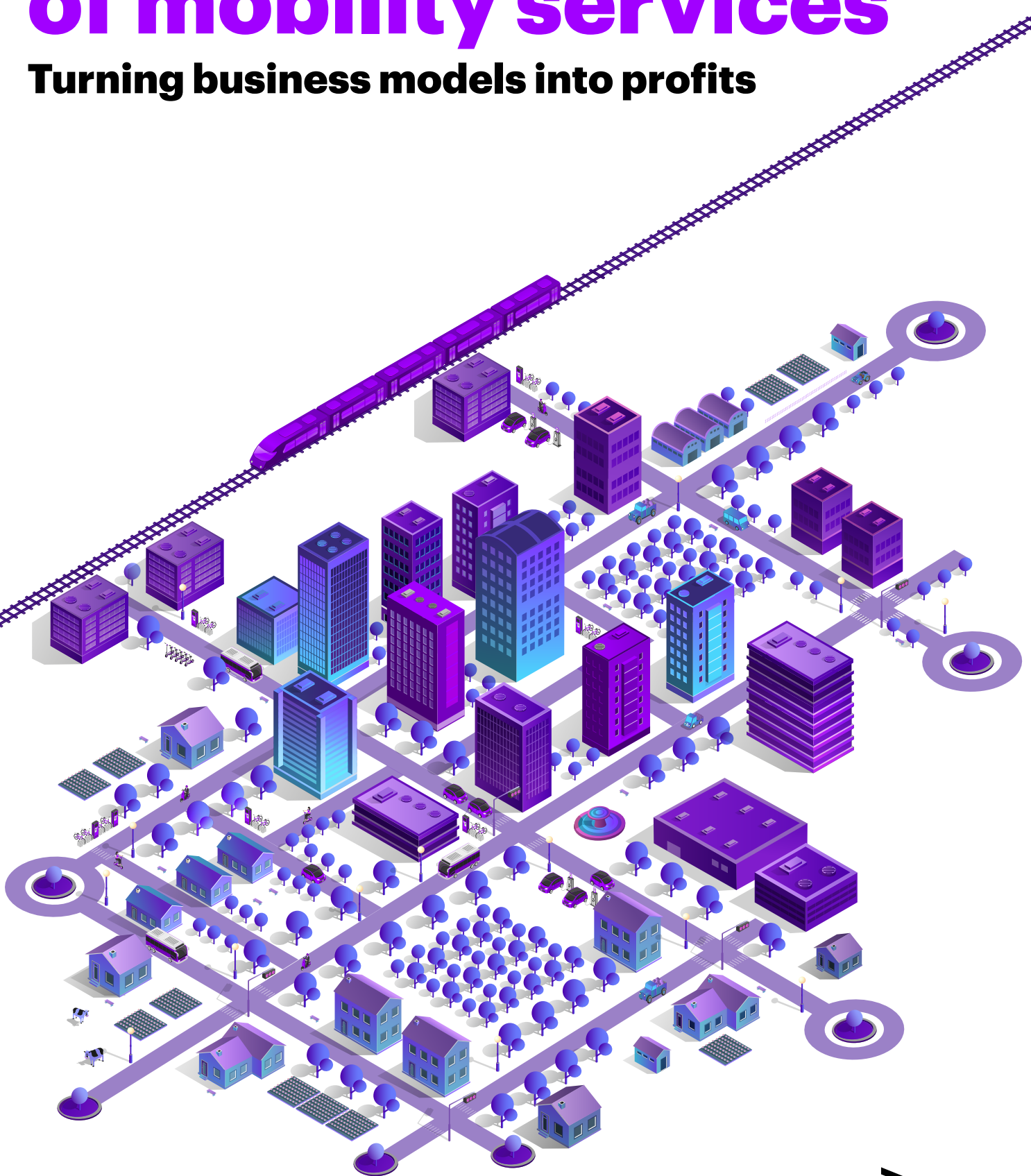


Unlock the value of mobility services

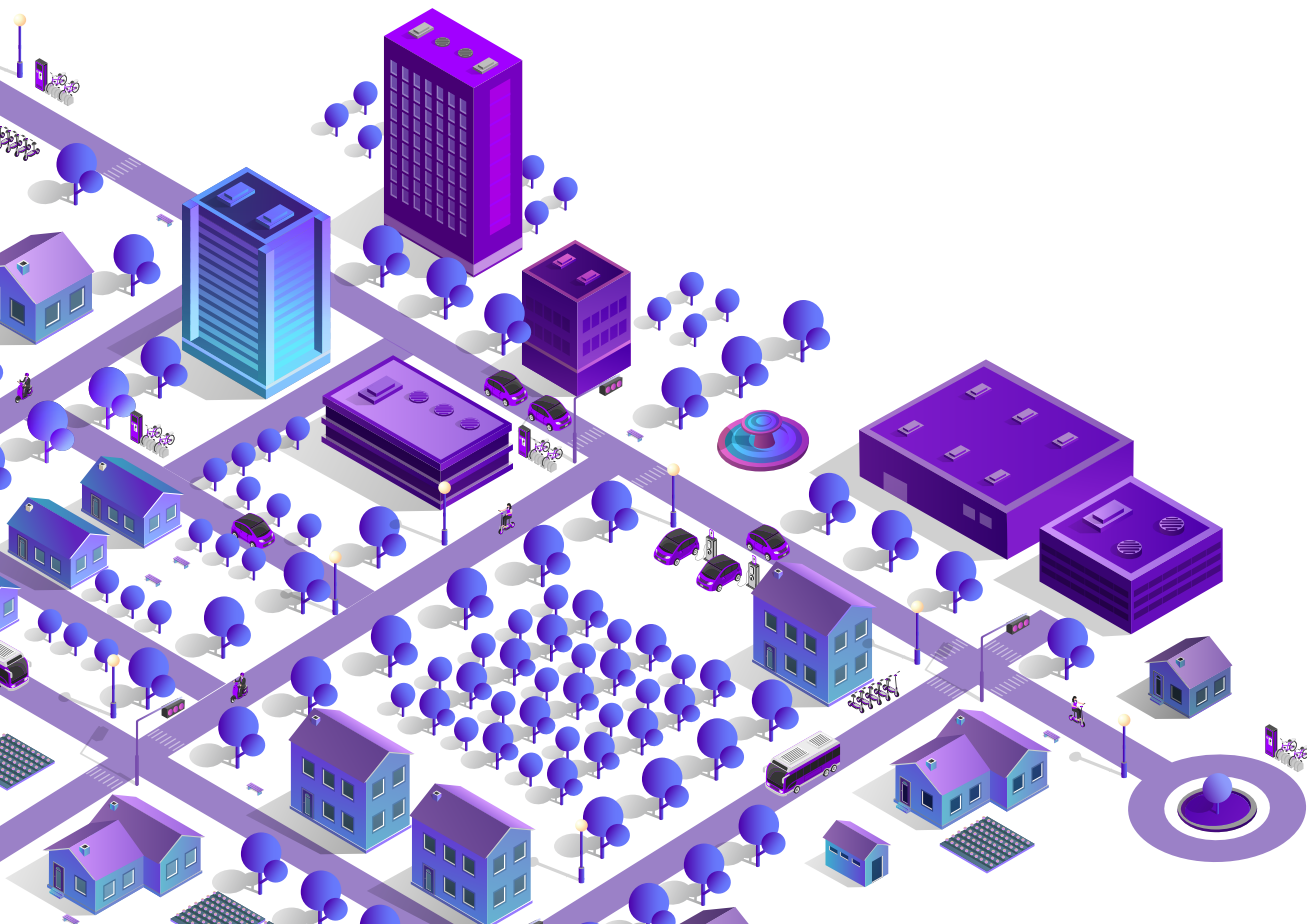
Turning business models into profits



accenture

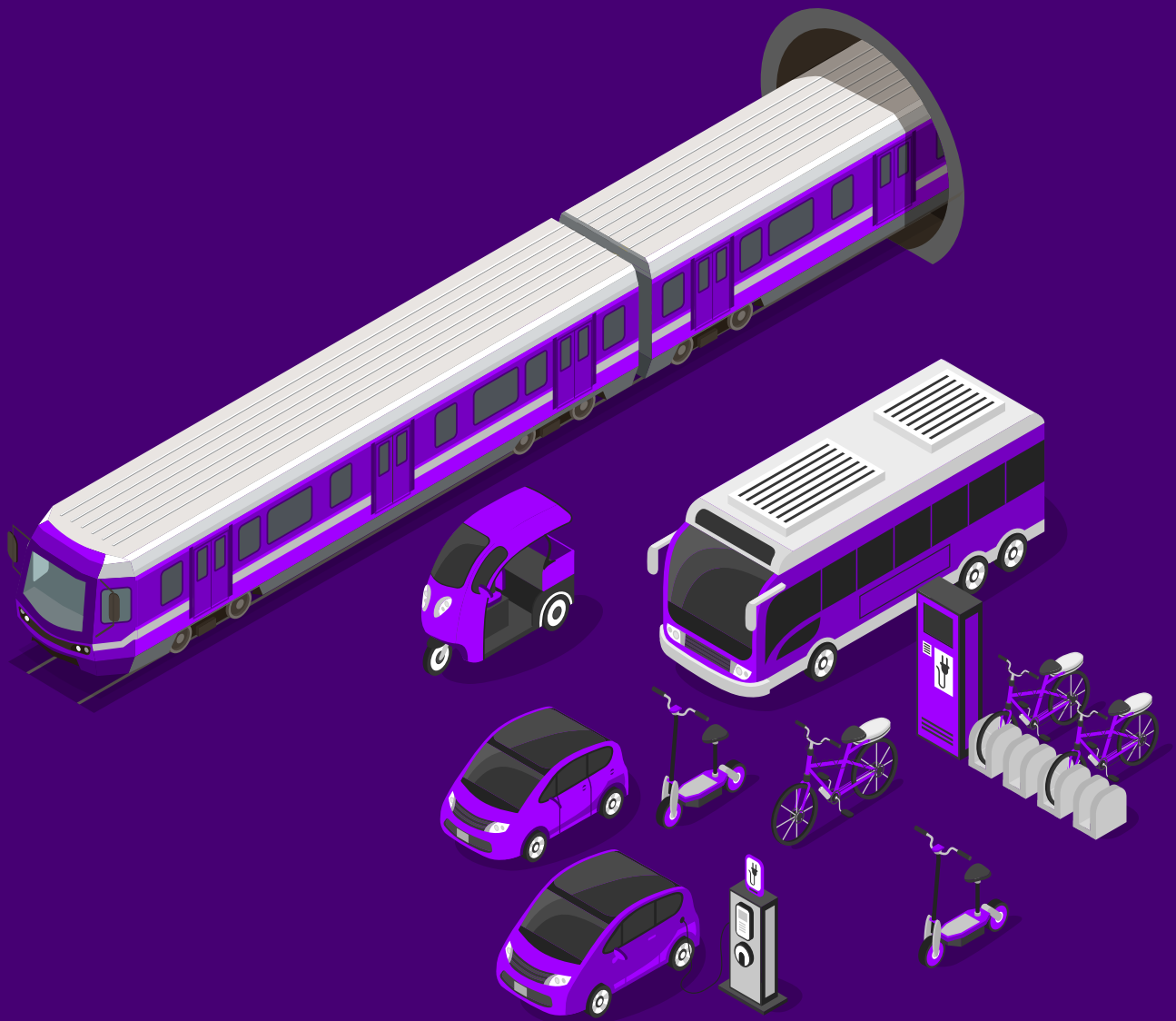
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Executive Summary

The demand for mobility services has accelerated dramatically over the last decade. Despite significant investments and corresponding growth in urban areas, many of today's leading transport companies have not cracked the code on how to profit from new mobility services.



Despite the sharp increase in demand, mobility services have been significantly impacted by the global outbreak of COVID-19. The demand for mobility has decreased substantially and consumers have been prompted to rethink their preferred mode of transportation with more emphasis on protecting their safety while having to consider a more uncertain economic situation. However, the underlying drivers of the mobility transformation still hold true: a need to improve quality of life in urban areas and reduce traffic gridlocks, a stronger push to decarbonize transport and reduce local pollution, as well as customers' changing expectation of digitally-enabled services with on-demand availability.

In our latest study, we set out to understand the burning question among mobility service providers today—**how do you unlock value and build profitable mobility service offerings?**

Based on interviews with senior executives across the automotive, mobility service and public sector, our research revealed a key barrier to profitability that is common across all business models—the absence of a balanced marketplace. While mobility services are a hybrid between private and public transport, regulators tend to treat them like private entities, thereby ignoring the potential value these services offer society. Furthermore, there are several profitability challenges that are specific to the different business models, such as low asset utilization, labor intensiveness and insufficient use of technology.

We then identified a series of three actionable steps providers can take to overcome these obstacles. Our recommendations speak to the unique needs of the mobility services market and serve as concrete measures both regulators and private companies can take to protect and grow mobility service investments.

1. **New rules for a new game**
2. **Optimize mobility across the fleet**
3. **Pivot from your core products**

These steps can help mobility providers overcome the fundamental profitability barrier and transform the mobility services market beyond the short-term effects of COVID-19. By fixing the fundamental issues, mobility players can build a balanced market. Subsequently, service providers can optimize mobility across the fleet and integrate new technologies, such as AI and data analytics, to generate additional revenue streams. And while service providers need to develop close-to-ownership models, public transport providers must integrate with innovative existing services.

These joint efforts are essential if the mobility services market is to succeed. Together, market players can usher in a new age of mobility—one that is not only profitable, but also benefits citizens, cities, and automotive and mobility companies themselves.

How to unlock the value of mobility services

There's no doubt that mobility services have the potential to create significant economic value.

This fast growing industry has proven its ability to play a pivotal role in tackling macro challenges such as congested cities and high carbon emissions, benefitting individuals, society and the environment. Across the United States, Germany and China, the mobility services market has grown to more than \$140 billion over the last decade (Figure 1) and is expected to more than triple by 2030.

However, despite their growth potential, many mobility companies were already struggling to generate profits before the COVID-19 crisis. What's more, expected timelines for rolling out autonomous vehicles have been delayed, making it unlikely for the technology to turn around the business case of mobility service operators anytime soon.

We interviewed senior experts from across automotive original equipment manufacturers (OEMs), mobility service providers and the public sector to gain their perspectives. We then combined this input with a proprietary scenario-based quantitative model to better understand today's mobility services' business environment as well as its future.

The aim of this report is threefold:

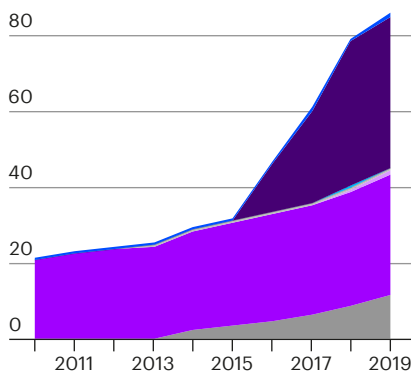
1. **Discuss the key profitability barriers mobility service providers face**
2. **Reveal actionable steps to drive change toward a balanced market**
3. **Explain how to maximize the end-to-end value of mobility services beyond the COVID-19 crisis**

Figure 1: Mobility services market growth before COVID-19

Source: Accenture Research

USA

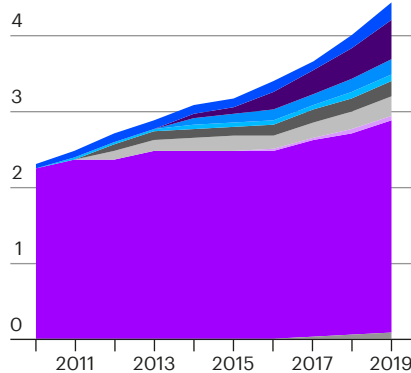
100 B USD



- **Ride hailing** has grown rapidly in the past three years, **surpassing rental** market volume in 2018
- Subscriptions models have grown at a steady pace, capture a **sizeable share** already

Germany

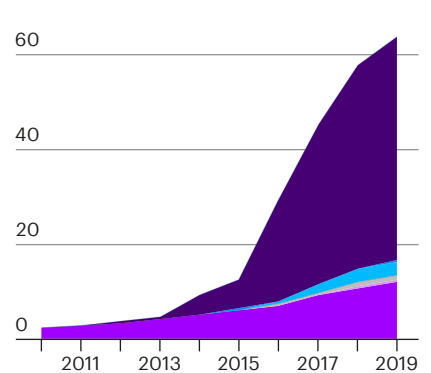
5 B USD



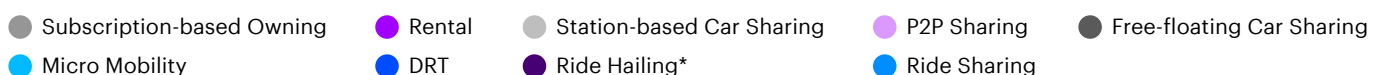
- **Rental business** has held the largest market share in Germany for the last eight years
- Apart from rental, the market is very much **fragmented** into the other business models

China

80 B USD



- Similar to the US, **ride hailing** has grown rapidly in China, now taking the **largest market share**
- **Rental** is a rather small market due to dominance of rail especially for intercity travel



*incl. Ride pooling

Defining mobility services

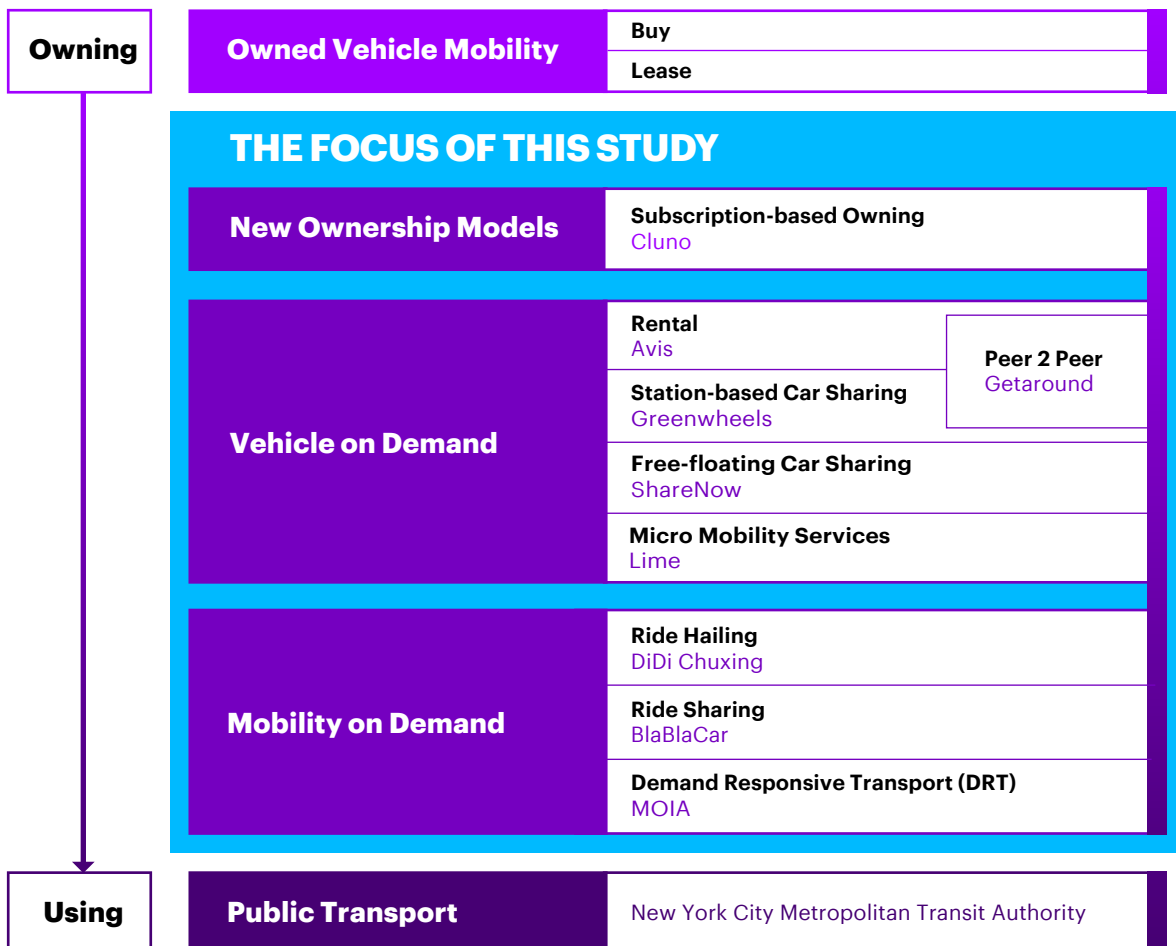
The term “mobility services” refers to new, digitally enabled offerings. These can be clustered into three groups:

1. **New ownership models, consisting of subscription-like services**
2. **Vehicle on Demand (VoD), including car rental, car sharing and micro mobility services such as bike or scooter sharing**
3. **Mobility on Demand (MoD), which refers to demand responsive transport (DRT), ride hailing and ride sharing (Figure 2)**

Figure 2: Redesigning mobility business models

While this chart shows the full spectrum of mobility business models, this study focuses on New Ownership Models, Vehicle on Demand and Mobility on Demand.

Source: Accenture Research



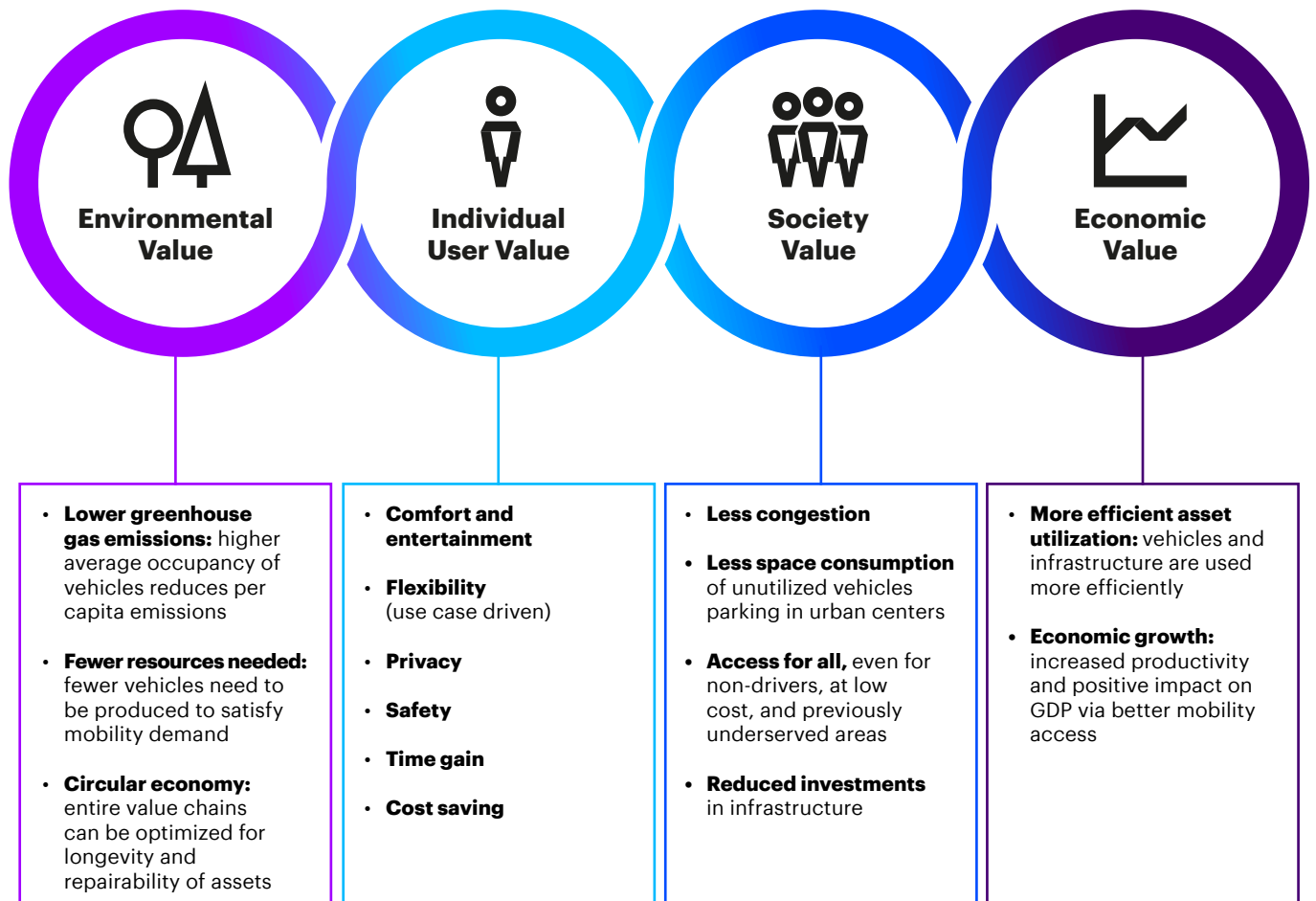
The key barrier to profitability

Mobility services are part of an ecosystem with multiple stakeholders, values and vendors, falling under the broader category of both personal service and public utility. They have emerged as a hybrid between private transport (privately-owned vehicles, for example) and public transport (trains and buses). Mobility services combine key benefits including private transport's convenience and point-to-point transportation, and public transport's higher vehicle utilization. Overall, mobility services offer an unusually strong set of advantages across individual, societal, environmental and economic dimensions (Figure 3).

Mobility services also share common requirements for success. For example, they must be highly available, easy to use, and integrated with cities' traffic and public transport systems. Existing market regulations, however, restrict opportunities to capture mobility services' full value and represent a key barrier preventing mobility's profitability.

Figure 3: Evaluating the value of mobility services across four dimensions

Source: Accenture Research



Regulators tend to treat mobility services and private transport as similar entities, ignoring the potential value these services offer society. At the same time, providers themselves hinder a profitable market. Their business models are largely designed to lock in customers and grow the user base while risking intense price-based competition. Mobility companies fail to recognize that their services more aptly resemble public utilities. What's more, mobility apps and data aren't seamlessly integrated with platforms or data sources, and business models rarely tie into city traffic and public transportation management. But these aren't the only profitability challenges. Each business model faces its own unique limitations (Figure 4).

The transportation network has prioritized private vehicle use since public transport is not very responsive. Each business model has some or other externalities which have not been factored in so far.

**Chief of Strategy and Innovation,
Seattle Department of Transportation**

Figure 4: Assessing the limitations of five mobility services business models

Source: Accenture Research

RENTAL	FREE-FLOATING CAR SHARING	PEER 2 PEER	RIDE HAILING	DEMAND RESPONSIVE TRANSPORT
<ul style="list-style-type: none"> Asset and infrastructure intensity – not fully optimizing fleet utilization Labor intensiveness Lack of automation and low degree of digitization of processes (e.g. touchpoints at the start and end of each rental) Insufficient application of technology for business intelligence 	<ul style="list-style-type: none"> Ongoing damages and rapid depreciation of vehicles High parking costs in urban areas Car utilization rate not optimally balanced (high utilization vs. high availability) 	<ul style="list-style-type: none"> Lack of awareness of this business model Lack of trust on both sides Limitation to A2A trips (vehicle must be returned at the pick-up place) 	<ul style="list-style-type: none"> Challenging driver acquisition and management and related expenses Customer acquisition and retention costs due to intense competition and to secure market share Regulation (protection of taxi industry, e.g. licenses) 	<ul style="list-style-type: none"> Driver management and expenses Shared trip ratio and occupancy rate not optimal Societal and environmental impacts of potentially substituting public (rail-based) transport

COVID-19 challenges the growth path

During the COVID-19 outbreak, mobility service providers faced additional financial pressures caused by a decrease in demand as consumers faced imminent safety and economic hardships. While restrictions may ease gradually and mobility can recover over time, the overall demand could continue to be below pre-COVID-19 levels for many months, if not years to come.

Additionally, consumers' heightened health safety concerns, changes in their economic situation and behavioral changes (acceptance of working from home, for example)—among other factors—have disrupted previous patterns of mobility choices. In the short term, demand for mobility has shifted away from modes with multiple occupants (public transport and ride hailing, for example), while some single occupancy modes (private vehicles and bikes, for example) have relatively increased. On the other hand, with a macroeconomic recession unfolding, consumers are exercising more caution before making high-investment, long-term commitments, such as purchasing private vehicles.

Rising operating expenses combined with lower revenues have left mobility providers with little leeway to operate during (and after) the COVID-19 crisis. Some mobility service providers have suspended operations and laid off or furloughed thousands of employees, while others have changed to delivery of goods in search of alternative revenues. An acceleration of market consolidation is to be expected. In fact, all ecosystem stakeholders will need to take joint action to reshape the mobility market into a new reality.

Transforming the future of mobility services

We looked at various mobility service providers' strategies and forecasted the potential development of the market beyond COVID-19. According to our research, mobility players should take the following three steps:

1. **Establish new rules for a new game**
2. **Optimize mobility across the fleet**
3. **Pivot from your core products**

Step 1: Establish new rules for a new game

A balanced market in which various services and transport modes compete fairly and collaborate efficiently is vital to building and sustaining mobility services' profitability. Such a market should accommodate services so they can capture value across all four dimensions—value to the individual, society, environment, and economy (Figure 3).

Cities and regulators also play a significant role in building a balanced market. They can enable the integration of mobility services or incentivize providers through specific regulations. Furthermore, they can directly influence some of the key cost levers of mobility services through pricing of public space (e.g. on-road parking) and infrastructure (e.g. roads or waterways). This internalization of the cost of infrastructure is already common practice for practically all other modes of transport and is



expected to be increasingly implemented in urban areas—as London and other cities have already done. But any regulation should reflect societal value and be equitable for all participants.

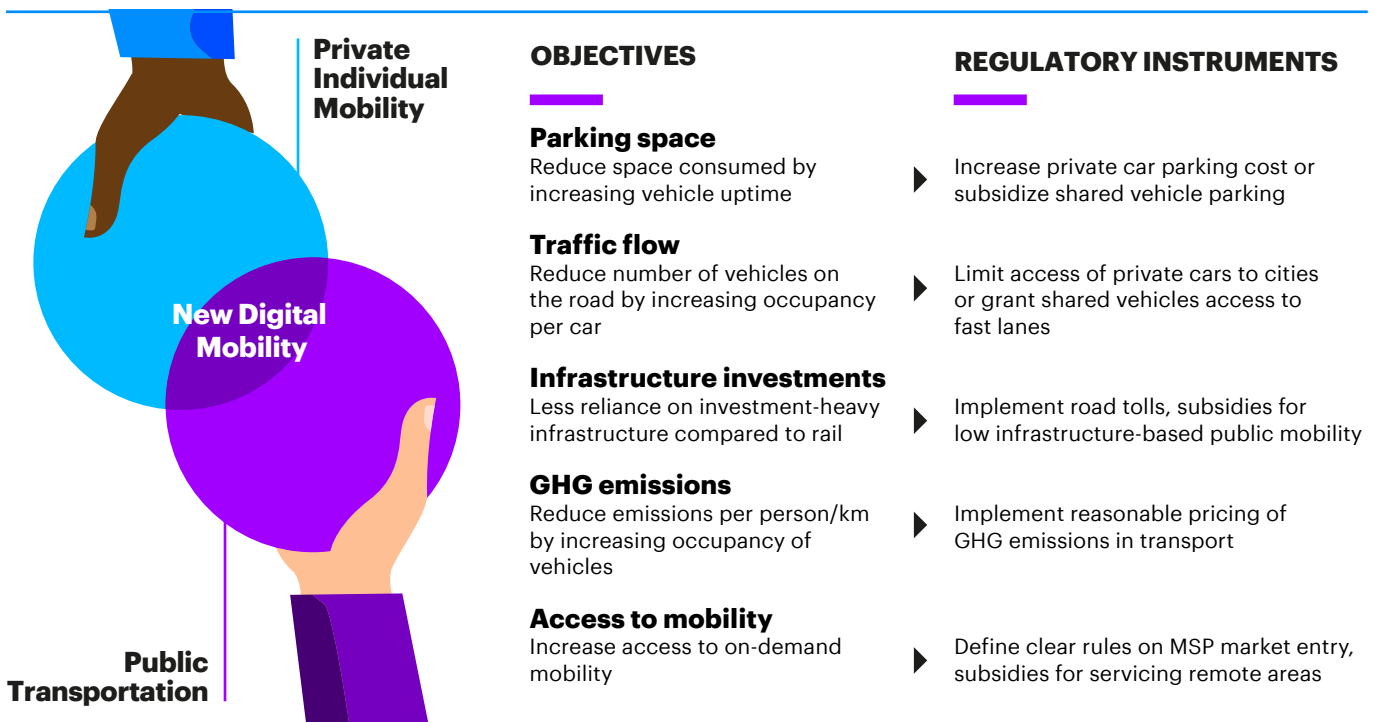
Mobility services require integrated collaboration across a wide range of stakeholders and ecosystem players. Service providers and cities must work together to build open-ended platforms and maximize the value for end users (Figure 5). They should be region- and city-specific, support different modes of transport and provide users with access to a

variety of providers. This may shift the market from its current dysfunctional state into a balanced ecosystem that benefits all.

If there has been a silver lining in mobility’s collapsing business-as-usual during COVID-19, it has been service providers’ response—demonstrating the societal value that companies can offer. For example, MOIA continued to operate a small fleet of demand-responsive shuttles during evening hours in Hamburg to compensate for reduced public transit.

Figure 5: New rules for a new game

Source: Accenture Research



Integrating shared mobility into one platform in Finland

Mobility-as-a-service has been part of the Finnish transport ministry’s strategy since 2011, and Helsinki aims to make private vehicles obsolete by 2025. The key is to shift to shared mobility and integrate all shared and public transport into one linked network that offers easy payment options through digital platforms. Click [here](#) to find out more.

Step 2: Optimize mobility across the fleet

The core of mobility’s profitability relies on uptime and efficient use of vehicles. To maximize both, service providers should pool their fleets into a single, seamless platform. Today, most mobility companies operate separate services within their fleets. By combining all fleets, mobility companies could improve their vehicles’ uptime and maximize profits. Additionally, companies can optimize fleet utilization by using artificial intelligence (AI) and

analytics. Both technologies support mobility applications such as predictive maintenance and demand forecasting.

Sharing data across an entire mobility ecosystem helps increase customer value and profitability by generating an additional source of revenue. Mobility players might pay for specific insights that the data generates, or they may charge a small fee when referring business to others within their ecosystem.

We may come to a point where individual business models might find it difficult to turn a profit; and only after combining them smartly will we be able to reach optimal volumes and profitability.

Former Head of Strategy, MOIA (Volkswagen)

Today, a rental company should invest more in technology and API-based customer matchmaking, and possibly get into free-floating car sharing rather than station-based car sharing—that’s the future of the rental business and survival tactics for growth.

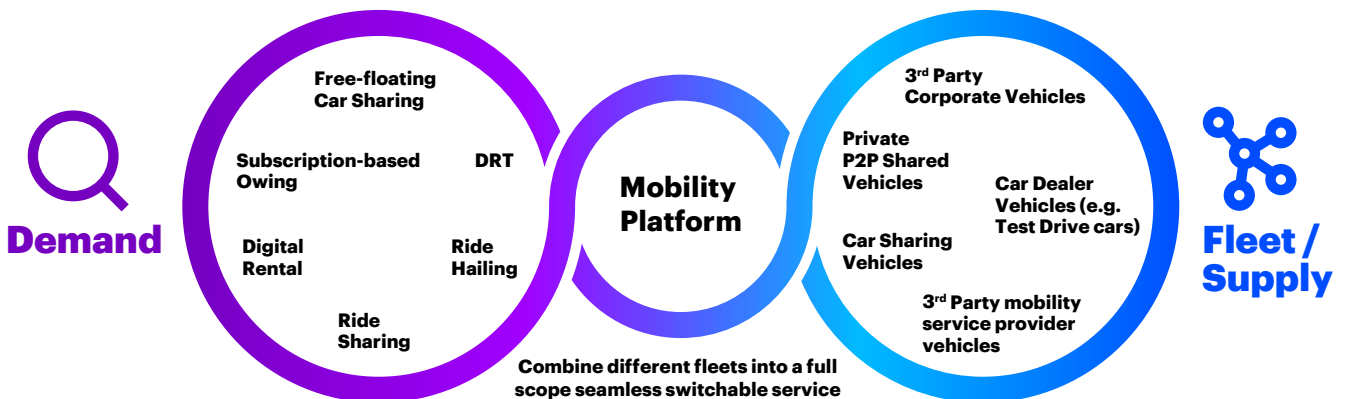
Director of Connected Car, Zipcar

Figure 6: Optimize mobility across the fleet

Source: Accenture Research

Optimize mobility across the fleet: Combine Business Models

To improve uptime of vehicles, separately operated fleets should be combined to leverage cross-service synergies

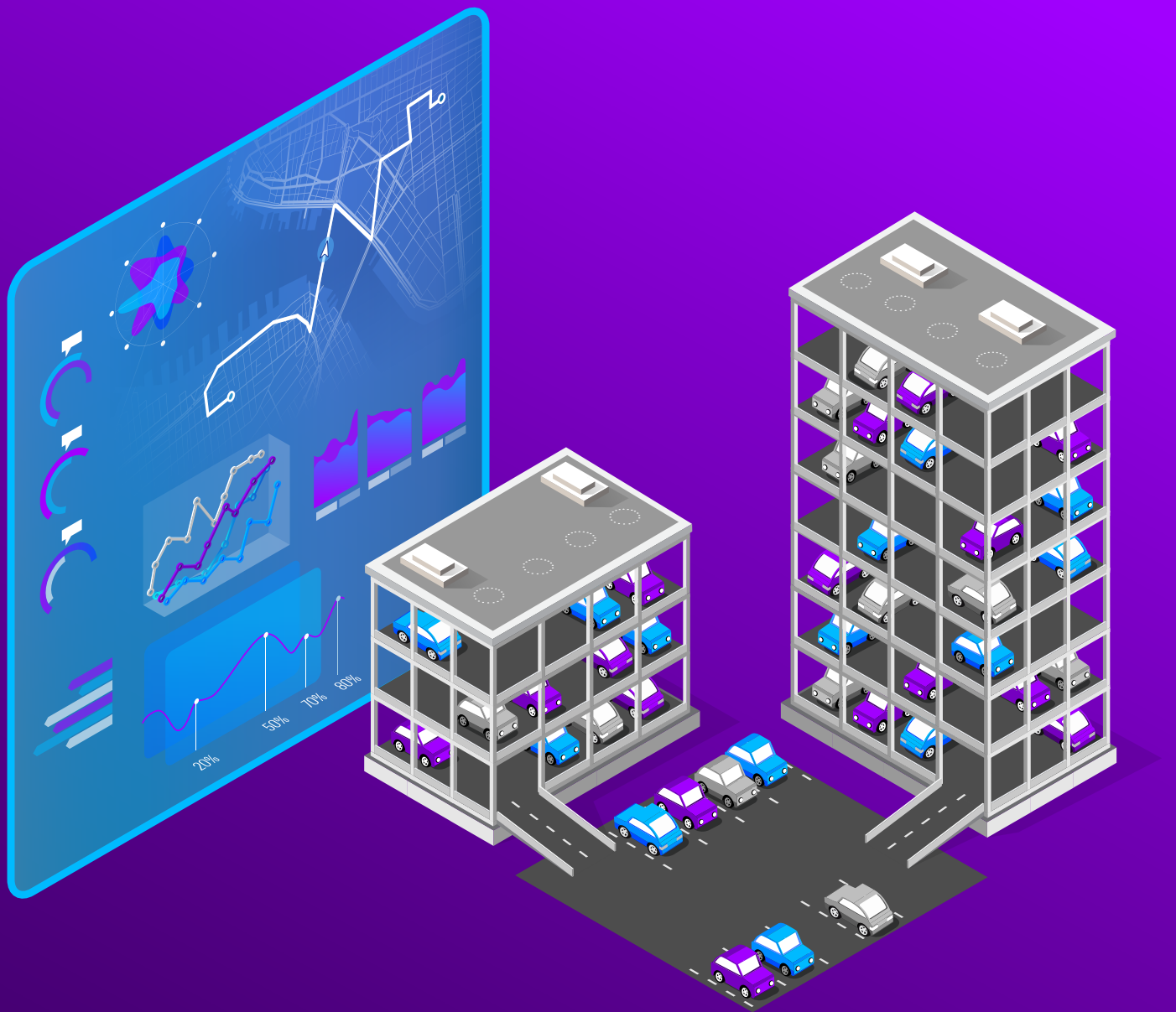


TODAY

- Most service providers operate their services separately
- Aggregation only happens at the end user access level

FUTURE

- Combine fleet supply and management to leverage cross-service synergies



Fleet optimization at SIXT

SIXT understands the importance of fleet optimization. The car rental company consolidated its vehicles into a single, cross-business model, creating an ecosystem of approximately 1,500 partners. Every service the company offers is accessible through the easy-to-use SIXT ONE Service app, which launched in February 2019. Click [here](#) to find out more.

Building an AI-based platform at Fleetonomy

Fleetonomy offers an end-to-end AI-based fleet management platform. The offering supports VoD and MoD business models using a single fleet. Powered by machine learning, advanced algorithms and AI, the platform helps OEMs and fleet operators reduce costs and optimize operations.

Lyft and DiDi Chuxing stay ahead of the curve

During COVID-19, multiple service providers began diversifying their service offerings to increase fleet uptime. For example, both Uber and Lyft (in the US) and DiDi Chuxing (in China) launched delivery services for transporting goods such as groceries, providing drivers an alternative business as demand for ride hailing plummeted. Click [here](#) and [here](#) to find out more.

Step 3: Pivot from your core product

Service providers should avoid segmenting customers along vehicle ownership and mobility usage. Instead, they may find it more effective to adapt to the changing demands and values or mindsets of customers. After all, service providers risk losing customers to competitors if they don't guide their customers along a transformational journey. Mobility players need to build close-to-ownership models that reflect existing services, while public transport providers need to focus on innovating their services.

DiDi started with a large base that utilized an existing fleet of taxis and drivers—this mass penetration strategy was a key success factor.

Product Director, Yongche

For instance, OEMs with a core car sales business can initially prioritize subscription models. They should follow this with VoD and later look to MoD models. This approach will help move customers from traditional mobility to new mobility services

and support synergies between business models. For example, bundling a car sale offer with mobility services promotes cross-selling and upselling.

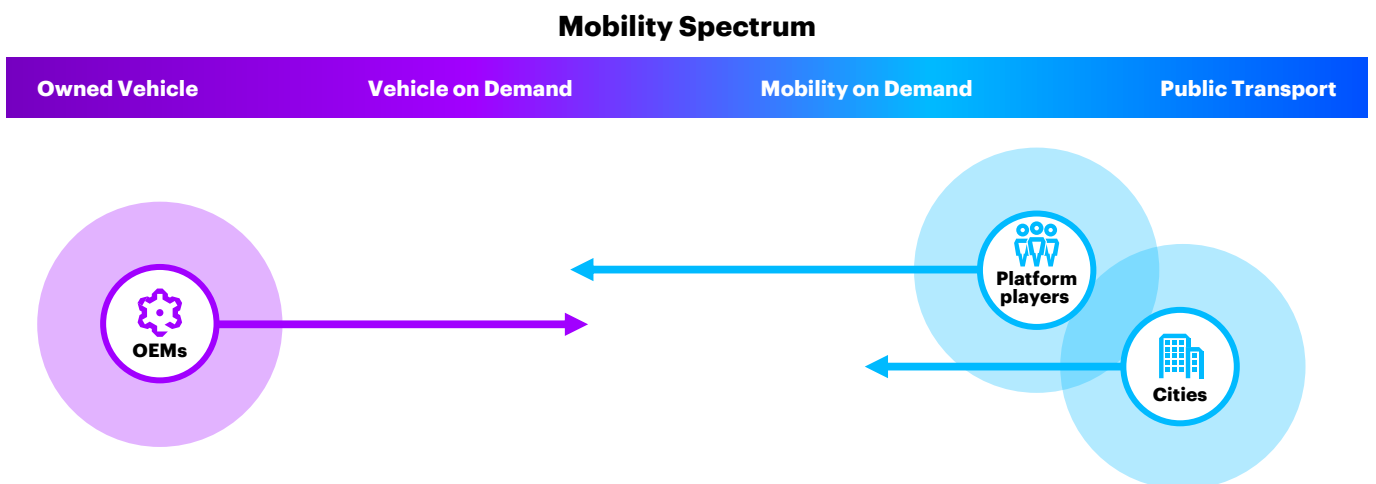
Traditionally, the business of OEMs was measured by car sales, whereas in the future, it will be measured by miles driven. This reflects the wider transformation of the mobility and automotive space.

Director of Platform, BMW i Ventures

In the short-term following COVID-19, consumer demand for subscription models may increase as new customer groups value the perceived safety of their own car—combined with the immediate availability and flexibility of committing only for a limited time and with potential financial incentives. While these subscription models have existed in some markets for a few years already, particularly the US, the COVID-19 crisis has been a turning point for the market in Germany. MINI and Toyota have launched their respective services in recent months, and more OEMs and service providers are expected to follow suit.

Figure 7: Pivot from your core products

Source: Accenture Research





Once the mobility market has reached critical mass, service providers should look to optimize every link in the value chain. They can start by applying circular economy concepts and introducing purpose-built vehicles (designed for as-a-service use cases, heavy and efficient use, and optimal investment utilization). Service providers need to view mobility as an end-to-end service and avoid applying existing processes to it.

Through this approach, OEMs can potentially decrease the lifetime costs of vehicles by up to 14 percent. Additionally, there is huge potential

to reduce repair and maintenance costs for on-demand fleets by leveraging purpose-designed vehicles. Companies can also discover new market segments and unlock higher prices by introducing these vehicles.

Public authorities and platform players should extend their core services with digitally enabled Mobility on Demand solutions. In the absence of a balanced market, public authorities are better positioned to provide MoD offerings, while platform players are primarily focused on ride hailing.

Benefiting from partner collaboration at DiDi Chuxing

In April 2018, DiDi announced a partnership with more than 30 automotive companies, including Toyota, BYD and Volkswagen Group China. The collaboration aims to develop “vehicle models for shared mobility sectors” as part of DiDi’s D-Alliance initiative (click [here](#) to find out more). The “purpose-built” vehicles will be available for car sharing via DiDi’s app.

Offering flexible route planning in Germany

SSB Flex, a collaboration between moovel and Stuttgarter Straßenbahnen AG (SSB), is seeking to reduce the number of vehicles in Stuttgart (click [here](#) to find out more). The SSB Flex platform offers flexible route planning via mobility services, including ride hailing, public transport and DRT. The city subsidizes the service, ensuring prices stay competitive for users.

Planning for the future: The 2030 market outlook on mobility services

Looking ahead, the underlying drivers of mobility services will still hold true—the need to move comfortably and safely from point A to point B, changing customer expectations that services are available on-demand, readily accessible to use rather than privately owned. Equally important is the need for more livable spaces in urban areas.

As a result of COVID-related shutdowns, many cities experienced substantial short-term improvements in traffic safety as well as noise and air pollution levels. Subsequently, many governments could adopt regulations that favor mobility services as public support for environmental protection and low-emission mobility infrastructure accelerates. Having demonstrated their power to radically change public life, regulators might be encouraged to seize this moment of newfound public support to solve the issues around congestion and air quality that many cities face.

In Germany, cities and public transport authorities could dominate the market as public transport may likely rebound as the backbone of mobility in urban areas in the mid-term. In China, the overall mobility demand could likely double by 2030, while car ownership, in contrast to most markets, will grow significantly as well. Due to low labor costs, DRT and ride hailing will continue to grow in cities, aided by additional security measures to ensure drivers' and customers' safety. In fact, ride hailing and other services may bounce back quite rapidly in China as the virus's spread was geographically contained (click [here](#) to find out more). The US, where financing privately owned vehicles is already widespread, may likely become the leading market for subscription-based ownership as more customers seek the convenience of single-occupancy mobility without the commitment of ownership (Figure 8).

Fast-track to the future of mobility services

The public and private sector will need to initiate some fundamental changes to seize the significant opportunities that mobility services offer. We have three key recommendations to unlock value: 1. Establish new rules for a new game; 2. Optimize mobility across the fleet; and 3. Pivot from your core products. These steps can help mobility providers overcome the fundamental profitability barrier and transform the mobility services market beyond the short-term effects of COVID-19. In parallel to fixing the fundamental issues, service providers can optimize mobility across the fleet and integrate new technologies, such as AI and data analytics, to help generate additional revenue streams and manage costs. And while service

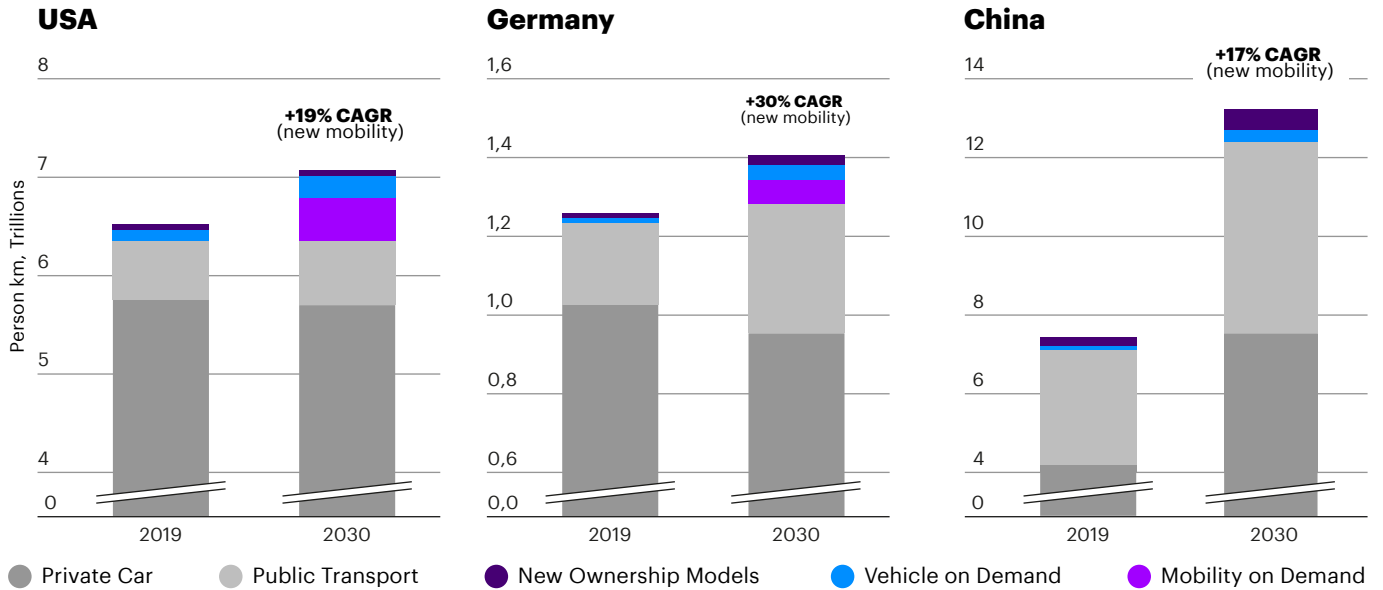


Figure 8: 2030 market outlook

Source: Accenture Research

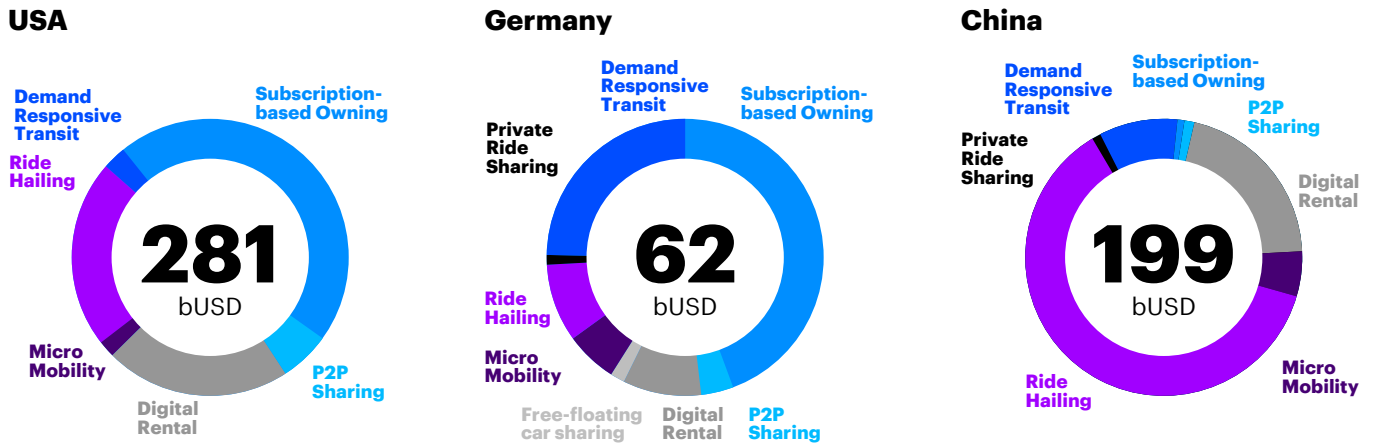
Passenger transport

Domestic passenger transport, excl. flights



Market Volume

2030



providers need to develop close-to-ownership models, public transport providers should integrate with existing and upcoming innovative services.

These joint efforts are not just essential for mobility services markets to succeed but will also lay the groundwork for building a sustainable, well-orchestrated ecosystem. After all, as many cities double down on transforming their mobility systems post-COVID, collaboration between public and private players is seen as a crucial enabler to

achieving this vision. The burning question for cities and regulators will be how to realize a holistic integration of this complex and fragmented marketplace in a cost-effective manner – a topic for further exploration in our Mobility insights series. Together, market players can usher in a new age of mobility—one that is not only profitable, but benefits citizens as well as cities, vehicle manufacturers and mobility companies alike.

About the Research

This research study was conducted across three geographies: The United States, China and Germany. We evaluated a wide range of mobility service business models, including: Mobility on Demand (MoD) models; ride hailing, ride pooling, demand responsive transit, ride sharing and Vehicle on Demand (VoD) models; rental, subscription-based owning, free-float sharing, station-based sharing and peer-to-peer sharing.

For this study, we incorporated the following four research sources and methodologies:

We interviewed 14 industry thought leaders across the mobility platforms noted above to learn about their business models dynamics, operational pain points, profitability challenges, cost structures and the outlook for market volume/value development. The companies included BMW Mobility Services and i Ventures, VW MOIA, Byton, Zipcar, Fleetonomy, ShareNow, Getaround, Yongche, DiDi Chuxing Technology Co., the Seattle Department of Transportation, Turo, Clevershuttle and Gett.

We developed a quantitative market model that measures the historical development of revenue pools for all the mobility business models in scope and forecasts their future potential in the transportation system in a scenario-based trend analysis. For the historical market value estimation, we considered the quantity of vehicles, users, trips and the market share of main players, as well as the revenue per vehicle, price per trip, price per mile/kilometer and revenues of main players.

For the future potential scenarios, we forecast the total mobility demand based on GDP, household expenditure and share of transportation expenditure outlook. We clustered different mobility services into groups and identified key drivers impacting the competition/evolution between them. We established three scenarios on how new business models could displace traditional mobility modes in the total mobility system, based on trend analysis.

Lastly, we looked deeply into new mobility value chains and associated profitability enhancement levers. We carried out detailed diagnostics to identify efficient mobility business models, establish an end-to-end value chain, and the associated cost structures and revenue enhancement levers.

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