

Ebook



# How introducing e-bikes to your fleet can accelerate your shared mobility service

Sustainable, inclusive and easy-to-ride, e-bikes are the perfect opportunity to expand your fleet and capitalize on your users' transport needs and desire for environmentally friendly options.



# A global growing market



Over the last few years, electromobility has been gaining in momentum. The global push towards more sustainable mobility has now entered into urban and political agendas worldwide. The ever-growing attention being given to sustainable living along with stricter regulations in terms of carbon emissions are only two of the many factors influencing citizens, policy makers and municipalities to invest in alternative means of transportation. Among them, one solution is rising in an unprecedented way: the e-bike.

According to a survey conducted by Inkwood Research, the global e-bike market is projected to grow at a 10% rate over the next 6 years, reaching just under 48.5 billion U.S dollars in 2028. And among regional markets, the Asia-Pacific region is expected to hold onto their leading position as the world's biggest e-bike market, with Europe coming in a close second thanks to the steeper growth rate.

**“Understanding and evaluating the e-bike rider’s perspective enable policy-makers to be prepared for investment in the city infrastructure and mobility providers to develop better sharing schemes.”**

Patrick Rérat

Cycling and Active Mobilities Observatory & Institute of Geography and Sustainability, University of Lausanne, Lausanne, Switzerland

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As the sustainable revolution takes hold in cities all over the world, e-bikes are helping to disrupt the use of private vehicles for short-distance journeys and are providing an attractive alternative.

For operators in the sharing mobility industry, this is a great time to explore more vehicle options and consider opening your fleet to e-bikes, as they offer a wide range of exciting benefits for users even in places where the urban infrastructure is not optimal. What’s more, you can now take advantage of a number of studies that have provided the industry with valuable insights in terms of users’ and nonusers’ perception of e-bikes, all of which have built up a body of knowledge that we can all use to drive the electric revolution forward.

# Two wheels and one battery: the e-bike explained

With its combination of leg and battery power, the e-bike is expanding the practice of cycling across social groups and landscapes. In fact, these electric bikes can be used both for commuting in urban settings and exploring the surroundings on calmer streets or bike lanes, which lends them a wide appeal.

From a technical point of view, lithium-ion batteries, now the most common in the market, are long-lasting and powerful.

In fact, the one mounted on our co-developed e-bike is able to cover a range up to 120 km with a single charge!

What's more, the frames for e-bikes tend to be made of aluminum instead of steel, making them easier to drive and transport. And the tires are designed to be faster and more stable, which means that the e-bike can be used on different types of roads.



**“The electric assistance of the e-bike, by diminishing the physical effort required, improving the carrying capacity and increasing the potential distance traveled, empowers more people to cycle.”**

Khashayar Kazemzadeh & Enrico Ronchi

Transport and Roads, Department of Technology and Society, Faculty of Engineering, LTH,  
Lund University Lund, Sweden

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# Sustainable, inclusive & easy-to-ride



E-bikes have a wide appeal. From the 60-year-old with low level of fitness who just can't give up cycling, to the young professional who needs to commute everyday, to the food delivery rider, to the parent who needs to travel around all day completing tasks and dropping off and picking up their children from daycare... all of these people can benefit greatly from the use of an e-bike. And thanks to their ease of use, many of them are already being persuaded to try e-bikes for themselves.

Whether they're used for utilitarian or leisure trips, e-bikes are relatively easy to drive and riders can do journeys up to 1.5 times faster than they could on an average mechanical bike. The fact that you can go so much faster with minimal effort is something that especially appeals to users who have a long commute to embark on everyday or those who need to travel to many different places in one day.

**"E-bikes expand the practice of cycling across social groups (gender, age and life course position, physical condition) and spaces (suburban and rural contexts, distances)."**

Patrick Rérat

Cycling and Active Mobilities Observatory & Institute of Geography and Sustainability,  
University of Lausanne, Lausanne, Switzerland

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# The universal appeal of e-bikes

E-bikes have many different benefits for many different people.

The fact that it is possible to cycle quickly and tackle steep gradients and long distances without sweating or getting too tired, is a huge plus point, especially for older people or those with a lower level of fitness.

For parents, e-bikes can even make it easier to complete a succession of journeys or transport children with a trailer or a child seat.

For couples and families, the e-bike presents a new way of working out and cycling together, as it equalizes the differences between their differing fitness levels.

Cycling on an e-bike can also help people to hit their fitness goals without exhausting themselves as cycling on an e-bike can satisfy moderate-intensity physical activity and offer the user a number of health benefits.



# The e-bike as a way to attract eco-conscious users

Thanks to their low carbon emissions, e-bikes also offer a new way to attract eco-conscious users and encourage local municipalities to support your shared mobility service at the same time.

According to a study conducted in Swedish municipalities, about 14-20% of the average total CO2 emissions per person generated through transportation in Sweden could be reduced if people simply changed their travel behavior and swapped car trips with e-bike trips.

**“The decision to use shared e-bikes follows a cognitive route, in which environmental motivations affect the positive emotions that consumers feel about the use of shared e-bikes.”**

Khashayar Kazemzadeh & Enrico Ronchi

Transport and Roads, Department of Technology and Society, Faculty of Engineering, LTH, Lund University Lund, Sweden

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Looking at the survey conducted by Khashayar Kazemzadeh and Enrico Ronchi on e-bike and e-scooter users in Copenhagen and Stockholm, e-bike riders have a stronger environmental conscience and are drawn to e-bikes because of their low environmental impact, when compared to e-scooter drivers.

Therefore, when combined with other modes of sustainable transport, e-bikes contribute to strengthening people's commitment to a lower-impact and healthier lifestyle.

So, if you choose to add e-bikes to your fleet, then it is important to build promotions and marketing campaigns that tap into this identity trait, especially for nonusers who are interested in eco-friendly mobility options.

# The power of sharing

In fact, the high upfront costs of purchasing an e-bike, usually between EUR 1,000 and 2,000, compared to a traditional bike or everyday transit costs, constitutes one of the incentives for using e-bikes on sharing schemes.

Also, unlike the bicycle which is a rather complex object to offer for sharing with its relative fragility and multitude of parts – e-bikes require minimal maintenance and are designed to be robust enough to stand up to intensive use.

The cost-effectiveness and on-demand nature of shared e-bikes make them highly appealing for current, and potential, users of shared mobility services, especially when compared to the significant upfront investment and the doubts they may have about storing their expensive e-bike and the amount of use they'll get out of it.

E-bikes are a great investment for multimodal sharing companies. In fact, e-bikes are especially attractive for users of shared mobility because they are a much more familiar concept than e-scooters, and unlike e-mopeds or electric cars you don't need a driving license to use one. Most people know how to ride a bike, so the e-bike has lower access barriers. The lower the barriers to use, the more users you can attract and the more revenue you can make!

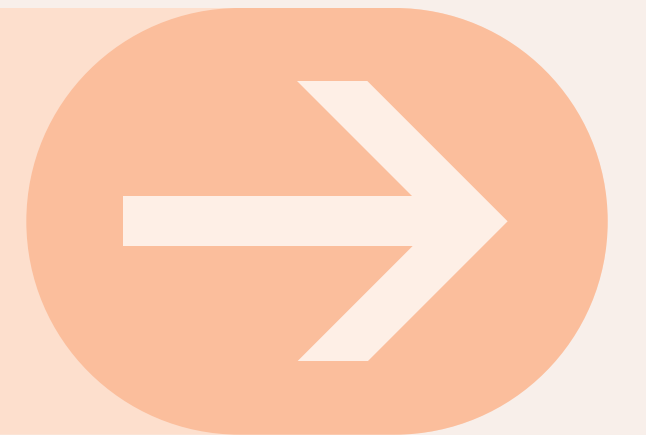




# Different sharing systems for e-bike

There are **three forms** of bike sharing system, both electric and regular.

You can use Wunder's one-stop-shop shared mobility software regardless of the sharing model you choose. With us, you can manage your fleet, connect vehicles, optimize your operations, support your users, and more with our **vehicle sharing software**.



1

**Dock-based bike sharing systems** imply that bikes must be picked up and dropped off at a dedicated physical station.

2

**Free-floating bike sharing systems** allow users to drop off the bike anywhere in the public space within the operator's area of operation.

3

**Bike sharing systems with virtual stations** encourage users to drop off their bikes at virtual stations determined by the operator.

Spotlight on

# HumanForest



One great example of a shared mobility service that is making shared e-bikes work for them is our customer – Human Forest. Since joining forces with Wunder, Human Forest have launched more than 2000 e-bikes on the streets of London.

After a successful trial period, Human Forest launched its fleet of sharing-ready e-bikes in London in September 2021. The company was founded by former Cabify lead Agustin Guilisasti. Fun, active and sustainable, it is the first micromobility company to develop an innovative business model with a digital platform connecting users and partners in the city of London.

Their mission is:

**“To build happier and healthier cities for all, reForesting our urban environment one e-bike at a time.”**

Agustin Guilisasti, founder and CEO, has made a pact to save the planet by converting one person at a time, one ride at a time, one pedal at a time, into emitting less and less CO2.

Check out the full [e-book](#) to find out more about how they have scaled their shared mobility service with the help of our software.

# How to choose the right e-bike to keep costs down

When it comes to choosing an e-bike for your fleet, there are a couple of things you need to consider.



On **our e-bike that we co-developed with Yadea**, we extended the range from 60km to over **100km**. Not only is this a good 30% more than the other sharing e-bikes on the market, but we also estimate (based on our in-field experience) that this results in the number of spare batteries needed decreasing from 0.5 spare batteries to just 0.3. This means that, if you have a fleet of 1000 bikes you only need 300 extra batteries instead of 500 and, with a cost of €250 to €300 per battery, that means a saving of about 50 to 60k just in spare parts!



1

## How long is the battery range & the battery life?

When choosing an e-bike it's really important to consider the battery as this is fundamental for guaranteeing low-cost operations. You need to think about the battery range and the battery life. The shorter the battery life, the more often you will have to replace them, and the shorter the range, the fewer trips the bike can make on one charge, both of which mean you will have higher operational costs.



2

## How easy is it to update your e-bike?

Many e-bike models still require manual updates, which means that you have to go out, collect all your e-bikes and plug them in in order to update the software. With this in mind, we recommend looking for e-bikes that can be updated remotely.

Our own co-developed e-bike with Yadea for example is 100% updatable over the air. This means that you can avoid having to disassemble components to plug in cables and it allows you to update the e-bikes while they're out on the street so there is no interruption in service.

3

## How easy is it for the e-bike to be vandalized or the parts stolen?

When choosing an e-bike you want to choose a bike with an integrated design. You don't want anything to be exposed like wiring etc. and you don't want to have too many things mounted on your bike as this will prevent vandalism or theft of your bike's components. The e-bike should have a design that visibly covers all of the components and makes it look impossible to break into or steal the parts. Our e-bike has been designed with these things in mind. The wiring is completely hidden and the mounted parts – like the basket, lights, and lock – are kept to a bare minimum and secured.

4

## How attractive is the bike for the users and the cities they will be used in?

In order to attract as many users as possible, your e-bike should be as attractive as possible. The design should resemble that of a classic bike as this will lower the barrier to using your e-bikes and encourage more users to try it out. Bikes are also very fun to ride, so your bike needs to be comfortable, easy to use, and attractive to the user and for the city in which it will be used. You also want to choose an e-bike that is customizable so that you can add your own colors and distinctive branding – you can do this with our e-bike.

5



## How easy is it to add more e-bikes to your fleet as and when you need them?

Shared mobility is seasonal. As the weather gets warmer, you will get a huge demand for your e-bikes, so you need a supplier that you can trust to be able to get you the e-bikes as and when you need them, and integrate them seamlessly into your fleet.

Should you choose to use our sharing-ready e-bike we can take care of all supply and logistics discussions and processes for you. And you can benefit from our strong relationships with our suppliers which means that we can get e-bikes and spare parts to you quickly and easily.

# The WB150 e-bike co-developed by

Wunder Mobility



## Range

120 km

## Battery

Swappable, 36V 20Ah

## Top Speed

25 km/h

## Motor

Bafang rear hub motor 36V 250W

## IoT

Native Built-In

## Brakes

Front disc brake/Rear drum brake

## Highlights

- Designed for European markets
- Built in LED head and rear lights
- LCD screens built onto handlebars
- Brakes have a power-off function
- Branding and colors can be fully customized
- Equipped with a motor lock and a smart lock for dual security
- Rear wheel cover encloses the locking mechanism to prevent breakage or theft of parts





## An e-bike for operators and cyclists

"Through our collaboration with Yadea we have produced a better performing e-bike for both the operator and the cyclist. Superior range, weight and security coupled to our powerful platform will enable more short city journeys and cleaner and healthier longer distance urban travel."

Gunnar Froh, CEO and Co-Founder of Wunder Mobility



## Seamless integration

Thanks to our cutting edge IoT technology, our e-bike can be integrated seamlessly into your fleet and into our one-stop-shop platform. What's more, our e-bikes are 100% updatable over the air, which means that you can customize settings such as top speed etc. For example, if you want to launch our e-bikes in a market that's very hilly, you can choose an acceleration program, which kicks in earlier, so that your users don't need to pedal so hard to get up the hills.



## Wunder Mobility – one partner for software and hardware

With Wunder you have one partner for your software and hardware needs which means we work hard to fix everything within your system.



# Ready to join the ride?

Check out more technical details about our co-developed e-bikes and let's have a chat about how they can help you grow your sharing mobility business even faster together with our one-stop software.

[Get Started](#)



**Wunder Mobility**

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