

McKinsey Center for Future Mobility

Defining and seizing the mobility ecosystem opportunity

What mobility ecosystems will help OEMs and other industry stakeholders in the next normal?

by Kersten Heineke, Tamara Hornik, Dennis Schwedhelm, and Imre Szilvacsku



Change has been the driving factor in the mobility space and will continue to define the sector. Increased activity and exponential growth across several nontraditional areas of mobility can be expected over the next ten years.¹ Mobility's next normal will also feature changing consumer behaviors, new roles for regulators, hyperlocal mobility (for instance, city-specific rules), new forms of cooperation, and a shift in innovation strategy.

As companies adjust to the changing landscape, mobility players—automotive OEMs and suppliers, above all—face some pressing challenges. The automotive industry tends to have a weaker financial performance than other sectors because of structural disadvantages. Traditionally, it has underperformed the S&P 500 in terms of total return to shareholders and P/E multiples. On average, traditional auto OEMs are expected to trade at seven times P/E multiples versus the S&P 500's 21 times earnings multiples. This has, in part, been driven by a high capital expenditure (CAPEX) industry structure combined with historical overcapacities. The automotive industry's financial performance is continuing to decline, and current valuations reflect expected profit margins of below 3 percent.

Given these market dynamics, many mobility companies are contemplating the development of an organized ecosystem that will help them respond to financial pressures and increase collaboration. Such networks allow each member to improve its performance significantly while strengthening the entire sector along three key dimensions²:

- **Core-business revenue streams.** Ecosystems can help mobility players expand their core-business revenue streams by increasing their access to new customers, building stronger customer relationships, improving operations, and allowing them to address end-user needs more effectively.

- **New revenue streams.** Ecosystems can facilitate the creation of new adjacent or incremental revenue streams, such as those derived from developing technology platforms or integrating hardware and software.
- **New business models.** Ecosystems can enable new business models, such as those based on data monetization, platform-usage fees, or pay-per-kilometer payment schemes (as opposed to the traditional pay-per-unit model).

Big Tech companies and conglomerates were among the first to build digital ecosystems. Both traditional and emerging mobility players are now following suit by actively seeking and identifying similar opportunities. Capital markets are taking a positive view of such moves, and two of the ten highest-valued mobility companies—relatively new businesses that have been operating less than 12 years—are active in various areas across the mobility ecosystem. To assist other companies that want to develop or join ecosystems, this article addresses three questions:

- What characterizes ecosystems in general and those in the mobility space in particular?
- How can mobility players fully leverage the ecosystem opportunity?
- What is needed to take full advantage of ecosystems and unlock their value within mobility?

Fast-emerging ecosystems provide fundamentally new opportunities in the mobility sector

Unlike simpler cooperative agreements between two parties, ecosystems involve a complex constellation of players. In the mobility sector, the development of these networks varies by product, service, and player type.

¹ Martin Hattrup-Silberberg, Saskia Hausler, Kersten Heineke, Nicholas Laverty, Timo Möller, Dennis Schwedhelm, and Ting Wu, "Five COVID-19 aftershocks reshaping mobility's future," September 17, 2020, McKinsey.com.

² Miklos Dietz, Hamza Khan, and Istvan Rab, "How do companies create value from digital ecosystems?," August 7, 2020, McKinsey.com.

What sets ecosystems apart from other partnerships

Digital ecosystems have historically emerged from the consolidation of industry value chains. We define them as networks of players that provide interconnected sets of products, services, or solutions that fulfill a variety of end-user/consumer needs by providing an integrated customer experience. In addition to addressing end-consumer needs, digital ecosystems bring together a variety of players within a cohesive structure. Participating companies have the data supremacy—access to the most critical information—required to create an integrated solution and a convenient customer journey. Such ecosystems also offer economic incentives and benefits for all players involved. They go beyond the boundaries of looser networks or partnerships in three critical ways:

- **Breadth and diversity.** Ecosystem partners are chosen strategically, with a broader vision in mind, and typically represent a diverse set of industries and stakeholder groups.

- **Complementary capabilities.** Ecosystems are designed to address critical capability gaps to ensure value capture and creation. With a task force in place, ecosystem participants can make centrally coordinated efforts in which they seamlessly identify, develop, and leverage opportunities.
- **Unified vision.** Collaboration within ecosystems focuses on common purposes and highly aligned business aspirations.

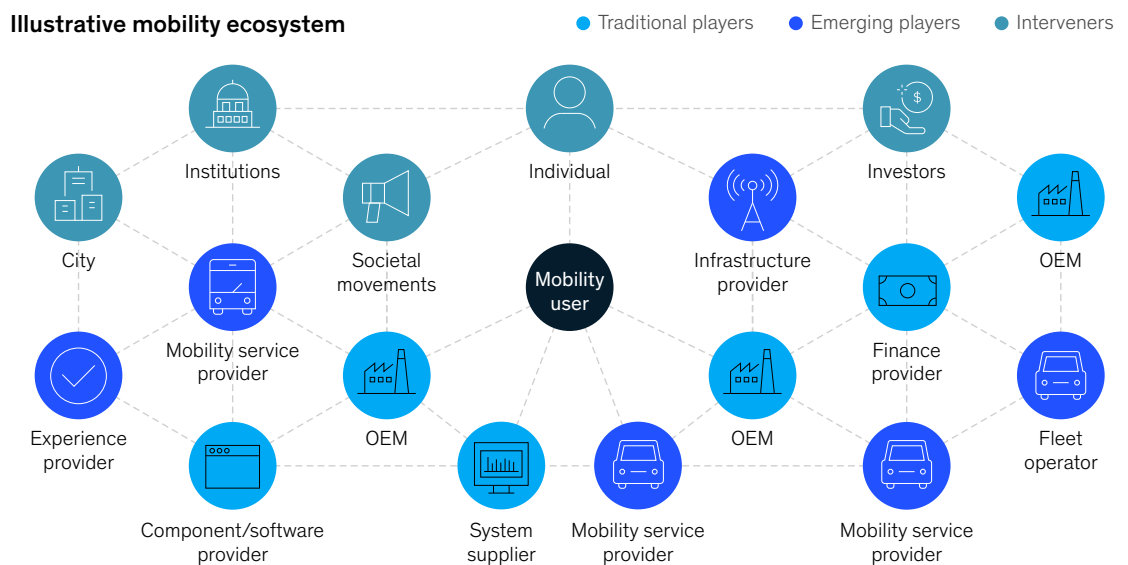
How mobility ecosystems are currently developing

As with other industries, mobility ecosystems are forming around the needs and preferences of end users. Private-vehicle ownership is increasingly becoming just one of several mobility options—and often not even the primary one—which is challenging its primacy within the value chain. Today’s mobility landscape is also more complex, with new, customer-focused mobility players creating an additional service layer between OEMs and users (Exhibit 1).

Exhibit 1

Mobility service-centric ecosystems have been emerging and can take many forms.

Illustrative mobility ecosystem



Source: McKinsey Center for Future Mobility

How players can benefit from ecosystem participation

OEMs, suppliers, transportation companies, and other traditional players benefit from ecosystems in three main ways. They can use the existing platforms of their competitors-turned-collaborators for new technologies, enabling joint R&D investments that reduce risks and accelerate development when pursuing important trends. Ecosystems also allow traditional players to share CAPEX, especially when financing large-scale infrastructure projects. Suppliers that fall into the traditional player category benefit from ecosystems because they gain access to both new customers and new technology-driven innovations. As with other traditional players, these arrangements also help them to collaborate within R&D to share investment risk and accelerate development. Ecosystems also allow suppliers to consolidate, thereby enabling scale-up and improving performance.

Emerging mobility players, such as mobility-service providers, infrastructure providers, and operators, want to expand their portfolios. They view ecosystems as a tool that will deepen their customer relationships, give them greater control, and allow them to harvest data from customer interactions.

Many players in this group are still fighting to achieve tangible returns and hope that collaborations, involving both investment and knowledge, will optimize their performance.

Interveners also play a role in ecosystem development and have much to gain from these arrangements. They include regulators, nongovernmental organizations (NGOs), and other groups that lead mobility movements and initiatives, such as those that involve continuously defining guidelines and leveling the playing field. Cities and NGOs are also playing the role of intervener, with the dual goals of improving mobility services and pushing policy agendas.

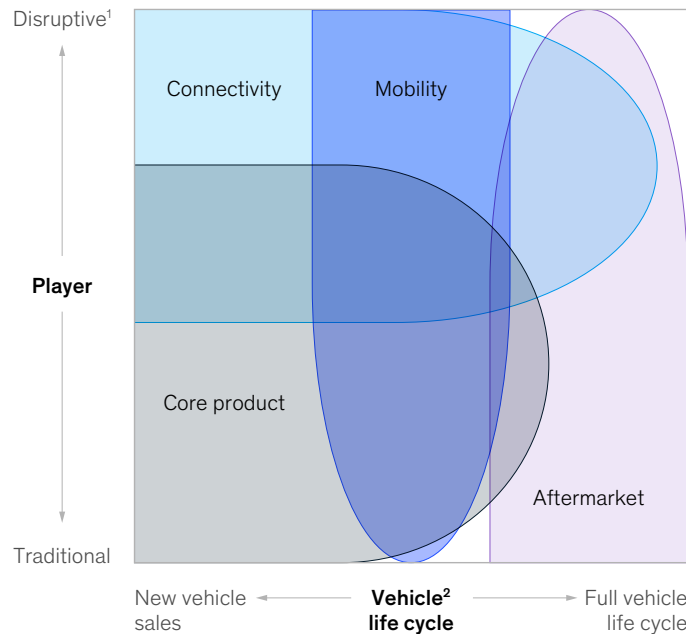
How ecosystems can help the mobility industry

Ecosystems can provide benefits in four core areas of the mobility industry (Exhibit 2). With core products, the ecosystem play focuses on the development, production, and sale of vehicles. This area encompasses everything from raw materials to complete vehicles. Traditional OEMs are expected to drive development of these ecosystems, and some may integrate all necessary players for core products.

Exhibit 2

Ecosystems cover many core areas of the mobility industry.

Illustrative map of mobility ecosystems



¹Player coming from new technology background.
²Including both internal combustion engine and electric vehicles.
 Source: McKinsey Center for Future Mobility

Within the aftermarkets, ecosystems can provide services for the repair and maintenance of vehicles, such as part production or creation of reworked vehicles. They will likely result in consolidation within the traditional aftermarket as existing networks expand their services along the value chain. The rise of digitization may encourage the development of digital-, data- and fleet-based ecosystems.

Connectivity-oriented ecosystems center on the provision of vehicle-connectivity services and facilitate the integration and monetization of car and user data. These ecosystems are likely to form around region-specific, tech-player-led platforms—a trend that will increase the number of nonmobility players that own the control points in the customer relationship.

Mobility-service ecosystems include transportation options that go far beyond traditional car ownership. This tech-heavy area will also involve companies that integrate autonomous driving systems into vehicles and pursue other innovations. While some ecosystem members will be new to the mobility sector, traditional mobility players that can identify

and adapt to rapidly evolving customer needs may also participate.

How players are building mobility ecosystems today

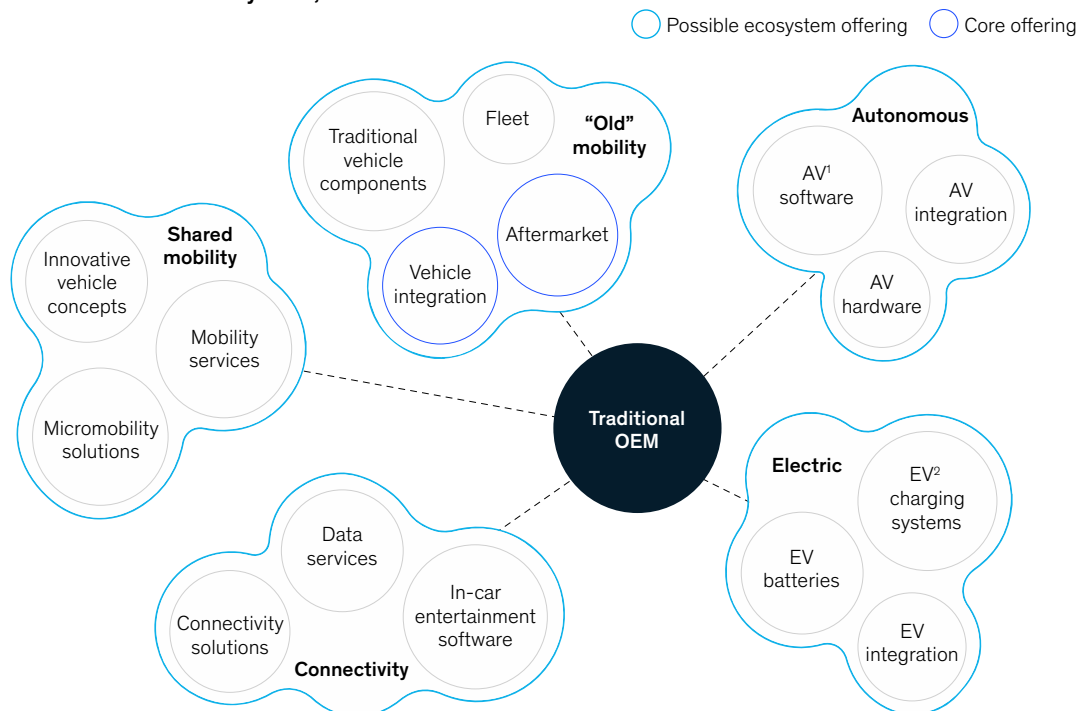
Many mobility players want to capture the ecosystem opportunity, with most taking different approaches and achieving varying degrees of business success. The ecosystem leaders will largely shape how their networks evolve.

As an example, consider an ecosystem led by traditional OEMs that are particularly active in core products (Exhibit 3). These players are already using ecosystems to expand into an increasingly broad set of mobility business opportunities and experiment beyond core offerings. Companies within these ecosystems often focus on joint ventures that are relatively narrow in scope and scale. Such collaborations constantly evolve while the individual partners simultaneously pursue their independent activities. Ecosystems of this type support only two core offerings in the traditional mobility space: aftermarket and vehicle integration.

Exhibit 3

Traditional OEMs may lead some mobility ecosystems.

Traditional OEM-led ecosystem, illustrative



¹Autonomous vehicle.
²Electric vehicle.

As another example, consider ecosystems led by tech companies that are primarily active in connectivity and future-oriented services (Exhibit 4). The technology players and mobility-service providers can leverage their tech-focused position and proximity to end customers, and also take more sophisticated ecosystem approaches. Tech-led mobility ecosystems are thus more disruptive because their participants are active across value chains from end to end. Overall, the success of such

ecosystems depends on their breadth and depth. Many tech-led mobility ecosystems transcend mobility and maintain an active presence in other sectors, including healthcare or food and grocery delivery. Multiple partnerships are common in these ecosystems. Not surprisingly, these ecosystems often focus on core offerings for autonomous driving and connectivity, such as autonomous-driving hardware and software or data services.

Exhibit 4

Nontraditional ecosystems may foster technology innovation.

Technology player-led ecosystem, illustrative



¹Electric vehicle.
²Autonomous vehicle.

There are some notable similarities between ecosystems led by traditional players and those run by technology players. For instance, the possible offerings for electric vehicles (EVs) and shared mobility are virtually identical, while the offerings related to autonomous vehicles (AVs) and connectivity differ. Many tech companies have core offerings in these areas while traditional OEMs do not. The starkest differences relate to mobility offerings in other categories. For example, while tech companies may collaborate with nonautomotive players to develop new offerings, such as insurance solutions or public infrastructure, traditional OEMs are unlikely to enter such areas.

Seizing the ecosystem opportunity in mobility requires a new mindset, informed decisions, and strong conviction

Many traditional corporations have long understood the opportunity in ecosystems and have tried to participate in them, either as a creator or collaborator. Unfortunately, few have reaped the full benefits of these arrangements or realized substantial financial gains.³

Although most leading ecosystems were launched by ascendant tech companies, these players may use hyperscale platforms that allow them to control customer interfaces, including those involving search, advertising, and messaging. In this way, the tech companies can compete with, disintermediate, and often provide a substitute for the offerings of traditional competitors. Players outside high tech have also created strong ecosystems. For example, several insurance companies and banks have found success in ecosystems with customer-centric lifestyle applications and niche ecosystem plays, such as those targeting specific customer segments. Telecom companies are similarly capturing value from health and digital-content ecosystems, or are leveraging their data capabilities for B2B use cases.

Before forging ahead with a digital ecosystem, all companies, especially traditional corporations, need

to identify the best approach for establishing a successful collaboration. In all cases, they must rapidly adapt their business models to suit changing circumstances and make bold moves.

Companies must often rethink how they serve customers

To capture value from an ecosystem in any sector, traditional companies must first determine where they want to play and what roles they will fill. This shift will require them to change how they think about customers and develop a new understanding of the critical control points along cross-industry customer journeys. Next, traditional players must strive to provide end-to-end customer service by venturing beyond the classical offerings within their industry. To achieve these goals, we estimate that companies in at least a dozen sectors, including mobility, are currently reinventing themselves as vast ecosystems or global networks that could generate around \$60 trillion in revenue by 2025.⁴

Traditional companies must also acknowledge that ecosystems develop in virtuous cycles through network effects. By offering products and services that individual companies could not create on their own, ecosystems draw in more and more customers. Ecosystem participants can then collect more data, which allows analytics to fashion even better offerings and improve the customer experience. This, in turn, allows them to improve processes even further and win more customers.

When ecosystems cover the entire value chain, they create a customer-centric, unified value proposition in which users can enjoy an end-to-end customer journey and an attractive customer experience for a wide range of products and services through a single-access gateway. As mobility players gain deeper insights into customer behavior and preferences through these ecosystems, they will be increasingly empowered to develop and deliver products, services, and customer experiences that provide even more convenience and savings—both in time and money—to their customers.

³ Violet Chung, Miklós Dietz, Istvan Rab, and Zac Townsend, "Ecosystem 2.0: Climbing to the next level," September 11, 2020, McKinsey.com.

⁴ Venkat Atluri, Miklós Dietz, and Nicolaus Henke, "Competing in a world of sectors without borders," July 12, 2017, McKinsey.com.

Players need to decide on the most suitable approach to establishing collaboration

After determining which role they want to take in an ecosystem, players must decide what they want to build or provide themselves and identify the areas where collaboration with other ecosystem players will yield better results. Typically, players undertake a mix of collaborations within ecosystems (Exhibit 5). These might involve the following arrangements:

- *supplier-development partnerships* that involve driving operational excellence in the value chain and building supplier capabilities to improve efficiencies
- *strategic partnerships* for collaborating closely with selected suppliers and emerging mobility players to boost value creation (for instance, by developing new innovations or increasing efficiencies)

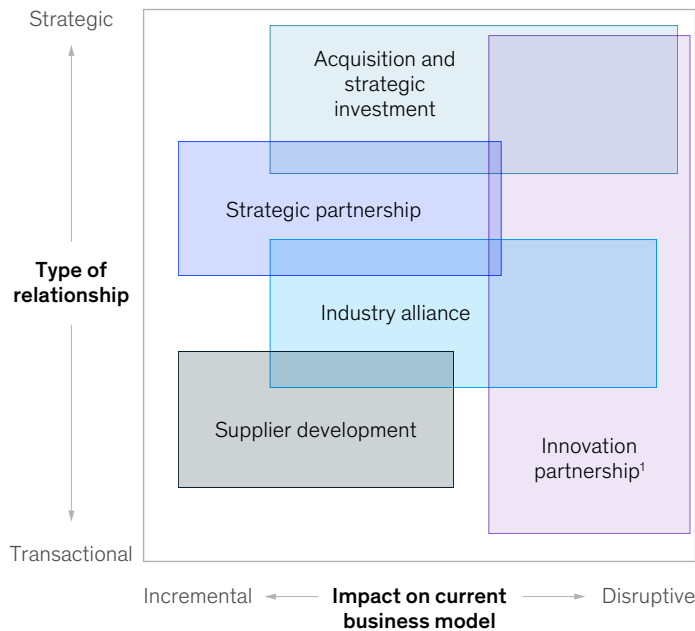
- *innovation partnerships*, including incubator and joint-venture deals, that focus on achieving new and disruptive innovation by working with suppliers with the necessary capabilities
- *industry alliances* involving multiple suppliers and other players to improve selected opportunities within a focus area
- *acquisition deals and strategic investments* to further the strategic agenda in specific areas

These models vary in terms of the relationship depth required and the resulting disruptions, and the option selected should reflect an ecosystem player’s strategic agenda, as well as those of its potential collaborators.

Exhibit 5

Ecosystems can include different types of collaboration.

Illustrative map of collaboration types



¹Includes incubators and joint ventures.

Bold commitments are required to survive in the evolving mobility world

The impact of an ecosystem in any industry depends on the commitment of all parties involved, including within the mobility sector. Players that hope to protect their positions in the mobility market through a customer-centric ecosystem will need to make some bold commitments, both individually and collectively:

- **Think big.** Companies should focus on building and managing thoughtfully curated partnerships of considerable size. These large ecosystems provide a greater scale advantage than simpler partnerships and will increase resilience in the future mobility world.
- **Focus on the customer.** Solving critical customer pain points will be key to success in the future mobility space. To this end, the primary focus of an ecosystem is to attract and delight customers and to satisfy their ever-evolving needs. This applies to both customer-facing companies and players with more indirect customer relationships, such as suppliers. The latter should think intensively about end-consumer needs to facilitate supporting end-user-facing OEMs and B2C businesses.
- **Invest boldly.** New technologies are central to customer-oriented products and services, and these technologies require significant investment in new assets and capabilities. Collaborating with and gaining access to more tech-advanced partners is a benefit of ecosystems, but this doesn't mean that players won't need to make an investment. Committing resources now is indeed a bold move, but it has the potential to deliver a payoff later.

While the mobility sector is very dynamic and continues to evolve, one thing seems certain:

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ecosystems will be an enduring and fundamental part of its future. All players, especially incumbent OEMs and suppliers, must prepare to navigate an increasingly complex mobility landscape. As they do so, they should keep the following facts in mind:

- **Demand for greater customer centricity is higher than ever.** Ecosystems help companies move closer to the customer in order to better understand and address end-user needs.
- **Rapid expansion of mobility players continues.** Regulators are creating new guidelines, and insurers are driving customer behavior through data. Ecosystems give players an opportunity to adjust their strategy and react quickly as these forces cause the market to evolve.
- **The sky is the limit for technology advancement.** Players must significantly invest in new assets and capabilities. Ecosystems facilitate knowledge sharing and mitigate financial risk.

In light of these forces, mobility players must ask themselves an important question: How can we become flexible enough to have a meaningful position in an ecosystem world? Fortunately, the ubiquity of digitization and data, combined with the emergence of advanced analytics, is creating new pathways for companies to achieve the desired flexibility. The new digital tools give companies better insight into customers and market niches, allowing them to personalize products as never before. The best companies will also build organizations focused on the success and sustainability of their new technology initiatives. In addition to acquiring talent with the appropriate skills, their organizations will have a governance structure that facilitates collaboration. Finally, companies must review their past moves, including mistakes, as they attempt to create the appropriate ecosystems. It is important to act quickly and boldly to absorb those lessons and make the most of new technologies to execute successfully.