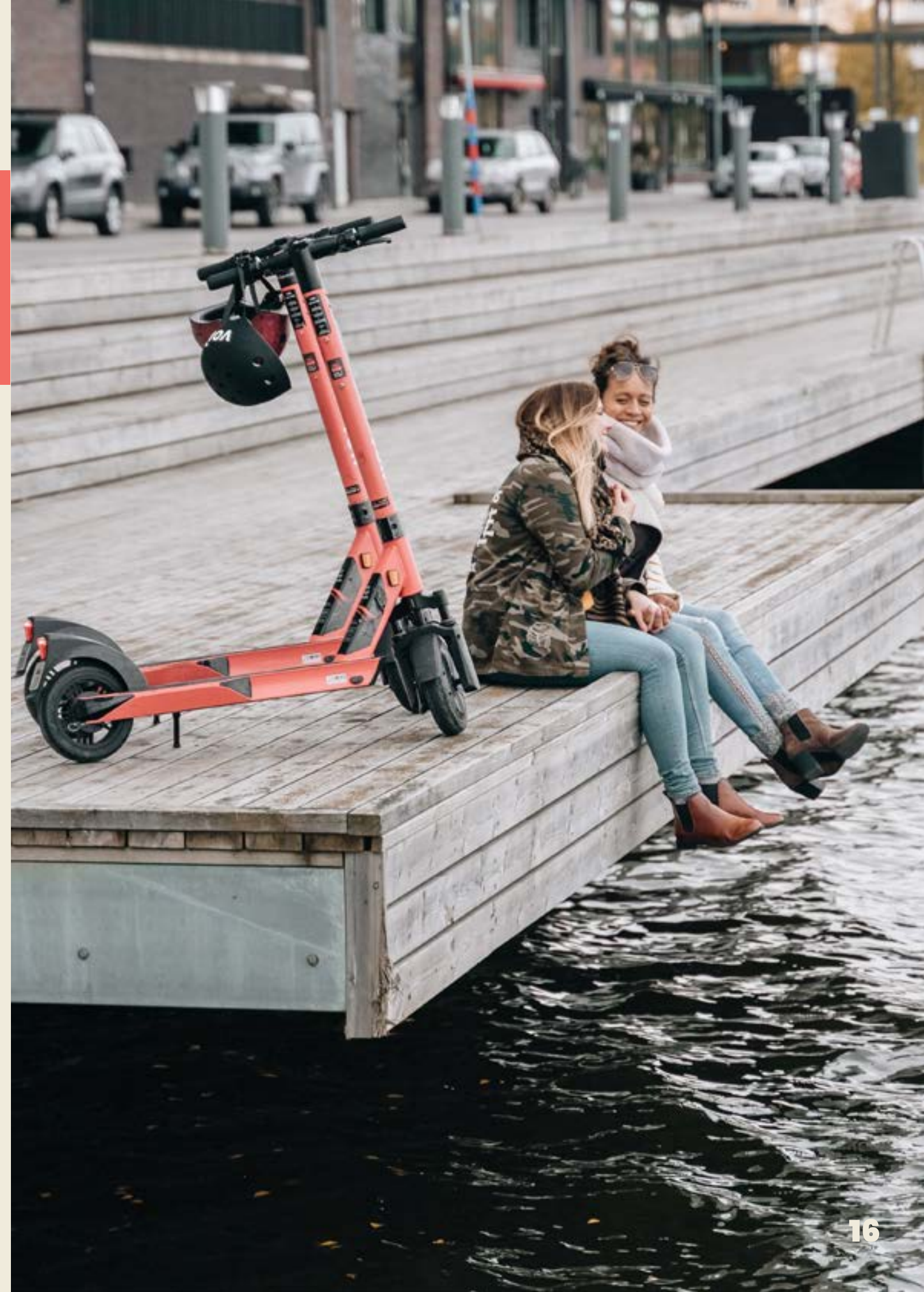
1.2 voi.

2018 founded
500 employees
10 countries
40 cities

In recent years, it has been increasingly difficult to not take notice of the e-scooter trend that has taken large cities by storm. Electric-powered scooters can be seen in nearly every street corner, sometimes neatly organized in a row after having just been charged, and more often scattered and lying on the ground for passersby to scoff at. It seems that this new mode of transportation that falls into the category of micro-mobility – a way of fulfilling first- and last-mile needs of transportation by providing vehicles unlocked via a smartphone application that can be picked up and dropped off anywhere – is here to stay (American Library Association, 2019).

The influx of e-scooter companies was initially sparked in 2017 by two startups, Bird and Lime. Both companies began their operations in their home state California a mere month apart from each other, and quickly expanded their service to other cities and states in the United States (Hawkings, 2018). Many companies were quick to hop onto the bandwagon in hopes of establishing a strong position on the aggressively competed market. European cities have been populated by the vehicles from 2018, with Voi spearheading the entrance to European markets.

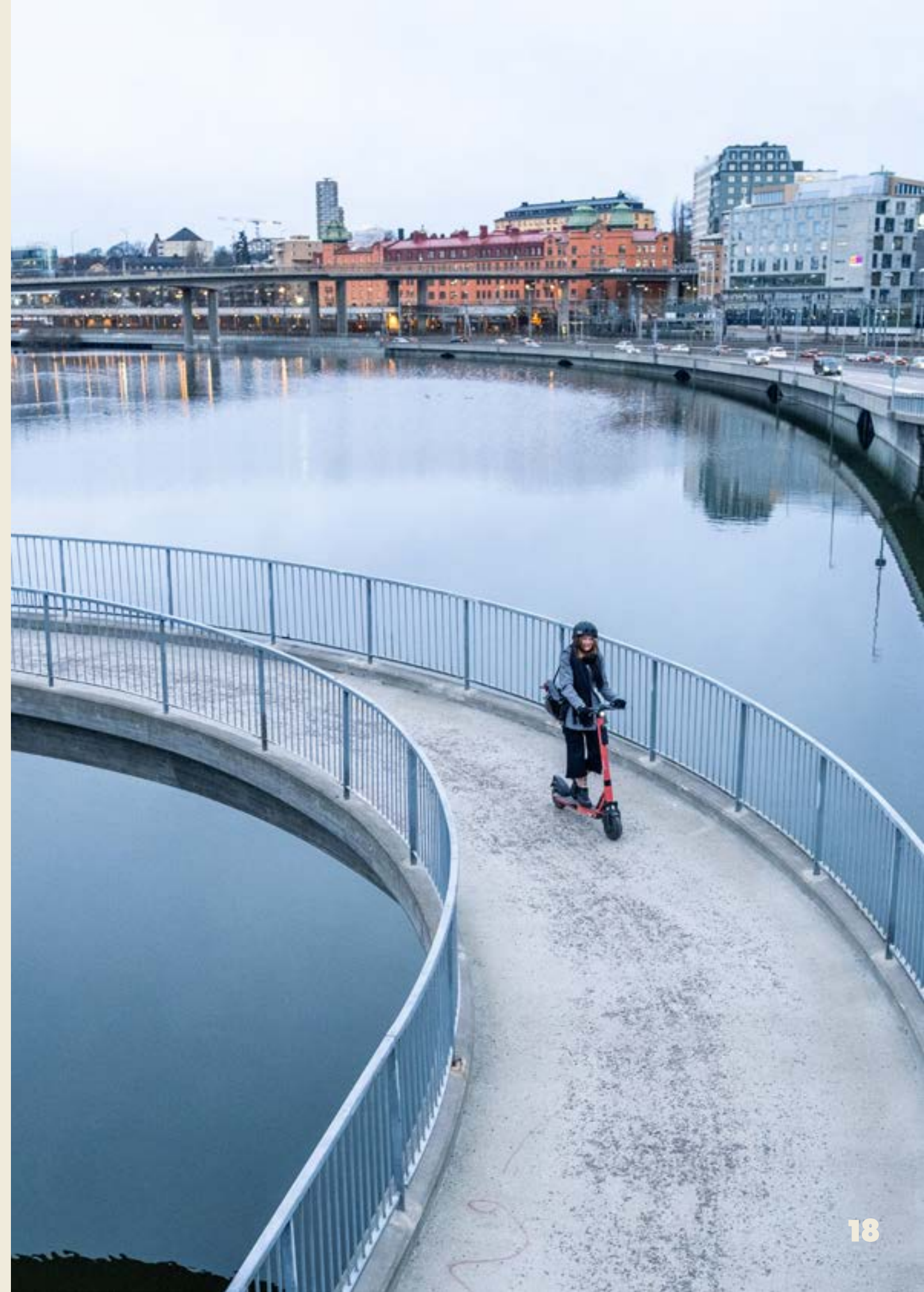
Voi is a micro-mobility startup company headquartered in Sweden which provides dockless e-scooter sharing systems in the pan-European area. Voi was founded in August 2018 by Fredrik Hjelm, Douglas Stark, Adam Jafer and Filip Lindvall (O'Hear, 2018). Having initially launched in Stockholm, Voi has since established a strong foothold in Europe, operating in 10 countries and over 40 cities. Currently Voi employs over 500 employees across Europe (Voi, 2020g). While several US-based companies extended their reach to a select few European countries, Voi was the first e-scooter company of European origin, having been founded a mere month before its competitor, Berlin-based TIER. During its series A round of funding, Voi received \$50 million in funding from investors such as Amazon's Jeff Wilke and Justin Mateen, the co-founder of Tinder (Sawers, 2018).



HOW IT WORKS

As mentioned previously, e-scooter services aim to fulfill the first- and last-mile needs of transportation in urban areas such as cities, i.e. traveling to and from public transport stations or to simply act as an alternative to traveling short distances that would regularly be covered on foot. To use these services, users need to simply input their payment information into the service provider's application, locate an e-scooter and access it via the application. Services commonly charge a small initial fee (often approx. 1€), after which the user pays by the minute (starting from 0,15€). Some companies offer monthly subscriptions that allow for unlimited access to e-scooters.

But despite the vast amount of e-scooter companies that have emerged within the past years and their vigorous growth, this has not come without its downsides. The e-scooter industry has been in the midst of plenty of controversy and future outlooks of these companies still remain unclear. The initial deployment strategy of the first companies was along the lines of "launch first, permission later", which caused friction and concern among city officials (Smith, 2018), setting a precedent for consecutive companies. Companies have been encompassed in legal disputes due to visual pollution and inconvenience caused by scooters left lying on sidewalks due to the lack of infrastructure regarding the way these companies operate. The introduction of e-scooters has also resulted in an influx in e-scooter related injuries and even deaths that are often accompanied by intoxication, which has been a major issue that companies have had difficulties resolving. Finally, the aggressive competition and growth witnessed across the e-scooter industry during the past two years has been causing financial concerns - major companies are laying off staff and pulling their operations out of cities in increasing amounts. According to Bloomberg, "virtually all e-scooter companies are losing money fast" (Bliss, 2020), with Lime reporting in 2019 that they would be losing \$300 million during the same year (McKay, 2019) and Voi claiming to be profitable only by 2022 (Leijonhufvud, 2019). Yet, despite the uncertainties and the friction, it looks to be that these e-scooters are being perceived by many as a convenient means of transportation and that people are willing to pay for the service.



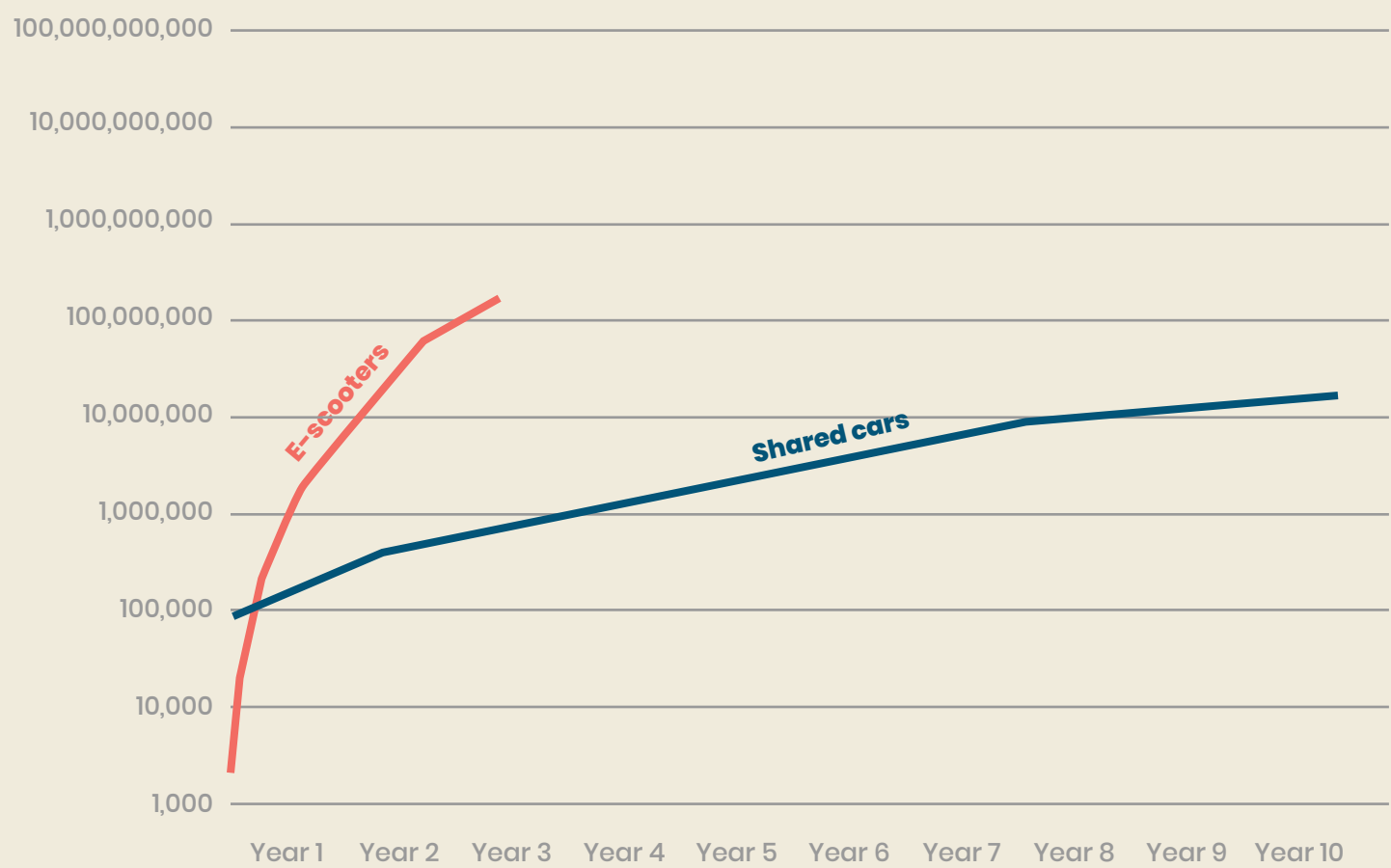
THE TYPICAL USERS

Customer segments:

- Commuters with relatively short distance to work
- Young adults returning home from a night out
- People looking for a more flexible alternative to public transport to cover short distances
- Adults with a busy lifestyle who value convenience
- Corporate customers
- Users of e-scooters predominantly male



Historical growth of e-scooters and shared cars:





2.0 SUSTAINABILITY OF SHARED URBAN MOBILITY

Sustainability focuses on meeting the needs of the present without compromising the ability of future generations to meet their needs. The concept of sustainability is composed of three pillars: economic, environmental, and social—also known informally as profits, planet, and people.

SUSTAINABILITY BY DESIGN EVALUATION OF VOI AND SHARE NOW

Product Sustainability

Sustainability in product design has two main goals: the prevention of waste and to minimize environmental impact(van Weenen, 1995). Sustainability by design in micro-mobility transport means creating products and items with a long life-span.

SHARENOW ✓

SHARE NOW’s idea is to lease premium cars for use – without the price tag that comes with a car ownership. They want to offer nice rides with the most iconic car models from Mercedes-Benz, BMW, MINI and smart.

The cars are designed, manufactured and owned by the car manufacturers. The more specific car models SHARE NOW offers are subject to availability in each city. Currently 20 % of their car models are electric, but SHARE NOW has announced to increase this percentage to take more responsibility for the environment (Moses, 2020).

SHARE NOW’s electric vehicles are rented around 12,000 times per day in Europe. The strong demand for electric car sharing would also be reflected in the almost 29 million kilometres that customers covered last year with electric cars.

Throughout Europe, customers have covered a total of around 121 million purely electric kilometres. Currently, every fifth trip with a SHARE NOW vehicle in Europe is electric (Randall, 2019). Research has shown that electric cars are better for the environment. They emit less greenhouse gases and air pollutants over their life than a petrol or diesel car.

Vehicle lifetime carbon emission

Petrol



Electric



0 20 40 60 80 100 120

■ Use phase emission ■ Manufacturing emission



But not just the electric cars are more sustainable. According to the German Environmental Agency the vehicles used in the car-sharing fleets are used significantly more frequently than private cars (Umweltbundesamt, 2020). This leads to them reaching their maximum mileage quicker and having to be replaced after three to four years (vs. about 18 years in private use) (Schmitz and Akram, 2020). The energy-efficient and modern car-sharing vehicles emit less climate-damaging CO₂ per kilometer driven than the average private vehicles in Germany (Umweltbundesamt, 2020).

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Originally Voi, like many other e-scooter companies, started its operations with off-the-shelf e-scooters not initially designed for shared use (O’Hear, 2019b). It turned out that these scooters were vulnerable to vandalism and lasted only approximately less than a month or around 260 km before they broke down (Griswold, 2019).

Taking the design in-house and emphasizing hardware design has improved both the lifespan and safety of the e-scooters (Voi, 2020g). Regarding the lifespan improvement, Voi has utilized its collected data from millions of rides and taken into account the outdoor conditions the e-scooters live in. Today the company has three generations of in-house designed e-scooters and a fourth in the development (Voi, 2020b, 2020f) As a strategic choice, Voi designs modular vehicles which enables easy repairs. A predictive maintenance AI software ensures that the repair is done in time. Incentivizing riders to park, use and care for the fleet reduces vandalism and since Voi’s early days of operation, there has been over 70 % reduction in vandalism.

The newest e-scooter in the street, Voyager 3X, has a 24-month lifespan (Voi, 2020b). Nearly 90 % of scooters are made from easily recyclable materials, enabling high recycling rates for scooter parts that cannot be reused (Møller 2020). It also has swappable batteries which removes the need to transport e-scooters for charging. These innovations enable a 51 % reduction in emissions (Møller, Simlett and Mugnier, 2020). The total lifecycle impact of an electric scooter is 35 g of CO₂ per person per kilometer. Voi’s route optimization software has also reduced daily distance covered by bikes and vans by 30 % by identifying the shortest route to mitigate for the emissions caused by charging and maintaining vehicles.

Voi is also piloting new innovations for covering longer distances, such as a fully electric e-bike and a cargo bike. Their e-bike also comes with swappable batteries and their cargo bike Voi Cargo caters specifically to riders who have to carry large items. In addition, Voi has recently launched Voi x You, which offers refurbished shared scooters for sale in Sweden for private use to extend the life cycle of their vehicles (Ehrenpohl, 2020).



Service Sustainability

Service design involves solving problems through a service response, which unlocks value for each stakeholder in a value chain. Service design can support sustainable business model innovation by uncovering strategic as well as operational synergies between these complementary fields (Prendeville and Bocken, 2017).

DIRECT COMPARISON

The mobility is shifting from private to shared services. Car-sharing and e-scooters are offering smart urban mobility solutions which are a more ecological alternatives to car ownership. Using car-sharing diminishes the total amount of cars needed while in comparison the better claim of public space provided by e-scooters encourages a completely car free life. A single shared car takes approximately up to 20 privately owned cars off the streets (Glotz-Richter, 2016).

Service design was not only used in the creation of the initial business model. The two companies constantly kept evolving their services to improve business success and customer satisfaction. For example, the move from stationary car-sharing to free-floating or the integration of new tech to unlock a car without a key.

On the contrary, bicycle users tend to use car-sharing more often since it is a sweat-free transportation model (WDR, 2017). E-scooters, in comparison, feed the use of public transport since 63 % of riders combine e-scooters with public transport (Møller, Simlett and Mugnier, 2020). In the long run, both solutions reduce traffic congestion and overall carbon emissions, particularly in metropolitan cities.



Application Sustainability

Building an application that would remain relevant for the long run is a challenging design problem. There is no definite set of instructions for sustainable apps, but by taking effective steps in the direction of strategizing, creating product definitions, designing and developing apps, one can ensure consistent long-term success.

A sustainable app has all the necessities to run for the long term. These are the four main principles of Sustainable App Development, which we will use to evaluate the companies (Fluper, 2019).

1. Assess the Real Needs First
2. Always Implement Scalable Designs
3. Gather & Analyze User Feedback
4. Update & Release Often

DIRECT COMPARISON

Measuring the SHARE NOW app and Voi app through the main principles of Sustainable App Development, they manage to partially fulfill the requirements. For example, they can be seen as having implemented a scalable design. The app designs are flexible enough and enable accommodation of new features. Their software designs also enable translations into multiple languages. It enables them to conquer new countries rapidly which is a vital part of scalability.

Both companies first entered the market with an MVP (minimum viable product) app. This is a smart and a relatively light approach in regards to resource use in order to find out how people respond to the application. By doing this they assessed e.g. what functionalities were popular, which needed improvements and which were the additions or changes that would ensure evident app usage sustainability in the future.

Upon analysis of user feedback from SHARE NOW, the initial attitudes towards the MVP application were largely negative. The company took the user feedback into serious consideration which has been beneficial upon looking at more recent feedback for the application. Listening feedback is vital in Sustainable App Development.

“A very bad experience. Needs many many improvements. Review edit 23.09.2020: it seems like that they have much improved and everything makes sense now. The payment process, the booking of the cars is more easy to do, so 4 stars from just 1, is always more room for improving.”

– Ionuț Milea (Share Now, 2020d)

Voi, on the other hand, has continuously had relatively good feedback from the users. There have been issues with app functioning, for example, the e-scooters do not always start while billing is already on, but the company has tackled the issues with a user-friendly approach. When complaining of issues the response is quick and usually on the user's side.

“Very intuitive App, great reward System and the Support is always on point. Couldn't be happier! =)”

– René Hammes (Voi, 2020d)



Social Sustainability – Safety

At their most basic level, sustainability and safety are really about the same thing: conserving resources (Taubiz, 2010). In the case of sustainability, those resources are typically thought of as environmental. In the case of safety, the resources are human. Safety in a frame of sustainability is about conserving human resources and taking socially responsible actions for the good of the community.

SHARENOW ✓

When car sharing came to the market, there was a lot of worry about people driving without a valid license, underaged or even handing the vehicle to a person not meeting the requirements to drive.

Car rental with the SHARE NOW app is done by using either a personal 4-digit code or facial recognition. The driver is required to upload their driver's license to the application. SHARE NOW validates the license uploaded to the app before the user can access and drive the vehicle.

Customers are required to have their own travel insurance, since SHARE NOW only insures the car (Share Now, 2019). The car insurance is collective among the customers, and they need to pay for it. If the driver is involved in an accident, which is considered full or partial, they will only be liable up to a certain amount. If damage is caused by the counterparty, the damages will be compensated from their insurance. The insurance and its provider vary by country. SHARE NOW's customer service is open 24/7 to assist and support drivers in the case of an accident.

When travelling with family, a car is often chosen to be the method of transportation. Especially young children that are small in size require special safety products when travelling with a car by law. It would be impractical for the customers to carry a child seat. If the customer is travelling with a child, most of the BMW cars come with a booster child seat included to help the customers comply with driving regulations. The seats are for use with children between 3 and 12 years old and are tested and approved to the standards. SHARE NOW also stated the mandatory use of child seats in their Terms of Service (Share Now, 2020a).

The possibility of driving the vehicle while intoxicated and causing danger on the roads was a major concern and evoked a lot of conversation. As a solution, SHARE NOW has stated the following part in their terms of service to clarify that drunk driving is forbidden; the user must not drive the vehicle under the influence of alcohol (blood alcohol limit of 0), drugs or medication which could adversely affect one's ability to drive (Share Now, 2020a). Even so, there is still no breathalyzer in the vehicles to physically prevent drunk driving.

Another concern people had was the, in some cases, reckless behavior of SHARE NOW drivers in road traffic. This was associated with the minute-by-minute billing, which would put the driver under time pressure. Currently SHARE NOW is therefore running a pilot project offering rentals up to 7 days (Daimler Mobility, 2019).

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When e-scooters first popped in the streets, there were quickly numerous safety issues reported. The most worrying things related to the traffic regulations. People did not pay attention to traffic rules let alone circumstantial speed, people rode on the sidewalks and double-ride (Yakowich and Writer, 2018). In worst case scenarios, it was all the previous in addition to drunk-driving. According to a study conducted by Brussel's Saint-Pierre Hospital, 35 % of e-scooter accident victims admitted to hospital they had consumed alcohol (McCullough, 2019). Moreover, people have to check their phone every now and then when navigating in the city from A to B which weakens their observation at times. Also, the poorer the weather, the bigger the chance for an accident due to off-the-shelf e-scooters not being very stable. Finally, there were problems with conservation of the scooters. Since there were no parking racks, people would often dump the scooters on sidewalks where they block pedestrians and wheelchair users.

As a solution to the micromobility industry's common problems Voi sets safety as their top priority (Voi, 2020g). As with car-sharing, the age limit is 18, however this has proven to be difficult to enforce due to no means of verifying the age of users. The company partners with authorities and engages with the rider community to promote respect of traffic rules and safe riding. In each city, the local street teams organise events, campaigns and safety demos to foster a sense of community and responsibility (Voi, 2020g). In addition, Voi incentivises a digital traffic school in exchange for credits. Ride like Voila includes gamified e-learning modules about traffic rules and safe riding (Voi,



2020c). Drunk-driving is discouraged with a reaction test for riders, but Voi has yet to implement a way of prohibiting driving while intoxicated. Moreover, the company distributes safety gear, like helmets and retro-reflective braces for free locally. Today, over 20 000 helmets are already distributed in Europe (Voi, 2020g).

Safety measurements go to parking as well. Voi uses geofencing technology to force low-speed and no riding or parking zones as well as incentivised parking zones in exchange for credits. Incentivisation resulted in 60 % of scooter rides to end in the desired location which indicates it is possible to foster responsible behavior of shared mobility (Møller, Simlett and Mugnier, 2020). The company also designs parking racks and locates them in partnership with the city authorities (Voi, 2020g).

Regarding the e-scooter design, taking it in-house made it possible to develop the hydraulic double suspension for smoother rides and Advanced Rider Assistance system (ARAS) technology to get riders from A to B without looking at their phone. The function offers navigation support, alerts and notifications (Voi, 2020g). The function is implemented to scooter models from the second generation upwards. The updated dual kickstand keeps the e-scooter firmly upright preventing falls to block sidewalks. Finally, the up and coming fourth generation e-scooter, Voyager 4, will be the world's first sharing scooter with indicators, allowing riders to alert other road users when they are turning (Voi, 2020e).

COMPANY RESPONSIBILITY: THE CASE OF COVID-19

When the COVID-19 spread across the nations, many public and private transportation operators were forced to react quickly by taking extra safety precautions. At first, Voi blocked e-scooter riding in most cities, then made it available to corner-stone workers of the society like health care and store workers (Voi, 2020a). Similarly, SHARE NOW offered a discount to corner-stone workers, but due to public health care agencies advising against car-sharing during COVID-19 the act is slightly controversial (HSC Public Health Agency, 2020). As the situation developed Voi accepted the new normal and allowed vehicle use for the whole community. They introduced safety precautions which for example included increased frequency in vehicle sanitation as well as safety guidance to riders (Voi, 2020a). On the contrary, SHARE NOW has not published any safety guidance during the pandemic despite allowing everyone to use their service.



COMMUNITY WELFARE – RELATION TO PUBLIC TRANSPORT

Public transport and other modes of shared transport, support cities significantly to ease mobility problems such as emissions, congestion and parking pressure. To achieve this, car-sharing providers share a common goal with public transport operators: developing an effective public transport ecosystem to eliminate the need of car ownership. This essentially translates to providing people with a cleaner and more convenient method of getting where they need to go.

But what does currently prevent people from committing to an (almost) car-free lifestyle? Emotional attachment and habitual dependency, coupled with a perceived lack of other transport options, are stopping people from selling their cars (European Commission, 2020). This is where collaboration comes into play.

SHARE NOW has stated that their vision to change urban mobility and offer a flexible and attractive mobility solution is not just about offering shared cars, but has to be a combination with public transport and an alternative to the private car (O'Hear, 2019a).

This future mobility concept is called multi-nodal mobility and SHARE NOW can be a part of it, just as much as Voi. Voi's main shareholders in fact are supporting the company to invest further in these new forms of transportation to for example relieve the capacity constraints on public transport (NordicNinja VC, 2020).

E-scooters position them as an affordable complement to public transport, unlocking the first and last miles and improving accessibility. According to EY's survey the best predictor of switching between car ride and public transit was easier access to public transport, rather than an improved public transport quality (Møller, Simlett and Mugnier, 2020). As mentioned earlier, Voi's user surveys indicate that 63 % of users combine e-scooters with public transport, showing that e-scooters do in fact act as a feeder to public transport (Møller, Simlett and Mugnier, 2020). In partnership with the cities, Voi is working on offering a mobility reach in suburban areas.

Voi operates in partnership with the cities to understand and adapt their needs and requirements. Voi never launches operations without cities' permission. Voi's collaborative, transparent, and compliant approach is key to becoming the trusted and long-term mobility partner for the cities (Voi, 2020g).



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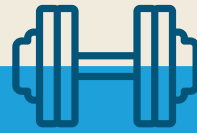
It is evident that the integration of public transportation with the business of our two case companies is an important future building block for the integrated mobility system that is desired by cities and needed to solve current community issues related to travel (congestion, pollution etc.).





3.0

SWOT ANALYSIS



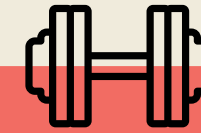
STRENGTHS

- Replication of model on a city-by-city basis
- Availability of resources from Daimler/BMW
- Special airport offers
- Brand reputation of Daimler/BMW
- Possible price discrimination through premium placement (perceived benefits for quality-sensitive users)
- Growing business equals visibility -> advertisement and growing acceptance



WEAKNESSES

- Risky driving because of minute based model can depreciate brand or company perception / image,
- Timed prices favorable for short travels, not for daily commute
- Service constraint if density is lacking
- Present branding lowers perception of cool in users eyes
- May be susceptible to parking issues
- Users don't want to waste time looking for vehicles
- Not yet suited to long-distance car-sharing (e.g. between urban areas)
- Occasional need for repositioning of vehicles or risk of high opportunity costs.
- Cars are not the most sustainable transportation



STRENGTHS

- In-house development of scooters allows for iterative development of vehicles as well as an extended lifespan compared to outsourced ones
- Voi has aimed to partner with cities and local communities to mitigate issues and inconveniences in externalities of e-scooters in cities instead of the "ask for forgiveness instead of permission" approach common in US markets in the beginning
- Sharing data from e-scooters to build mutually beneficial relationships with cities in which Voi operates
- Strong focus on building an environmentally sustainable brand image through e.g. refurbishing and selling shared e-scooters



WEAKNESSES

- Safety issues and injuries can depreciate brand or company perception / image
- Difficulties in preventing injuries and drunk driving
- Not yet operating at a profit (claims to do so by 2022)
- Claims of being an environmentally sustainable company are questionable
- Logistics process of collecting and recharging e-scooters a difficult logistics issue with significant environmental impact
- Short lifespan of e-scooters and the constant need to manufacture new ones
- Visual pollution due to e-scooters being left in inconvenient location, e.g. sidewalks (also can cause injuries to people)

COMPARISON OF STRENGTHS AND WEAKNESSES

Strenghts

The most significant similarity between our case companies is that both act in the market of shared mobility. It can be argued to which extent the companies are sustainable, but both focus on building an environmentally sustainable brand image and try to partner with cities and local communities. Moreover, both models are replicable on a city-by-city basis and gain visibility, and thereby innovation acceptance and brand awareness, by growing their business.

Even though many of the strengths the companies have are similar, SHARE NOW seems to have a few benefits resulting from its mother companies. SHARE NOW, being a corporate venture cannot just use the reputation of BMW and Daimler to its advantage (credibility and possible price discrimination through premium placement), but also the company resources. This involves monetary resources as well as personnel, software, factories and products. This majorly facilitated the initial build up of the venture. Nevertheless, while SHARE NOW is tied to its roots in the automotive industry, Voi as a start-up can be more agile in decision making.

Voi managed to build up a few unique strenghts itself:

By shifting towards developing their scooters In-house they allow for iterative development depending on users needs, as well as an extended lifespan. SHARE NOW in contrast has settled with BMW & Daimler resources and fails to design cars specifically adapted for car-sharing purposes. Another thing Voi does, that SHARE NOW is not leveraging yet, is building an environmentally sustainable brand image through refurbishing and selling shared e-scooters.

Voi is sharing ride data from its e-scooters to build mutually beneficial relationships with cities in which Voi operates to assist in e.g. city and traffic planning.

Weaknesses

Because of the nature of the two companies – both offering mobility as a service – their weaknesses are also overlapping. A service relies on its physical artefacts to be available. Therefore both companies run into a service constraint if density of cars/scooters is lacking. People are impatient and do not want to have to look for them either. Occasional vehicles will be parked in not very frequented zones and will lead to risk of high opportunity costs, if not repositioned. Another problem with the vehicles is the possibility of damage, resulting from lack of protected parking. Because of the lack of an emotional connection or private parking space, this is severely higher if the vehicle is not owned by



the driver. Also the vehicle might get damaged due to risky driving because of the minute based pricing model. This might be covered by insurance, but can depreciate brand perception and company image.

On top of physical issues, there is the high competition in the market. Not just the vast amount of e-scooter companies and car-sharing companies, but also any other mode of shared and unshared mobility is a possible competitor.

As SHARE NOW has not yet managed to allow travel between most cities. Both business models are not suited to long-distance travel. Also both models still have a lot of potential in regards to pricing/ usage models. The timed prices are favorable for short travels and not for daily commute, as during rush hours you can often get stuck in traffic for a considerable amount of the travel time. Especially for SHARE NOW this is a weakness, that calls for changes in pricing models.

Of course the companies also have some individual weaknesses.

As scooters are quite new to the market, Voi is facing difficulties in preventing injuries and drunk driving. SHARE NOW, using a business model that combines products (cars) and services (rental) already widely known, runs into less of these problems. Accidents will likely be considered normal for driving, rather than damaging the company's reputation. Common drivers problems like parking though, can turn into company weaknesses. If a user cannot find parking space, this will influence the service experience. Voi on the other side does not have this problem, but unfortunately the ability to park the scooter anywhere leads to new problems. Visual pollution due to e-scooters being left in inconvenient locations (e.g. sidewalks) and related injuries can damage brand and company perception. Vois brand reputation is also struggling with claims questioning the environmental sustainability of scooter services. A SHARE NOW weakness in regards to branding is, that the very present branding of the cars might lower the perception of the premium cars as a status symbol.

The aggressive growth strategy, needing large capital investments, combined with relatively small profit margins on rides, leads to Voi not yet operating at a profit. SHARE NOW's

business model is at least as capital intensive. Unlike Voi though, they had supporting corporate structures to rely on. This reliance on the mother companies can, if not paid attention to, turn into a weakness, by lowering success pressure, restricting innovativeness and expansion opportunities and adding bureaucratic layers.

The last chapter of this report - Future foresight- will tackle how the mentioned **strengths** can be used to leverage **opportunities** and steer away from **threats** in the context of future scenarios and company **weaknesses**.





4.0 FUTURE FORESIGHT

Megatrends shape the future and provide a basis for understanding and anticipating changes in contextual and transactional environments.

A research in Sitra’s megatrends 2030 was carried out, in order to get a panorama about how the future would look like. These trends were organized given the STEEP factors and how the megatrends will influence the future product development.

Social

More tailored product/price packages for different needs.

Technological

New technological inventions like alternative propulsion and autonomous driving will change the way we move.

Economic

Networked cities could be transferred to the cities trying to build an integrated mobility network.change the way we move.

Environmental

New paradigms in how the city should look like.

Political

Heightened availability of high luxury goods through sharing.

SCENARIO DEVELOPMENT

During this analysis, a specific selection of megatrends was used as an assessment of the direction future developments can take. This exercise helped to identify the key drivers of change.

Using Elina Hiltunen’s matrix, the scenarios were analysed within the contexts of SHARE NOW and Voi in order to identify the possibilities, threats and weak signals and to develop ways to push or avoid a possible future scenario(Hiltunen, 2020)



SCENARIO DEVELOPMENT

| STAKEHOLDERS / TRENDS | CONCENTRATION OF THE POPULATION IN A SMALL NUMBER OF AREAS | THE CONCENTRATION OF WEALTH AND INEQUALITY | THE GROWING SIGNIFICANCE OF THE CIRCULAR ECONOMY |
|--------------------------|--|--|--|
| TRANSPORT SYSTEMS | <ul style="list-style-type: none">- Increase in the diversity of public transport within the city | <ul style="list-style-type: none">-Increase the need of personalized public transport | <ul style="list-style-type: none">-Longer life span of the vehicle-Increase of the cooperation between services and means of transport |
| USER | <ul style="list-style-type: none">-Increase of people that live in flats - no parking spaces-Increase of people that live far away from the city center | <ul style="list-style-type: none">-Increase in individuality-Desire to reduction in costs | <ul style="list-style-type: none">-Increase of thinking about the environmental aspects of the system |
| MANUFACTURERS | <ul style="list-style-type: none">-Increase of focus in transport sharing | <ul style="list-style-type: none">-Increase in low cost design-Systems thinking | <ul style="list-style-type: none">-Increase of share of knowledge and parts within companies-Increase of diversification of products within companies |
| URBAN PLANNING OF CITIES | <ul style="list-style-type: none">-Increase in investing for better systems for public transport-Decrease the space for cars | <ul style="list-style-type: none">-Invest in government funded developments in the middle of “expensive” areas | <ul style="list-style-type: none">-Invest in including different types of transport to the plan-Reduce the parking spaces |

FUTURE ACTION PROPOSALS IN GIVEN SCENARIOS

The two companies are already using design and future scenarios to a high extent in their products and services. The given proposals are a further development of their features according to the foresight of the future.



| OPPORTUNITIES | THREATS | NEEDED CHANGES IN THE STRATEGY | WEAK SIGNALS OF DEVELOPMENT | HOW CAN WE PUSH /AVOID SCENARIO |
|---|--|--|---|--|
| <p>Service</p> <ul style="list-style-type: none">-Collaborate with local communities to incentivize sharing rather than owning-Collaborate with platforms of multiple mobility services <p>Product</p> <ul style="list-style-type: none">-Future use of batteries-Autonomous driving-Own parking places and preferential spots-Ride share <p>Business</p> <ul style="list-style-type: none">-Own as much as the shared mobility service-Renting cars for taxi/Uber services | <p>Service</p> <ul style="list-style-type: none">-Resistance of governments-Competition with other modes of transportation-Increase of traffic jams <p>Product</p> <ul style="list-style-type: none">-Desire for car ownership-Limited parking for car-sharing-Cybersecurity issues-Lack of sustainable image <p>Business</p> <ul style="list-style-type: none">-New big competitors-Opportunity costs created by cars unused in suburbs-Cannibalize sales of their own cars | <p>Service</p> <ul style="list-style-type: none">-Collaboration with other services-Ease of parking in the city-Offering rental options which give sense of ownership-Protect users from payment fraud-Expansion of zones and possibilities to leave the car at another zone (from city A to city B) <p>Product</p> <ul style="list-style-type: none">-Improved pricing models | <ul style="list-style-type: none">-Integral mobility platforms arising-Reduction in sales per year of cars-Municipalities openly looking for new ways of mobility-Decrease in parking space-Government actions against car ownership-Increase in usage of alternative modes of transport | <ul style="list-style-type: none">-Build relationship between government and other services-Collaborate in city planning-Partner with other mobility services-Build positive image of shared mobility-Push government to build policies to support shared mobility |



OPPORTUNITIES

Service

- Collaborate with other shared mobility services
- Create a loyalty program
- Cities subsidize trips on routes that might not be profitable but provide social value, just like with public transport

Product

- Expand into other types of micromobility & possibility of more sustainable ones
- Develop different scooters for different needs

Business

- Possible synergies (e.g. food courier companies)
- Owning kiosks besides Voi parking places
- Indoors business applications of scooters

THREATS

Service

- Increasing regulatory action and pressure from cities.
- Competition for other modes of transportation
- Bad weather
- Switching customers between companies

Product

- Difficulty in differentiating from competitors

Business

- Extremely competitive market with low profit margins.
- People owning scooters
- Transport of scooters to more frequently spaces creates costs

NEEDED CHANGES IN THE STRATEGY

Service

- Collaborate with other services
- Ways to move into the market for longer distances

Product

- Work on product sustainability
- Develop other micromobility vehicles

Business

- New ways of pricing
- Communicate importance to the city
- Push B2B sales

WEAK SIGNALS OF DEVELOPMENT

- Public resentment
- Less people using the product
- Collaborations between public transport and other micro-mobility providers
- Customers switching between providers or away from Voi
- Scooter-related accidents
- Narrow amount of different use cases (e.g. just with good weather on streets without cargo)

HOW CAN WE PUSH /AVOID SCENARIO

- Build relationship between government and other services
- Collaborate in city planning
- Partner with other mobility services
- Build campaigns for “making shared mobility cool”
- Promote bike lanes



5.0 CONCLUSION

THE FUTURE OF URBAN TRANSPORT

One of the most considerable trends for the industry is the combination of public transportation, car-sharing and other modes of transportation to the point where an integrated multi-nodal service, with the sustainable objective of shifting away from private car usage, can be provided.

To create a more sustainable use of mobility, switching between different modes of transport on a single journey, has to be facilitated for the user. Integrating all the different modes of transport is therefore paramount for the future development of city transport.

Nowadays and in the near future longer distances and travel times have contributed to the large-scale use of the private car, in particular within and around large urban areas. Shorter distances are more likely tackled with public transportation and other available budget friendly shared mobility services, such as Voi scooters.

The urban transport will radically shift towards shared mobility services. These more sustainable modes of transportation will become the main way to travel in urban areas. Car sharing will be an important part of this integrated multi-nodal service, expanding the mobility area across the borders of public transportation and smaller vehicles. As Ulrike Huwer states, car-sharing will be a supplement for public transport (Huwer, 2004).

The choice of service to use will also depend on individuals. For example, shared cars will also add to the mobility of customers with special needs. Some of the cars have already been modified to be wheelchair accessible. More importantly, it has already made the disabled wheelchair users more mobile.

Another important influence on future urban transport are new technological inventions. To stay relevant, companies will have to account for innovations like autonomous driving, alternative propulsion and possible unforeseen opportunities. Many of these new technologies are already being developed, it is just a matter of time that they find a way to the mobility industry.

THE USE OF DESIGN IN THE CASE COMPANIES

During the process of writing this report, we realized that many of the future developments, we came up with, were already being looked upon as related solutions, we could think of, where sometimes already piloting. This leads us to the conclusion that both companies, Voi and SHARE NOW, are already very innovative and design led companies.



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