Bike Sharing 5.0
Market insights and outlook

Berlin, August 2018
This study provides a comprehensive overview of developments on the bike sharing market

Management summary

1. **Key trends in innovative mobility**
   - Major innovations and new regulations are on the way to reshaping the mobility market
   - New business models follow an asset-light approach allowing consumers to share mobility offerings
   - Bike sharing has emerged as one of the most-trending forms of mobility in the current era
   - Digitalization has enabled bike sharing to become a fully integrated part of urban mobility

2. **Bike sharing market development**
   - Bike sharing has grown at an extremely fast rate and is now available in over 70 countries
   - Several mostly Asian operators have been expanding fast, but first business failures can be seen
   - On the downside, authorities are alarmed by the excessive growth and severe acts of vandalism
   - Overall, the bike sharing market is expected to grow continuously by 20% in the years ahead

3. **Role of bike sharing in urban mobility**
   - Bike sharing has established itself as a low-priced and convenient alternative in many cities
   - The three basic operating models are dock-based, hybrid and free-floating
   - Key success factors for bike sharing are a high-density network and high-quality bikes
   - Integrated mobility platforms enable bike sharing to become an essential part of intermodal mobility

4. **Future of bike sharing**
   - Bike sharing operators will have to proactively shape the mobility market to stay competitive
   - Intense intra-city competition will lead to significant service improvements
   - Use of smart analytics and artificial intelligence will enable operators to optimize their networks
   - Dedicated infrastructure and bicycle-friendly regulations will aim to promote bike sharing

Source: Roland Berger
Major mobility trends will heavily impact all mobility providers in the future

Mobility trends

1. Mobility as a service
   - Integrating public transport and new mobility providers in a single platform with integrated ticketing and pricing
   - More customized and a wider variety of options for customers that could be either more convenient or more cost-effective than public transport

2. Regulations
   - Cities to implement regulations banning the use of motor vehicles in cities and stimulating the use of electric vehicles in public transport tenders, for example
   - Stimulating demand for public transport and environmentally-friendly mobility options in city centers

3. Autonomous driving
   - More cost-effective solution compared to public transport or owned cars, for example, due to significant reduction in personnel costs
   - Attractive robocabs could achieve a high modal share, but might not be feasible in every area due to traffic congestion

Source: Roland Berger
Photos: Kaspars Grinvalds/Adobe Stock; Alison Hancock/Adobe Stock; Olivier Le Moal/Adobe Stock
Business models are shifting toward lower asset intensity – Customers prefer "sharing" and "using" over "owning".

### Key trends in innovative mobility

<table>
<thead>
<tr>
<th>Asset intensity</th>
<th>Information provider</th>
<th>Agent</th>
<th>Service provider</th>
<th>Vehicle provider</th>
<th>Infrastructure provider</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Own&quot;</td>
<td>Car insurance companies and car workshops</td>
<td>Travel agencies</td>
<td>Public transportation companies and airlines</td>
<td>Leasing and rental car companies</td>
<td>Garages</td>
</tr>
<tr>
<td>&quot;Use&quot;</td>
<td>Car and bike manufacturers</td>
<td></td>
<td></td>
<td>Bus station and car park operators</td>
<td></td>
</tr>
<tr>
<td>&quot;Share&quot;</td>
<td>Garages</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Roland Berger

### Traditional transportation

<table>
<thead>
<tr>
<th>&quot;Own&quot;</th>
<th>&quot;Use&quot;</th>
<th>&quot;Share&quot;</th>
</tr>
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</tr>
<tr>
<td>Garages</td>
<td>Bus station and car park operators</td>
<td></td>
</tr>
</tbody>
</table>

### Innovative mobility: Lower asset intensity

<table>
<thead>
<tr>
<th>Asset intensity</th>
<th>Information provider</th>
<th>Agent</th>
<th>Service provider</th>
<th>Vehicle provider</th>
<th>Infrastructure provider</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intermodal routing and sight-seeing apps</td>
<td>eCall/bCall and telediagnosis service providers</td>
<td>Intermodal booking and taxi apps</td>
<td>E-bike and micro vehicle manufacturers</td>
<td>Crowd navigation and review platforms</td>
<td></td>
</tr>
<tr>
<td>Mobile &quot;parking&quot; and mobile payment</td>
<td>Ride sharing providers</td>
<td>Bike sharing and car sharing operators</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobility stations and e-charging stations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Roland Berger
How mobility will develop depends primarily on two factors: technological progress and customer acceptance.

Key influencing factors and trends impacting advances in mobility in the next 15 years:

- **Economy/society**: GDP development, Urbanization, Car is not a status symbol any more
- **Regulation**: Environmental regulations, PT electrification, City regulations, Safety regulations, Distribution of disposable income
- **Consumer**: Sharing vs. owning, Consumer attitudes
- **Technology**: Progress in microelectronics (SoC, MEMS etc.), Digitalization of operations & sales, Automated driving (Levels 1-3), New materials (lightweight, nano, compounds etc.)
- **Connectivity/IoT**: Smart products/devices, Connectivity/IoT

**Technological progress** in automated driving (cars, buses, trains) and **consumer attitudes** toward cars as the primary means of individual transport are the key parameters for the future development of mobility.

Sources: Expert interviews; Roland Berger
Over time, bike sharing has developed into a highly technologized and integrated mode of transport business around the globe.

Bike sharing development

**1.0 "White bikes"**
- Invented in Amsterdam, Netherlands
- 50 white bicycles, permanently unlocked
- Often stolen/damaged

1965

**2.0 "Coin-deposit systems"**
- Founded in Copenhagen, Denmark
- Bicycles distinguished by color and design
- Designated docking stations
- Small deposits to unlock bicycles
- More reliable, but almost no information about customers

1995

**3.0 "IT systems"**
- First system founded in Rennes, France
- Bicycles distinguished by design or advertising displays
- Fixed or flexible docking stations
- User interface necessary for check-ins/outs
- Advanced technology used for locating, reserving and accessing bicycles

1998

**4.0 "Multimodal systems"**
- Used worldwide
- Bicycles distinguished by design or advertising displays
- Fixed, flexible, mobile or virtual stations
- User interface necessary for check-ins/outs
- Advanced technology used for locating, reserving and accessing bicycles
- Linked to public transit (e.g. schedules, stations)
- Cleaner technologies (e.g. solar-powered stations, sustainable bicycle redistribution)

2013

**5.0 "Smart mobility"**
- Predictive algorithms to maximize utilization of the bike fleet
- Customer data is systematically collected, exchanged with partners and used to improve the customer experience
- Sanitized and enriched movement data is used to generate ancillary commercial revenues
- Fully integrated in attractive mobility platforms, with seamless payment
- Advanced partnership models with other modes
- Extended business models that help make bike sharing operations profitable

2017

Sources: Susan Shaheen, Roland Berger
Around 1,250 bike sharing systems with more than 10 m bicycles are already in use around the globe – Asia is the largest market

Global presence of bike sharing systems – December 2017

Sources: Press research; Roland Berger
The number of bikes in bike sharing systems is still growing significantly – Biggest bike sharing systems implemented in China

Global development and distribution of bike sharing systems

**Global development of bike sharing**

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of bike sharing schemes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>367</td>
</tr>
<tr>
<td>2011</td>
<td>450</td>
</tr>
<tr>
<td>2012</td>
<td>517</td>
</tr>
<tr>
<td>2013</td>
<td>643</td>
</tr>
<tr>
<td>2014</td>
<td>946</td>
</tr>
<tr>
<td>2015</td>
<td>1,270</td>
</tr>
<tr>
<td>2016</td>
<td>4,500</td>
</tr>
<tr>
<td>2017</td>
<td>&gt;10,000</td>
</tr>
</tbody>
</table>

CAGR\(^1\) +60%

**Largest bike sharing cities by region**

<table>
<thead>
<tr>
<th>City</th>
<th>No. of bikes ['000]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beijing</td>
<td>2,350</td>
</tr>
<tr>
<td>Shanghai</td>
<td>1,700</td>
</tr>
<tr>
<td>Shenzhen</td>
<td>890</td>
</tr>
<tr>
<td>London</td>
<td>18</td>
</tr>
<tr>
<td>Paris</td>
<td>15</td>
</tr>
<tr>
<td>Berlin</td>
<td>14</td>
</tr>
<tr>
<td>New York</td>
<td>8</td>
</tr>
<tr>
<td>Seattle</td>
<td>8</td>
</tr>
<tr>
<td>San Francisco</td>
<td>8</td>
</tr>
</tbody>
</table>

\(^1\) Compound annual growth rate

Sources: Press research; Roland Berger
The competitive bike sharing landscape is becoming more diverse, with UBER and Didi the most recent new entrants to the market.

Bike sharing – Competitive landscape

### Strategic direction

- **Defending market leadership position in German cities**
- **Cooperation with retailers started, e.g. Lidl in Berlin**
- **Local expansion in San Francisco and Bay Area**
- **Introduction of electric bikes ongoing**
- **Launch of own bike sharing service JUMP**
- **Integration of JUMP in UBER app**
- **Launch of bike sharing service via Didi app**
- **Integration of ofo and bluegogo in Didi app**
- **Heavy fund raising for global expansion**
- **Focus on quality improvements in operations**
- **Heavy fund raising for global expansion**
- **Data sharing for integration in map services, e.g. Baidu**
- **Heavy fund raising for expansion to Europe**
- **Introduction of e-bikes and e-scooters announced**
- **Defending market shares in German cities**
- **Use of hybrid system for pickup and return**

Source: Roland Berger
In China, the number of shared bikes has increased immensely since 2015 – Market entry of private operators key driver for growth

Focus on China – Recent market growth

**Development of bike sharing in China**

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of bike sharing schemes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>164</td>
</tr>
<tr>
<td>2014</td>
<td>237</td>
</tr>
<tr>
<td>2015</td>
<td>396</td>
</tr>
<tr>
<td>2016</td>
<td>415</td>
</tr>
<tr>
<td>2017</td>
<td>430</td>
</tr>
</tbody>
</table>

**Drivers of market growth in China**

- **Rise of private players**
  > Several private operators have entered the market since 2014 – They are now battling for market share and profiting from global scale

- **Unregulated market**
  > In many cities, operators do not have to apply for a license to offer bike sharing

- **High investments**
  > Private operators have raised investments of more than USD 3.0 bn, enabling them to rapidly expand their business in China and abroad

- **Sufficient production capabilities**
  > Chinese bike manufacturers have production capacity for more than 80 million bikes per year

- **Unsaturated demand**
  > Consumers prefer bike sharing over other modes of transport due to low cost and easy access

Sources: Press research; Roland Berger
The vast increase in bike sharing schemes, led by China's largest operators ofo and mobike, is having a major impact on Chinese cities.

Focus on China – Rise of private operators

Key facts

**ofo**
- Founded: 2014
- No. of cities: 180
- No. of countries: 13
- No. of registered users: 200 m
- Funding: USD 2.2 bn

**mobike**
- Founded: 2015
- No. of cities: 200
- No. of countries: 12
- No. of registered users: 200 m
- Funding: USD 0.9 bn

**Positive effects**
- Less traffic congestion
  - > 80% of China’s 100 biggest cities see improvements in local traffic conditions
- Less air pollution
  - > New bikes absorb polluted air and remove particulate matter before releasing it

**Negative effects**
- Increased vandalism and littering
  - > Customers deliberately demolish shared bikes and discard them illegally
- Higher risk of accidents
  - > Improper traffic behavior (e.g. use of smartphones) is driving an increase in fatal accidents

Photos: yurouguan/iStock; JoeDunckley/iStock; tonisvisuals/iStock; 400tmax/iStock

Sources: Press research, Roland Berger
Followed by other Asian players, ofo and Mobike have intensified expansion of their business to a range of attractive European cities.

Focus on Europe – Expansion of Asian operators

> European systems mostly with dock-based concept
> New market entrants, mostly from Asia, are disrupting the European market with free-floating systems
> Ofo and Mobike in particular have each raised sufficient funding to pursue their expansion strategy in Europe
> In April 2017, ofo launched its first bike sharing scheme outside Asia in Cambridge – Mobike followed two months later with a scheme in Manchester
> Both providers have already announced that they will set up further schemes in Europe, as they see huge potential for bike sharing in Europe
> However, ofo recently just pulled out of several European cities to focus on the key markets

Sources: Press research, Roland Berger

1) Ofo: 2,800 bikes; Mobike: 3,500 bikes
2) Ofo: 450 bikes; Mobike: 100 bikes
3) Ofo: 4,000 bikes; Mobike: 8,000 bikes
4) Ofo: 150 bikes; Mobike: 2,700 bikes
5) Ofo: 2,500 bikes; Mobike: 3,000 bikes
Although the global market is growing and attracting significant funding, first movers are facing serious issues.

Some of the challenges facing bike sharing operators:

<table>
<thead>
<tr>
<th>Bluegogo bankruptcy</th>
<th>Gobee exit in France</th>
<th>Obike vandalism in Munich</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="https://via.placeholder.com/150" alt="Bluegogo bike" /></td>
<td><img src="https://via.placeholder.com/150" alt="Gobee bike" /></td>
<td><img src="https://via.placeholder.com/150" alt="Obike vandalism" /></td>
</tr>
<tr>
<td>&gt; Chinese bike sharing startup <strong>bluegogo filed for bankruptcy</strong> in November 2017.</td>
<td>&gt; Hong Kong-based startup <strong>gobee pulled out of the French market</strong> in February 2018.</td>
<td>&gt; Singaporean startup <strong>Obike</strong> faced <strong>high repair costs</strong> due to <strong>damage caused deliberately</strong> to bikes in Munich.</td>
</tr>
<tr>
<td>&gt; With 700,000 bikes, the bluegogo was the <strong>third-largest bike sharing operator in China</strong>, after Mobike and ofo.</td>
<td>&gt; The company stated that the &quot;<strong>mass destruction</strong>&quot; of its dockless bike fleet was the primary reason for the exit.</td>
<td>&gt; The damage appeared to arise from a <strong>massive protest</strong> by Munich citizens.</td>
</tr>
<tr>
<td>&gt; Due to a recent cash shortage, bluegogo <strong>failed to pay its employees</strong> and <strong>refund users’ deposits</strong>.</td>
<td>&gt; According to gobee, a <strong>thousand bikes</strong> had been <strong>stolen</strong> and <strong>almost 3,400 damaged</strong> nationwide.</td>
<td>&gt; Following its <strong>bankruptcy</strong> in July 2018, Obike <strong>ceased operations in Munich</strong> without removing its rental bikes from the city.</td>
</tr>
</tbody>
</table>
City authorities have taken different measures to prevent vandalism and regulate the local bike sharing market.

**Regulation efforts**

**Measures taken by cities to clean up the streets**

- **Limits** on number of operators per city and fleet size per operator
- **Restrictions** on parking locations and number of bikes per parking zone
- **Penalty fees** for breaches of any kind
- **Requirement** to install tracking devices on rental bikes
- **Immediate disposal** of damaged rental bikes

Photos: gionnixxx/iStock

Sources: Roland Berger
The market is expected to grow by 20% p.a. to EUR 7.0-8.0 bn in 2021 – Growth rates will gradually flatten in this period

Outlook

### Market development

<table>
<thead>
<tr>
<th>Year</th>
<th>Market size [EUR bn]</th>
<th>No. of bikes in bike sharing schemes ['000]</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>1.2</td>
<td>643</td>
</tr>
<tr>
<td>2015</td>
<td>1.8</td>
<td>1,270</td>
</tr>
<tr>
<td>2017</td>
<td>3.6</td>
<td>10,000</td>
</tr>
<tr>
<td>2019</td>
<td>6.0</td>
<td>16,000</td>
</tr>
<tr>
<td>2021</td>
<td>7.0 - 8.0</td>
<td>~20,000</td>
</tr>
</tbody>
</table>

### Forecast key rationales

- **Significant funding**
  - Sufficient financial means to fund expansion and development of new products, including e-bikes
- **Enhanced connectivity**
  - Bike sharing accepted as an urban transportation mode and fully integrated in multimodal offerings
- **Changes in buying behaviors**
  - Sharing rather than owning
- **More fragmented markets**
  - Growth mainly in a higher number of cities, but with a smaller customer base in Europe and US
- **Stronger competition and regulation**
  - Progressive market consolidation and limitation on number of operators per city at the municipal level
  - Higher quality requirements for fleets

Source: Press research, Roland Berger
Being low-priced and covering short to middle distances, bike sharing closes an important gap between other modes.

**Transportation niche**

**Bike sharing**...

... is faster than walking
... is cheaper than taxis and car sharing
... is more flexible than public transport
... requires less maintenance and is less expensive than owning a car
... can be combined with other means of transport

... will remain cheaper than autonomous transport modes for short to middle distance journeys

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1) Price range for a single urban ride (5 km)

Source: Roland Berger
Driven by a growing ecosystem and integrated mobility solutions, bike sharing is becoming a regular feature of intermodal mobility.

Role of bike sharing in urban mobility

Growing ecosystem

Integration of mobility services

Bike sharing as an integral part of intermodal and multi-modal mobility

Source: Roland Berger
There are essentially three bike sharing models in the market: free-floating, hybrid and dock-based bike sharing

**Bike sharing models**

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<table>
<thead>
<tr>
<th>OPERATING MODELS</th>
<th>SPECIAL FORMATS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free-floating bike sharing</td>
<td>E-bike sharing</td>
</tr>
<tr>
<td>&gt; Inner-city rentals without any fixed pick-up points within a defined operating area</td>
<td>&gt; Inner-city rental of e-bikes</td>
</tr>
<tr>
<td>&gt; Bicycles can be picked up and dropped off at any intersection</td>
<td>&gt; Bikes must be plugged in when returned to recharge</td>
</tr>
<tr>
<td>Hybrid bike sharing</td>
<td>Company bike sharing</td>
</tr>
<tr>
<td>&gt; Inner-city rental with guaranteed provision of bikes at fixed pick-up points</td>
<td>&gt; As a service for company employees on site, for large events or for hotel guests</td>
</tr>
<tr>
<td>&gt; Bicycles can be picked up at pick-up points and dropped off anywhere</td>
<td>&gt; Transactions normally done at the station or by app</td>
</tr>
<tr>
<td>Dock-based bike sharing</td>
<td>Cargo bike sharing</td>
</tr>
<tr>
<td>&gt; Inner-city rental of bicycles from specific pick-up points</td>
<td>&gt; Special purpose bikes, e.g. for families or to transport large/heavy goods</td>
</tr>
<tr>
<td>&gt; Bicycles are rented and returned at specific pick-up points</td>
<td>&gt; Transactions normally done at the station or by app</td>
</tr>
</tbody>
</table>

*Source: Roland Berger*
Overall goals, sources of funding and the ownership/operating model are the factors that differentiate bike sharing operators.

### Operating models

<table>
<thead>
<tr>
<th><strong>For Profit</strong></th>
<th><strong>Non-Profit</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; Owned and operated by a private company, responsible for fund-raising and costs</td>
<td>&gt; Owned and operated by an agency, responsible for fund-raising and costs</td>
</tr>
<tr>
<td>&gt; Quick raising of private investments</td>
<td>&gt; Flexible funding (govt. or local sources)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Private</strong></th>
<th><strong>Public</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; Private loans</td>
<td>&gt; Federal grants</td>
</tr>
<tr>
<td>&gt; Private grants</td>
<td>&gt; State grants</td>
</tr>
<tr>
<td>&gt; Advertising</td>
<td>&gt; City funds</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Ownership &amp; operations</strong></th>
<th><strong>Private</strong></th>
<th><strong>Public</strong></th>
<th><strong>Private</strong></th>
<th><strong>Public</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ownership</strong></td>
<td><strong>Private</strong></td>
<td><strong>Public</strong></td>
<td><strong>Private</strong></td>
<td><strong>Public</strong></td>
</tr>
<tr>
<td>&gt; Privately owned and operated</td>
<td>&gt; Publicly owned/contractor operated</td>
<td>&gt; N/A</td>
<td>&gt; Publicly owned and operated</td>
<td></td>
</tr>
<tr>
<td>&gt; Street furniture contract</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; Third-party operated</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; Vendor operated</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sources: Programs promoting bikesharing in the US, Public Bikesharing in North America, Bike Share Opportunities in NYC, Roland Berger
Bike sharing systems must be simple, offering low-priced, high-quality bikes integrated in a dense multimodal network

Key success factors

A. **High-density network**
   Highly concentrated and comprehensive networks of bikes and widespread program coverage ensure high accessibility

B. **Multimodal integration**
   Integration of infrastructures, information structures and payment with other mobility services enables convenient transfers

C. **Simple handling**
   User-friendly, app-based rental processes and no advance registration increase usability and reduce entry barriers for new users

D. **Smart data analytics**
   Use of data-driven applications optimizes pricing and operations while creating additional revenue streams

E. **High-quality bikes**
   Easy-to ride but also sturdy and weatherproof bikes ensure a comfortable riding experience and reduce maintenance costs

F. **Support of local authorities**
   Support of local authorities, e.g. in terms of bike lanes, accessibility of public spaces and links to public transport can boost success

Source: Roland Berger
The value proposition of a bike sharing concept should take into account the goals of various stakeholders.

Stakeholder goals concerning bike sharing:

**Regulator/authority**
- Preservation of orderly cityscape
- Prevention of severe accident risks
- Decrease in urban traffic
- Decrease in pollution in the city

**Operator**
- Maximizing usage of rental bikes
- Minimizing effort to ensure sufficient bike availability

**Integrator (e.g. mobility platform)**
- Customer and data monetization
  - Commissioning
  - Advertising
  - Big data

**Other transport modes**
- Securing own modal share
- Complementing offerings for own transport services

**Customer**
- High availability of bikes throughout the entire city
- Comfortable, high-quality bikes
- Convenience of renting and paying by mobile app
- Seamless connectivity to other modes of transport

Source: Roland Berger
In the bike sharing ecosystem, relationships between the different stakeholders are complex – Various pain points still to be removed

Roles in bike sharing ecosystem

- **Regulator/authority**
  - Defines standards and regulations, e.g. public sector
  - Demands infrastructure & data
  - Supplies infrastructure & data

- **Operator**
  - Supplies IT
  - Generates and sends data
  - Supplies infrastructure
  - Demands transport
  - Critical mass needed for operational efficiency
  - Insufficient investments in bike-specific infrastructure (e.g. bike lanes)

- **Customer**
  - Demands mobility solutions
  - Supplies transport
  - Demands infrastructure & data
  - Supplies mobility solutions

- **Integrator (platform)**
  - Supplies data
  - Demands mobility solutions
  - Supplies infrastructure & data

- **Infrastructure provider**
  - Supplies infrastructure
  - Demands transport
  - Uses infrastructure

- **IT/service provider**
  - Generates and sends data
  - Supplies infrastructure & data

**Lack of agreement and cooperation between operators and authorities**

**Uncertainty regarding data sharing (data ownership and privacy)**

Source: Roland Berger
To stay ahead of the competition, bike sharing operators will have to proactively shape the market

### React vs. Shape

<table>
<thead>
<tr>
<th>React</th>
<th>Market hypothesis</th>
<th>Shape</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; Closely observe expansion moves of Asian competitors to adjust service-ability in existing markets, if needed</td>
<td>Asian competitors will learn fast and expand successfully in Europe</td>
<td>&gt; Actively utilize local knowledge and first mover advantage to strengthen position on existing and potential new markets</td>
</tr>
<tr>
<td>&gt; Quickly implement new regulations and inform own customers about any new developments</td>
<td>Bike sharing operations in high-density areas will be heavily regulated (e.g. infrastructure use)</td>
<td>&gt; Address regulatory bodies alone or in partnerships to influence the regulatory framework</td>
</tr>
<tr>
<td>&gt; Participate in interface solutions that enable access to and the provision and steering of bike sharing</td>
<td>By 2025, transport will be connected, intermodal and digital</td>
<td>&gt; Invest in solutions that will allow different transport modes to be integrated and provide required information/steering</td>
</tr>
<tr>
<td>&gt; Systematically monitor competitors to identify new/improved operational models and avoid their pitfalls</td>
<td>New hybrid and e-driven bike sharing models will rise</td>
<td>&gt; Invest in innovation and generate ideas for new/improved operational models to stay ahead of the competition</td>
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<tr>
<td>&gt; Reduce cost base and prices in order to be able to compete with cheaper market participants</td>
<td>Mobility will be more data-driven and partly available for free</td>
<td>&gt; Invest in the most profitable market segments and diversify own revenue base with new revenue models</td>
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</tbody>
</table>

Source: Roland Berger
The free-floating model is a major bike sharing trend – Other current trends are geofencing and intermodal integration

Current innovations: What's hot, what's next? (1/3)

| **Free-floating** | Eliminates the need for docks and stations by allowing users to locate and unlock bicycles using an app  
|                   | Distributes bikes evenly across town to ensure availability at all times  
|                   | Examples: Mobike, ofo and Spin |
| **Geofencing**    | Uses GPS devices to prevent theft and vandalism  
|                   | Ensures that shared bikes stay within the designated geographic area  
|                   | Addresses the issue of illegal parking  
|                   | Examples: ofo in Cambridge, oBike in Singapore |
| **Intermodal integration** | Integrates bike sharing in existing mobility platforms through integrated ticketing and pricing  
|                           | Collaborates with other shared mobility companies as well as public transport  
|                           | Example: Whim and nextbike partner in West Midlands |
Operators are starting to invest in innovative bicycles such as cargo bikes – AI and adapted policies used to boost bike sharing usage

Current innovations: What's hot, what's next? (2/3)

| E-bike sharing | Uses electric bikes for bike sharing  
|                | Is more convenient, e.g. in cities with hilly terrain  
|                | Example: BiciMAD in Madrid  

| Cargo bike sharing | Cargo bikes: Bicycles with an open box or flat platform designed for transporting loads  
|                    | Enables customers to go shopping or move things by bike  
|                    | Makes some e-cargo bikes available at docking stations or host locations  
|                    | Examples: DonkEE in Cologne, carvel2go in Switzerland  

| Artificial intelligence | Analyzes user demand and mobility patterns to adjust service offerings to customer needs  
|                        | Improves efficiency of bike repositioning, e.g. with data about peak times or popular areas  
|                        | Uses collected mobility data to assess infrastructure investments like bike lanes  
|                        | Example: MoBike in Beijing  

| Tax breaks | Allow commuters to use pre-tax transit benefits for bike sharing  
|           | Grant the same tax treatment as company cars and other public transportation systems  
|           | Example: Bike sharing in New York City  

Photos: aerogondo/Adobe Stock; Jürgen Fälchle/Adobe Stock; Screeny/Adobe Stock; Rene Schubert/Adobe Stock
Sources: Press research, Roland Berger
New infrastructure and policies aim to promote bike sharing – Bike sharing operators aim to reduce maintenance costs


| **Sturdy bike components** | > Reduce maintenance costs (especially wheel-related costs) for bike sharing operators  
> Improve existing solutions to enhance user comfort  
> Example: Solid, airless tires |
| **Prioritized road infrastructure** | > Reduces the threat from other vehicles on the road with dedicated, clearly separated bike lanes, e.g. with cobblestones at the side  
> Enables a safer biking experience in the city with other motor vehicles nearby  
> Examples: Gothenburg, Copenhagen, Amsterdam |
| **Smart traffic lights** | > Introduce new traffic lights that stay green longer if many cyclists want to cross  
> Give cyclists priority when it is raining so they spend less time in the inclement weather  
> Measure congestion on bike paths and suggest faster alternative routes to cyclists  
> Examples: Copenhagen, Odense |
Your contacts for innovative mobility services at Roland Berger

A. Tobias Schönberg
Senior Partner, Berlin
+49 160 744 3316
Tobias.Schoenberg@rolandberger.com

Alexander Dyskin
Principal, Düsseldorf
+49 160 744 2981
Alexander.Dyskin@rolandberger.com

Konstantin Ewer
Consultant, Frankfurt
+49 160 744 6584
Konstantin.Ewer@rolandberger.com