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Advancing mobility

The new frontier of smarter transportation

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IBM Global Business Services, through the IBM Institute for Business Value, develops fact-based strategic insights for senior executives around critical public and private sector issues. This executive report is based on an in-depth study by the Institute's research team. It is part of an ongoing commitment by IBM Global Business Services to provide analysis and viewpoints that help companies realize business value.

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By Kalman Gyimesi, Stefan Schumacher, Jens Diehlmann and Servane Tellouck-Canel

As urban areas rapidly expand,

there is a corresponding increase in traffic that is hampering productivity, stressing infrastructures and presenting a host of environmental concerns across the world. Although consumers will continue to include personally owned vehicles in their mobility mix, more are also turning to different modes of transportation. This poses a growing threat for automotive companies, but also affords the opportunity for them to renew their relationships with consumers. By extending their services and enriching their value, automakers can simplify how customers purchase, use, access and finance transportation – all without forfeiting their fundamental function of making vehicles. Given their role in driving the economy, automakers can be among the leaders in establishing new mobility business models.

Automobiles help fuel the global economy. The total turnover of auto manufacturing worldwide is around US$2.6 trillion. This exceeds the entire Gross Domestic Production (GDP) of the fifth largest national economy, with only those of the United States, China, Germany and Japan larger.[1]

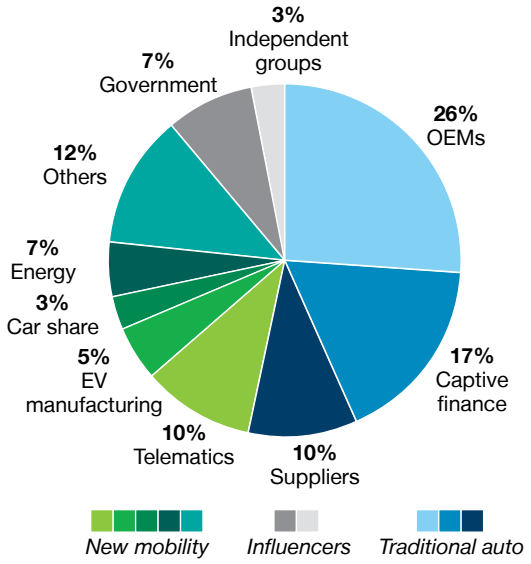
In addition to providing a means for people to get from one place to another, cars are the fulfillment of an aspiration for many, a reflection of achievement and a statement of personal freedom. Nonetheless, as urban areas grow, so does traffic – and the accompanying effects on productivity, infrastructures and the environment. It is estimated that over 600 million passenger cars travel the streets and roads of the world today.[2] According to an article in *The New York Times*, "Roughly four million vehicles clog Beijing roads, seven times the number about 15 years ago. On any given day, another 1,500 new vehicles join the crush."[3] When considering these factors, one can see why traditional transportation models are giving way to an entirely new mobility ecosystem (see sidebar, "The new mobility ecosystem").

The IBM Advanced Mobility Study methodology

Research overview: In an effort to understand the challenges and opportunities that surround new mobility models, we interviewed 123 executives in 18 countries across both developed and emerging economies.

We divided our interviews into two main groups: the traditional auto industry made up of OEMs, suppliers and their captive finance companies, and a "new mobility" industry made up of telematics providers; energy companies; integrators; car sharing businesses; EV manufacturers; mobility consultants, and venture capitalists, for example (See Figure 1). This group has begun to define a new vision for mobility – placing consumers' needs at its center.

Interviews by industry segment



Source: IBM Institute for Business Value.

Figure 1: **We interviewed 123 executives in 18 countries and in various industry segments.**

To better understand the challenges and opportunities that surround new mobility models, we interviewed 123 executives in 18 countries, across both developed and emerging economies. The results of this study confirm that automakers must secure their position among a growing set of new competitors eager to take the lead in developing and profiting from new mobility solutions.

These competitors – IT providers, infrastructure and energy companies, as well as start-up organizations, among others – are outside the traditional industry. They are thus far more aggressive and/or more advanced than automotive companies in forming the necessary partnerships and alliances for developing new mobility offerings. Nearly one-third of traditional automakers indicated to us that their new mobility offerings were three-to-five years down the road.

In this environment, alliances are critical. Finance will play a huge role. Automotive companies and their captive finance operations are a natural fit as partners to develop the business models that can succeed. These depend on forming and utilizing new relationships with consumers. At the same time, automotive companies cannot lose sight of their primary function: to develop technology-packed, intelligent automobiles at competitive prices.

Five imperatives

"Automotive 2020: Clarity beyond the chaos," published by the IBM Institute for Business Value in 2008, provided a comprehensive preview of the future of the automotive industry, including how vehicles will be manufactured, purchased, distributed and serviced.[4] In the report, we cited five imperatives for automotive companies:

- Advance mobility
- Transform retail
- Simplify complexity
- Partner extensively
- Execute globally.

We emphasized that adopting new mobility models can enable automakers to tap into new revenue streams by offering innovative ownership and usage models, providing cost of transportation options, and integrating other modes of transportation into their mix.

In only two years, advancing mobility has become a more pressing issue – influenced by both economics and growing social and environmental factors.

Rethinking mobility: The new mandate for automotive companies

Across the globe, urban areas are becoming increasingly clogged with vehicles – stretching infrastructures to the limit, and placing heavy demands on government, businesses, citizens and the environment. This situation, coupled with the economic and social repercussions associated with transportation, makes a compelling case for automakers to develop innovative solutions and services that make it easier, safer, more efficient and more cost-effective for consumers to travel fluidly from one point to another.

In "Capitalizing on Complexity: Insights from the IBM 2010 Global CEO Study," we asked automotive executives to what extent the new economic environment will be different. A full 77 percent indicated they expected sustained change across a structurally different automotive industry. Of that group, 61 percent told us that the change will be very significant.[5]

For this study, we sought to frame what some of that change could look like. Toward that end, we asked executives from both traditional automotive businesses and "new mobility" providers where they stood in developing new mobility offerings. We found that new mobility companies are much more aggressive in getting solutions into the marketplace.

"Everyone must change their product mix; OEMs ignoring this will not be able to stay in the market over the long run."

European automotive OEM

"You can't participate in providing mobility if consumers don't like your vehicle."

U.S. supplier

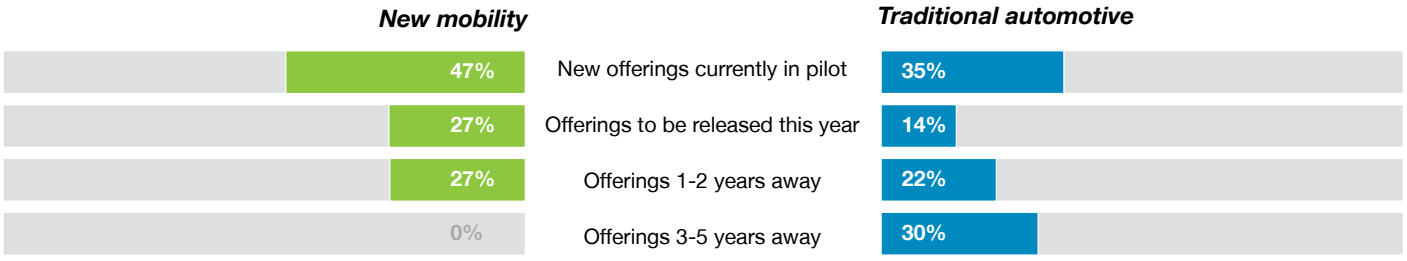
Nearly one-third of auto companies indicated that their new mobility offerings were three-to-five years away from the market (see Figure 2). Many of those that selected that response did so because they have no current plans to proceed in this area.

Auto companies make vehicles: The entry point and the advantage

Auto companies make vehicles, and their entry point for providing mobility solutions is to continue to develop technology-packed intelligent vehicles at prices that are competitive in a given market segment. Executives we interviewed concurred – underscoring that it would be difficult to extend their portfolio with mobility solutions if consumers don't like their company's vehicles.

When we asked executives how automakers could develop mobility solutions, 83 percent said that the best direction would be to shift their product portfolio from conventional vehicles to electrified vehicles (EVs). This is not surprising, given that about half said they expect the annual sales of conventional vehicles to have begun to decline by 2020.

How quickly are you developing new mobility offerings for the market?



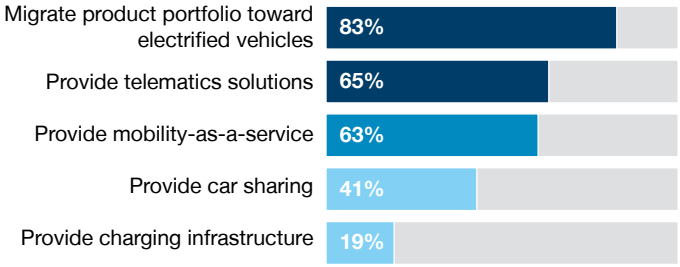
Source: IBM Institute for Business Value.

Figure 2: **Nearly one-third of automakers indicated that their new mobility offerings were three-to-five years away.**

Sixty-five percent favored developing telematics solutions. However, close behind, 63 percent felt that providing mobility as a bundled service was appealing. Executives were much less enthusiastic about offering one-dimensional solutions such as car sharing or moving downstream into a charging infrastructure (see Figure 3).

Eighty percent of those we interviewed told us that innovative pricing models will be a primary way to pull cost out of electrified vehicles. The significantly higher cost of oil was seen by 75 percent as a principal reason for buying these vehicles. Government incentives and regulations were cited by 74 percent of executives as a key motivator for purchasing electrified vehicles.

What are the best options for automakers to develop mobility solution offerings?



Source: IBM Institute for Business Value.

Figure 3: **Opportunities that should be considered in the changing view of mobility.**

"Electric vehicles will need to overcome a lot of skepticism from consumers. This makes the convenience of usage and services all the more important up front."

Emerging market OEM

Regardless of advances in technology, the economics of batteries remains a major roadblock – accounting for a significant part of the price consumers pay. In fact, battery costs are considerably higher than they were projected to be a few years ago. (When we released Automotive 2020, batteries were expected to represent about 25 percent of the cost of EVs)[6]. Today, that figure has climbed closer to 35 percent.[7] Finding ways to decouple the cost of batteries from the rest of the vehicle was appealing to many executives.

More work must be done before electrified vehicles will gain broad acceptance and meet the expectations consumers have regarding mobility. In spite of their economic advantage, these automobiles are simply not affordable for many. Electrified vehicles must also answer consumers' demands for convenience if dealers expect to move these cars through their lots. Plus, there is the expectation that EVs should have all the comforts that traditional automobiles provide (heat, air conditioning, infotainment and telematics, as well as advanced safety systems) and be easy to service. This includes having a charging infrastructure readily available.

Connectivity: Controlling the opportunity

Soon, every aspect of vehicular transportation will be controlled by telematics and information technology. The connectivity of vehicles is the key to unlocking mobility. This will allow consumers to employ new applications for:

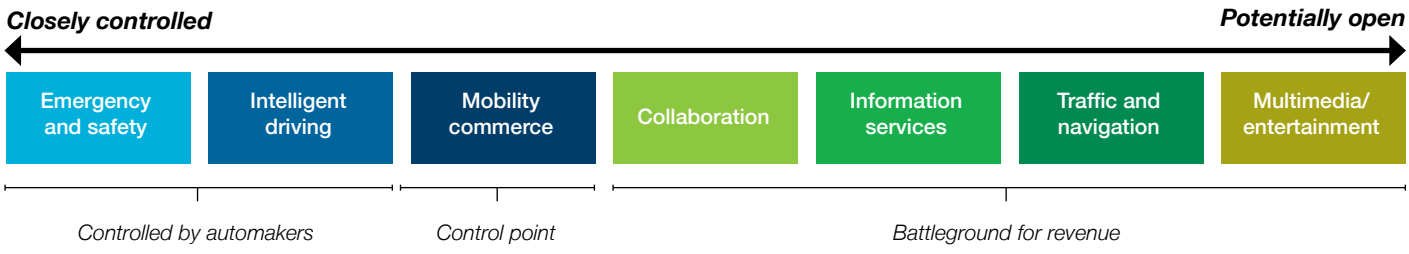
- Traffic and navigation
- Collaboration
- Mobility commerce
- Information services
- Multimedia/entertainment
- Emergency and safety
- Intelligent driving.

This presents a problem for automakers in terms of how many applications they can control. When we asked executives about potential mobility trends over the next decade, 42 percent said that auto electronic and software systems will be open and customized by smartphone-like applications. Many auto companies are already aggressively pursuing this capability, which will ultimately push others to do so. As automakers seek to differentiate themselves to consumers, they will become more assertive in opening vehicles to application-enabled personalization.

At the same time, not all applications can or should be open. Core embedded systems, such as those related to emergency and safety and intelligent driving, will remain tightly controlled by OEMs. Systems related to payments or mobility commerce are the tipping point, and OEMs should strive to control those applications. The real challenge comes with software for collaboration, information services, traffic, navigation and multimedia – areas where automobile companies will have to compete with others for revenue (see Figure 4).

Opening software for use in vehicles is a risk, but many felt that doing so is inevitable. It requires a strong certification process to protect against liabilities. While applications may be developed by OEMs, fleets, partners or third parties, there must be a service delivery platform in place that encompasses service creation, execution and management. Automakers enabling personalization of vehicles will be responsible for ensuring:

- Interoperability testing
- Conformance testing
- Certification
- Data quality inspection
- Risk management audits
- Upgrades and lifecycle management.



Source: IBM Institute for Business Value.

Figure 4: **Automakers must consider what aspects of vehicle connectivity can be opened to third parties and how to best control revenue.**

All of these steps help verify that there is a safe way for passengers to use additional media while in the vehicle. Given the explosive use of smartphones and the desire to stay connected to social media in the vehicle, this will be a challenge.

Nonetheless, there are applications that can help lower risk and still keep consumers satisfied while driving. Speech recognition software continues to improve, and will help consumers interact with systems in a "hands free" manner. The human-machine interface must also be well designed and easy to apply – helping drivers reduce the time needed to utilize the vehicle's systems.

Ultimately, connectivity is not just about integrating information *into* a vehicle; it's about achieving connectivity *among* vehicles, and with the surrounding infrastructure. The most important aspect of new mobility is the ability to interconnect the actions of vehicles and other modes across various channels. For automakers looking to develop mobility solutions, enabling a single login persona across their vehicle portfolio and making their automobiles interchangeable would be a decided advantage.

When asked to describe the scenarios they envision for the automotive industry by 2020, the majority of the executives we spoke to said that connectivity will be a driving force – enabling vehicles to routinely communicate with each other and a centralized traffic grid. This speaks to the compelling opportunity that the automotive industry has in the new mobility ecosystem.

Thinking outside the vehicle

Automakers have a unique window of opportunity to establish themselves as providers of mobility solutions and cement their position in this emerging marketplace. This enables them to protect their business while developing new, specific offerings for major customer segments. Many companies are already exploring new channels for selling vehicles and mobility services, even if past experiences have not necessarily proven successful. As electrification and mobility services grow, the structure of the automotive market is likely to change – compelling automakers to manufacture new kinds of vehicles and create more customized automobiles that suit the needs of discriminating consumers.

Mobility as a service

Beyond the base vehicle, automotive companies also need to decide whether they want to get into the business of mobility services. Mobility solutions will mostly be targeted at urban areas, where the need to reduce the impact of vehicles is most pressing. Sixty-three percent of the core automotive executives we interviewed thought that providing mobility as a service would be a good opportunity. Only 15 percent were skeptical.

Connecting vehicles as another node on the Internet is a prime opportunity for generating new sources of revenue, and will become the ultimate enabler of new mobility solutions.

The new mobility ecosytem

New mobility solutions can either replace or extend consumers' use of their personal vehicle with a number of subscription-based services. These offerings are integrated and deployed through the online connections that consumers use in their daily lives – providing access, support and optimization regarding how consumers can best move from place to place.

Mobility services can include:

- **Access to occasional-use vehicles**
- **Access to public and other transportation modes**
- **Participation in transaction-based, peer- to-peer sharing of vehicles, rides and parking**
- **Bundling of other transportation-related services, such as parking, insurance and toll/road charging, among others**

Four components to the new mobility ecosystem will change how most of us think about mobility:

- **Ownership models will shift from the concept of a one-time purchase of a vehicle to the notion of developing an ongoing relationship. Vehicles will remain a fundamental component of new mobility solutions (car sharing, pay-as-you-go contracts, for example) but need to be better utilized.**
- **Financing will be crucial to supporting the various components of new mobility solutions. Providers will build new capabilities to offer bundled, subscription-based solutions to customers and to finance the enabling infrastructure.**
- **Access and optimization involves providing consumers with simplicity across previously disjointed transportation modes, along with guidance on how best to move about. This requires complex alliance management and integration among multiple partners.**
- **The market structure is expected to change in accordance with the public's acceptance of mobility solutions. The new generation of consumers may be less inclined to own a vehicle; they want a better, more flexible way to move from one place to another.**

In developing such offerings, automotive companies have natural advantages, as they have many of the pieces in place. OEMs can lead the assembly of alliances and integrate partners. Dealerships are established in population centers and understand local requirements. Captive finance companies can control financial transactions and finance equipment.

Make it simple

Although enabling new mobility solutions might seem complex to the provider, consumers will look for simplicity. For example:

- They want insight and advice to help them find the easiest and most cost-effective ways to move around, regardless of the mode of transportation.
- They believe that the use of vehicles under their control will remain a big part of that equation.
- They want a flexible solution that has a straightforward cost.
- They want all of their costs related to transportation (insurance, parking, road charging and other payments) bundled into a single, convenient package that shows them how they are spending their money.

To satisfy these requirements, consumers will turn to their provider to help them simplify and optimize mobile solutions across channels and realize the lowest total cost of ownership (TCO) based on their preferences. To better compete, automotive companies must be prepared to support these demands and deal with the complexities behind the scenes. This requires technologies that offer solutions beyond those in the vehicle.

Going to the dealership is still like going to the dentist, mobility solutions can change this."

U.S. industry association executive

OEMs, dealers and downstream channels each play a role in enabling new mobility solutions. For example:

For the OEM

OEMs have the opportunity to develop unique mobility solutions for each of their primary customer segments: commercial fleets, consumers and government fleets.

Sixty-seven percent of the executives we interviewed identified selling to commercial fleets as the best strategy for mobility solutions. Commercial fleets have more predictable vehicle usage and are more likely to help achieve scale for environmentally friendly vehicles. In addition, they will be most interested in inter-vehicle connectivity to further improve their utilization. Sixty percent of those we interviewed told us that although consumers will continue to purchase private vehicles, they will look to augment their automobiles with more mobility services.

Sales to government fleets were rated lower. Only 48 percent of executives believed that this segment should be targeted for mobility solutions. However, government sales should not be dismissed, since urban areas offer some unique niches for mobility solutions. Furthermore, the economic crisis has pushed governments to be very supportive of the industry – not only through subsidies, but also in encouraging and funding specific research programs for EVs.

Government fleets are currently buying and operating their vehicles in "silos" that limit the ability to manage their use across urban centers. Automotive OEMs that are able to bundle their offerings across those silos can differentiate their business while reducing overall costs. However, automakers must go further by developing shared services offerings and IT solutions that reduce fuel and service costs and address total spend across government. Only a limited number of automakers are currently able to group their product portfolio to target urban governments in this way.

Developing new sources of revenue

Automotive companies can develop new sources of revenue in the advanced mobility market in several ways:

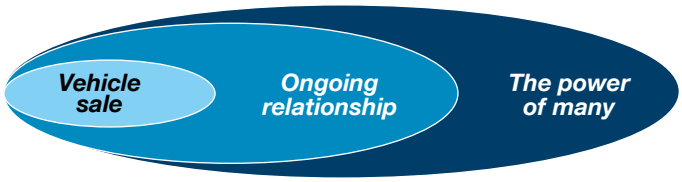
- **Sell a product portfolio of "new energy" vehicles (electrified and alternative fuel)**
- **Provide telematics solutions (driver assistance, safety and security, intelligent driving, transmodal connectivity, infotainment)**
- **Offer enhanced vehicle services (remote diagnostics, preventive maintenance and early warning systems)**
- **Provide mobility as a bundled service across transportation modes.**

For the dealer

For automotive companies, the dealership must become an integral part of their mobility solutions to consumers. They are well established, they own the customer relationship and are already spread across population centers.

Mobility solutions can make a big difference at the point of sale by allowing the dealer to configure offerings to buyers' specific requirements (see Figure 5). Dealers will be able to sell the appeal of the full product portfolio to all consumers by bundling the "everyday" vehicles consumers buy with a subscription service for the rest of the portfolio. This begins to shift the relationship and contacts with the consumer from occasional to ongoing. It also allows auto companies to provide a mobility offering for a new class of consumers: those who don't want to own vehicles at all.

Dealers might offer a new mix of vehicles – from the basic everyday mobility vehicles that become the new dealer inventory, to customized vehicles that give consumers significant choices in terms of power, colors, patterns and features. "New mobility" vehicles can be designed for greater customization at the dealership – allowing the dealer to further enrich and extend its relationships with customers. Consumers would utilize the dealership to pick up subscription vehicles, rapidly charge or exchange the battery for electrified vehicles and customize their personal automobiles.



Source: IBM Institute for Business Value.

Figure 5: **Mobility solutions change the approach at the point of sale while enabling ongoing transactions and contact with consumers.**

Ambitious automakers can develop even greater revenue opportunities by capitalizing on the power of many. For the most part, the base of subscribers to mobility solutions will continue to own personal vehicles, and be well distributed across an urban area. Automakers can take advantage of this expansive and highly distributed channel of end users and enable peer-to-peer car sharing, ride sharing and parking by providing subscribers with the tools they need for reservations and transactions. This is a capital-free way to derive more revenue while building loyalty to the brand. These types of business models are being examined and tested now in many parts of the world.

Automakers can develop another revenue channel through "the power of many" – enabling their subscriber base to share vehicles, rides and parking among themselves.

Empowering downstream channels

As automakers ponder their entry into the new mobility arena, many are considering incorporating new channels into their business model. Fifty-one percent of the executives we interviewed believe that selling through new partner networks will soon become a reality. In France, for example, a major road infrastructure provider is already piloting an end-to-end mobility solution as a service offering. A leading retailer has made agreements to connect its service business with EVs and a leading automaker's infotainment system. A German utility is currently offering EV leases with the installation of home/work charging stations. Utilities will be strong competitors in this arena, as they control electricity and count their entire consumer base as established customers.

The vehicle remains the key component of the business. Mobility solutions offered by automakers will heighten and build loyalty to the brand. They will also open up more opportunities for vehicle sales. Alliance partners often will have fleets of their own. Partners as well as their employees can become preferred customers.

Taking the lead: Serving a new set of consumers

Mobility is fundamental to our way of life. However, according to industry executives, the economic downturn has significantly affected vehicles' affordability. Also, for many young people, owning a car is a lesser priority. They are more intrigued by the services or functions a product provides than the ownership of the products themselves.

Many of the executives we spoke to feel strongly that a new subscription-based business model will be needed. For automakers, this can be attractive; however, it requires them to revise their current business framework to serve a new market of consumers who are not tied to individual vehicles. The executives we interviewed expect that consumers will demand more flexibility from their mobility solutions – a benefit that subscription-based mobility services are equipped to provide. Under this model, consumers could give up their vehicle altogether, or supplement everyday vehicles with a subscription for other "as-needed" vehicles.

While mobility can be led by automakers, new channels will also be eager to join this growing ecosystem. This represents a significant challenge for established OEMs. Given the changing structure of the market, automotive companies must make a prudent but rapid assessment concerning how these dynamics will affect their ability to lead in the new mobility market. Auto companies can maintain an advantage if they design their vehicles around interconnectivity across their product portfolio, and develop IT solutions that connect vehicles and other modes that will hold the final relationship with the end consumer.

Alliance management and finance: Driving the mobility transformation

Automakers are in a prime position to succeed in the new mobility market – with fundamental advantages that no other industry can provide. The key is to seize available opportunities. The ability to manage alliances and configure financing options for consumers are two areas where automakers can stake their claim in the new mobility ecosystem.

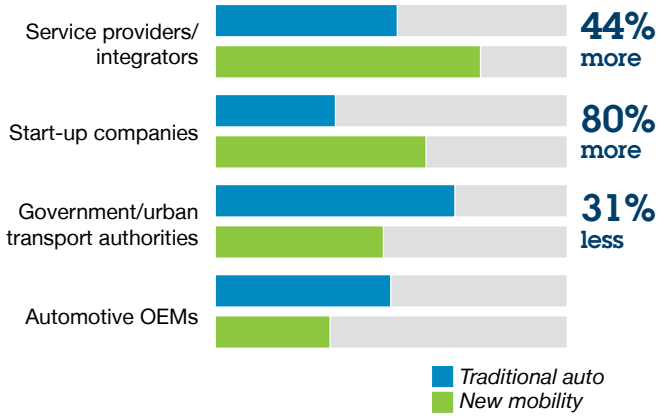
Managing alliances: Getting out of the murky middle

Learning how to lead and manage alliances will become the ultimate competitive differentiator. Automotive businesses have an opportunity to assemble these relationships, but they must be aggressive. Many are sitting idle – waiting to see how other industries, particularly government, will define their role on the new mobility field. This is a risky strategy. Unless auto companies take a more proactive stance, they could very well become suppliers supporting others' mobile solutions.

Further complicating things is that many of the new industries that automotive companies would partner with will also start to compete for the same customer base. The ability to find solid local and regional partnerships across operations will separate the "good" from the "great" in mobility. Flexibility will be a fundamental requirement for these alliances; consumers will not want to feel "trapped" by a partner they haven't chosen. In fact, engaging (and disengaging) partners will have to become a core competency for auto companies that want to offer integrated mobility solutions.

Many of those we interviewed expect service providers and integrators to be leaders in driving the mobility transformation in cities (see Figure 6). This group includes IT providers, infrastructure companies and others that will need to excel at alliances if they are to be successful. Executives also told us that government will have an important role in enabling mobility. Start-up companies are expected to be a pivotal source of innovation, rather than investment, for mobility solutions.

Who will make the contributions enabling the adoption of smarter, urban ecosystems?



Source: IBM Institute for Business Value.

Figure 6: **Automotive and new mobility executives have very different ideas about the role of key industries in building successful, urban, transportation ecosystems.**

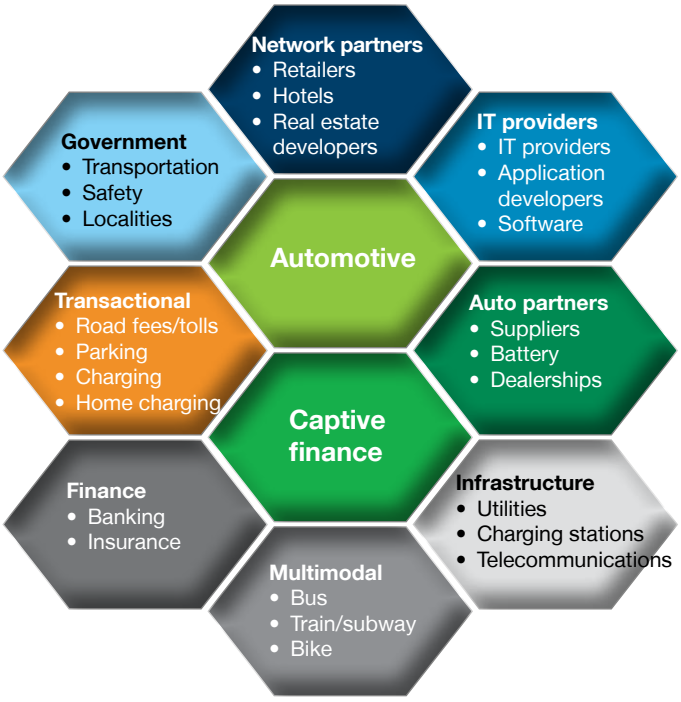
When we broke out the responses between automotive and new mobility companies, there were some stark differences. While new mobility companies are aggressively working at developing solutions, automakers far more often look to government to provide the infrastructure to enable mobility. When compared to new mobility executives, automotive leaders consistently pointed to government's need to act before they could. Automakers need to seize the opportunity now, rather than waiting for others to take the first steps. Otherwise, as we mentioned earlier, they risk being consigned to the role of supplier for other providers' solutions.

Many industries in the mobility ecosystem will become both partners and competitors. Retailers could be a crucial channel for selling mobility services and supporting connected applications. They may also contribute to a charging infrastructure accessible to the end user – helping to deter "range anxiety." Retailers will also want to own the consumer, and in some ways may be better positioned to offer a comprehensive mobility package than automakers.

Automotive companies will partner with electric utilities and energy companies when designing a charging infrastructure for EVs. At the same time, utilities will compete for their consumers' mobility business. They have a captive customer base they can reach, and can control access to electricity. Telecommunications providers will be a vital resource for enabling connected vehicles. They will also want a large piece of the revenue generated from this service.

A complex set of alliances is needed to offer mobility to consumers in a new way (see Figure 7). Successful alliance management depends on the adoption of a complementary set of principles. It also requires partners to be willing to customize capabilities on behalf of the relationship and jointly develop new ones to advance the alliance. Knowledge sharing is critical. Partners must be open to developing and sharing systematic knowledge between and across organizations.

Although automotive companies have a lot of experience in procurement and supplier management programs, most do not have a separate, formal alliance management function. While alliances exist in these companies, they are topical, and scattered among different stakeholders. This is a capability that automakers must establish and formalize if they are to navigate the complex mobility ecosystem.



Source: IBM Institute for Business Value.

Figure 7: **An increasingly interdependent ecosystem of entities are collaborating and competing to establish their position in the mobility solutions market.**

Types of mobility partners

Since mobility solutions are centered on urban metropolitan areas, there will be three types of mobility partners:

- **Growth partners are large national or global enterprises that can help scale mobility solutions; examples include large retailers, hotel chains and IT companies**
- **Regional partners that may span larger areas beyond a single city; examples may be utilities and telecommunications providers**
- **Local partners that will be confined to a single metropolitan area; examples can be local government, public transit providers and universities.**

Finance: Bridging the mobility gap

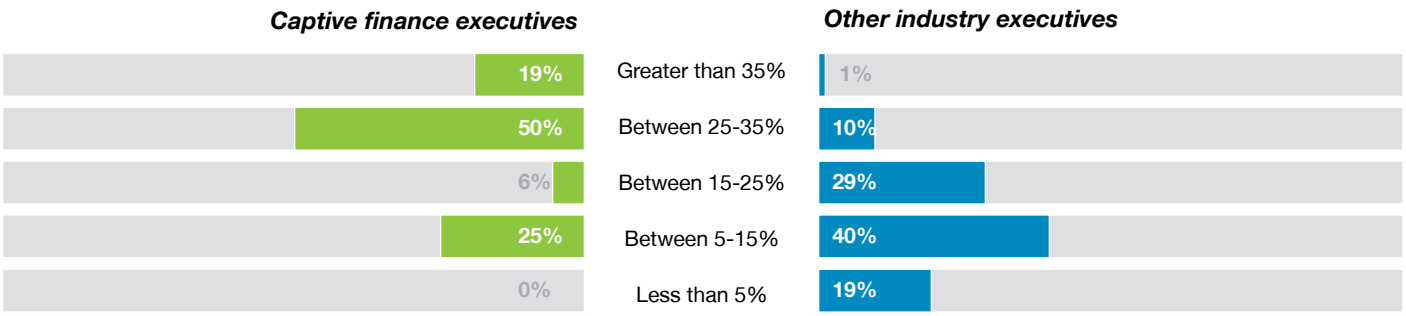
New mobility solutions depend on finance companies to make mobility flexible, simpler and more available for consumers. The integrating factor among mobility-oriented partnerships will be homogenous transactions. Consequently, auto companies need to explore how they can use their captive finance operations to support their mobility initiatives.

When talking about new mobility solutions, captive finance executives – unlike most traditional automotive executives – recognized changes in customer consumption behavior and the implications and potential of these offerings in terms of revenue (see Figure 8). They are also well aware that they will be the key to unlocking this new source of revenue by enabling future customers to move about the way they prefer.

New mobility solutions compel automakers to move from traditional car financing to mobility packages bundling vehicles with multiple transportation modes. Thus, finance will have a far greater impact on the traditional business model than commonly expected – calling for a model that incorporates new financing modes, alliance integration and the development of transaction engines to manage the revenues.

For consumers who want a better, more cost-effective and more flexible way to move about, captive finance companies can consider various mobility solutions – from car pooling and pay-as-you-drive contracts over multi-mode bundles (train/bus/plane/car) to standard leasing and car sharing.

What percent of automakers' revenue will be from new sources? (Outside of the sale/service of new vehicles)



Source: IBM Institute for Business Value.

Figure 8: **Automotive captive finance executives recognize a far greater potential for new sources of revenues than do traditional industry executives.**

Different payment modes may also be required to serve distinct customer preferences, such as a flat base rate and pre-paid credits.

Some auto companies and providers are using focus groups and evaluating pilots to configure plans that will appeal to consumers. Governments will clearly have a role to play, and impact the rate of deployment for pilot initiatives.

Beyond consumer transactions, automotive finance companies will also become crucial for dealerships – enabling them to offer and finance mobility-packed vehicles by managing the multitude of transactions and payment flows that will be required. While the role of captive finance is important in supporting the retail business, it will be just as critical on the wholesale side. Finance companies will be needed to support equipment for electrified vehicles – not just in the dealerships, but also with mobility partners such as retailers or hotel chains that distribute within the network.

Depending on the OEM's strategy, the demand for rapid charging, battery swapping and potentially swapping stations can be pooled across the alliance network to improve pricing, and financed with the help of captive finance companies. Nonetheless, the economics of batteries for electrified vehicles is a major concern, and every strategy must be explored to mitigate that cost. Batteries may have a longer life than the vehicle. Amortizing them as separate items over a longer period of time can help reduce monthly costs. Finally, there is the consideration of a secondary market for reselling batteries for different uses. To the buyer, all of this must be transparent. However, this will require managing complexity and the ability to take responsibility for the battery.

Incentives can and will likely play a crucial role in driving and supporting what will be significant change for automotive companies. The major sources of incentives are governments and energy suppliers. Sixty-three percent of executives believe that governments across the globe will pursue ambitious plans and goals to move consumers away from conventional vehicles.

Most countries have incentive programs that are already being considered. These programs must be designed with the clear objective of moving citizens toward alternative vehicles or mobility solutions to address pollution and congestion issues. Incentive programs may be targeted at consumers, manufacturers or providers, depending on the specific goals. As a mobility provider, the auto industry is best served when it is actively participating in these initiatives, and contributing in ways that extend beyond simply selling cars.

While automotive captive finance executives recognize the trends and growth potential in new mobility solutions and packages, most remain cautious – waiting to see what others will do. Some cited the lack of a clear decision-making structure within their organization, and look for direction from the OEM. Nonetheless, the majority feel confident in their ability to take charge.

Most OEMs are seeking partners to pilot new ideas for mobility services, but have not approached their own finance companies to discuss how they might work together to develop, finance and deliver new mobility packages. At the same time, new mobility concepts require a very different transaction infrastructure than those that automotive finance companies are familiar with. The ability to pool demand and scale across the network will be a differentiator in successfully financing new mobility offerings.

Recommendations: Getting there from here

For automotive companies, there are many opportunities to provide sustainable mobility solutions for consumers who want a better and more cost-effective way to move about and take care of their daily activities. We advise automotive companies looking to incorporate new mobility solutions into their business to:

- Remember that the primary function of automotive companies is to make vehicles. That is their entry point and their advantage, as vehicles will continue to play a critical role in successful mobility solutions.
- Conduct a thorough assessment of the competitive landscape to help target solid local and regional partnerships – keeping in mind that alliance management will be a core competency and a clear differentiator in the mobility arena.
- Explore how to use the company's captive finance operation to support new mobility initiatives. This can involve the formation of a task force comprising teams from captive finance, dealerships and OEMs.
- Seek the services of a provider with proven experience in alliance management, as well as expertise across sectors – government, retail, financial services, IT and utilities. These will be key players – as well as potential partners and competitors – in the new mobility ecosystem.

There is no question that the vehicle will remain a key component of mobility solutions, and serve as an entry point for automotive companies to connect with consumers in new and potentially more profitable ways. However, for automakers to lead, they must be aggressive. Other industries are already ahead.

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