



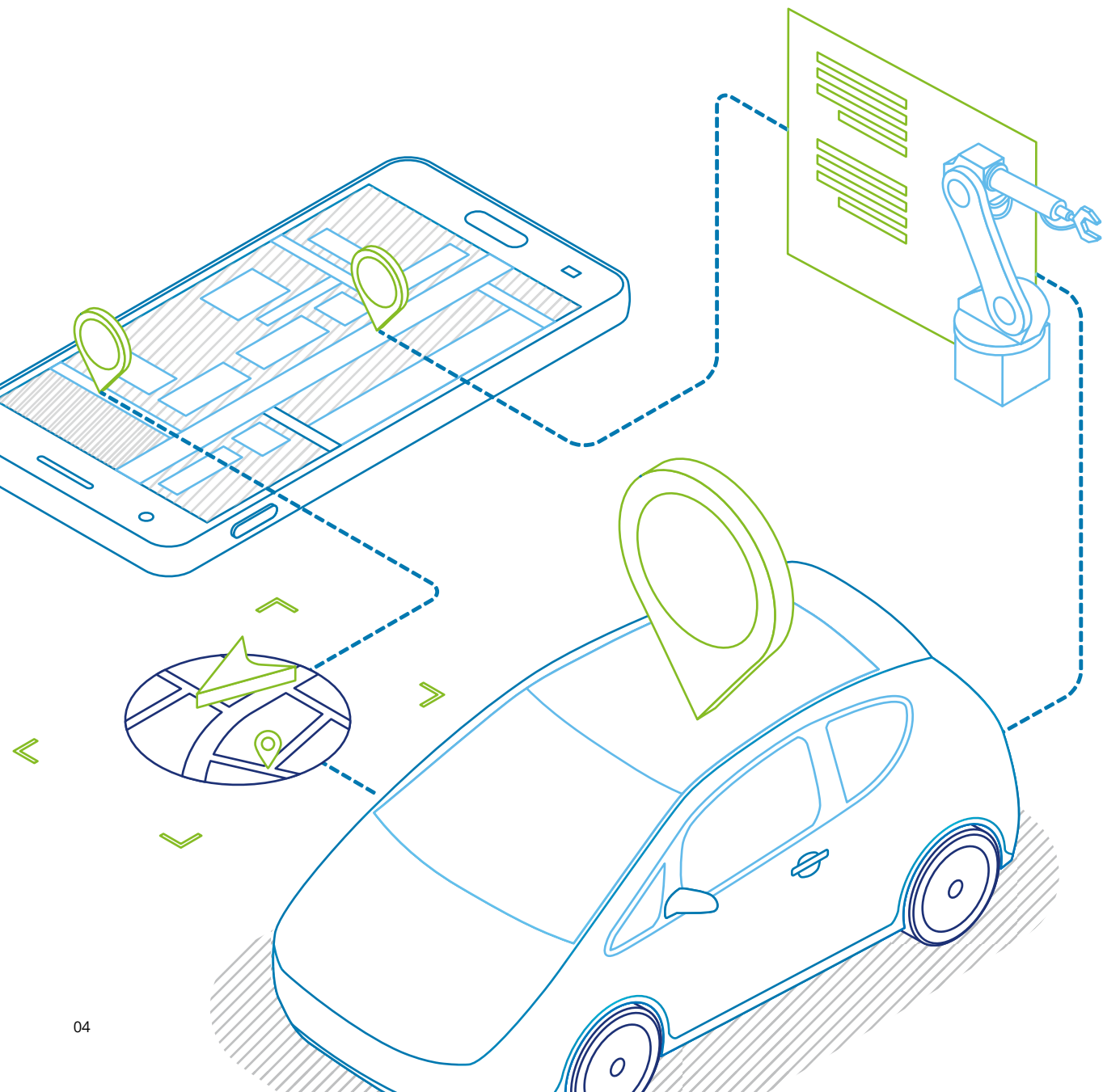
The future of automotive
mobility to 2035

What might mobility
providers' role be in
tomorrow's value chain?

1. Introduction	04
2. The long and winding road ahead	08
3. The evolution of automotive mobility	10
4. Expected shifts in the United States and Europe	14
5. Future profit-pool simulation based on proxy mobility provider	36
6. New operating model capability requirements	43
7. Key takeaways	48
8. Conclusion	51
Contacts	52
Contributors and Acknowledgments	53
Endnotes	54

1. Introduction

For automotive mobility providers, the business landscape could already feel like it is rapidly shifting. Buckle up—things may be about to get more uncertain. In fact, our research suggests that revolutionary thinking will be needed to help ensure future success.



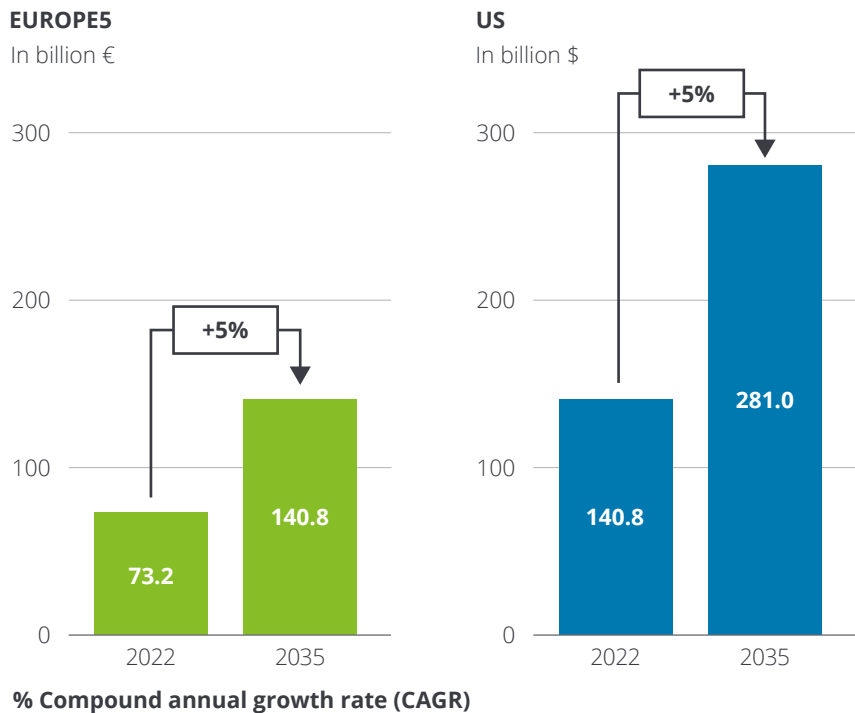
As Figure 1 demonstrates, despite seismic shifts on the near horizon, the size of the automotive mobility market in the US and "EUROPE5" region is projected to nearly double by 2035.

Change is coming, whether mobility providers are ready or not and there is an enormous opportunity for well-positioned players. In fact, what they do next could determine their success or failure for many years to come.

In a world with rapidly changing consumer preferences, widening inequality, rising polarization, pressing climate change, declining trust, and an evolving geopolitical order, the automotive industry's focus has largely centered on technology, which has driven the conversation about the evolving mobility ecosystem.¹ But as the future comes into focus, with some innovations becoming reality² and others seemingly even further away,³ mobility providers should consider focusing on value.⁴

Indeed, the auto mobility value chain is increasingly important for providers—from captive and non-captive leasing companiesⁱⁱⁱ to rental companies and fleet management companies—the industry is constantly adjusting to disruption—which could become even more pronounced in the future.

Fig. 1 – Automotive mobility market size between 2022 and 2035



Source: Deloitte Global Automotive Mobility Market Simulation Tool.

“The overall size of the automotive mobility market in the EUROPE5ⁱ countries and the United States is projected to increase to €141 billion (\$153 billion)ⁱⁱ and \$281 billion (€258 billion), respectively, by 2035, with a compound annual growth rate (CAGR) of 5% from 2022.”

Deloitte Global Automotive Mobility Market Simulation Tool

ⁱ The EUROPE5 region is comprised of France, Germany, Italy, Spain, and the United Kingdom. ⁱⁱ Reflects exchange rate as of January 27, 2023 (USD1 = EUR0.92). ⁱⁱⁱ For simplicity's sake, we refer to these both as "captives" in this paper.



Underlying perspectives on the player landscape

“50%–60% of future profits^{iv} may be at stake if mobility providers continue their business as usual.”

Deloitte Global Automotive Mobility Market Simulation Tool

Incumbents

Captives

This group represents the financial arms of original equipment manufacturers (OEMs), the core business of which is historically centered on asset and dealer financing as well as usage- and vehicle-related services. For this report, we also use this term in some instances to broadly refer to other types of financial institution, such as banks and other lenders.

Fleet management companies

These companies focus on managing large vehicle groups for customers, including financing/leasing, usage- and vehicle-related services, and re-marketing of vehicles at the end-of-life cycles. For this report, we also define this term to broadly refer to other types of fleet managers like leasing companies.

Rental companies

This group maintains a strong footprint in classic rental products but has expanded into adjacent business sectors, including financing/leasing, fleet management, and mobility-on-demand.

Challengers

The automotive mobility landscape is being increasingly influenced by new players like mobility startups, fintechs, and challengers from other industries, such as the hi-tech sector.⁵

Each player may identify and focus on the largest profit pools that make the most sense for its business, which might not be the most obvious solutions. For example, when mapping out the future of automotive mobility, pundits and analysts tend to overlook certain players in the industry.⁶

Traditionally, many automotive mobility providers have preferred to take a back seat.⁷ This may be an important and growing risk for them—and indeed many stakeholders—going forward. With change accelerating, automotive mobility providers could face increasing pressure to accelerate their growth strategies, and to make strategic decisions on where to play in the automotive value chain.

To help cut through the fog of rapid change, this report explores the mobility value chain and the shifts in profit pools anticipated over the coming decade. We focus our efforts on the United States and the EUROPE5 region as two of the largest automotive markets in the world. In the face of generational transformation, automotive leaders in both markets may consider identifying and embracing fundamental change to meet new and shifting business challenges, such as the electrification of global mobility and an ongoing move to online sales. Such strategic imperatives could push industry players to develop both a sustainability play and new skill sets, as well as technologies

focused on a digital-first, customer-centric approach to business operations that, in turn, can help create new data-driven revenue streams.

To be blunt, the price for inaction by industry players could be fatal, especially in an industry on the move in so many directions. Forecasts and business models are already seeing the impact of the shifts happening across the mobility landscape,⁸ from increased connectivity and new online sales channels to regulatory changes and the rise of electric vehicles (EVs). But leaders looking to keep pace with competitors could use greater clarity for the miles to come.

^{iv} This calculation is based on EUROPE5 and US proxy mobility providers and the application of the following assumptions to the 2035 financial model: (1) a constant asset control curve of overall fleet, (2) a similar take rate for in-life services, (3) the same margin expectations for all products, and (4) a slight decrease in market share due to an increasingly competitive environment.



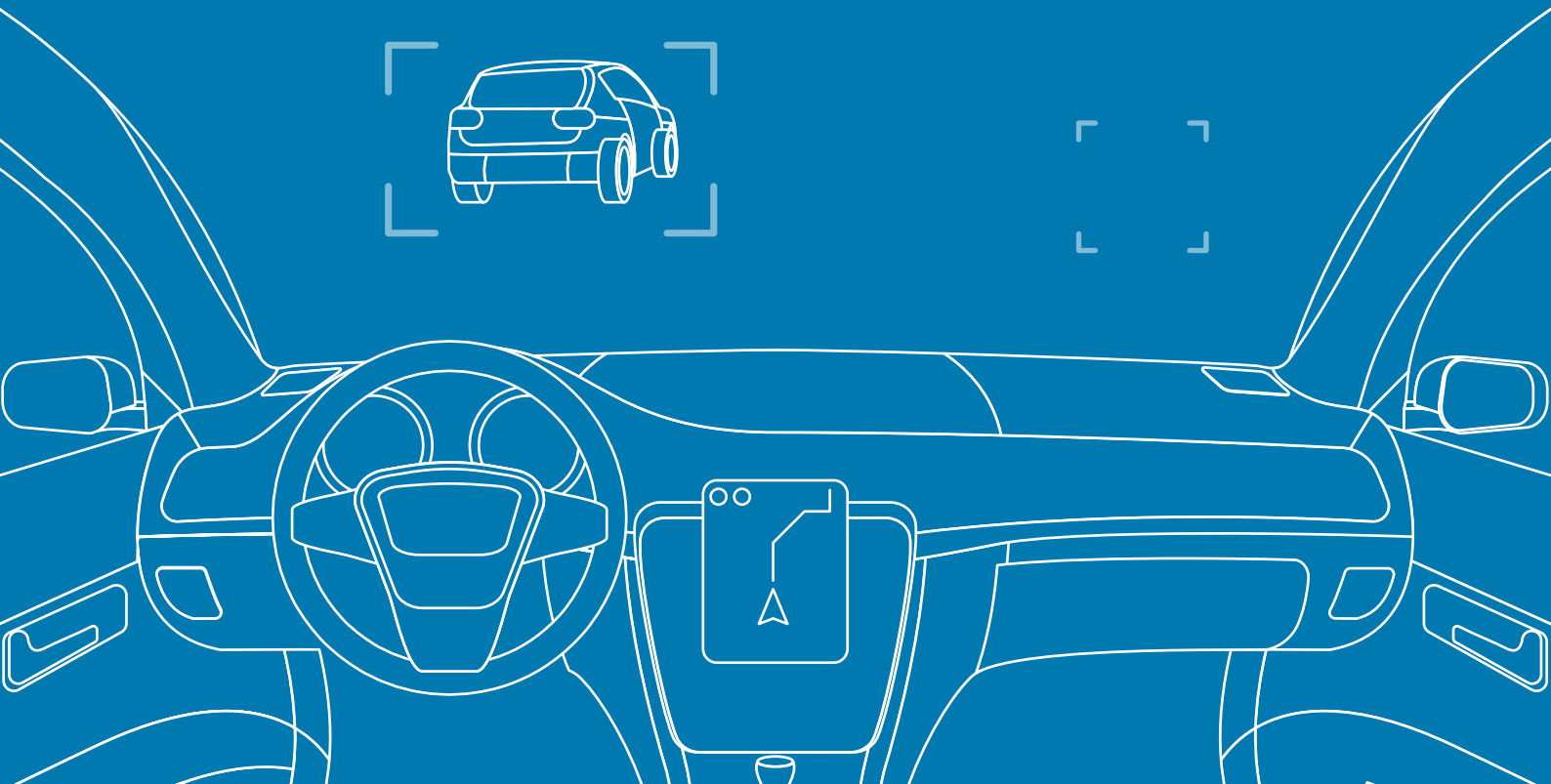
About the study

The study is based on three key components that provided quantitative as well as qualitative information:

Customer survey – In the fall of 2022, we surveyed more than 9,500 consumers across nine countries, including France, Germany, Italy, Spain, the United Kingdom, and the United States. Respondents were invited to complete an online questionnaire translated into local languages where appropriate.

Executive sessions and interviews – We conducted nearly two dozen interviews and several full-day sessions with C-suite executives representing the industry stakeholders in scope (captives, rental companies, and fleet managers). We organized interviews to follow the survey questionnaire to help ensure structure while providing a forum for more in-depth conversations. The workshops and interviews took place in-person and virtually between August and November 2022.

Profit pool simulation tool – To add quantifiable context to current and future industry actions, we developed a new, standalone profit pool simulation tool. It incorporates proprietary and public databases, decades of industry project experience, predictions and assumptions based on executive-level thinking to help ensure precision in modeling the automotive mobility sector in the year 2035. The simulation tool also incorporates the findings from the executive interviews and customer survey to inform the financial modeling.



2. The long and winding road ahead

The COVID-19 pandemic shook up the globally integrated automotive sector, with aftershocks reverberating after governments ended lockdowns.

Geopolitical unrest, supply chain disruptions, soaring energy costs, trade conflicts, semiconductor shortages, and elevated new and used-car prices continue to rock the industry. Traditional automakers may struggle to keep up with rapidly evolving consumer expectations and the substantial investment required to fuel digital technology innovation. Governments around the world are implementing regulatory changes targeting carbon-free mobility in the next 20 years with some imposing an outright ban on the sale of internal combustion engine (ICE) vehicles by the middle of the next decade. At the same time, many new entrants are emerging to capitalize on the global shift to EVs. While the industry has always seen change, the scale and pace of today's disruptions are unprecedented.⁹

This means that even the most stable of industry stakeholders—think of finance providers, with the same sales-based model for decades—have had to rethink business processes and models, seeking value in places long unexamined or even taken for granted. Companies across industries and sectors have shifted from one-time product sales to offering continuous, value-add services,¹⁰ and mobility providers may be moving in that direction as well. Even though captives already contribute a significant sum to overall profitability,¹¹ some OEMs surveyed increasingly expect

their subsidiaries to play an even larger role going forward. This includes OEM expectations that subsidiaries may help offset some of the substantial costs of decarbonization. Such cost-sharing efforts can more effectively exploit profit pools along the asset life cycle and could help determine long-term success—or simply survival.

OEMs surveyed also expect technology to become even more of a differentiator, with software-enabled solutions aimed at enhancing the mobility experience. Indeed, digital innovation could likely be at the center of many emerging profit pools, as companies transition from the traditional paradigm of selling discrete assets to consumers to selling ongoing management of assets across multiple life cycles. Connected services—from telematics and data analytics to infotainment and vehicle feature subscriptions—are expected to unlock a variety of new revenue streams.

To effectively tap into these resources, leaders at automotive lenders and other mobility providers could face some tough decisions. First, they need to decide how to best invest in skills and innovation to retool for the future. They also need to envision the changes necessary to secure their place as pivotal stakeholders in tomorrow's value chain. And for this to succeed, it may be helpful for them to develop a sharp

vision of the industry's overall future. At the same time, the development of any new or expanded business model needs to be built on a solid foundation characterized by an efficient operating model with core elements including lean processes, a high degree of automation, and a customer-centric approach.

That is where our new research comes in. We initially set out to address some of the top-of-mind concerns for industry leaders today and further down the road. But along the way, we decided to move beyond presenting yet another qualitative point of view. Instead, we chose to seek out deep market insights from nearly two dozen C-suite executives. Hearing directly from the decision makers who are currently making the strategic choices that shape the future of automotive mobility provided an unprecedented view of the industry. But our research did not end there. We took these lessons and developed a consumer survey and a financial model. We combined these insights to identify and analyze the key points that may help impact future decision making.

The resulting executive insights paint a compelling picture of what tomorrow's mobility ecosystem could look like—and how industry players might thrive in that ecosystem. In the pages that follow, we

explore our research findings and share data-driven insights and C-suite thinking about the shifting paradigm of automotive mobility. The year 2035 will be here sooner than we think.



Sebastian Pfeifle
Partner
Global Automotive Mobility Lead
Deloitte Consulting



Jeff Paul
Managing Director
US Auto Captive Finance Leader
Deloitte Services LP



The future of captives

In 2018, we sought to answer an important question: Are captive finance companies on track for the future? The paper laid out forecasts for the years leading up to 2030,¹² based on disruptive forces—including customer preferences shifting from vehicle ownership to usage—beginning to challenge the future viability of captives' core business. Finance companies had long played a significant role in OEMs' success based on the established dealer-network model, offering profit contribution, risk management, and sales support and customer management—and that seemed about to change.

We foresaw a shifting center of gravity, with business volumes relocating from traditional Western markets to China and the rest of the world, presenting captives with new customer segments and a new competitive environment. We looked for a shift from indirect to direct sales, making dealer networks less significant and necessitating the development of new digital sales channels based on direct customer interactions. We foresaw an evolution of captives' product and service portfolios, with more flexible

leasing offerings and fewer credit and wholesale business sales. And we predicted a sharp rise in the importance of customer-centricity, with innovative offerings, new sales channels, and increasing customer interactions.

This was to happen by 2030—but many shifts have accelerated as the underlying circumstances have changed. In fact, many predictions for “the future” are already here today (e.g., vehicle subscriptions, long-term rentals), and the transformation of automotive mobility happened faster than anyone could anticipate. The last few years have been so eventful—from pandemic-driven supply-chain crises to the rise in micro-mobility¹³ and EV adoption—that we elected to revisit and expand our initial forecasts from captives to a wider view of automotive mobility providers today.



3. The evolution of automotive mobility

The evolution of automotive mobility is expected to continue to accelerate and be influenced by many factors. To capture these important effects, we developed an extensive automotive mobility value chain model that is structured along the asset and customer life cycle.

The value chain offers an opportunity to help the automotive industry reflect on how profit pools are mapped out today and could develop in the future. This core concept serves as the pillar for our strategic thinking right now and a glimpse at one potential future.

The value chain's representation serves as much more than an illustration of a traditional academic methodology. With its inherent view on profit pools and multiple life cycles, it could provide a vantage point to the automotive mobility business. Through this lens, a paradigm shift may become evident. And we believe that industry players could consider embracing this change and internalize this new thinking to help secure their future seat at the mobility table.

“The mobility provider of the future should expect to remake itself in the image of a fintech, insurtech, and a mobitech that extends far beyond any legacy baggage of the business.”

Global automotive mobility executive

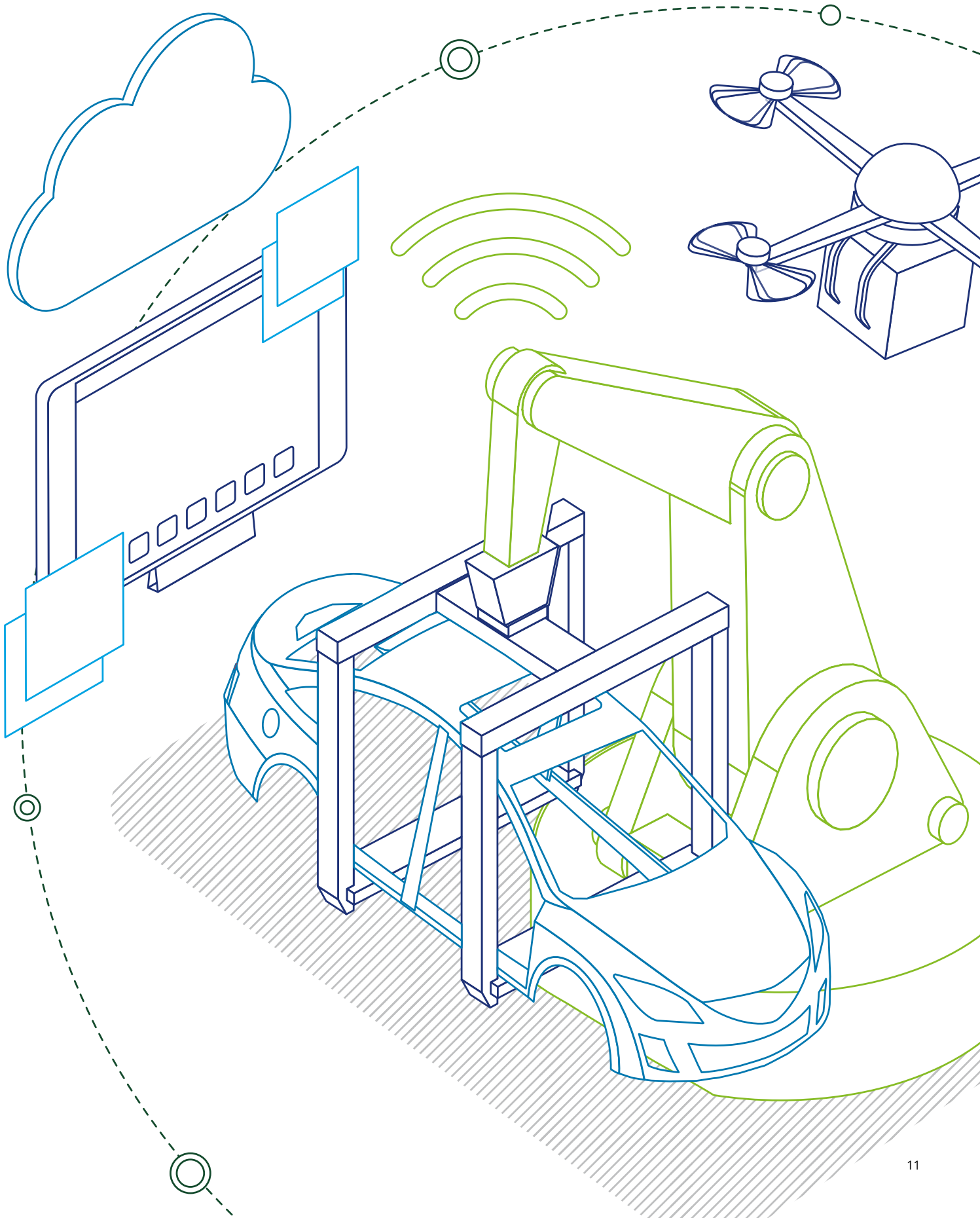
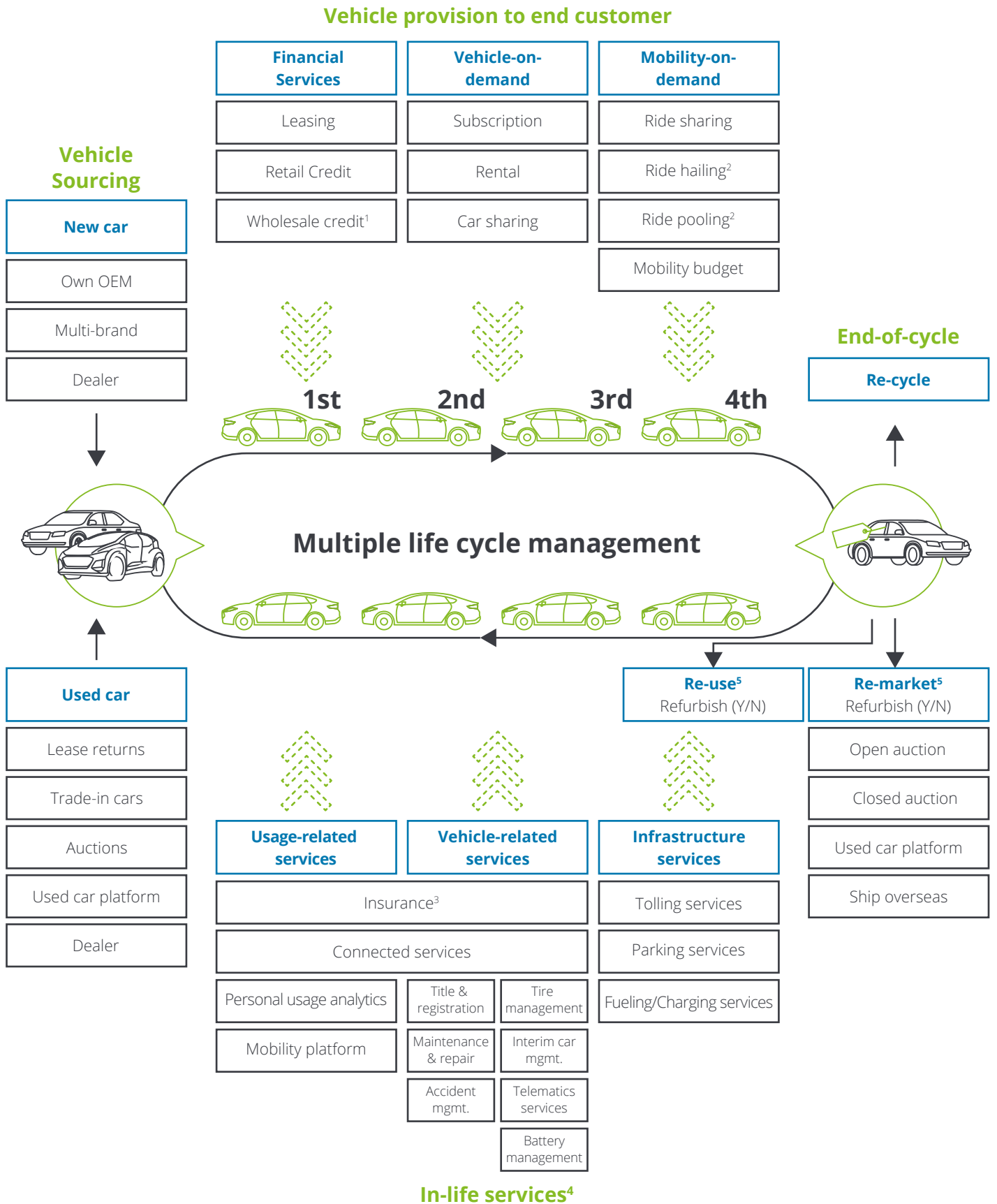


Fig. 2 – Future automotive mobility value chain



¹ Wholesale (dealer) credit contracts for floorplan financing. ² Ride hailing and ride pooling can be operated manually and autonomously. ³ Incl. insurance innovation for vehicle (e.g. pay-when-you-drive) & driver (e.g. pay-how-you-drive). ⁴ Fleet management services are allocated among categories of in-life services. ⁵ Re-market and Re-use can be conducted with or without prior re-furbishing. Source: Deloitte analysis of automotive industry data.

To account for the importance of the automotive mobility value chain of the future and to make it as tangible as possible, we mapped out the core rationale for each component.

Vehicle sourcing

Taking a life cycle view, "vehicle sourcing" is one of many elements that help determine profit potential down the road. First, vehicles enter the mobility provider ecosystem through various channels that should be carefully controlled to help ensure the quantity and quality of supply.

New car – An important means to source vehicles from the market. As a captive, its own OEM is a dominant source. Fleet and rental companies generally are not bound to a single OEM and can therefore leverage different options to enrich their multi-brand fleet.

Used car – Used cars as a vehicle source are expected to become more relevant as they fit the requirements for new forms of mobility in which the car itself is the commodity and the service becomes the differentiating factor.

Vehicle provision to end customers

Once vehicles are in the system, customers can access mobility in many ways based on their specific needs and preferences. Such access has increased significantly in recent years, and we believe this trend will continue, encouraging the development of new business models, such as car sharing and vehicle subscriptions.

Financial services – This is the traditional portfolio of a captive with the heritage of being the sales financing arm of an OEM. It includes financing products like leasing and retail/wholesale credit.

Vehicle-on-demand (VoD) – VoD addresses more flexible short- to mid-term products in the portfolio with the asset at the center. This is where the transition from ownership-based products in financial services to usage-based products like subscription^v or rental occurs.

Mobility-on-demand (MoD) – Contrary to VoD, MoD is centered around the service where customers have no sense of ownership at all. There are a significant number of transactions/customer interactions, which have both a low monetary value and duration (minutes to hours).

In-life services

Under this new paradigm, consumers select an appropriate means of mobility and are offered various downstream services. These are often small but may create frequent digital interactions.

Usage-based services – Offer solutions to the user while driving in either a commercial context to monitor and optimize efficiency or in private context for mostly entertainment.

Vehicle-based services – Cover services related to managing and maintaining the vehicle throughout its lifetime to help ensure constant availability and maintenance.

Infrastructure services – Any service that offers convenient solutions in the surrounding environment to users during the drive, and covers services like parking, charging/fueling, and tolling.

End-of-cycle services (the "4 R's")

At the end of the cycle, special attention is paid to whether assets are redeployed into the system or monetized through an end-of-life process. This could present a completely new business model that may be especially important considering the transition to EVs.

1. Re-use is the prerequisite for using one asset over several cycles. When this element of the value chain is implemented, vehicles can flow back into "vehicle provision to end customer" and into the same or different use case.

2. Re-furbish – If a vehicle goes into "re-use" or "re-market," players should prepare the vehicles (clean, repair damages, etc.) for the next cycle/use case or to sell them off.

3. Re-market – In general, this means that the asset is leaving the system and is sold to a third party (dealer, via auctions, etc.). The challenge may be to determine the right point at which an asset should leave the system, which contributes to the overall profit.

4. Re-cycle – Instead of selling the car to third parties like in "re-marketing," the resources/materials that the car is made of become the commodity. This process may gain importance, considering the circular economy and sustainability—especially when we think of EVs and batteries.

The march toward 2035 offers automotive mobility providers the opportunity to develop capabilities to take advantage of diverse profit pools along the value chain. It may therefore help form the foundation for widespread and sustainable mobility transformation. However, this new perspective on the value chain could require mobility providers to define their playing field and then adopt it. This might be easier said than done as automotive finance and mobility services companies should not only manage internal transformation but also continue to address macro shifts, such as pandemics, environmental regulations, long-term urban trends, and demographic shifts.

^vSubscription is to be understood as a product that covers the use cases between short-term rental and leasing.

4. Expected shifts in the United States and Europe

As the automotive mobility sector plans its journey to 2035, a direct path forward may be unlikely, with unforeseen detours and disruptors requiring re-routing along the way. To gauge how the sector could advance, it is important to anticipate the key trends that we believe may shape the future of automotive mobility in the United States and the EUROPE5 region.

We have chosen to focus on those markets initially because they are among the largest, most differentiated global markets for automotive mobility. However, we designed our financial model to facilitate the addition of other global markets in the future.

Extensive research conducted on US and EUROPE5 markets has led to the conclusion there are 11 key shifts that are critical for mobility providers to consider when deciding where to play and how to win on the road to 2035.

Fig. 3 – Macro trends impacting the global automotive sector to 2035

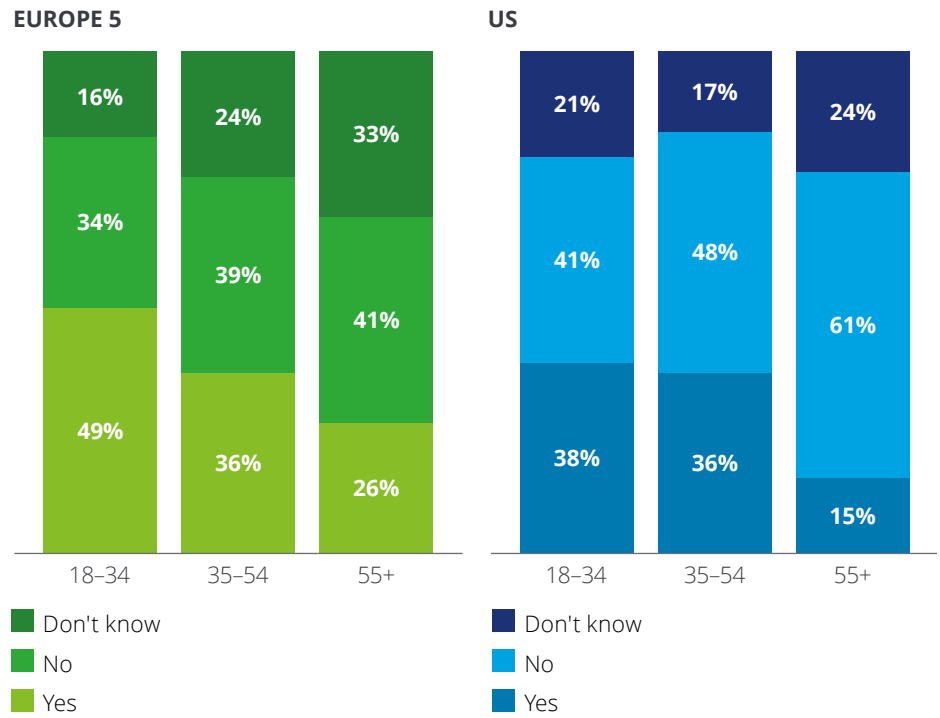


4.1 Social impacts

Automotive industry stakeholders may need to carefully consider some of the long-term societal trends that will likely have a significant impact on the evolution of mobility. For example, it is projected that by 2070, 30% of the world's population will be at least 65 years old compared to 20% in 2019.¹⁴ The world's population is also becoming increasingly urbanized as nearly seven in 10 people will likely live in cities by the middle of the century.¹⁵

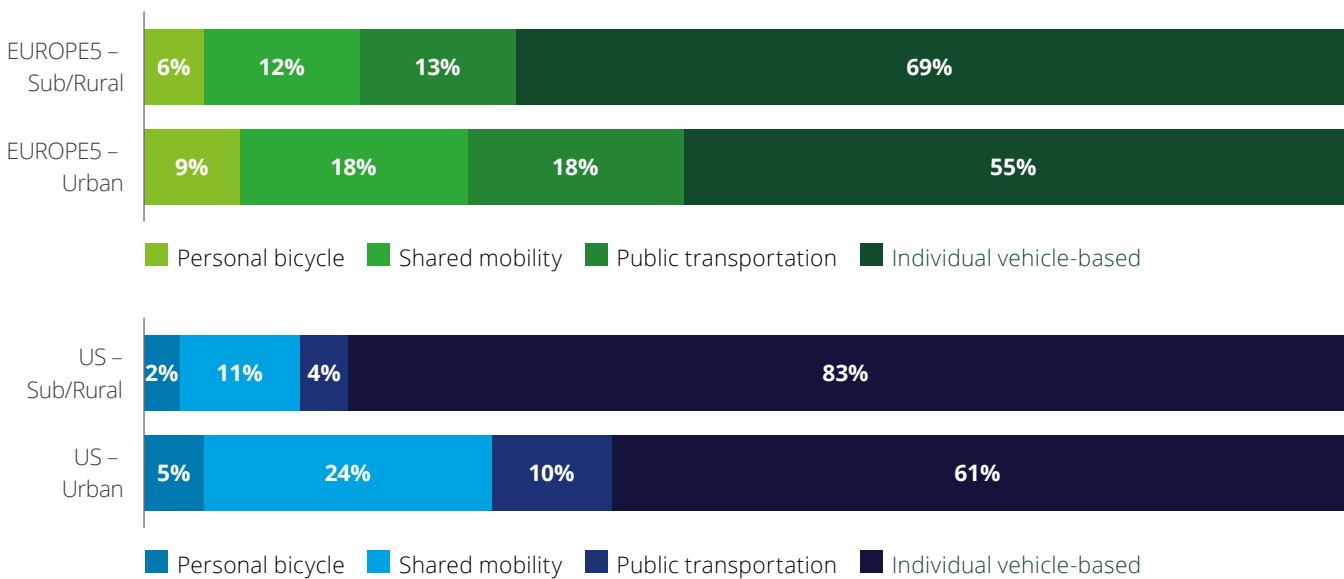
Although the aging global population has been dependent on privately owned vehicles for many decades,¹⁶ the advent of shared transportation modes offers urban, cost-conscious consumers a more affordable alternative to satisfy their mobility needs. In fact, our research shows that nearly half of 18-34-year-olds in the EUROPE5 region question whether they need to own a vehicle going forward because of their experience with shared transportation (compared to 38% in the United States).

Fig. 4 - Percentage of consumers by age group who question whether they need to own a vehicle because of their use of shared transportation options



Source: Deloitte Future of Automotive Mobility to 2035 consumer survey.

Fig. 5 - Mobility use in urban and rural areas (EUROPE5 vs. US)



Note: Shared mobility includes taxi/ride-hail, car share, shared e-scooter, shared bicycle, and others.
Source: Deloitte Future of Automotive Mobility to 2035 consumer survey.

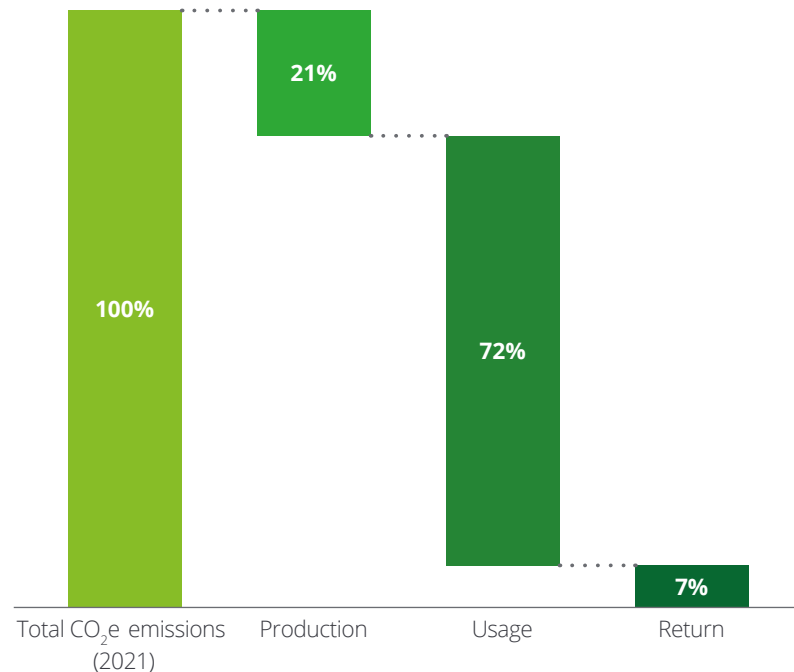
Although the potential for shared transportation looks promising, especially among younger consumers, private vehicles will likely continue to play a central role as a transportation mode, particularly in sub-urban and rural areas. However, given the overall trend toward urbanization, the potential for shared transportation is expected to continue to grow. It also could benefit from increased investment in shared transportation systems and the increasing frequency of municipal initiatives aimed at limiting the use of privately owned vehicles in urban areas (e.g., outright bans, congestion pricing for tolls, price increases for public parking, etc.).¹⁷ With this in mind, mobility providers looking to 2035 and beyond could consider tailoring their products and services to align with the evolving mobility requirements resulting from these socio-demographic developments.

4.2 Ecological impacts

As climate change accelerates,¹⁸ auto industry efforts to help reduce carbon emissions and apply a more sustainable approach to how resources can be utilized throughout the life cycle of a vehicle have grown substantially. However, mobility providers may need to take even sharper measures to reduce their corporate carbon footprint (CCF), because the majority of carbon dioxide equivalent (CO₂e) emissions for ICE vehicles are produced while the vehicle is in use.¹⁹

This directly relates to the mobility providers' future core business of usage-based products (e.g., leasing, subscription, rentals, etc.). Offsetting emissions could become more costly with rising CO₂ prices and increasing requirements regarding decarbonization (e.g., net-zero targets). Tightening environmental regulations and growing environmental, social, and governance (ESG) reporting requirements may also lead to risks around refinancing and access to—and costs of—capital for the growing balance sheets of mobility providers. This often stems from high carbon footprints with insufficient decarbonization efforts or penalties from regulators (see sidebar).

Fig. 6 – Share of CO₂e emissions by ICE vehicle use



Source: Deloitte analysis of industry data.

“74% of surveyed consumers in the US and 76% in the EUROPE5 region regard a well-articulated plan for battery recycling and re-use as an important factor in their choice of EV brand.”

Deloitte Future of Automotive Mobility to 2035 consumer survey



Refinancing costs (EU)

If we narrow down the value chain and focus on automotive mobility providers, sustainability becomes the center of a fundamental strategic realignment from ICE to EV. Two aspects stand out: regulatory requirements and capital sourcing.

First, EU regulation sets specific CO₂ standards for new passenger cars, which will align with the 1.5 C goal (2015 -> 130g CO₂/km²⁰, 2020 -> 95g CO₂/km and 2030 > ≈59g CO₂/km)^x. For its part, Germany set a 15 million-target on EVs by 2030. Automotive mobility providers face large fines for noncompliance with either of these regulatory requirements.²¹

Second, in capital sourcing, two points should be clarified: Investors and lenders are governed by their own stringent requirements with ambitious self-regulated capital requirements. This can help avoid potentially negative effects on their own portfolios and can help reduce climate-related risks to automotive mobility providers' business models. "Deloitte analysis of industry data found that incorporating sustainability into the business model corresponds to a significant interest rate advantage in the procurement of debt capital (5–60 basis points for sustainability linked loans originated in

2021). Additionally, smaller companies are often penalized by capital markets for not providing sufficient carbon data for the Carbon Disclosure Project (Transparency Refuser). However, many large companies do not seem to be affected so far, as their carbon data is publicly available and already factored into reporting.

The transition from ICE to EV drivetrains is poised to accelerate with the introduction of wider EV model ranges, improved battery performance, and a denser charging infrastructure. Although the pace of change might be different between the EU and US markets, mobility providers operating in these regions will likely need to manage the growing EV share and mix of drivetrains in their fleets.

Consumers surveyed are more conscious about the sustainability implications of their consumption behavior, indicated by their choice of vehicle based on the operations of the mobility provider and the environmental credentials of vehicle manufacturers. Having said that, the path to net-zero may be gradual, and despite the expectations that EVs will claim an increasing share of vehicles on the road, a sizable number of vehicles will likely still run internal combustion engines well into the 2030s and beyond.²²

4.3 Regulatory impacts

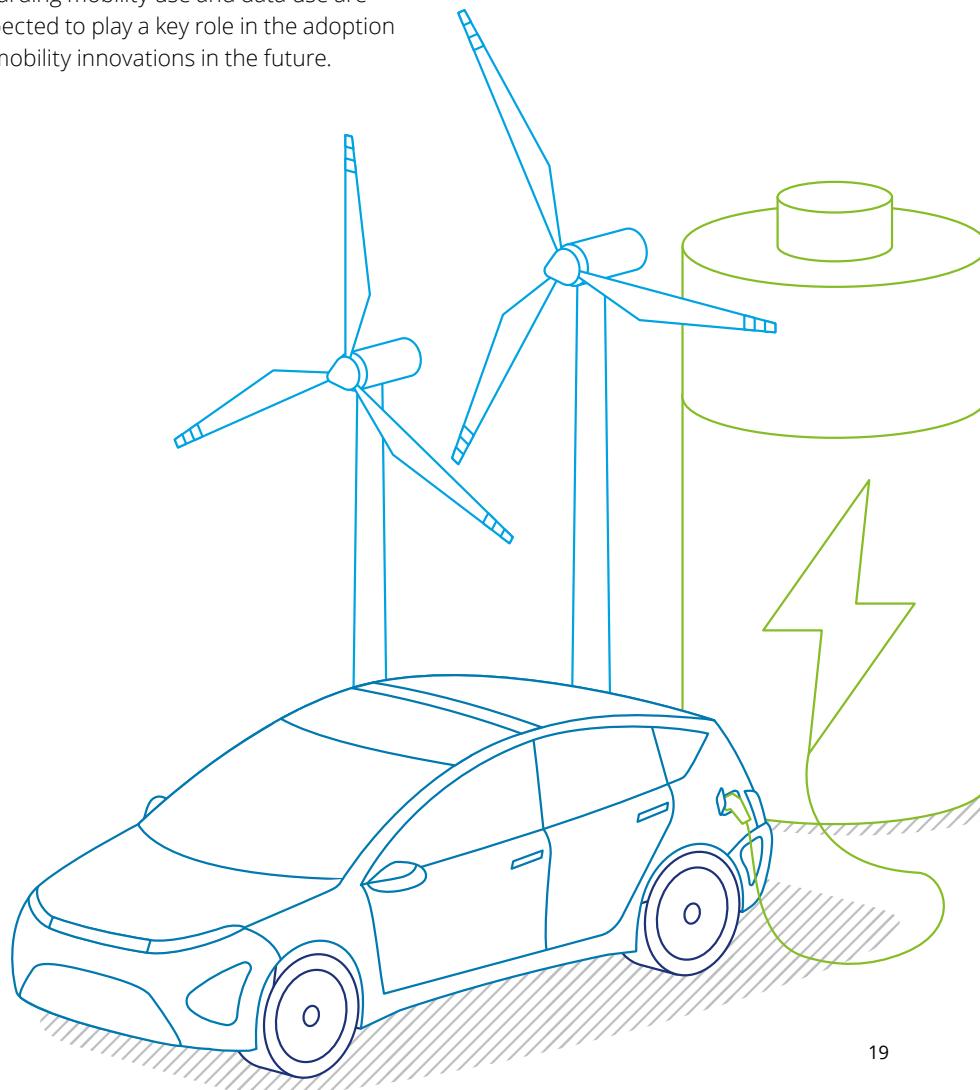
Governments and other regulatory bodies are expected to play a significant role in shaping the global mobility market. To be sure, the retail credit, leasing, and insurance sectors are already highly regulated for consumer protection. The impact that governments will likely have on setting the direction and goals to address climate change may also be getting clearer. Consider Singapore's high registration fees²³ and restrictions on private ownership, or the host of global cities following London's lead on instituting congestion fees to reduce urban traffic.²⁴

Various levels of government could make their presence felt to guide many other shifts in the mobility ecosystem as well. For example, the impact regulators have had on vehicle safety systems stretches back several decades and may continue with the development of autonomous technology.²⁵ Regulatory presence can also be felt when it comes to the protection of consumer data and personally identifiable information (PII) that will likely have a direct impact on the extent to which companies can monetize data.

Sudden shifts in the overall global economic environment can also have a major impact on every part of the mobility ecosystem, prompting government intervention. As we witnessed in 2022, geopolitical tensions can apply severe pressure and even break critical links in the global supply chain, from customer demand to component shortages to trade wars.²⁶

While national industrial policy can help reduce some supply concerns by bolstering capabilities, implementing these policies can take considerable time and require resources/budget (e.g., encouraging the EUROPE5 and the United States to rethink supply chains for critical components and raw materials to reduce dependencies on other countries).

Given the interconnections between governance and mobility as a service, regulations on both the central and local levels regarding mobility use and data use are expected to play a key role in the adoption of mobility innovations in the future.

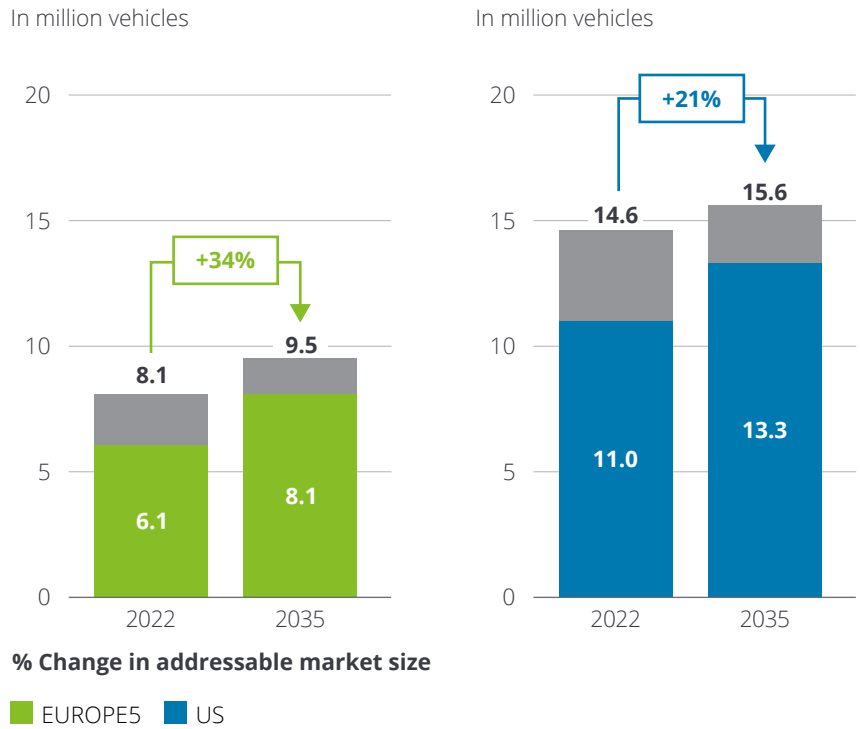


4.4 Power balance between automotive players

The traditional sales model of OEMs, captives, and dealers has been the norm for several decades. But in recent years, both the ways that vehicles are sold and used by customers are changing rapidly. For example, captives were initially established to support vehicle sales to customers jointly with the dealers and contribute additional profits to the OEM group. However, today the balance of power has shifted. With greater penetration rates for traditional financial services products like credit and leasing, the importance—and their consistent profit contributions—of captives to the OEMs continue to grow.²⁷

By 2035, the captives' market and other mobility providers are expected to grow by 34% in the EUROPE5 and 21% in the United States. At least one cause may be evident in how profits have shifted of late: One-time vehicle sales are giving way to broader services around the asset.²⁸ This, in turn, may spur a continuous drive for product innovation for related services.

Fig. 7 – Addressable market for mobility providers in the EUROPE5 region and the United States between 2022 and 2035

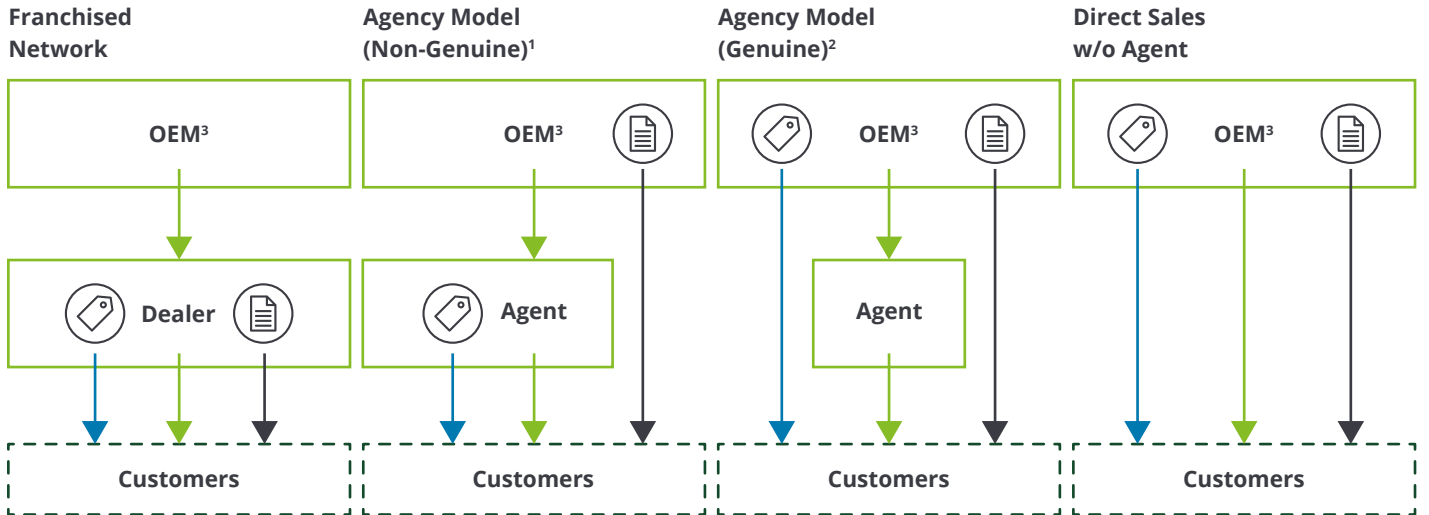


Source: Deloitte Global Automotive Mobility Market Simulation Tool.

“The average new-vehicle margin in the United States declined 25.6% from 2007 to 2019.”

US Securities and Exchange Commission and Bureau of Labor Statistics²⁹

Fig. 8 – Types of automotive sales distribution model



Independent franchised dealers operate outlets – in their own name on their own account

Hybrid between franchised network and genuine agency with partial risk and costs still carried by the agency

Dealers act as agents being commissioned for sales and reimbursed for any sales related expenses

Fully OEM owned (flagship) stores oftentimes in combination with a direct eCommerce approach

-  Invoicing Entity
-  Car Flow
-  End Customer Pricing
-  Invoice Flow

¹ Specification of risks/responsibilities dependent on contract definition.

² Legal definition.

³ This includes captives and non-captive banks.

Source: Deloitte analysis of industry data.

However, notwithstanding near-term, supply-constrained profitability gains in the industry, a long-term trend toward tightening margins on vehicle sales has driven many local dealer groups to consolidate or face bankruptcy.³⁰ This looming threat adds pressure on the traditional dealer model and threatens to impact the bottom line. Following the lead of some later marketplace entrants, large OEMs and captives are moving to create direct sales channels to forge relationships with the end customer.³¹ Such forward-thinking moves are helping to ease the transition from the dealer model to the agency model.

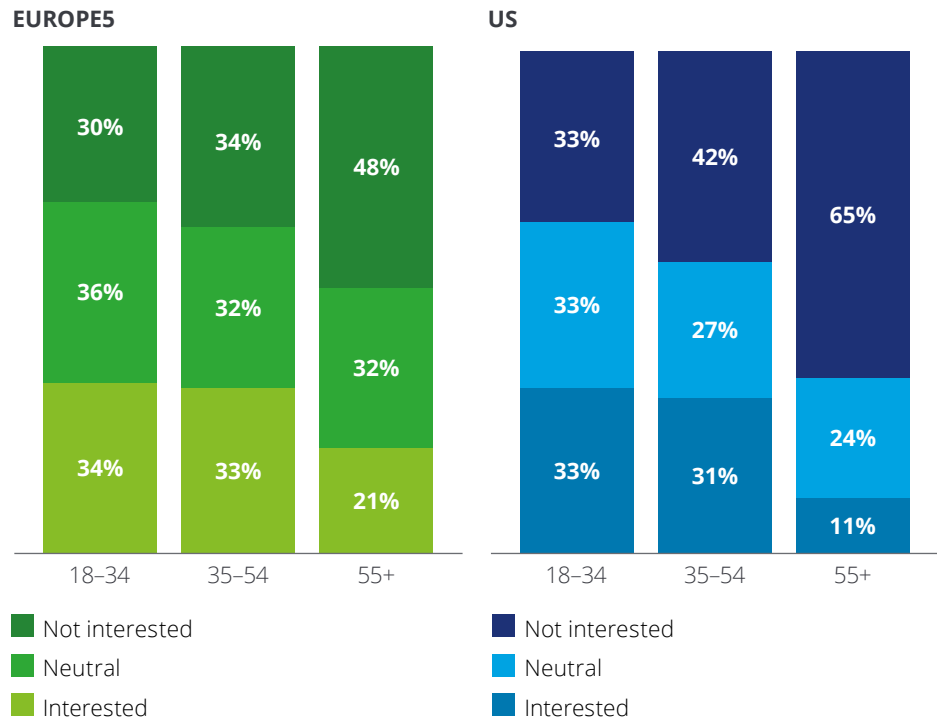
It is becoming apparent that the traditional automotive sales distribution model may need to evolve. However, the pace of change will likely vary by region. In Europe, dealers (agents) are transitioning into more of a fulfillment role, featuring commission-based reimbursement for sales activities. In the United States, however, dealer-franchise laws are more robust, which are expected to result in a status quo for dealerships in the foreseeable future.³²

4.5 Ownership to usage

Owning a private vehicle in urban areas is becoming increasingly less attractive as traffic congestion increases, parking becomes more expensive and less plentiful, and total cost of ownership (TCO) increases the pressure on cost-conscious consumers.³³ Even though many consumers in both the EUROPE5 and US markets may continue to rely on privately owned vehicles—shared mobility options, including car sharing and car rental services, are likely to reassert themselves. This may be especially true as rapidly changing living conditions could spur consumer demand for more flexible choice from more mobility options.

Increased market volatility could also result in fewer consumers who are willing to take on the residual value (RV) risk associated with car ownership. This aversion to RV risk could be exacerbated by the transition to EVs, especially if rapidly evolving technologies render the current generation of EVs obsolete sooner than anticipated. This, of course, would likely have a negative impact on their resale value. There are also lingering questions regarding the useable life of an EV battery and the responsibility for the battery at end-of-life,³⁴ which may cause consumers to seek alternative ownership models that reduce or remove these risk factors (e.g., leasing and vehicle subscriptions).

Fig. 9 – Level of consumer interest in surrendering vehicle ownership in favor of a subscription (by age group)



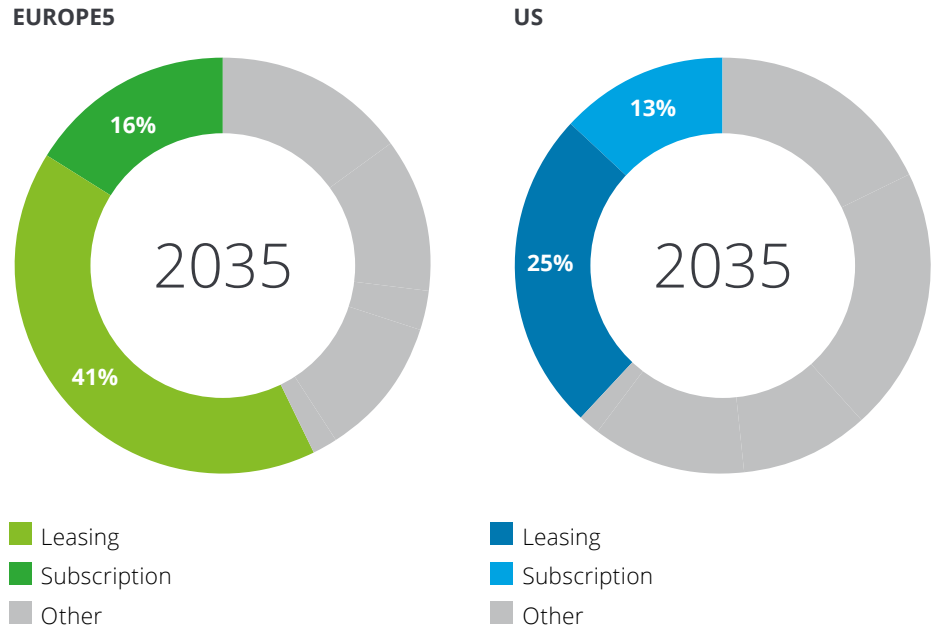
Source: Deloitte Future of Automotive Mobility to 2035 consumer survey.

As seen in other sectors, such as the entertainment industry, automotive customers may be becoming more open to convenient, full-service, bundled mobility products. Our report suggests that younger consumers are particularly interested in vehicle subscriptions. One-third of survey respondents between 18- and 34-years old indicated their interest in giving up vehicle ownership in favor of one subscription with a central value proposition of paying a single monthly charge that covers all aspects of the service.

By 2035, we estimate that private vehicle usage without ownership will comprise 57% in EUROPE5 and 38% in US markets, with leasing contributing the larger share. New startups and established players are rushing to launch vehicle subscription products—a trend we expect to continue to grow to 16% in EUROPE5 and 13% in US markets through 2035. In 2022, subscription market share remained low in both regions, but our research suggests there is growing customer interest for flexible and hassle-free mobility solutions, as customers underestimate the total cost of vehicle ownership by 50%.³⁵ Subscription products could cover insurance and other vehicle-related costs, which could address existing customer needs and ownership pain points.

With the right levels of transparency in, and communications about, subscription details, we believe that customers would be more open to accepting usage-based alternatives for their next vehicle. So, we anticipate that the next decade will witness growing interest and adoption—and therefore market share—of subscriptions.

Fig. 10 – Expected market share for leasing and subscription for EUROPE5 and the United States in 2035



Source: Deloitte Global Automotive Mobility Market Simulation Tool.

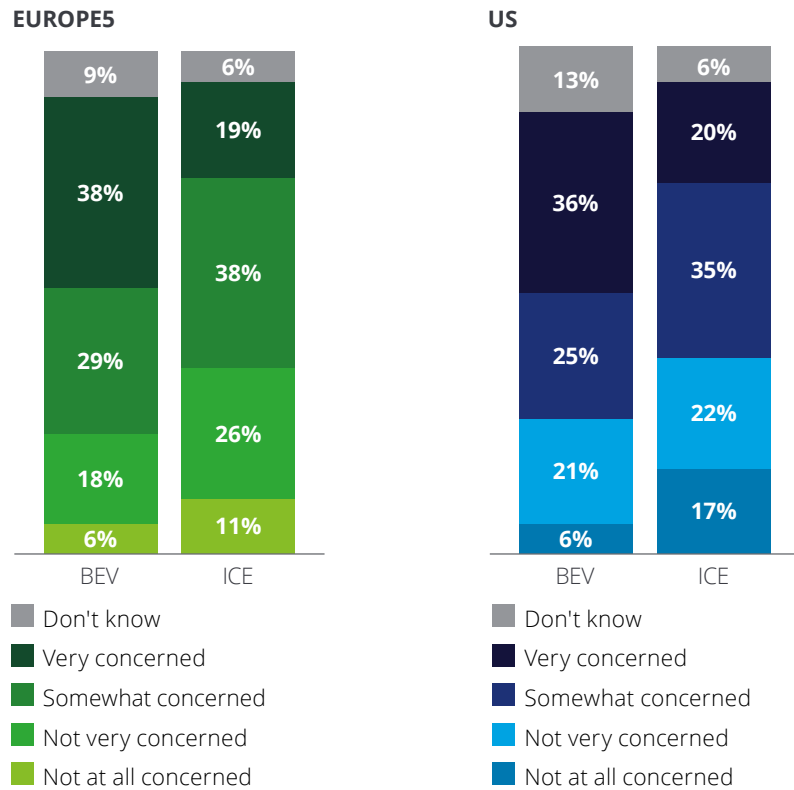
4.6 Private to corporate ownership

With more consumers expected to shift from private vehicle ownership to usage-based models, mobility providers may soon need to manage a larger proportion of vehicles on the road, either as direct assets on their balance sheet or as serviced fleets.

A significant number of consumers surveyed for this report are concerned about taking on the RV risk associated with vehicle ownership. Some 57% of EUROPE5 and 55% of US survey participants expressed concern about the resale value of ICE vehicles, especially because of their planned obsolescence in favor of EV adoption. Interestingly, 47% of EUROPE5 and 49% of US respondents are concerned about the resale value of battery electric vehicles (BEVs), likely due to rapidly evolving EV and battery technologies.

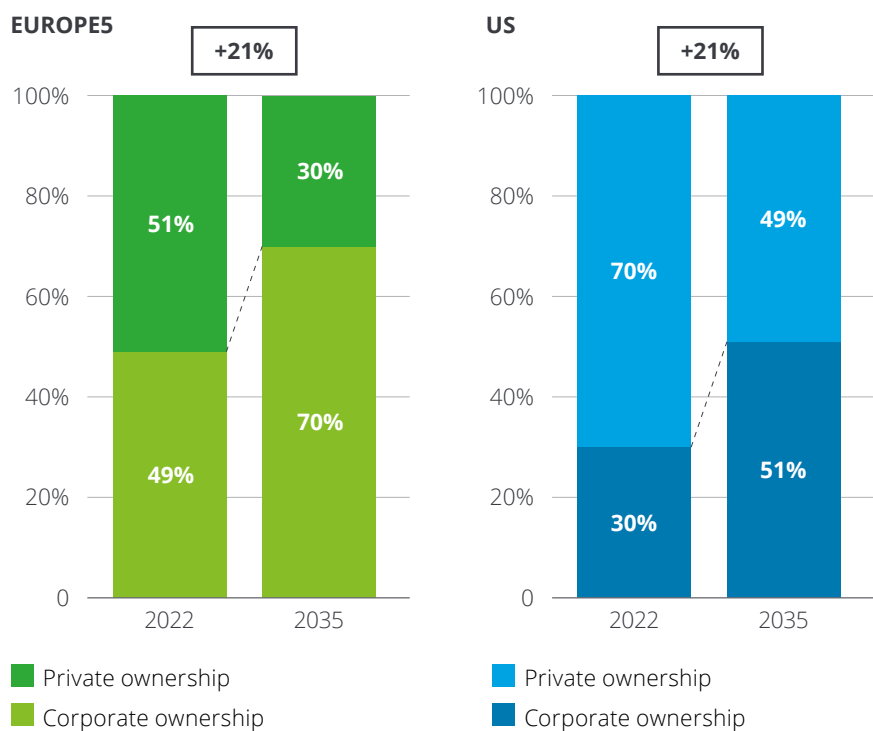
The share of corporate ownership is projected to hit 70% in EUROPE5 and 51% in US markets by 2035. As such, mobility providers may need to manage more assets in the future, impacting the size of respective balance sheets. Some mobility providers (e.g., rental companies and subscription providers) may continue to opt for an “asset-light” model, including buyback agreements with OEMs. Market observations suggest that this model has become less attractive, given a shrinking desire for OEMs to accept returned vehicles and higher relative prices for the residual value risk charged to asset-light players that compete with “asset-heavy” players. Therefore, mobility providers that are actively managing at least part of a vehicle fleet may become more commonplace as they work to reclaim lost margins.

Fig. 11 – Consumer concerns about the resale value of BEVs and ICE vehicles



Source: Deloitte Future of Automotive Mobility to 2035 consumer survey.

Fig. 12 – New vehicle sales in private and corporate ownership in the EUROPE5 and United States anticipated between 2022 and 2035



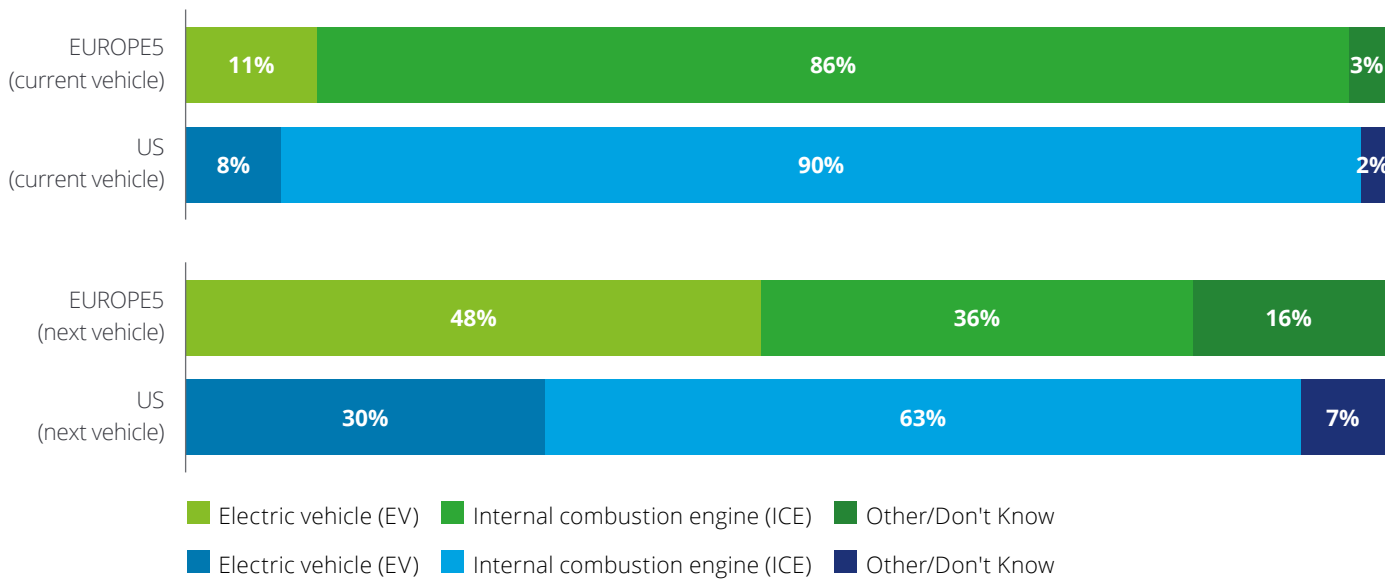
Source: Deloitte Global Automotive Mobility Market Simulation Tool.

4.7 Car parc^{vi} uncertainty

Interest in EVs is growing, and the transition may no longer be a question of if but when. The speed of EV transition may differ between EUROPE5 and US markets. The EUROPE5 region seems to be more progressive, and many German OEMs have already announced EV-only plans.³⁶ Meanwhile, the adoption of EVs in the United States continues to increase but still has not reached EUROPE5 acceptance levels.

Some 48% of customers surveyed in EUROPE5 and 30% in US markets say they are considering an EV as their next vehicle. The corresponding change that could impact vehicle fleet mix (i.e., a gradual transition from ICE vehicles to EVs) would introduce an unprecedented level of uncertainty for mobility providers.

Fig. 13 – Type of engine in current vehicle vs. preferred in next vehicle (EUROPE5 vs. US)



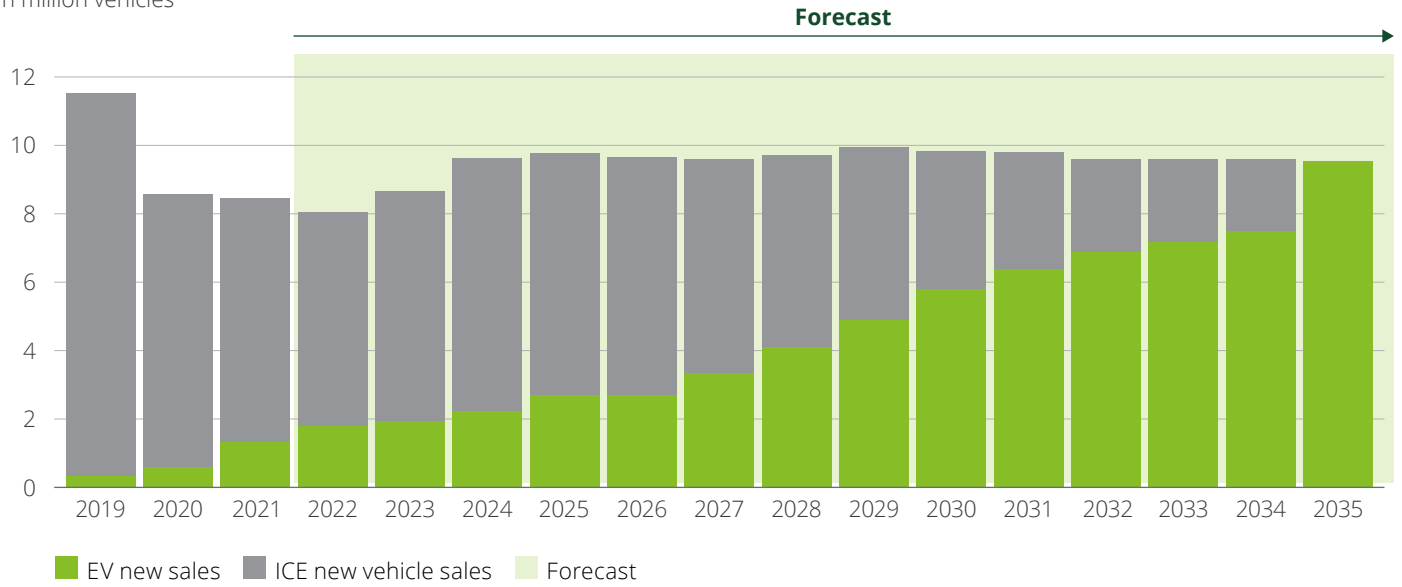
Source: Deloitte Future of Automotive Mobility to 2035 consumer survey.

^{vi} The term car parc refers to the total number of vehicles in operation.

Fig. 14 – New vehicles sales and predicted sales of EVs in the EUROPE5 and the United States between 2019 and 2035

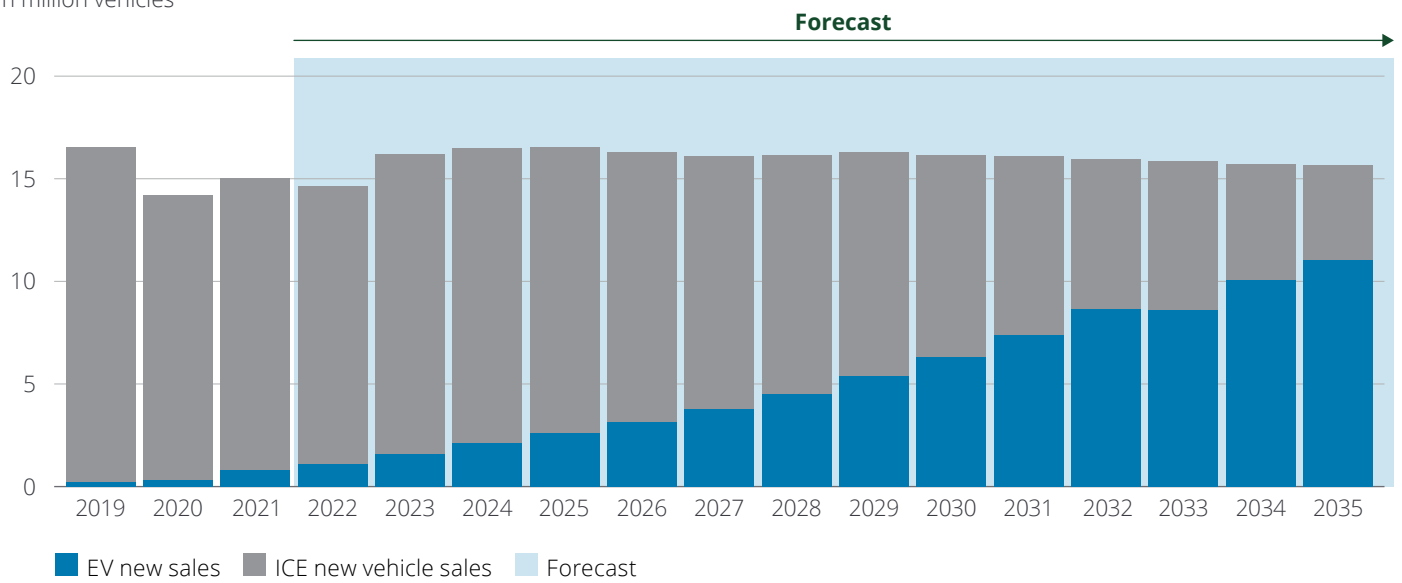
EUROPE5

In million vehicles



US

In million vehicles



Source: Deloitte Global EV Penetration Model.

In the future, the growing balance sheet of mobility providers is expected to include a higher percentage of EVs for which residual value forecasting experience is limited, posing greater risk exposure.

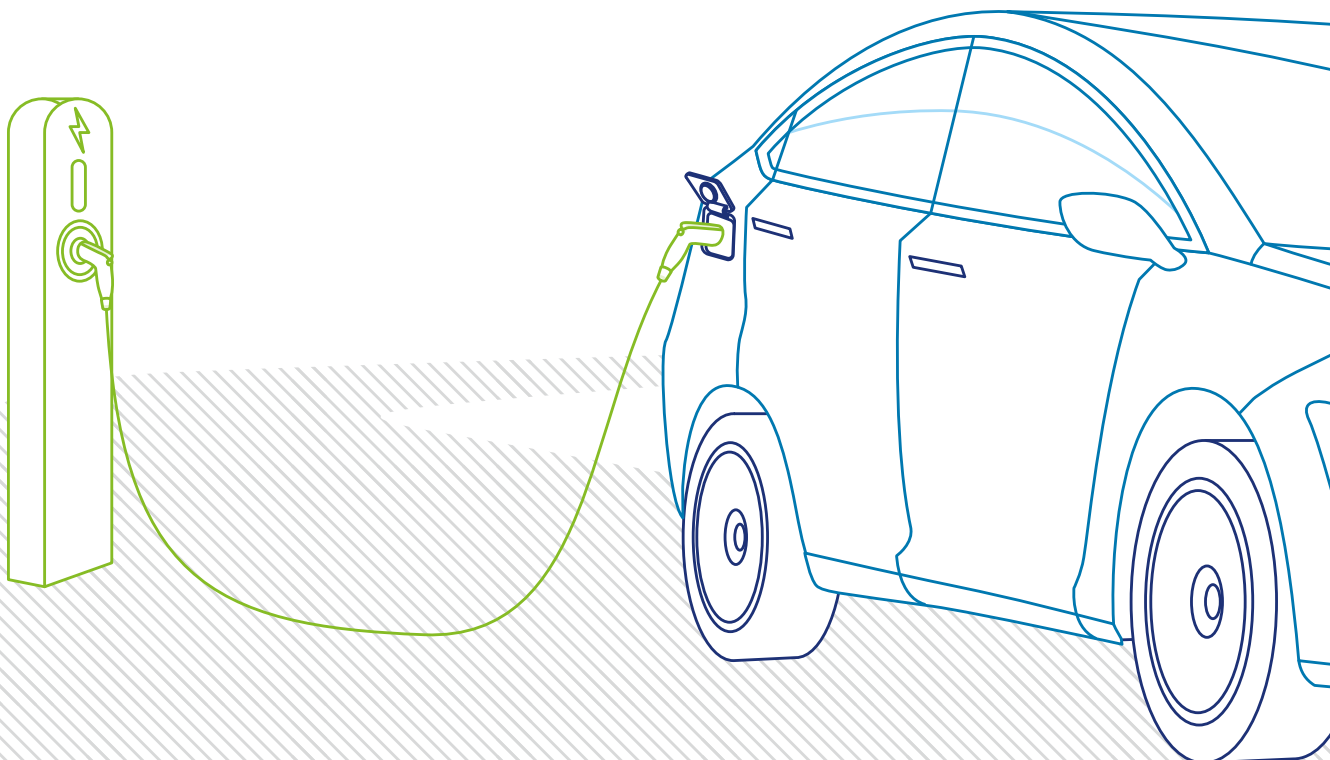
We are also seeing slower development of charging infrastructure vs. EV sales forecasts, which is leading to capacity constraints.³⁷ There is also concern about battery performance uncertainty. In aging vehicles, battery performance degrades and is increasingly inferior to newer and improved battery technology.³⁸

Surplus ICE vehicles under management can be a constant threat to balance sheets. Several factors can lead to plunging RVs. These could include an acceleration of customer demand for EVs, and sudden and extreme drops in ICE vehicle resale prices. Such concerns could also be compounded by potential regulations on registration, city access, and soaring fossil fuel tax rates.

This ICE-to-EV transition is not expected to happen overnight. But underestimating changes in car parc composition and its implications may impact the mobility providers' financial results. If this transition is managed well with advanced RV modelling techniques and an effective re-marketing and recycling strategy, this can help drive competitive advantage on the road to 2035.

“Our analysis projects that the EV share in the overall fleet of mobility providers is expected to increase from 14.5% to 78.5% in EUROPE5 and 5.4% to 58.5% in the United States from 2022 to 2035.”

Deloitte Global Automotive Mobility Market Simulation Tool

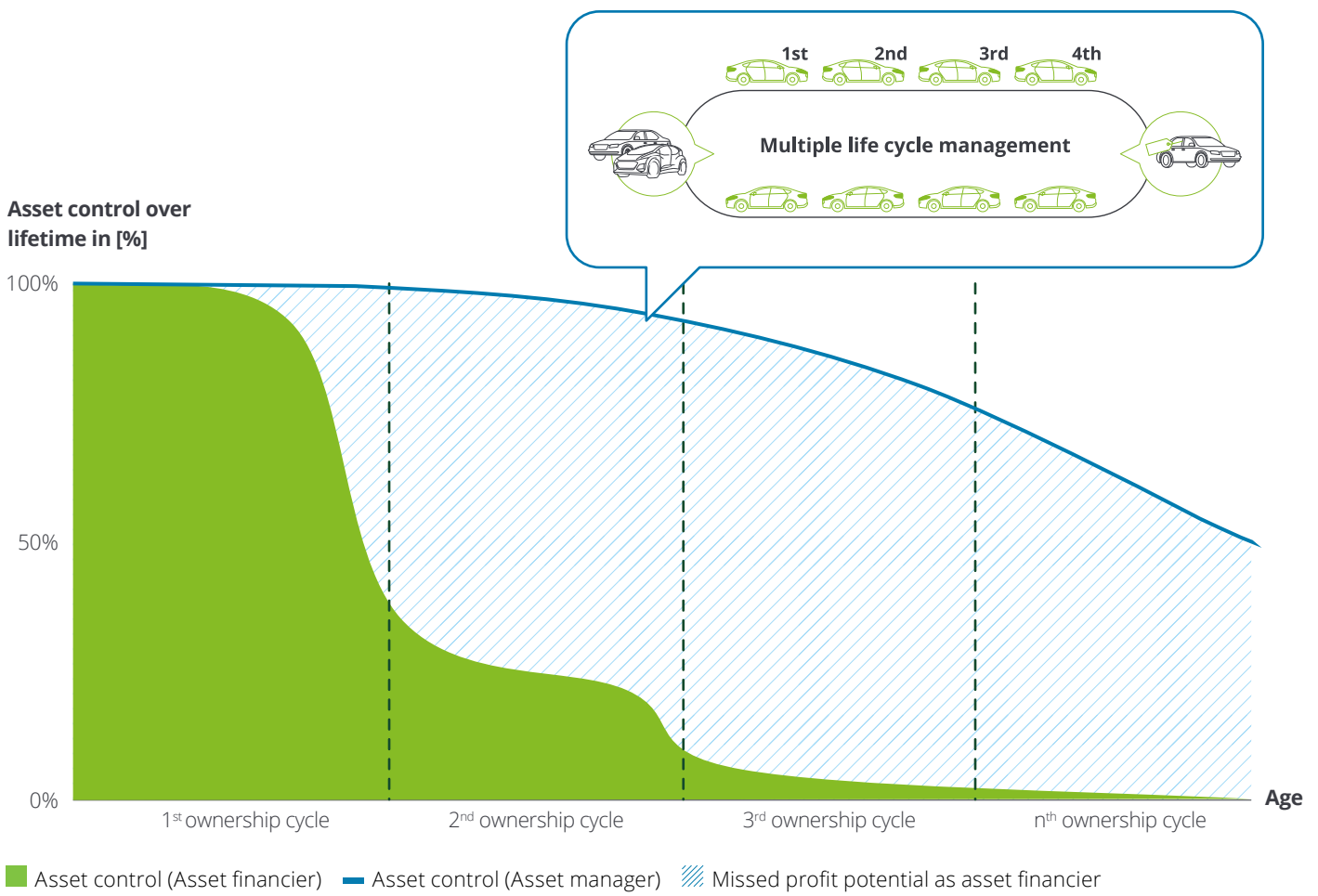


4.8 Asset management across multiple life cycles

Behind real estate, automobiles are generally regarded as the second most valuable asset class in the world today.³⁹ Markets are saturated with approximately 213 million registered vehicles in EUROPE5 and 291 million in US markets (new and used).⁴⁰

Mobility providers have experienced decades of profitable business through asset financing. But the marketplace is changing rapidly, and market players may need to adapt quickly to ride the next wave of industry profits. Mobility providers interviewed are seeking ways to optimize use and monetization of vehicles over their lifetimes.

Fig. 15 – Profit potential by effective asset life cycle management



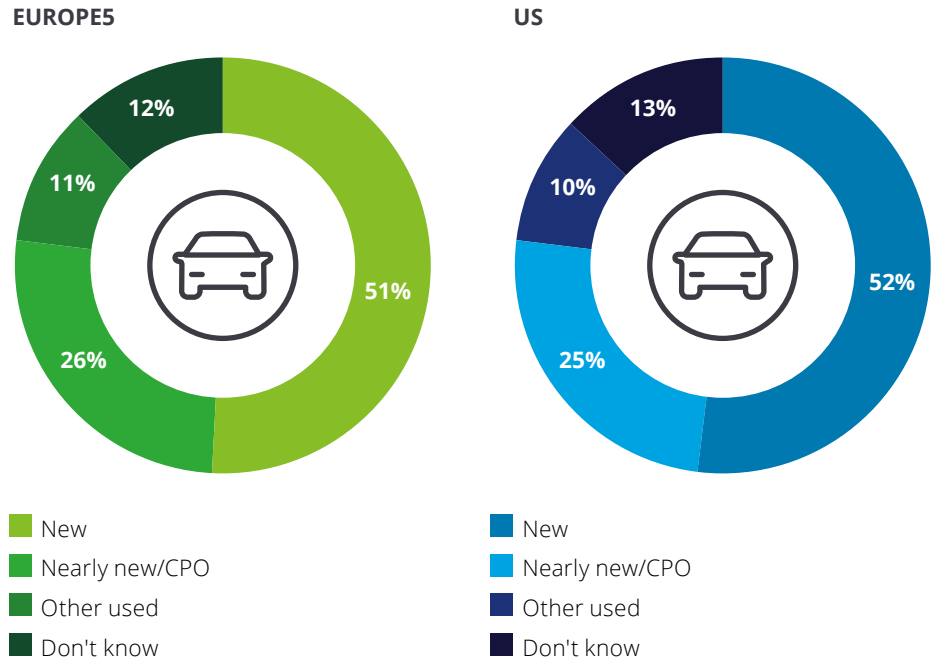
Source: Deloitte analysis of industry data.

However, according to executives interviewed for this study, mobility providers are not yet making optimal use of multiple asset life cycle management by offering used vehicles in their second or third (or later) life to customers through leasing, subscription, or other products in the mix.

Our survey reveals consumer interest for nearly new and other used vehicles with 37% in EU5 and 35% in US markets, which is largely fresh territory for mobility providers today.

Mobility providers may still miss out on significant profit potential with limited asset control over the vehicle lifetime. Asset manager algorithmic solutions can help choose the next best channel for the following life cycle while exploiting the cross-selling potential of suitable services to the end customer. This can be complemented by effective use of end-of-cycle services, including re-use processes for vehicle use over multiple life cycles, value-adding refurbishing of returned vehicles, re-marketing channel and value optimization, as well as circular parts recycling (e.g., batteries) that can enable asset managers to reap the highest possible value.

Fig. 16 – Type of vehicle consumers intend to acquire next (EUROPE5 and US)



Source: Deloitte Future of Automotive Mobility to 2035 consumer survey.

“An asset manager using multiple life cycles achieves 50%–60% higher profits than an asset financier.”

Deloitte Global Automotive Mobility Market Simulation Tool

4.9 In-life services

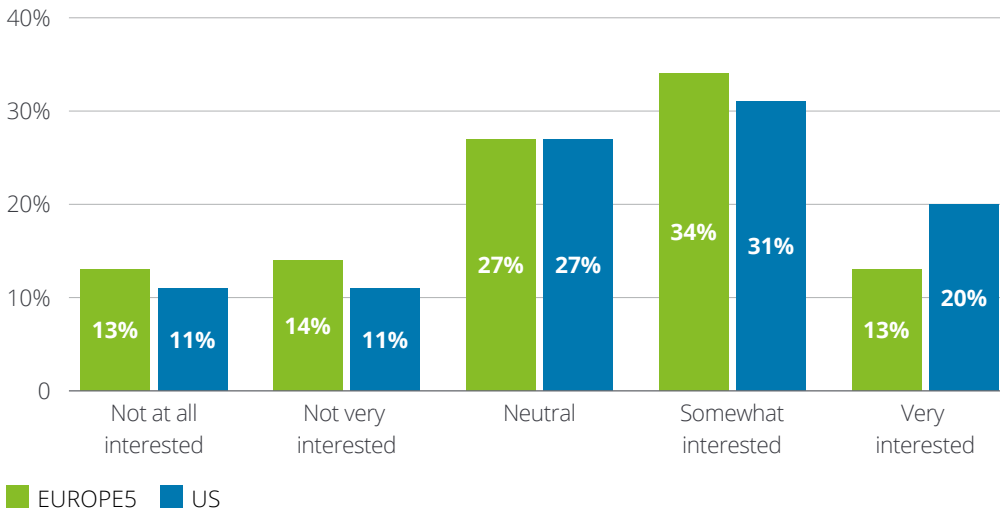
A shift from ownership to usage may add new emphasis onto in-life services, including usage- and vehicle-related services and infrastructure services. In-life services comprise a core element of the automotive mobility value chain and are usually sold as being complementary to end-customer products, such as retail credit, leasing, and subscription.

Mobility players could consider looking to fleet managers for direction because they already offer a variety of services to manage the overall fleet and help provide easy mobility solutions to their business-to-business (B2B) customers.

The concept of bundling multiple services is not new and has been offered predominantly to fleet customers (B2B). Our survey results show that 47% of EUROPE5 and 51% of US respondents expressed interest in making one monthly payment to cover all vehicle-related costs.

Of late there has been growing demand for mobility budgets in the growing B2B sector in EUROPE5 and the United States.⁴¹ A mobility budget is a product that grants access to a variety of mobility services for a defined monthly value, including vehicle provision services (e.g., leasing), in-life services, and other forms of transportation (e.g., public transportation).

Fig. 17 – Consumer interest in making one monthly payment that covers all vehicle-related costs (EUROPE5 vs. US)



Source: Deloitte Future of Automotive Mobility to 2035 consumer survey.

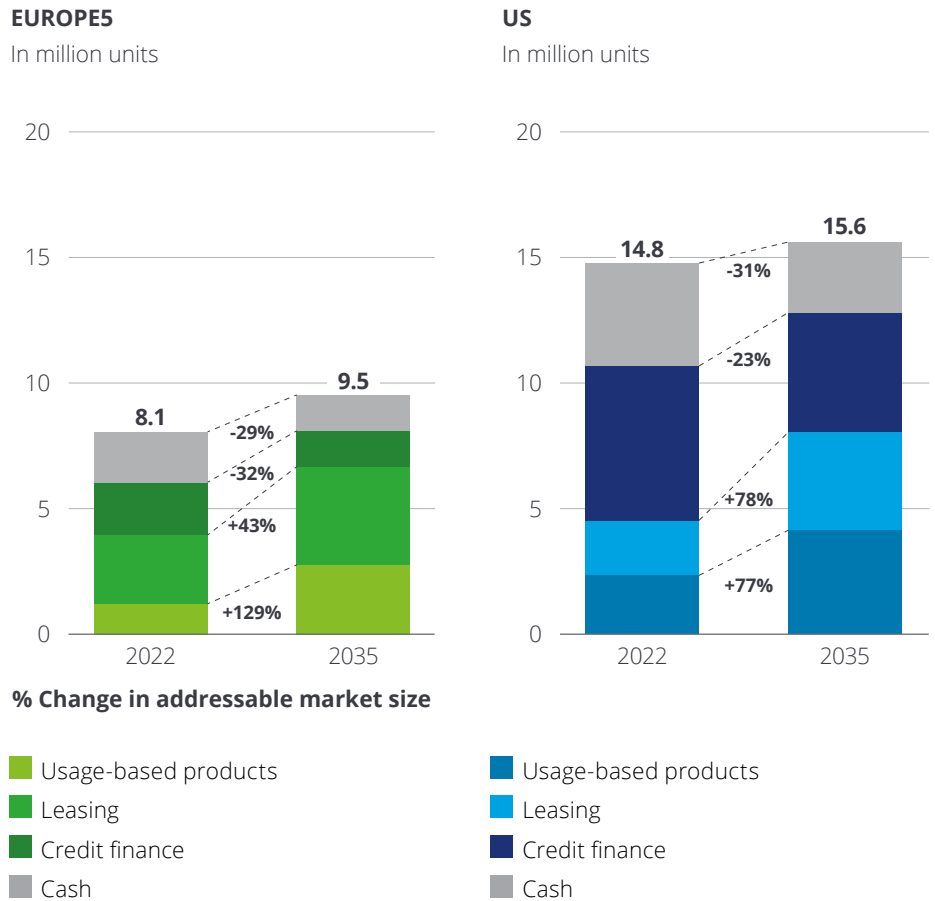
“Our research suggests profit contribution of in-life services to mobility providers is projected to increase from 12% to 25% in EUROPE5 and from 10% to 22% in the United States between 2022 and 2035.”

Based on our analysis, we expect a compound annual growth rate (CAGR) of 10.5% in revenue for the in-life service mobility budget. We regard this product as a powerful enabler for the use of multiple services in the automotive mobility value chain.

With the shift from ownership to usage, bundling may be gaining traction in the business-to-consumer (B2C) sector. Private customers are opting for more convenient and hassle-free mobility solutions, creating opportunities for usage-based products, which are expected to increase 129% in EUROPE5 and 77% in US markets by 2035 (Figure 18). A key example of usage-based products is insurance. Motor vehicle insurance has traditionally been regarded as a low-margin business, where dealers and brokers claim the largest portion of the available profit. However, there may be two opportunities emerging for mobility providers to drive into this profit pool. First, there could be a significant potential for mobility providers to offer insourced insurance products and cut out the traditional intermediaries.

The second opportunity involves mobility providers forging strong ties with existing insurance companies to help enable the creation of joint products or shared service centers for insurance operations. In doing so, mobility providers may unlock new opportunities for revenue and profit creation. Additional margin benefits may be gained by matching new patterns of mobility use with "pay-how-you-drive" and "pay-when-you-drive" insurance plans for usage-based products. Overall, we see the potential for mobility providers to significantly improve their margins and realize a projected annual growth rate of approximately 13% in revenue by focusing on the insurance space.

Fig. 18 – Sales channel development projection toward usage-based products in the EUROPE5 and the United States (2022-2035)



Source: Deloitte Global Automotive Mobility Market Simulation Tool.

4.10 Autonomous vehicles (AVs)

Self-driving vehicles may be taking longer to make it to the streets than many had originally forecasted. But by 2035, we could see advanced autonomous technology and further pilots around autonomous services on their way. While deployments for commercial vehicles—long-haul truck trips, in construction zones, and last-mile delivery robots—will likely play a significant role in the industry, they must still overcome a variety of barriers before they can safely share city blocks with human drivers.

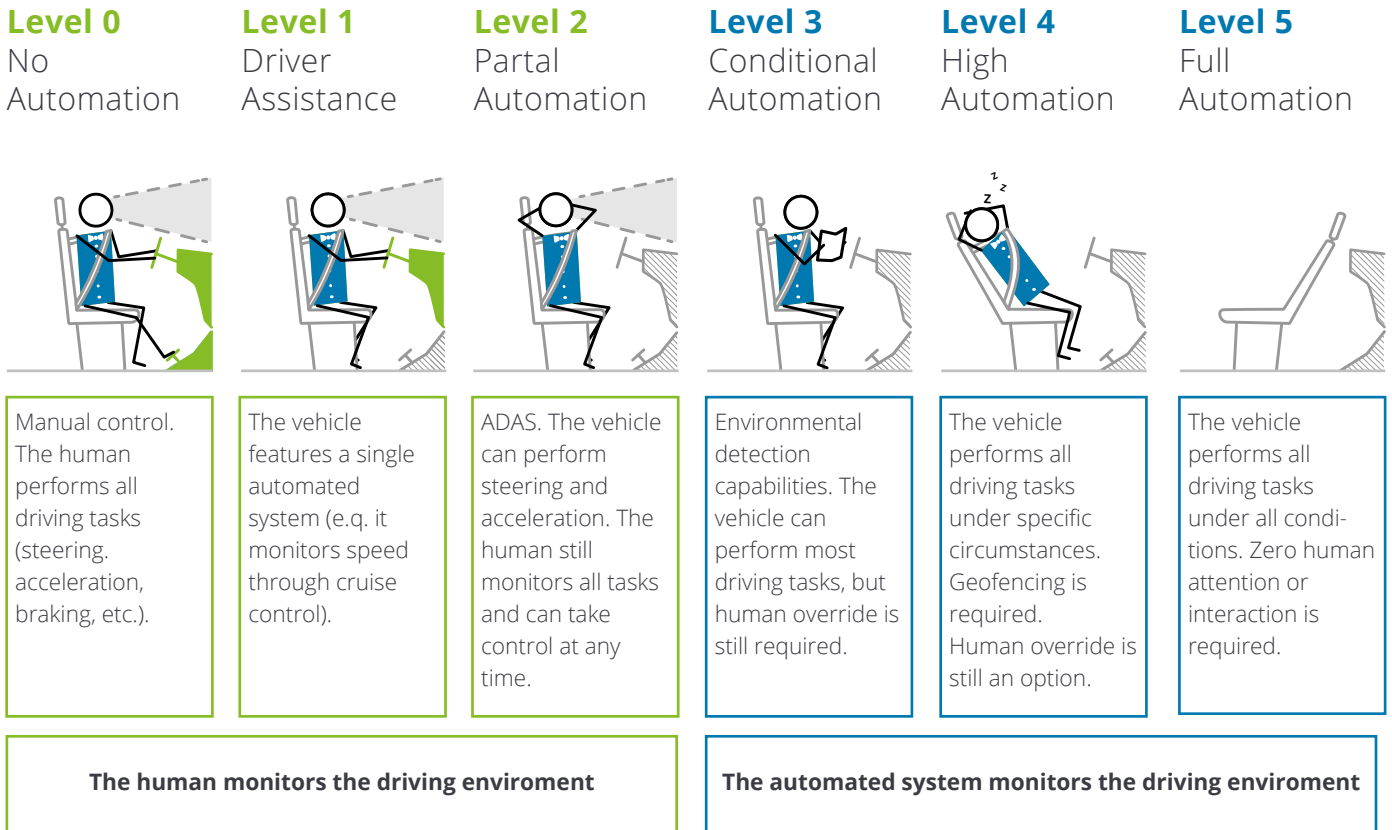
In the coming years, the proliferation of advanced driver assistance systems (ADAS) features that may further the eventual adoption of self-driving technologies are likely to become key purchase criteria in the menu of vehicle options.

“61% of US consumers surveyed and 53% of consumers in the EUROPE5 markets are still concerned about riding in a shared autonomous vehicle (e.g., robo-taxi).”

Deloitte Future of Automotive Mobility to 2035 consumer survey



Fig. 19 – Self-driving technology phases and relevance for autonomous services



Source: Society of Automotive Engineers (SAE).

Once self-driving technology reaches Level 5, services including robo-taxi and robo-shuttles are expected to emerge, spurring the next fundamental shift (after the EV transition) from driver-operated to autonomously operated vehicles. This could create significant profit potential for mobility providers in the long term, by either financing AV (autonomous vehicle) fleets for autonomous services providers or directly offering autonomous services and managing their own AV fleets. Meanwhile, we expect it to be many years before driverless autonomous technology achieves practical adoption on a broad scale. So, it is premature to make accurate predictions on the future profit-pool development of autonomous services. Instead, a scenario-based approach could be applied, considering different variations of technological advances, customer sentiment, and regulatory landscape, among other dimensions.

“Development of technology for autonomous vehicles is the most relevant wild card for mobility providers.”

Global automotive mobility executive



Three core hypotheses may hold true and function as guardrails when addressing potential questions around autonomous services in the future:⁴²

1. Robo-taxis will change mobility. Autonomous services will become the dominant mode of transportation in the long term.
2. A price war will break out. Autonomous taxis and shuttles will be significantly cheaper than riding private vehicles and public transportation.
3. The market potential for autonomous services is significant, pending regulatory approvals.

Indeed, the rise of autonomous technology could challenge the business model of the entire automotive industry. For mobility providers this may mean a further acceleration of ownership to usage. This may require mobility providers to define their role in an autonomous future and reflect on their direction in everyday decision making today.

4.11 Digital era

Along the mobility value chain, data is becoming increasingly important. As connected vehicles and their drivers generate an ever-increasing amount of information—on driving, preferences, purchases, etc.—mobility providers may have opportunities to offer tailored products to customers, create customized services, and monetize data. However, to unlock this profit pool, mobility providers will likely need to first build trust with the consumer.

The survey results suggest that traditional OEMs are the most trusted when it comes to mining data from connected vehicles (Figure 20). At the same time, a comparable number of people trust none of the stakeholders in the automotive industry, reflecting the sensitive nature of driver data.

Digital innovation is at the core of the emerging profit pools that are expected to define the next era of global mobility. For their part, OEMs have worked to transform themselves into digital-first technology companies but have openly struggled to compete with Big Tech companies in both digital capabilities and customer offerings.⁴³ Of course, customer-centric solutions that enhance the mobility experience can represent a game changer in an increasingly competitive sector. But automotive manufacturers face the daunting task of reclaiming control over the development and deployment of digital services from already entrenched Big Tech players that have more than a decade head start in the mobility space.⁴⁴ And consumers may never accept OEM alternatives to their preferred digital tools and user experiences.

To help address customer mobility needs in the growing MaaS space, some players are offering increasingly comprehensive multi- and inter-modal solutions through mobility platforms. However, the maturity of mobility platforms that combine multiple services is still relatively low with only a few viable options by tech players and selected cities.⁴⁵

“26% of US and 29% of EUROPE5 customers surveyed would most trust established automotive manufacturers and their captive finance arms to provide a mobility service platform for accessing different forms of mobility.”

Deloitte Future of Automotive Mobility to 2035 consumer survey

While the commission-based monetization model with razor-thin margins may have led mobility providers to shy away from building their own mobility platforms, they encompass a variety of potential benefits for the mobility provider:

- Entry point for new customers
- Higher service availability for better customer perception
- Expansion of customer reach
- Higher fleet utilization
- Larger potential for up- and cross-selling, including integrated services
- Increased customer loyalty (i.e., lock-in mechanism)
- Real-time data collection to improve services

Options for strategic positioning in the mobility platform market

Aggregator

Ownership/management of digital platform enabling connection between third parties and customers

Operator

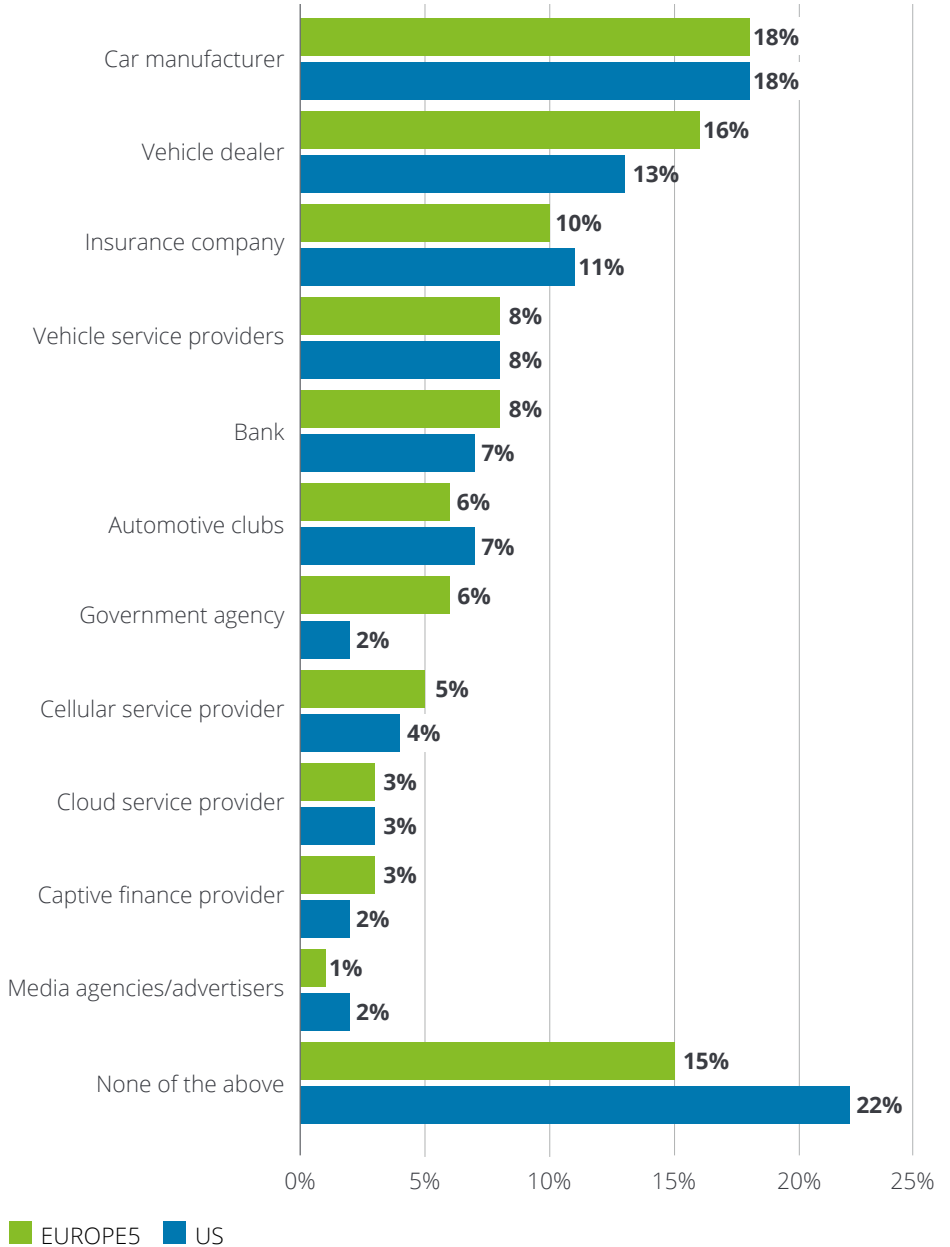
Ownership of operations for services via platform directly interacting with customers

Integrator

No ownership of platform, integrating services into suitable mobility platform of third-party providers

The mobility sector may be changing at a rapid pace, but the race toward one “super-app” as the dominant mobility platform hasn’t been decided. Most likely, new mobility platforms will emerge covering different segments of the mobility sector. Cities are also expected to take on a more decisive role as an aggregator in this space.

Fig. 20 – Most trusted organization for data access to connected vehicles



Source: Deloitte Future of Automotive Mobility to 2035 consumer survey.

5. Future profit-pool simulation based on proxy mobility provider

The 11 macro shifts discussed in Section 4 could impact the automotive mobility market and the way companies generate revenue and profitability in the future. Each of the shifts could influence specific elements of the value chain, resulting in positive or negative outcomes.

Understanding which parts of the value chain may be likely to produce new potential profit pools (i.e., “rising stars”) versus those that may be more likely to decline (i.e., “setting suns”) is a near-term imperative for mobility providers.

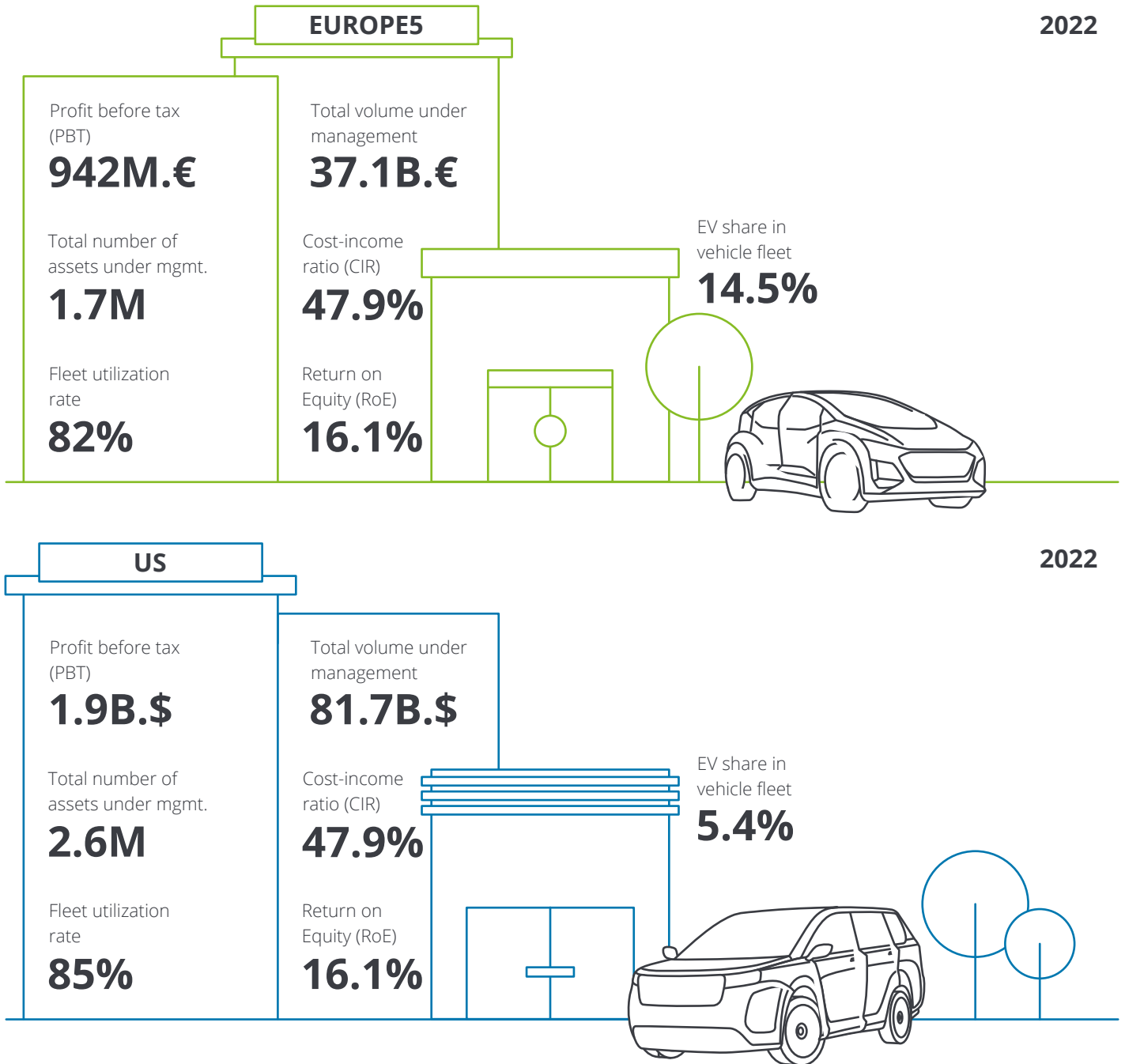
To help companies distinguish between the rising stars and setting suns, we built a financial simulation tool to calculate the profit pool for every value chain component across two time periods, stretching from 2022 to the middle of the next decade (2035). To do so, the model is based on a proxy mobility provider (representing a fictional company) in both Europe and United States. The profile of each proxy company has been carefully constructed to reflect the two markets chosen for the study (Figure 21). Key data points used to

build the composite profiles represent a combination of proprietary data and publicly available information. The output of the simulation tool has also been validated through interviews with senior leaders of global automotive mobility providers.

An examination of the different industry dynamics that exist between EUROPE5 and US markets was necessary to improve the output from the simulation tool.





The introduction of these proxy companies helped us calculate the profit pools for each of the main elements in the value chain, including “vehicle provision to end customer,” “in-life services,” and “end-of-cycle.” From here, we highlighted selected products and services, which we defined as either rising stars or setting suns.

Fig. 21 – Proxy mobility providers in 2022



Source: Deloitte Global Automotive Mobility Market Simulation Tool.

Fig. 22a – Profit pool simulation based on proxy companies for 2022 and 2035

EUROPE5		 Revenue (in M.€)	 Revenue CAGR	 Contribution to overall profit	 Delta		
		2022	2035		2022	2035	
Vehicle provision to end customer	Financial Services	4,878	9,138	~4.9%	77.9% (734)	59.4% (1,631)	-18.5%
	Vehicle-on-demand	1,380	5,196	~10.7%	11.6% (109)	21.8% (597)	+10.2%
	Mobility-on-demand	74	214	~8.5%	0.3% (3)	0.4% (12)	+0.1%
In-life services	Usage-related services	300	1,487	~13.1%	2.3% (21)	7.0% (192)	+4.7%
	Vehicle-related services	764	3,121	~11.4%	9.0% (85)	16.5% (452)	+7.5%
	Infrastructure services	75	345	~12.5%	0.6% (6)	1.3% (35)	+0.6%
End-of-cycle	Re-cycle		136	N/A		0.2% (7)	+0.2%
	Re-market	1,177	3,682	~9.2%	3.7% (35)	4.0% (110)	+0.3%

Total profit amount in M.€ displayed in ()

General disclaimer: These are rounded numbers; This is a line by line representation and not possible to sum lines to a total (for total numbers in this paper the model eliminates double counting due to bundling of products).

Source: Deloitte Global Automotive Mobility Market Simulation Tool.

Fig. 22b – Profit pool simulation based on proxy companies for 2022 and 2035

US	Revenue (in M.\$)	Revenue CAGR	Contribution to overall profit		Delta		
			2022	2035			
Vehicle provision to end customer	Financial Services	10,352	19,117	~4.8%	80.1% (1,502)	59.4% (3,007)	-20.6%
	Vehicle-on-demand	3,365	10,952	~9.5%	14.3% (267)	24.6% (1,244)	+10.6%
	Mobility-on-demand	64	183	~8.4%	0.2% (5)	0.2% (12)	+0.0%
In-life services	Usage-related services	560	2,605	~12.5%	2.1% (40)	6.7% (339)	+4.6%
	Vehicle-related services	1,243	5,006	~11.3%	7.1% (132)	14.2% (719)	+7.1%
	Infrastructure services	75	346	~12.5%	0.3% (6)	0.7% (35)	+0.4%
End-of-cycle	Re-cycle	300		N/A	0.3% (15)		+0.3%
	Re-market	996	7,689	~17.0%	1.6% (30)	4.6% (231)	+3.0%

Total profit amount in M.\$ displayed in ()

General disclaimer: These are rounded numbers; This is a line by line representation and not possible to sum lines to a total (for total numbers in this paper the model eliminates double counting due to bundling of products).

Source: Deloitte Global Automotive Mobility Market Simulation Tool.

In addition to the individual drivers that influence each (sub-)profit pool, specific overarching assumptions drive the 2035 numbers:

- New vehicle sales will likely grow by 18% in EUROPE5 and 7% in the United States until 2035.
- Ownership to usage (shift 5) will likely, among other factors, decrease the proportion of cash purchases from 25% to 15% in EUROPE5 and 28% to 18% in the United States.
- Focusing on asset management (shift 8) will likely lead to an overall increase in assets under management by approximately 150%.

Vehicle provision to end customers

Financial services – Revenue from this profit pool will likely nearly double in EUROPE5 and in the United States until 2035. This anticipated growth is driven by an assumption that lease penetration will grow to 41% in EUROPE5 and 25% in US markets. The absolute numbers for retail credit are also rising for both markets, but looking at the relative profit contribution, we anticipate significant decline in both EUROPE5 (11%) and the United States (26%). This is driven by a shifting customer preference away from long-term ownership-based products in favor of more flexible, usage-based ones. In addition, we expect a growing number of competitors for financing products, including non-captive players. With the implementation of the agency model by most OEMs in the European markets, our research suggests the profit contribution of wholesale credit is likely going to almost disappear to 1% in EUROPE5, while it will remain at around 4% in the US market.

Vehicle-on-demand (VoD) – This is potentially a rising star in the value chain, with steep annual revenue growth rates of 11% in EUROPE5 and 10% in the US markets. Again, the basis for this growth assumption refers to the shift expected in how consumers may address their mobility

requirements in the future. Key success factors will likely be flexible products and services tailored to individual customer needs. The primary driver for VoD is likely to be subscriptions with a penetration rate reaching 16% by 2035 for EUROPE5 and 13% in US markets. There is already a dynamic, competitive landscape emerging that is focused on subscriptions with new players racing to disrupt this space.⁴⁶ This emerging profit pool is also reinforced by bundled and full-service products in the B2C sector.

Mobility on demand (MoD) – Mobility is evolving, especially in urban areas, driven by a strong dependency on authorities regulating public space in cities. This profit pool will likely increase significantly in revenue, around 9% in EUROPE5 and 8% in the US markets annually, driven by offerings like ride hailing/pooling, which thrive with stricter regulations of individual mobility. However, the relative profit contribution indicates that it is—and may be—a niche profit pool for the mobility provider, as other, mostly tech players are dominating this field. The underlying monetization model of mobility providers is based on commission as players orchestrate customer demand as an agent or fleet financing (see financial services) rather than operating a ride-hailing fleet for example.

The most promising MoD profit pool for the mobility provider is likely the mobility budget. It combines various established services and creates a flexible offering that caters to future mobility users' demand. It is consequently one of the most important enablers for mobility on demand with expected annual revenue growth rates of 11% in EUROPE5 and 15% in the US markets and represents a critical piece of the value chain going forward, despite its comparatively small profit contribution of under one percent in both regions.

In-life services

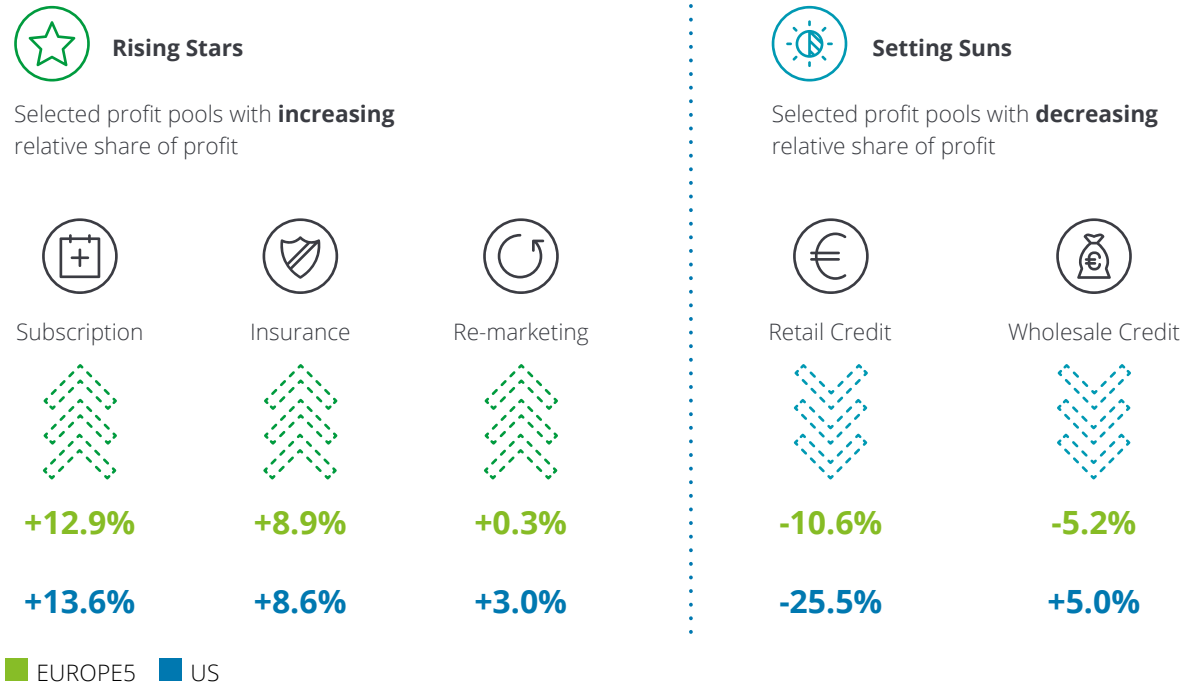
Usage-related services – Because of the trend toward bundled products (e.g., full-service leases and subscriptions), a significant uptake for in-life services is

anticipated, with an annual revenue growth rate of 13% in EUROPE5 and US markets for usage-related services and a respective profit contribution of 7.0% and 6.7% in 2035. For example, insurance represents a significant opportunity for mobility providers in the future, with a relative profit contribution of up to 13% in both EUROPE5 and US markets. This may be driven by the development of innovative products focused on “pay-how-you-drive” and “pay-when-you-drive” emerging from the rental and car-sharing space. On the other hand, insourcing of insurance products and cooperation with large insurance companies will likely represent a significant opportunity to capture a greater portion of the value chain and improve margins by reducing the need to pay brokers and dealer commissions.

Vehicle-related services – Vehicle-related services are fueled by an increased penetration of bundled products and a growing consumer desire for a single all-inclusive payment with an annual revenue growth rate of 11% in both EUROPE5 and US. Similarly, the adoption of common standards in the B2B space (e.g., full-service leasing) continues to permeate the B2C sector, reinforcing overall uptake. However, the transition to EVs may reduce the need for classic aftersales services, such as maintenance and repair, potentially shrinking by one-fifth in profit contribution to the mobility provider. EV adoption could, however, create new services such as battery management growing in both regions at a pace of 12% annually. By 2035, these and other examples may lead to an overall increase in relative profit contribution to 16.5% in EUROPE5 and 14.2% in the US markets.

Infrastructure services – Automotive mobility providers are likely to engage on a commission basis, acting as an agent for services around parking, fueling/charging, and tolling rather than directly operating the infrastructure. These types of services may mature, particularly as the transition to EVs gathers momentum and the need for charging services develops. While the overall profit contribution may remain small

Fig. 23 – Summary of rising stars and setting suns



Note: Mobility budget is not depicted here as described in the MoD section it has a comparably small contribution to overall profit. Nevertheless, it one of the most important enablers for MoD and hence has a pivotal importance. Source: Deloitte Global Automotive Mobility Market Simulation Tool.

in 2035 at 1.3% in EUROPE5 and 0.7% in the US markets, infrastructure services may complement the overall coverage of the value chain, creating a holistic mobility offering toward the customer.

End-of-cycle

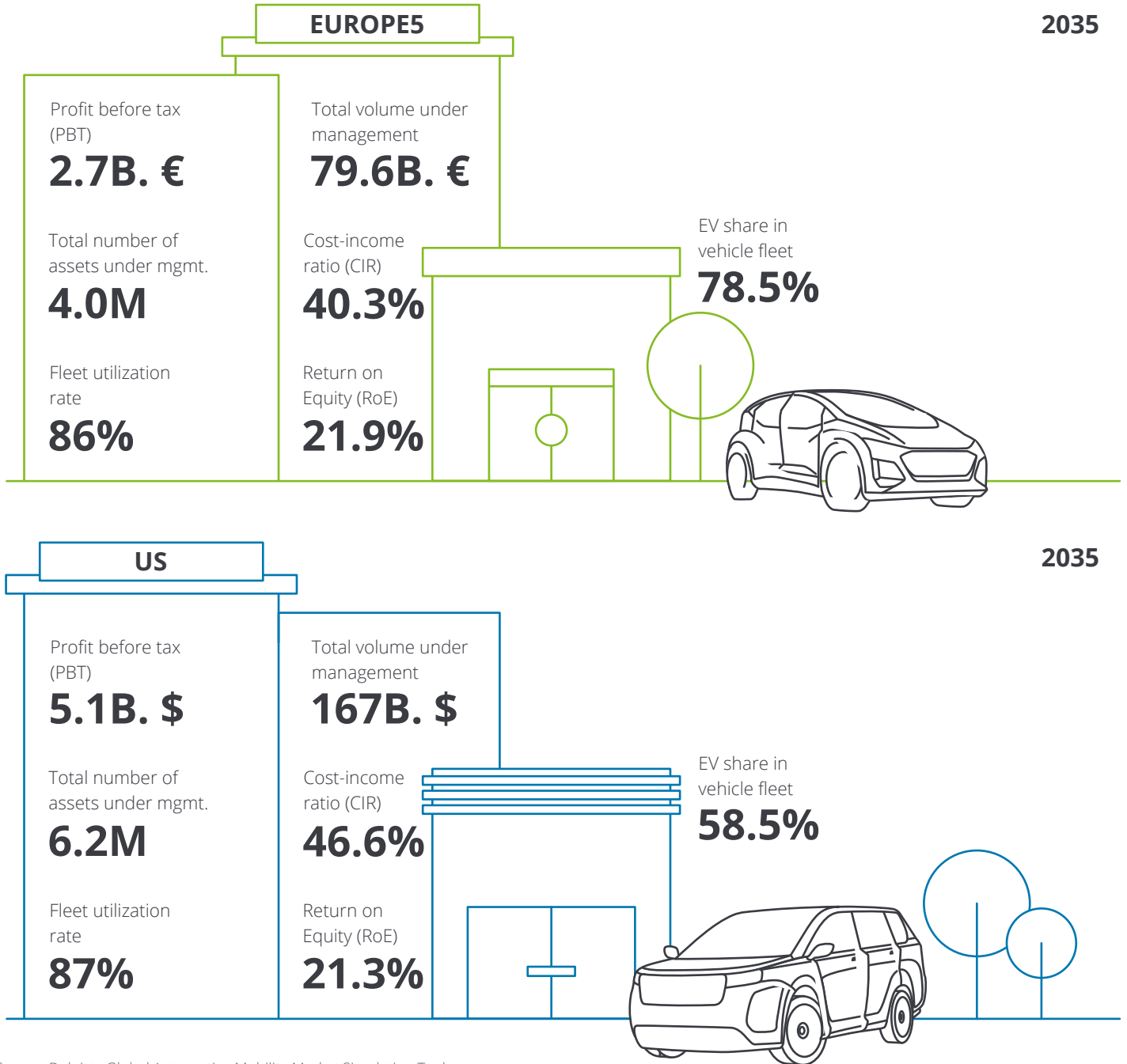
Re-cycle – This increasingly important profit pool is relatively new and unexplored to mobility providers evolving from non-existence in 2022 to €136 million (\$148 million) in revenues for EUROPE5 and US\$300 million (€276 million) in US markets in 2035. Maintaining control of the vehicle until end-of-life, along with the growing importance of the sustainable use of resources (i.e., circular economy), may make smart and cost-efficient re-cycling increasingly important (especially for batteries).

Re-market – For mobility providers, re-marketing will likely form a significant profit pool in the future contributing 4.0% in EUROPE5 and 4.6% in the US markets in 2035. The high margins in the used car

market throughout 2022 will likely cool down as supply begins to normalize with a rebalancing of new vehicle inventories. Players will likely control around 150% more assets and may need to manage the vehicles across multiple cycles while addressing changing customer needs. These will be among the new skills required to help determine the right selling point to maximize vehicle lifetime value and counteract tightening margins.

It may be important for the future success of mobility providers to understand the rising stars and setting suns to help chart a path forward (see Figure 23).

Fig. 24 – Proxy mobility provider in 2035



Source: Deloitte Global Automotive Mobility Market Simulation Tool.

Strategic decisions should be rooted in a careful review of each of the future profit pools to reduce the focus on inappropriate solutions.

While the future is yet to be written, the profit pool simulation tool can help companies adapt to the changes ahead and improve the possibility of success.

6. New operating model capability requirements

To succeed in the competitive environment, sector players may need to develop or acquire advanced capabilities in several areas to help build a future operating model. In many cases, mobility providers may seek strong mobility collaborations to help ensure the success of new product offerings.

There are four typical operating model components to consider: (1) vision and strategy; (2) technology and processes; (3) strategic collaborations; and (4) people and culture.

A careful assessment of each category can help organizations decide whether a future operating model should be developed internally (often requiring major resource investment) or integrated through ecosystems and partnerships (which can be faster and more efficient but can require additional effort). A deeper understanding of each area and related up- and downsides can help players develop effective and resilient capabilities with an eye toward 2035.

(1) Vision and strategy

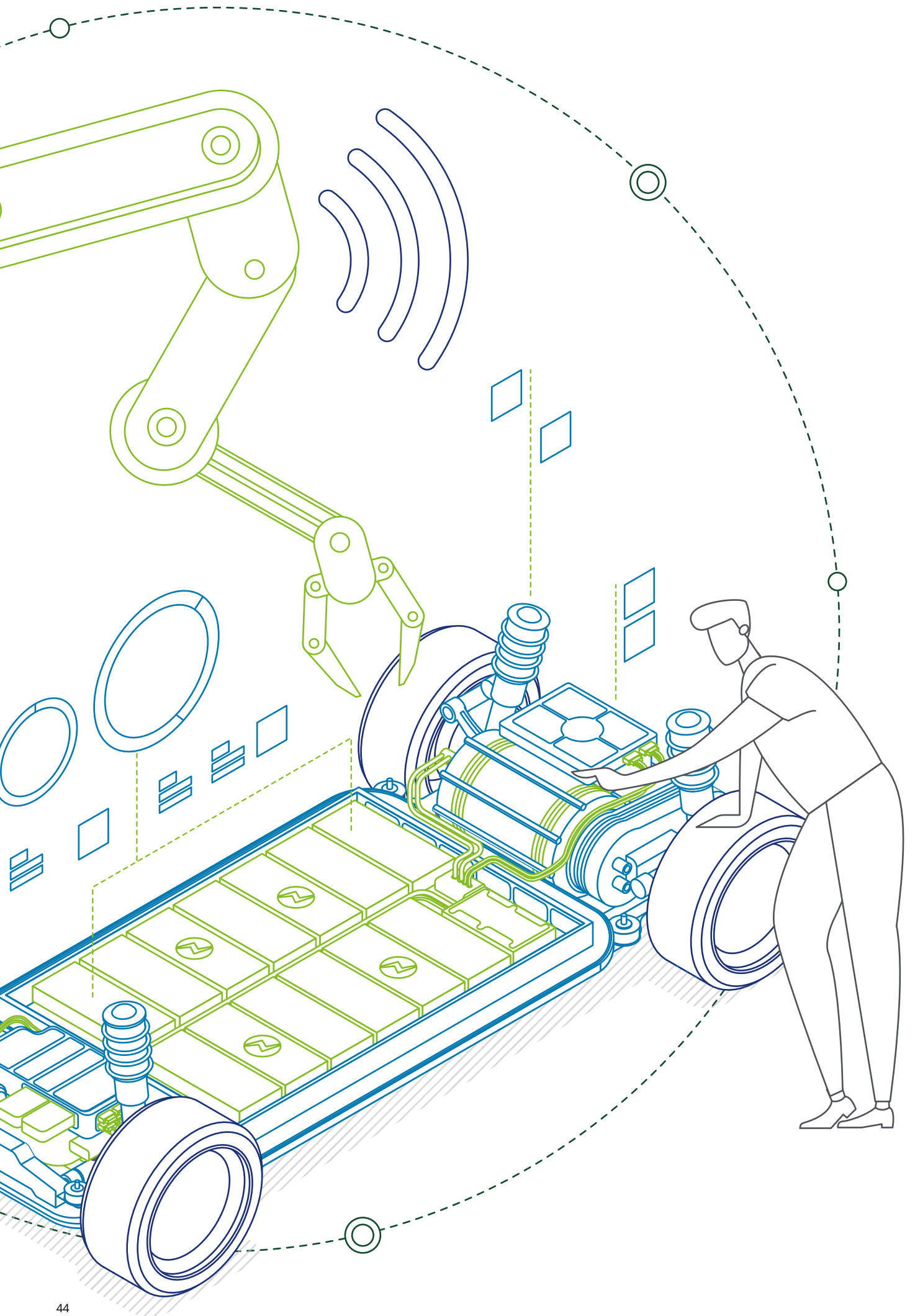
Sustainability roadmap – Sustainability and CCF reduction are important themes expected to impact the future mobility business. For example, the transition

from ICE vehicles to EVs may require new capabilities in what had previously been core competencies like RV management. This could mean foreseeing technological advances in batteries and creating models that are both flexible and robust. Additionally, mobility providers may actively manage and plan assessments on the CCF impacts of their existing fleets (ICE and BEV composition) and on refinancing to help develop a resilient vision for future success.

Value chain coverage – The expansion of value chain coverage to include flexible, usage-based business models, downstream services, and end-of-cycle opportunities may require a broader set of skills and capabilities than industry players currently possess. These skills could include a new digital savviness, an ability to handle “small tickets” (e.g., smaller, and shorter contracts or payments), and more frequent customer interaction than ever before.

This expansion of coverage could suggest that value creation is becoming more fragmented and hence more volatile for the foreseeable future, which may also require a new level of resilience.

Autonomous foresight – Companies may need to adapt their IT systems, operations, and products to prepare for the future of autonomous mobility. This could require forming a new mindset about the business, as well as developing new processes and technologies. To plan today for this reality tomorrow, it may be important to identify attractive profit pools for AVs and related services, while also considering the magnitude of potential investments required to realize the full potential of autonomous technology.



(2) Technology and processes

Along with the capabilities required to underpin new and expanded business models, mobility providers may consider focusing on creating a foundation of operational efficiency rooted in lean processes and the application of automation technologies.

Companies could also develop these capabilities in the context of broader technology transformations taking place, including AI-enablement tools and cloud-based architectures.

(Digital) Sales channels – Mobility providers will likely need to implement new capabilities like those seen in established fintechs. This could entail developing (either on their own platform or through integration) a state-of-the-art technology stack that helps enable customer relationship management (CRM), digital and direct customer interaction, and the orchestration of sales channels.

Asset management – Becoming an asset manager may require a much greater set of skills vs. pure asset financing. Asset managers could consider the whole life cycle of a vehicle, customer interactions, and decision points to optimize vehicle lifetime value. Advanced analytics capabilities may be important to the process, helping inform the fleet assignment to customers. This could also help maximize the vehicle value in the system while enabling decisions regarding when a vehicle reaches the optimal point to retire it into re-marketing. Like digital sales channels, asset management may also require platform and system competencies to support the implementation of a suitable tech stack, which supports contract management, frequent customer interactions, and the fleet itself. The stack could be backed by lean processes covering physical handling, like “ready-to-rent” measures and the operational in-fleeting/de-fleeting of vehicles.

Existing processes for ICE vehicles are challenged by EVs and may require significant infrastructure adjustments. This is likely to be primarily driven by batteries, which account for a major portion of the RV and require dedicated management (closely aligned with the OEM), and specialized

capabilities in battery handling. Some mobility providers are also gearing up for the eventual emergence of scaled, commercial self-driving fleets, which may have a massive impact on the way in which assets are managed in the future.

Handling of product portfolio complexity – Organizations might prepare to offer flexibility in their products, including subscriptions and leasing for vehicles. This could require a breadth and depth of products and services that may be new to the organization. To combat potential added complexity, companies could consider simplifying, or even automating, modular product choices for consumers. The goal would be to tear down system-specific silos and instead strive to integrate functions wherever feasible. Synergies, not silos, should become the organizational norm.

End-of-cycle capabilities – Used car/re-marketing capabilities could be vital to help earn a profit toward the end of the vehicle life cycle. As such, mobility providers could consider actively managing and controlling re-marketing channels. Recycling capabilities may be a completely new skill set that should be developed or acquired via strategic relationships with industry specialists. This requirement is driven, in part, by the industry transition to EVs, and the value associated with batteries.

Technology – Mobility providers will likely need microservices like digital signatures, customer identification, and payment services to help enable their digital- and direct-sales channels as well as their digital self-service-based offerings. Such services can be developed in-house or bought/sourced from dedicated third-party providers. Industry players should carefully plan and execute their IT landscape. Developing an effective technology architecture may be an important element of cost efficiency while offering an innovative customer interface and experience.

Data – When it comes to using and exploiting data effectively, there may be several avenues for industry players to pursue. These include digital and direct sales channels, increasing in-life services, and fleet

management. Such products could create volumes of customer and usage data compared to classical financing, which may be valuable in the near- and longer-term to drive value by helping to inform strategic decisions regarding products, prices, locations, promotions, and operational processes. To unlock these opportunities, companies should consider establishing a strong data foundation anchored by capabilities to help ensure the integration and optimization of data across the organization.

(3) Strategic collaborations

Ecosystem orchestration – There may be an element of sharing in the future of automotive mobility, which will likely require enhanced coordination among sector players. This ecosystem may take shape in the form of alliances, partnerships, and/or deeper cooperation among OEMs (i.e., “co-competition”). Such integration could emerge as the new normal—as may an increase in M&A activity—as organizations realize that not everything can be managed in-house, alone, or with current resources and infrastructure. This approach centered on strategic partnering and M&A could be crucial for reducing the time it takes to implement key capabilities required to access emerging profit pools going forward (e.g., vehicle recycling, battery re-marketing, and MoD services).

(4) People and culture

Talent – Evolving the role (and new products) of the mobility provider may require new skills with mobility, technology, and public sector/regulatory experience topping the list. Tech skills like IT architecture, AI, machine learning (ML), software development, and data analytics/science will likely be invaluable in helping implement the vision noted above—one that is more closely aligned to the future of automotive mobility. Additional talent should revolve around entrepreneurial business skills that closely align with product management and e-commerce, which can help enhance the value chain and existing portfolio. Finally, mobility platforms and AVs require interaction with public authorities. As such, business to authorities (B2A) experience can help drive usage-based business models and manage ESG requirements.



Where will you play in 2035?

Some elements of the new operating model capability requirements might sound straight forward, but the path to success can be quite different, depending on the individual player. Because of this, we have explored these capability requirements through the lens of three different company types under the umbrella of the automotive mobility provider:

Captive finance company

As profit pools continue to shift toward services, captives could step out of their OEMs' shadow to reinvent themselves as essential drivers of profitability. Key next steps for captive players to consider include:

- Shifting from one-time sales financing to asset management across multiple life cycles by setting up effective business and IT processes for customer and asset life cycle management, including an advanced used car program built around the 4 R's.
- Defining a sustainability strategy and setting a clear direction for CCF reduction, effectively managing the remaining ICE fleet with corresponding RVs, and controlling the impact of ESG-ratings on the refinancing costs of the balance sheet.
- Initiating insurance product innovation for flexible usage, including insourcing of insurance operations, either in strong cooperation with an established insurance company or developed fully in-house.
- Defining a mobility platform strategy as either an operator or aggregator and starting to build a suitable offering for multi- and inter-modal mobility.

Fleet management company

When it comes to managing a vehicle across its full life cycle, fleet managers will likely say this has been commonplace for many years. As such, the industry shifts expected over the next decade could offer an opportunity for existing fleet management companies to gain market share and claim a greater share of the automotive mobility value chain. Key areas of focus for this group to consider include:

- Further strengthening of the leading market position regarding optimized sourcing strategies and processes to secure quantity and quality of vehicle supply at a competitive price.
- Expanding product portfolio in vehicle- and usage-related, as well as infrastructure, services in-house or through partnerships, which may increase flexibility on contract type and duration to cater for more diverse customer demand.
- Improving the mobility budget by combining a variety of services (i.e., beyond automobiles) and creating a more flexible offering that caters to the demand of future mobility users.
- Supporting customers in their EV transition by offering suitable products and services (e.g., charging services).

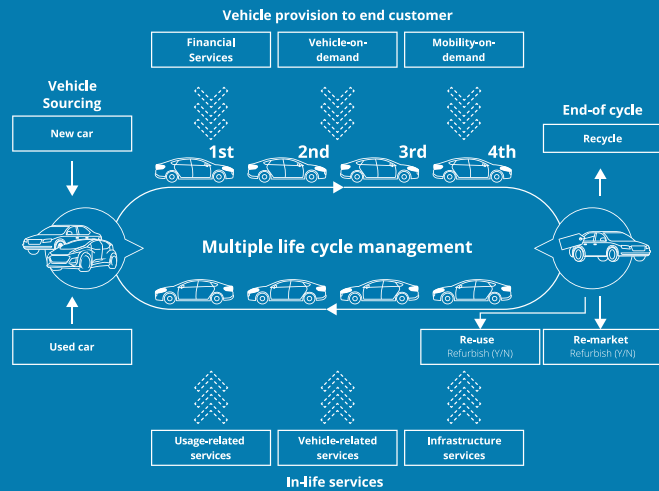
Rental company

Like fleet managers, vehicle rental companies have experience in handling small tickets and frequent customer interactions. However, extraordinarily tight margins and a strong dependence on OEM sourcing channels mean rental companies should optimize processes, grow their balance sheet, and expand their portfolio. Key next steps to consider include:

- Optimizing sourcing strategies and processes to help secure the quantity and quality of vehicle supply at a competitive price.
- Helping to improve fleet usage by building AI-based solutions for channel management while expanding product portfolios to optimize across channels.
- Increasing the share of vehicles on their own balance sheet to help enable mid- to long-term products and services by improving in-house fleet management and RV capabilities.
- Actively managing the shift in fleet from ICE vehicles to EVs by helping to solve customer pain points (e.g., battery capacity) and adjusting operations to fit new EV requirements (e.g., charging stations).

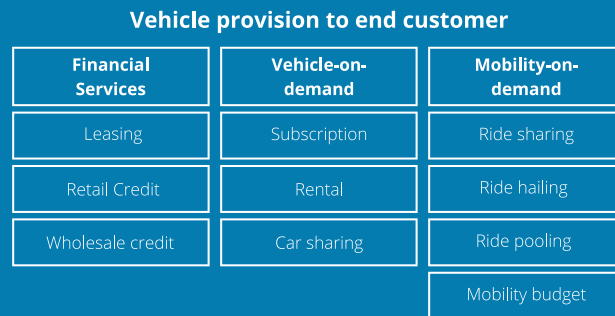
Orchestrator

- Provider bundles all products and services within the value chain
- Become the platform provider



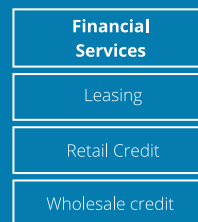
End-to-end player

- Horizontal end-to-end positioning
- Cover products and services around vehicle provision to end customer



Specialized contributor

- Vertical positioning within value chain
- Become pure supplier for financial services



7. Key takeaways

Mobility providers are potentially on the cusp of a make-or-break moment. Eleven key shifts are driving disruptive change in the automotive mobility industry and could require market participants to act. Depending on the business model, players occupy different starting positions.

Non-captive automotive banks are typically dependent on classical retail and wholesale financing. OEM captives may remain focused on supporting volume targets of OEMs instead of maximizing life cycle profits and can potentially be stuck with increasingly problematic ICE fleets. Leasing and fleet companies as well as rental companies may be better prepared for the accelerating trend of moving from classical vehicle ownership to usage-based models.

For many players, making the right choices today is important to help benefit from a growing market shift in profit pools from one-time sales to recurring revenue over multiple life cycles. These choices and reactions to the shifts should not be limited to local markets. Products and services could be offered on a regional basis at the very least. Mobility players could consider focusing on the following points:

Help secure your future as an automotive mobility leader in 2035 by positioning your company clearly in the automotive mobility value chain today.

Establish your company as either an orchestrator across the value chain, covering many elements (make or buy) and coordinating the offering, or position yourself as a specialized contributor with best-in-class products and services for selected parts of the value chain (or a combination of both).

Mobility providers can further strengthen their position as an orchestrator by estab-

lishing a network to meet the demand for one-stop shopping and bundled products. Also, acquiring other companies can help achieve these goals. Such inorganic growth can increase market share in segments in which providers are already active. It can also help expand the depth and breadth of product portfolio offerings through complementary products beyond a company's own sales proposition.

Master asset management across the value chain and multiple vehicle life cycles.

This may require a shift from one-time sales to asset management across multiple life cycles. Mobility providers will likely need to optimize usage of each vehicle, leverage CRM systems for asset management, and build key competencies in fleet management, residual value management, cross-border asset management and end-of-cycle services (the 4 R's). The capabilities, such as AI, high-level automation, and cloud technologies, will likely be important to efficiently manage significant assets over their lifetime to optimize profits (i.e., the next best option for vehicles).

Concentrate on and invest in rising-star profit pools.

Mobility providers could start—or continue—to build usage-based product portfolios because revenue and profit contributions of vehicle and mobility-on-demand products are expected to increase (i.e., revenue CAGR of 7.7%-8.8% and profit

contributions of up to 20% by 2035). Also, in-life services may be considered for further investments due to their growth and increasing profit share. Focusing on insurance services could become especially lucrative for mobility providers as volumes increase and opportunities arise to bundle them with existing products or offer them as in-life services.

Develop and use mobility platforms and mobility budget offerings to sell your own and partner products.

We expect mobility platforms and mobility budgets to emerge as key distribution channels and sales enablers in the future. Mobility providers can create their own platform or develop a product or service under the corporate customer brand and maintain a convenient, one-stop digital and hybrid experience for users. Mobility budgets—as a B2B (and B2C) offering—can be an attractive option for corporate customers to offer mobility benefits to employees beyond the traditional company car.⁴⁷ Employees could use their mobility budget from their compensation to pay for (multi-modal) mobility options. Budget and platform pricing can help steer usage according to ESG targets. Solutions can be mobility provider-branded with the corporate customer brand. They could also include a certain degree of customization regarding product offerings (i.e., limited to or segmented by employee level) and pricing (i.e., allowing for volume-based pricing). Consolidated billing and adequate reporting input for accounting and payroll

could be another important element. As a next step, public platform offerings could be created, focusing directly on consumers. These could allow for adequate brand representation, full product coverage, and customer-centric and convenient interfaces and processes—especially when it comes to payments.

Pursue decarbonization to meet the 1.5 degrees Celsius climate target.

Mobility providers could actively manage the shift in their fleets from ICE vehicles to EVs, starting with attractive, usage-based products. Even so, customers still might require incentives to drive EV adoption. Providers, for their part, can invest in decarbonization initiatives during the usage phase of the vehicle, creating mutual benefits for organizational environmental goals and like-minded customers. Furthermore, according to Deloitte analysis of industry data, incorporating sustainability into the business model corresponds to an interest rate advantage in the procurement of debt capital (5-60 basis points for sustainable linked loans originated in 2021).

Keep an eye out for mid- and long-term development of autonomous vehicles and fleets.

Even though there are many technological and regulatory obstacles to overcome, AVs likely will not simply challenge the current business model. They are expected to completely change the way we look at and use vehicles in the long term. To set themselves

up for success, mobility players today can keep AVs in mind when investing in capabilities, such as fleet management, telematics, functions on demand, in-car purchases, and payment solutions. Investments in these areas already create competitive advantages for non-autonomous products in the short and medium term and could provide a head-start for market leadership in AVs in the long term.



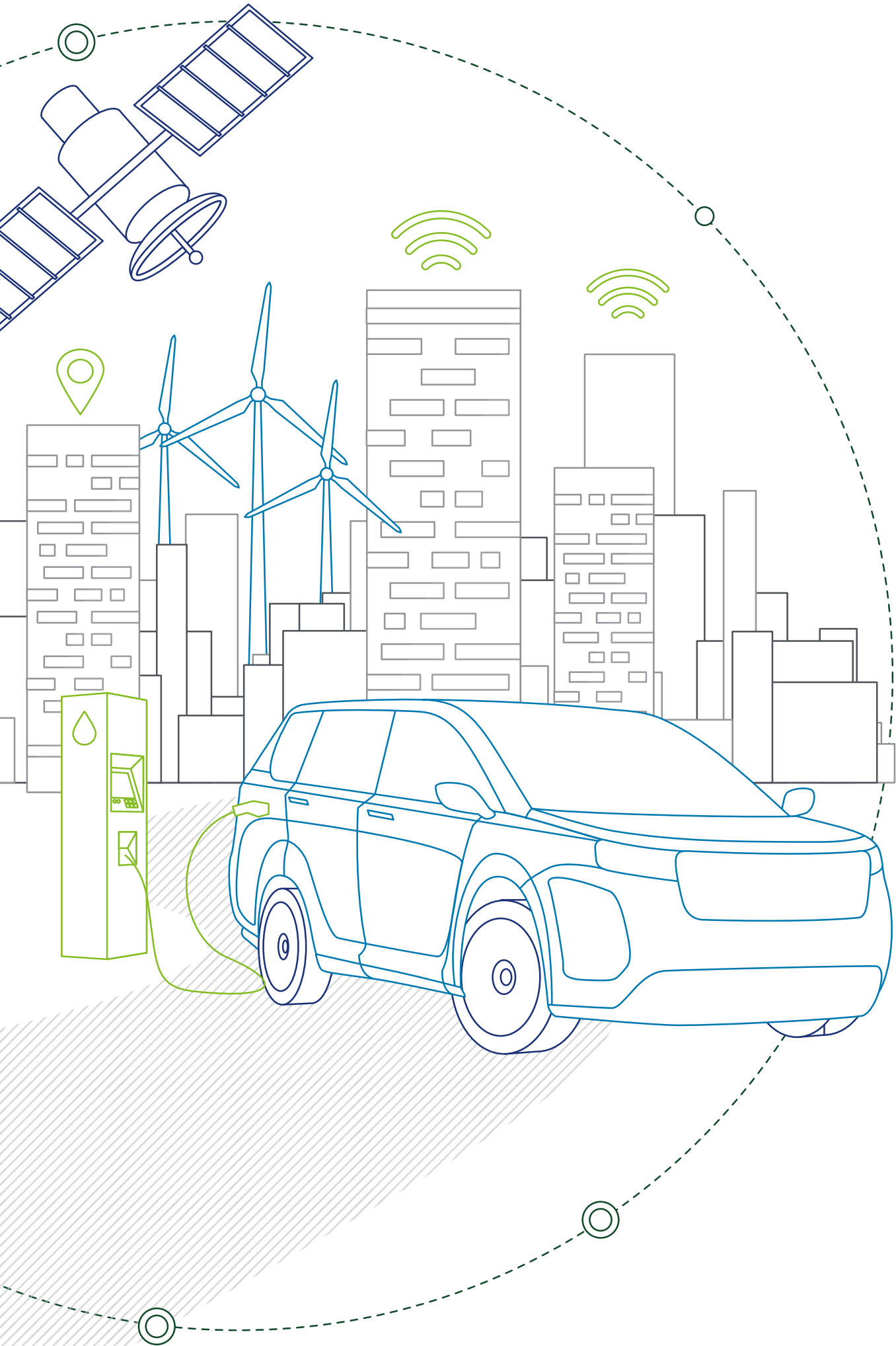
Premium vs. volume brand segments

We expect certain differences between the premium and volume automotive mobility market, as products and customer preferences differ. In this study, we assess an average across the segments, and we summarize the key differences here:

Customer relationship: Premium customers can expect a closer and more direct relationship with the OEM, dealer, or mobility provider. Consequently, the transition to online sales may not advance as quickly vs. the volume brand segment, while greater brand loyalty and customer retention can be expected.

Ownership: Vehicle ownership could remain more common for customers in the premium segment, while for the volume segment, usage-based products could continue to claim market share faster.

Individualization: Customers in the premium segment tend to have stronger preferences for individual features and specifications, while the volume segment may transition further to uniform configurations, which make it easier to cater to the mass market (build-to-order vs. build-to-stock).



8. Conclusion

The study results suggest the automotive mobility market size in the EUROPE5 region is projected to grow significantly (5% CAGR) to €141 billion (\$153 billion) by 2035. In the United States, the market is projected to grow to US\$281 billion (€258 billion) (5% CAGR) over the same period. However, below this topline, fundamental changes are expected to result in significant disruption across the ecosystem. In fact, several macro trends are accelerating this change (e.g., changing customer behavior, faster EV transition) requiring an accelerated shift to emerging profit pools. But not all profit pools will develop favorably (e.g., traditional retail credit business -10% for EUROPE5 and -25% for US markets in relative profit contribution based on the proxy mobility provider simulation). As such, mobility providers may need to differentiate their near- and long-term growth strategies. In doing so, they should identify their most promising profit pools that mesh with their strategic focus. Choosing the right areas in which to play could help determine their future success, the role they might play in the future automotive mobility sector—or possibly if they will even exist in 2035.

Mobility providers also play a pivotal role in reducing CO₂e emissions. Reaching ESG targets can create a competitive advantage in an increasingly complex market environment and help drive profitability. The growing popularity of usage-based services can, in turn, help increase mobility provider balance sheets—a win-win scenario to be sure.

The analysis suggests that management of a vehicle asset across multiple life cycles can be 50% to 60% more profitable than the traditional OEM business model of one-time sales to customers. To succeed today and tomorrow in this highly competitive environment, mobility providers can work to develop advanced capabilities that are

either built internally or integrated through ecosystems, partnerships, and acquisitions. It may also be critical for OEMs to carefully consider their investment priorities. Continuing to invest in product technology as a key competitive differentiator may be obvious. However, to fully embrace the emerging profit pools, OEMs might consider focusing future investment on their captive mobility providers. In fact, a captive-first investment strategy could help determine whether OEMs maintain their position as key stakeholders in the automotive value chain or become suppliers of hardware that are more effectively monetized by other players.

While established players may be in a strong position to thrive in the evolving mobility sector, they still should consider stepping up sooner rather than later to meet these challenges with investments and forward-thinking decision making. Their future in automotive mobility down the road could depend on it.

Contacts



Sebastian Pfeifle

Partner
Global Automotive Mobility Lead
Consulting
spfeifle@deloitte.de



Jeff Paul

Managing Director
US Auto Captive Finance Leader
Deloitte Services LP
jeffpaul@deloitte.com



Dr. Harald Proff

Partner
Global Automotive Sector lead
Consulting
hproff@deloitte.de

Contributors



Lars Henner Santelmann
Deloitte Senior Advisor
Former CEO Volkswagen
Financial Services AG



Klaus Entenmann
Deloitte Senior Advisor
Former CEO Daimler Mobility AG



Ingo Schmuckall
Director
ischmuckall@deloitte.de



Robert Shaw
Managing Director
robshaw@deloitte.com



Benedikt Middendorf
Director
bmiddendorf@deloitte.de



Rodolfo Dominguez
Managing Director
roddominguez@deloitte.com



Ryan Robinson
Automotive Research Leader
ryanrobinson@deloitte.ca



Christopher Hemberger
Manager
chemberger@deloitte.de



Fabian Ditthardt
Senior Consultant
fditthardt@deloitte.de



Blerina Valikaj-Stringer
Strategy Specialist
Master-Automotive
bvalikajstringer@deloitte.com

Acknowledgments

We would also like to thank Gregg Geller for his contributions to the study.

Endnotes

01. Scott Corwin et al., "The future of mobility: What's next?," Deloitte Insights, September 14, 2016.
02. Qiong Sun, "The hidden innovations advancing EVs," TE Connectivity, September 14, 2022.
03. Max Chafkin, "Even after \$100 billion, self-driving cars are going nowhere," Bloomberg Businessweek, October 6, 2022.
04. Anthony Waelter, Kasey Lobaugh, Alisa Locricchio and Cole Oman, "Buying into better: the six forces shaping the future of the consumer industry," Deloitte Insights, January 27, 2023.
05. Prerna Lidhoo and Nidhi Singal, "How technology is transforming the auto industry," bt Business Today, May 1, 2022.
06. Grand View Research, "Automotive finance market size, share & trends analysis report, 2022–2030," September 12, 2022.
07. Miron Lulic, "Auto finance disruption: Putting consumers in the driver's seat," Forbes, January 27, 2020.
08. Judy Cubiss, "The future of automotive and mobility," Forbes, May 5, 2021.
09. Michael Wayland, "From SPACs to chips: Five ways 2021 may have forever changed the auto industry," CNBC, December 31, 2021.
10. Peter Vickers and Philipp Merkofer, "Transitioning from products to services to fuel growth," Deloitte.
11. Joel Levington, "Captives key to customer access, profitability," Automotive News, September 6, 2021.
12. Deloitte, "Future of Captives: What will be the core businesses for automotive Captives in 2030?," February 2018.
13. Duncan Stewart and Karthik Ramachandran, "E-bikes merge into the fast lane," Deloitte Insights, March 31, 2022.
14. "The impact of demographic change in Europe," European Commission, January 2023.
15. "Urban Development Overview," The World Bank, October 6, 2022.
16. Gabby Birenbaum, "How to end the American obsession with driving," Vox, September 12, 2021.
17. Len Williams, "What happens when a city bans cars from its streets?," BBC, October 16, 2019.
18. Jennifer Dlouhy and John Ainger, "How a flawed but historic climate deal emerged from COP chaos," Bloomberg, November 20, 2022.
19. Peter Els, "The truth about the carbon footprint of a new car that no one's talking about," Hotcars, November 19, 2021.
20. https://climate.ec.europa.eu/eu-action/transport-emissions/road-transport-reducing-co2-emissions-vehicles/co2-emission-performance-standards-cars-and-vans_en
21. "CO₂ emission performance standards for cars and vans," European Commission.
22. Ron Lyseng, "Improving the internal combustion engine," The Western Producer, January 12, 2023.
23. Christopher Tan, "Buying a new car? Expect to pay more with vehicle registration fee rising by 59% from \$20 to \$350," The Straits Times, December 7, 2022.
24. Feargus O'Sullivan, "What comes after London's congestion charge?," Bloomberg, January 26, 2022.
25. Chris Heitzman, "Regulation of self-driving vehicles: the recommendations of the Law Commissions," Automotive World, March 11, 22.
26. David Simchi-Levi and Pierre Haren, "How the war in Ukraine is further disrupting global supply chains," Harvard Business Review, March 17, 2022.
27. Joel Levington, "Captives key to customer access, profitability," Automotive News, September 6, 2021.
28. Goldman Sachs, "Software is taking over the auto industry," Goldman Sachs, November 8, 2022.
29. "Automotive dealerships 2007–19: profit-margin compression and product innovation," US Securities and Exchange Commission, October 2022.
30. Laurence Iloff, "In era of tight new-car margins, retailers dream up ways to free up cash," Automotive News, February 29, 2020.
31. Achyut Jajoo, "How we make, sell, buy, and drive cars is changing forever. Here's what to expect, according to Salesforce," Fortune, October 13, 2022.
32. Lindsay Vanhulle, "Direct-sales efforts heat up in states," Automotive News, April 12, 2021.
33. James Morris, "The days of personal car ownership could be numbered," Forbes, June 19, 2021.
34. Jill McIntosh, "EV battery recycling: Who's going to do it?," Autosphere, October 31, 2022.
35. Mark A. Andor, Andreas Gerster, Kenneth T. Gillingham, and Marco Horvath "Running a car costs much more than people think — stalling the uptake of green travel," Nature, April 20, 2020.
36. Tom Bateman, "Gearing up to go green: when are Europe's carmakers making the switch to electric cars?," euronews, September 17, 2021.
37. Nives Dolsak and Aseem Prakash, "The lack of EV charging stations could limit EV growth," Forbes, May 5, 2021.
38. Olan O'Sullivan, "Residual value risk of EVs for car leasing companies and fleet owners," BatteryCycle, October 21, 2022.
39. Sam Dogen, "Never spend more than this much of your income on a car, says millionaire finance expert," cnbc, November 4, 2019.
40. "US vehicle registration statistics" Hedges & Company; "Vehicles in use: Europe 2022," ACEA, January 2022.
41. John Kennedy, "Are the days of the company car numbered?," ThinkBusiness, June 2, 2022.
42. Nicolai Andersen, et. al., "Urbane mobilität autonomes fahren im jahr 2025," Deloitte Germany, September 2019.
43. Dr. Jan Burgard, "Big Tech vs. the automakers: The battle for the connected car," Automotive World, January 21, 2020.
44. Leah Nylen, "Big tech's next monopoly game: building the car of the future," Politico, December 26, 2021.
45. Stefan Nicola, "Berlin tries to cut private car use with one-stop mobility app," BNN Bloomberg, January 5, 2023.
46. Gary Guthrie, "Car subscriptions are starting to challenge ownership, renting, and leasing," Consumer Affairs, December 12, 2022.
47. John Kennedy, "Are the days of the company car numbered?," ThinkBusiness, June 2, 2022.



Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited (“DTTL”), its global network of member firms, and their related entities (collectively, the “Deloitte organization”). DTTL (also referred to as “Deloitte Global”) and each of its member firms and related entities are legally separate and independent entities, which cannot obligate or bind each other in respect of third parties. DTTL and each DTTL member firm and related entity is liable only for its own acts and omissions, and not those of each other. DTTL does not provide services to clients. Please see www.deloitte.com/de/ueberUns to learn more.

Deloitte provides industry-leading audit and assurance, tax and legal, consulting, financial advisory, and risk advisory services to nearly 90% of the Fortune Global 500[®] and thousands of private companies. Legal advisory services in Germany are provided by Deloitte Legal. Our professionals deliver measurable and lasting results that help reinforce public trust in capital markets, enable clients to transform and thrive, and lead the way toward a stronger economy, a more equitable society and a sustainable world. Building on its 175-plus year history, Deloitte spans more than 150 countries and territories. Learn how Deloitte’s approximately 415,000 people worldwide make an impact that matters at www.deloitte.com/de.

This communication contains general information only, and none of Deloitte Consulting GmbH or Deloitte Touche Tohmatsu Limited (“DTTL”), its global network of member firms or their related entities (collectively, the “Deloitte organization”) is, by means of this communication, rendering professional advice or services. Before making any decision or taking any action that may affect your finances or your business, you should consult a qualified professional adviser.

No representations, warranties or undertakings (express or implied) are given as to the accuracy or completeness of the information in this communication, and none of DTTL, its member firms, related entities, employees or agents shall be liable or responsible for any loss or damage whatsoever arising directly or indirectly in connection with any person relying on this communication. DTTL and each of its member firms, and their related entities, are legally separate and independent entities.