



# E-mobility startups in Benelux: Analysis and comparison

Projects promoting a clean energy transition

Venture Capital Team – July 2022

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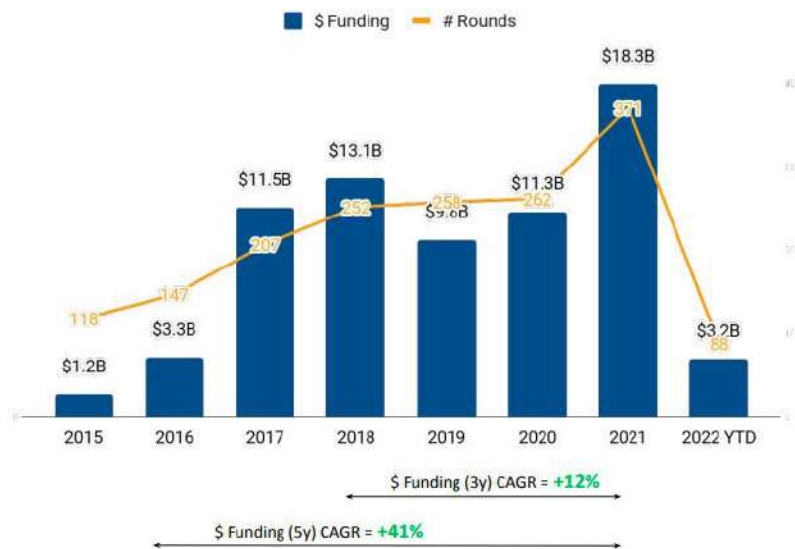
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# 1. What is e-mobility

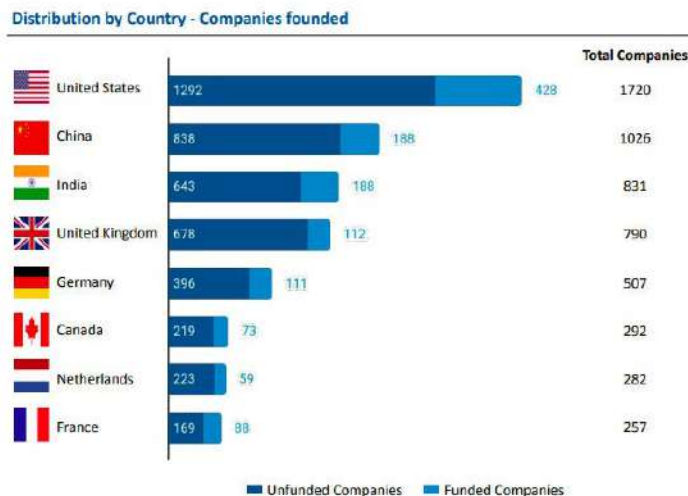
Electro mobility (or e-mobility) is the concept of using electric powertrain technologies, in-vehicle information, and communication technologies and connected infrastructures to enable the electric propulsion of vehicles and fleets. Powertrain technologies include full electric vehicles and plug-in hybrids, as well as hydrogen fuel cell vehicles that convert hydrogen into electricity. E-mobility efforts are motivated by the need to address corporate fuel efficiency and emission requirements, as well as market demands for lower operational costs. Source: Gartner.

The e-mobility sector has attracted the attention of investors in recent years, being one of the fastest growing sectors in terms of the number of financing rounds, total financing and IPOs



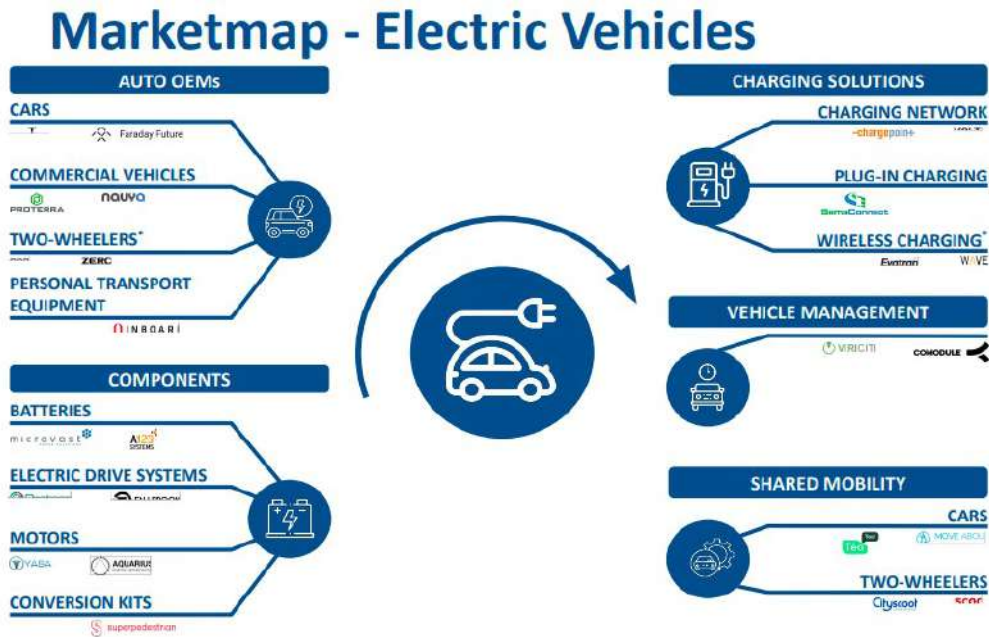
In terms of geography, the concentration of start-ups in this sector in the relatively small country of the Netherlands stands out. It shows how aware Dutch society is of sustainable and environmentally friendly alternatives.

## Companies by Geography



## 2. Which sub-sectors can you find?

When analyzing e-mobility, a good approach could be to look at the value chain. Transport starts with the production of the vehicle itself, continues with its daily use and alternatives to private transport, and ends with maintenance and refueling services.



Within the Benelux entrepreneurship ecosystem, we find projects along this entire value chain, although in this report we are going to focus on the daily transport of people, shared transport alternatives and their use in logistics. We will also take a closer look at companies innovating in battery charging systems and technology.

Overall, we believe that within the ecosystem, mobility solutions are the most popular, but there is a greater opportunity in the charger sectors, and all B2B solutions that help make the transition less costly and efficient.

### 3. Shared e-mobility

#### 1. Go Sharing



#### Introduction

Go-Sharing is a micro mobility company founded in the Netherlands. Currently, it operates in 6 different countries (Netherlands, Austria, Germany, Belgium, Turkey and Italy). Their aim is to connect regions for everyone in a sustainable way.

#### Team

- Raymon Pouwels – Co-founder & CEO
  - Worked at emco for two years as key account manager (e-scooter manufacturer).
- Doeke Boersma – Co-founder & Strategic advisor
  - Has an M&A background. 5 years at NIBC.
  - Co-founder of GreenMo group -> Leasing solutions for electric vehicles.
  - Co-Founder & CEO of Go Green Holding. Established in 2021
- Robert Gamble - COO
  - Ex Head of Rider Operations at:
    - Gorillas Netherlands
    - Rocket
  - Ex-Operations manager at Bird

#### Unique Value Proposition

One major point of differentiation when compared to other electric scooters available in the city, is that GO Sharing focuses more on the metropolitan area of the city instead of just the inner city.

#### Funding and Valuation

- Total Funding Amount: €60M
- Last Funding Type: Growth Equity Round
- Last Funding Amount: \$60 million (50 million Euros)
  - Led by: Opportunity Partners
- Previous Funding Amount: €10M
  - Led by: Rabo Corporate Investments
- Total Number of Rounds: 2
- Valuation: €550M as per February 2022
- Number of users: More than 350,000 users
- Multiple EV/User: x1571

## Morningstar Economic MOAT analysis

	Intangible Assets	Switching Costs	Network Effect	Cost Advantage	Efficient Scale
<b>Wide Moat</b>			X (Has a fleet of 5,000 mopeds across 30 cities in three countries)		X (expanded through NL, BE, Germany, Austria, Turkey and Italy span of 3 years)
<b>Narrow Moat</b>		X Pricing advantage Go-sharing: 0.23 cents/minute Check: 0.25 cents/minute Felyx: 0.30 cents/minute			
<b>No Moat</b>	X (App is easily replicated in other competitors, there is no unique advantage here)			X (All vehicle providers must sort out their required insurance and permits due to them being a public nuisance in general. No moat here)	

### Quantitative

- Market Opportunity:
  - TAM: \$1867.8 billion -> Electric Vehicle Market
  - SAM: \$147.19 billion -> E-scooter market
  - SOM: \$41.21 billion (28% of SAM)
- Metrics:
  - 350,000 users
  - Second in market share in NL (28%)
  - Pricing: 0,23 cents/minute
  - Revenue: \$20 million -> 18.93 million euros
  - Total ride minutes: 82,304,348 minutes

## 3.2. Check Technologies



### Introduction

This dutch company was established in february 2020 in Rotterdam, with the aim of providing quick and easy means to go from point A to point B within the cities they operate. Right now, they are just focused on the Dutch and German market, operating in 7 cities in total with more than 3,000 e-mopeds.

### Team

- Paul van Merrieboer: - Co-founder & Managing Director
  - Master's degree in Maastricht University in Business Economics
  - +10 years of experience in different marketing roles.
  - All his working experience is related to the automotive sector and e-mobility.
- Thijn van Helvoirt – Co-founder & Head of Operations
  - Master's degree in Law - Maastricht University
  - 3 years of experience as M&A Lawyer (Linklaters)
  - Previous experience in VC (Ponooc).
  - Angel Investor at Dockler

### Unique Value Proposition

Check is a data-driven growth company with a proposition specifically targeted towards municipalities and users (in other words, they try to make their platform tailored to municipalities needs).

### Funding and Valuation

- Total Funding Amount: €11M
- Last Funding Type: Seed Round
- Last Funding Amount: €10M
  - Led by: Slingshot Ventures and Ponooc
- Previous Funding Amount: \$1 million
  - Led by: Ponooc
- Total Number of Rounds: 2
- Valuation: €40-60 as per February 2022

## Morningstar Economic MOAT analysis

	Intangible Assets	Switching Costs	Network Effect	Cost Advantage	Efficient Scale
<b>Wide Moat</b>					X (Grew upto 300% in number of vehicles and 700% turnover)
<b>Narrow Moat</b>			X (Offers 3000 scooters, however, only in the netherlands)		
<b>No Moat</b>	X (Claims to have a self-built technology platform but does not portray enough differentiation with other competitors)	X (A lot of other competitors operating in this space)		X (All vehicle providers must sort out their required insurance and permits due to them being a public nuisance in general. No moat here)	

### Quantitative

- Market Opportunity: TAM, SAM, SOM
  - TAM: \$1867.8 billion -> Electric Vehicle Market
  - SAM: \$147.19 billion -> E-scooter market
  - SOM: \$20.61 billion (14% of SAM)
- Metrics:
  - 700% YoY Revenue Growth
  - 300,000 users



### 3.3. Dott



#### **Introduction**

Dott is a micro mobility operator with the mission to free our cities and make them more “livable” with clean rides for everyone. Currently operating in +25 cities and 9 countries across Europe.

#### **Team**

- Henri Moissinac – CEO & CO-founder
  - PhD in Computer Science – Telecom Paris
  - Director of Product and Technology at France Telecom
  - Co-founder and CTO of iBazar (Acquired by eBay)
  - Director Mobile Partnerships & Head of Facebook Mobile
  - Non-executive Board Director at Just Eat
  - Head of Consumer Partnerships EMEA at Uber
- Maxim Romain – COO & Co-founder
  - MBA at INSEAD
  - Global Supply Chain Manager at Decathlon International (Roles in China, Thailand and France).
  - Supply Chain Director & General Manager at Wayfair Europe

#### **Unique Value Proposition**

Special focus on being a sustainable and eco-friendly company. Re-uses every non-affected part of the vehicle that is no longer road worthy, among others. They also pay attention to the quality of their vehicles, checking every scooter, every 10 rides. They have verticalized their value chain, starting from the production of vehicles and its technology, to the management and maintenance of their operations.

#### **Funding and Valuation**

- Total Funding Amount: €159M
- Last Funding Type: Extension Series B Round + Venture Debt
- Last Funding Amount: \$35M Equity + \$35M Debt
  - Led by: EQT Ventures, Prosus, Sofina, Abrdn
- Previous Funding Amount: \$85M (Series B)
  - Led by: Prosus, EQT Ventures & Felix Capital
- Total Number of Rounds: 3 + the extensión of Series B
- Valuation: \$425m as per February 2022

## Morningstar Economic MOAT analysis

	Intangible Assets	Switching Costs	Network Effect	Cost Advantage	Efficient Scale
Wide Moat			X (Operates a fleet of 30,000 electric scooters in five countries)	X (They did not rely on gig economy workers to recharge the e-scooters. Instead, they have hired a dedicated team who is responsible for the maintenance of each of the e-scooters)	X (Collaborated with city officials to satisfy legal standards, capital efficient)
Narrow Moat	X (A strong sustainable brand but lack differentiation)				
No Moat		X (Low customer switching cost)			

### Quantitative

- Market Opportunity: TAM, SAM, SOM of Electric Scooter Market in Europe
  - TAM: \$1867.8 billion -> Electric Vehicle Market
  - SAM: \$2,1 billion -> Electric Kick Scooter Market
  - SOM: \$378 million (18% of SAM)
- Metrics:
  - EBIT positive in all cities

## 4. e-charging

### 1. ROCSYS



#### Introduction

Rocsys specializes in providing charging station automation solutions. It offers a completely automated self-parking and charging station and enables an increase in the electric vehicle charging station asset utilization.

#### Team

- Crijn Bouman – Co-founder & CEO
  - VP, Product Line Management in Global Product Group Electric Vehicle Charging at ABB.
  - Co-founder and CEO at EYPON. Sold to ABB in 2011.
- Joost van der Weijde
  - PhD in robotics at TU Delft and co-founder of SpringScan
- Kanter van Deurzen
  - PhD candidate at TU Delft
  - Fyzz (Software for picking and parcel handling) -> Ex-CTO and current strategic advisor
  - Experience pivoting projects

#### Unique Value Proposition

The company aims to make the transition to EV fleet scalable and sustainable by getting rid of human error in EV charging management, by developing autonomous EV charging sites.

#### Founding and Valuation

- Total Funding Amount: \$6.5M
- Last Funding Type: Early VC round
- Last Funding Amount: \$6.3M
  - Led by: FORWARD.one and Superangel
- Previous Funding Amount: \$200k
  - Led by: UNIIQ and FORWARD.one
- Total Number of Rounds: 2
- Valuation: \$25-38M

## Morningstar Economic MOAT analysis

	Intangible Assets	Switching Costs	Network Effect	Cost Advantage	Efficient Scale
<b>Wide Moat</b>		X (When autonomous charging solutions are implemented into a hub, it is costly to switch their provide)			X (Their clients are very likely to be big logistics hubs that need a lot of charging)
<b>Narrow Moat</b>	X (Since Rocsys is a first company in the market, they are able to build the relationships with the customers)		X (Multiple logistic hubs are very often operated by one company - after one implementation they can use their good relationship to get a bigger contract)		
<b>No Moat</b>				X	

### Market Opportunity

- TAM: \$1867.8 billion -> Global Electric Vehicle Market
- SAM: \$35.5 billion -> Global Electric Vehicle Charger Station Market
- SOM: \$6.035 million (17% of SAM)

## 4.2. Leap24



### **Introduction**

Leap24 is a startup founded in 2021 in Amersfoort with the aim of providing sustainable charging solutions.

Leap24 buy green electricity from Dutch wind and solar projects. They also strive for sustainable energy storage facilities that contribute to a stable energy network. Their charging stations are built from a modular approach, which makes it easy to make sustainable adjustments without waste. In Leap, they strive to make the construction of our charging stations fully circular wherever possible. They currently operate in the Netherlands, but plan to expand their operations to other geographies.

### **Team**

- Ferry Bosgra Co-founder & Business development manager
  - Extensive experience as Sales and General manager in local transport companies
- Pelle Schlichting Co-founder & CEO
  - Extensive experience as executive in the “green gas” industry.
  - Business angel

### **Unique Value Proposition**

Making the green transformation possible for the entrepreneurs, by providing the infrastructure adapted to charge their fleets

### **Funding and Valuation**

- Total Funding Amount: €4.25M
- Last Funding Type: Seed
- Last Funding Amount: €4.25M
  - Led by: Yard Investments
- Total Number of Rounds: 1
- Valuation: €17-26M

## Morningstar Economic MOAT analysis

	Intangible Assets	Switching Costs	Network Effect	Cost Advantage	Efficient Scale
<b>Wide Moat</b>			X (the bigger the chargers network is, the more profitable it is for the businesses to use Leap24)		X (chargers' location are located in industrial estate, where they can serve multiple businesses at a time)
<b>Narrow Moat</b>		X (the company requires businesses to acquire a charging card specifically for its charging stations; Not every competitor's charging sites are accessible for delivery trucks)			
<b>No Moat</b>	X			X	

### Market Opportunity

- TAM: \$1867.8 billion -> Global Electric Vehicle Market
- SAM: \$35.5 billion -> Global Electric Vehicle Charger Station Market
- SOM: \$5,68 million (16% of SAM)

### Quantitative

Price per KW/u: 54 cents

No. of locations: 13

Planned no. of locations: 240 by 2022

## 5. e-Logistics/e-mobility

### 1. Baqme



#### Introduction

BAQME is an electric box bike sharing technology platform offering a sustainable urban mobility alternative for short distance car rides. Their mission is reducing the need for private car ownership by providing active, accessible mobility to cities. It was originally founded in Rotterdam, but it has extended their operations to The Hague, Eindhoven and Ghent.

#### Team

- Souren Arakelian - Founder
  - Ex-Inv Banker in Merrill Lynch (Amsterdam & San Francisco).
  - MSc Finance & Investments at Rotterdam School of Management.
- Berenice Van Gessel - Co-founder & COO
  - Ex Nomura & former Head of Belgium in the Northern Europe Rides department at Uber.
  - MSc Finance at University of Groningen
- Sven Velthuis - Co-founder
  - Founder of Pixeldust, digital IT agency.
  - MSc Finance & Investments at Rotterdam School of Management.

#### Unique Value Proposition

They offer free floating cargo bikes. This means the user does not need to bring back the bike to where the ride started. This is not offered by any cargo-bike company in the Netherlands, at the moment. Moreover, it is useful for families and business owners who want to transport up to 80kg in a cheap, sustainable and convenient way.

#### Funding and Valuation

Convertibles -> 250k on January 2021. Investors undisclosed

Seed round -> 400k on October 2021. Investors undisclosed

Firm valuation: 2-3M

Currently in fundraising: ---€3.5M. Assuming they are diluting 20%, it would mean the company is valued at €17.5M

- Total Funding Amount: €650k
- Last Funding Type: Seed
- Last Funding Amount: €400k
  - Led by: Undisclosed
- Previous Funding Amount: €250k

- Led by: Undisclosed
- Total Number of Rounds: 2
- Valuation: €17.5M. The company is currently in fundraising (€3.5M).

### Morningstar Economic MOAT analysis

	Intangible Assets	Switching Costs	Network Effect	Cost Advantage	Efficient Scale
<b>Wide Moat</b>		X (Current competition in the market do not offer free floating bikes with additional cargo capacity. Customers have to give up one if they change to any alternative)		X (They are a cheaper alternative to other companies offering sustainable cargo-rides and traditional logistics)	
<b>Narrow Moat</b>			X (The use of cargo bikes has not reached a point where their network is constantly bringing new members to the community. However, the right go-to market strategies could turn that into a reality)		
<b>No Moat</b>	X				x

### Metrics

#### Market Opportunity

- TAM: \$35.69 billion-> Global Electric Bike Market
- SAM: \$1.455 million -> Global Electric Cargo Bike Market
- SOM: No info

#### B2C

They have two sources of revenues divided in:

- Monthly subscription: €150
- Pay per use:
  - 24 hours: €24
  - Short-term rental: €1.95 for the first minute and 10cent the following minutes

#### B2B.

Currently offering a monthly subscription of €275, to have a Baqme cargo bike always ready and available to your company. The company offers the possibility to engage in collaborations for discounts.



## 5.2. Cargoroo



# Cargoroo

### Introduction

Their value proposition is based on the fact that more than 50% of the cars can be replaced by cargo bikes and it is also a more sustainable transportation alternative. 1848 Co2/Kg are saved on average with every ride you take in Cargoroo. Typically longer use-case of Cargoroo cargo-bikes compared to scooters or regular bikes is reflected in the pricing: fees are per hour rather than per minute. Cargo bikes can also be rented for an entire day.

Operating in 5 cities in the Netherlands, 2 in Belgium, 1 in the UK and 1 in Germany.

### Team

- Erik de Winter: CCO & Co-founder
  - Previous experience in sales and business development in hospitality and advertising industry
  - Head of business development & partnerships at Urbee (e-bikes sharing)
- Jaron Borensztajn
  - Serial entrepreneur
- Jelle Maijer
  - Owner of businesses in the hospitality industry

### Unique Value Proposition

The company is attempting to capture three niches in the urban mobility landscape which it says are not being filled by the current offering: families with children, small businesses owners who need to transport small volumes of stock, or anyone hauling a heavy load. They are now station based, offering roundtrips with a pay-per-minute model. They also offer a premium experience in terms of product.

Operating in 5 cities in the Netherlands, 2 in Belgium, 1 in the UK and 1 in Germany.

### Funding and Valuation

- Total Funding Amount: €700k
- Last Funding Type: Grant
- Last Funding Amount: €700k
  - Led by: European Commission
- Previous Funding Amount:
- Total Number of Rounds: 1

- Valuation: No data. Mainly bootstrapped.

### Morningstar Economic MOAT analysis

	Intangible Assets	Switching Costs	Network Effect	Cost Advantage	Efficient Scale
<b>Wide Moat</b>					
<b>Narrow Moat</b>			X (Their community know where they can always find a Cargoroo bike, which creates enhances brand awareness among the neighbours at the same time)	X (They are a cheaper alternative to traditional logistics)	
<b>No Moat</b>	X	X			X

### Market Opportunity

- TAM: \$35.69 billion-> Global Electric Bike Market
- SAM: \$1.455 million -> Global Electric Cargo Bike Market
- SOM: \$567 thousand (39% of SAM)

## Founding Team: Comparison

### Shared e-mobility



### e-charging



### e-Logistics/e-mobility



## Economic MOAT analysis: Comparison

### Shared e-mobility



### e-charging



### e-Logistics/e-mobility



# Conclusion

Above all, this report has analyzed the market overview of e-mobility within the Benelux region. In particular, we examined the shared e-mobility, e-charging and e-logistics market.

With regards to shared e-mobility, Dott is the most promising venture with a wide moat for both founding team and economic foundation. Dott's founding team has an equal share of founders with a background in management and engineering. Specifically, the founding team encompasses two founding members with a PhD in Computer Science and an MBA from reputable universities. This shows that Dott has a strong human capital and new venture social capital. Additionally, Dott's economic foundation has a very promising outlook. With an operating fleet of over 30000 e-scooters across five countries supported by a dedicated team responsible for the maintenance of the scooters, this shows that Dott has network and cost advantages. Hence, this shows the ability of the company to scale-up efficiently.

Similarly, the e-charging market indicates that Rocsys has a wide moat also for both founding team and economic foundation. Consisting of three founding members, the majority of the founders has a PhD in robotics and engineering from TU Delft. On top of that, they also have experience in pivoting projects and leading software companies such as Fyzz and SpringScan. Both of these experiences are balanced by another co-founder namely, Crijn Bouman, who is affiliated with managerial experiences such as product management and C-level experience. In addition, Rocsys has a strong economic foundation to carry out their business processes. Valued at \$38M and working with big logistic hubs, this shows that Rocsys has a strong network to efficiently scale-up their business. Moreover, Rocsys also has a wide moat for switching costs. Specifically, when autonomous charging solutions are implemented into a hub, it is costly for users to switch their provider.

# Conclusion

Furthermore, the e-logistics market is a relatively new market. Our report indicates that Baqme is relatively promising compared to other companies with a narrow moat for their founding team and a wide moat for their economic foundation. The founding team of Baqme consists of three founders with backgrounds mainly in finance and investment banking. Some founders have prior founding experience in digital companies and mobility companies. However, the founding team lacks the engineering aspect which is important in maintaining the mobility software knowing that Baqme is an SaaS company. Moreover, knowing that Baqme was founded in 2021, the economic foundation of Baqme is still within the nascent stage. Their last funding type was within the Seed funding stage and were only involved in 2 rounds of funding. Regardless of the company stage, Baqme has performed decently in their economic foundation. Being priced cheaper compared to other cargo ride ventures and being operated as one of the first e-cargo bikes in the market, this shows that Baqme has a wide moat for switching costs and has significant cost advantages.

Overall, the e-mobility ecosystem is still within the growth stage and has not fully matured, especially e-charging infrastructure and e-logistics. However, it is important to notice that shared e-mobility has performed outstandingly within the e-mobility market. In terms of scale economies, all three companies (Check, Go-Sharing, and Dott) have rolled-out e-scooters in large quantities within multiple countries. However, Check as a company is still relatively new and still lacks economic moat. Although Check has been focusing their expansion domestically and have significant short term growth, it is important to notice that the team still lacks an engineering background and their business still needs a better unique selling point overall.