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Rebooting Japan's mobility market
Discussion Paper

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Authored by:
Shivin Agarwal,
Dominik Luczak,
Robert Mathis,
Ichiro Otobe,
Yoshishige Shiota

Digital players are revamping the country's taxi industry. These developments could have implications for other places facing similar economic, demographic, and regulatory trends.

Mobility, a critical factor in every economy, transports people and goods to enable daily activities. As we look to 2030 and beyond, new mobility megatrends, collectively referred to as the ACES—autonomy, connectivity, electrification, and sharing—will powerfully influence both B2C and B2B business models.

Yet new technologies and business models alone are unlikely to overcome the intensifying pressures—created by increasing urbanization and e-commerce—for greater **transportation capacity in cities**. Similarly, in aging rural communities, the utilization of traditional public-transport services is falling dramatically, so that they are fast becoming uneconomical. Cities and countries need to find new solutions to make their mobility systems cleaner, faster, safer, and, at the same time, more affordable.

Transforming mobility systems requires **an integrated perspective**. Numerous disruptions are required—not just to vehicles, which might even include unmanned aerial transport, but also to **energy grids**, connectivity networks, and delivery logistics. Public and private players must join hands to accommodate and optimize the additional demand for and presence of mobility services. Led by local governments, ecosystems consisting of OEMs, technology players, telcos, utilities, and urban planners should be formed to pilot and deliver effective, efficient solutions.

Japan is a front-runner in many macrotrends now accelerating the need for new mobility solutions that better match the changing needs of passengers and businesses. With a shrinking population and workforce, as well as stalling productivity and urbanization, the country is poised to transform its mobility system and unlock economic potential. In this article, we examine how digital players, supported by megafund investors, are revamping Japan's long-stagnant taxi industry. While car sharing and ride pooling remain limited, newly formed partnerships are slowly making hailed mobility services more efficient and affordable. As both local and global players attempt to capture a loyal rider base in Japan, the lessons from these partnerships will probably have broad implications for other markets facing similar economic, demographic, and regulatory trends.

Now that Japan is undergoing a series of demographic and economic shifts, the transition to more efficient and affordable mobility modes will require new partnership models and regulations. Renowned for high quality and convenience, Japan's hailed mobility industry is rebooting. The global ride-hailing giants Uber and Didi, along with local incumbents, are finding new ways to move into the country's $17 billion taxi market. Yet there is plenty of room to further integrate these disruptive technologies to mobilize future transportation services, such as **self-driving robo-taxis**.

Ride-hailing companies are challenging the traditional taxi business around the world. In the United States, market leaders Uber and Lyft have combined net revenues of $13 billion.[1] In China, Didi has an estimated 450 million users, constituting 95 percent of the ride-hailing market.[2] Yet given the existing regulatory environment and mixed customer perceptions, few Japanese taxi companies have revamped their offerings to include digital or pooling services.[3]

Meanwhile, Japanese taxi operators face challenges to their traditional business model. As taxi usage declined steadily over the past 30 years, the industry's profits have fallen, passenger-kilometers have stagnated at about 40 percent of total kilometers driven,[4] and driver shortages persist. These trends have been exacerbated by continued migration to Japan's megacities, where public transit is both cheap and convenient, and by an overall population decline.

Many mobility players, sensing latent demand for more affordable, mass-market, and on-demand point-to-point transportation options, plan to enter Japan imminently. Younger people believe that more competitively priced ride-hailing services could offer an alternative to public transit for shorter trips. Passengers also recognize other benefits, such as faster hailing during peak periods and simpler communication with drivers. However, several concerns linger among more conservative passengers, who perceive private car-sharing services to be of lower quality than licensed taxi offerings and potentially unsafe, providing regulators with grounds to proceed cautiously.

Tourists, accustomed to ride-hailing services at home, are also expected to push demand higher. Tourism in Japan has grown by 30 percent a year during the past three years[5] and will probably continue to increase during the 2019 Rugby World Cup and the 2020 Tokyo Summer Olympics. In response, in July 2018 China's Didi announced that it would enter the Osaka market, where it would offer the growing number of Chinese tourists e-hailing options with language and digital-payment friendly features.

Intrinsic demand for point-to-point mobility, coupled with the lack of a dominant market leader, has compelled global ride-hailing companies and their investors to rethink strategies for breaking into the Japanese market. Instead of enlisting private drivers, ride-hailing companies are forming partnerships with local taxi operators to boost utilization, capture demand, and thus consolidate a large user base for future robo-taxi offerings. In this way, many players are now gaining access to one of the last major undisrupted mobility markets in the Organisation for Economic Co-operation and Development.

What's behind the imminent disruptions?

Several elements will feed into impending change.

A steady shift away from private transportation

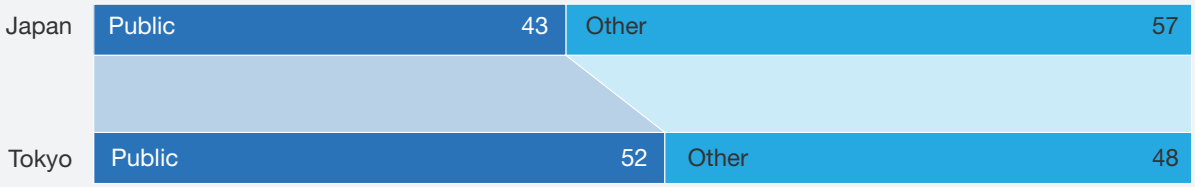
Japan's mobility mix skews heavily toward public mass transport, which accounted for 43 percent of the total passenger-kilometers traveled in the country in 2016 (Exhibit 1), compared with around 2 percent in the United States.[6] In megacities, such as Tokyo and Osaka, that number jumps to 52 percent, largely as a result of the convenience, reliability, and affordability of public transportation. Further urbanization is expected to expand the use of mass transit, with some estimates as high as 70 percent of total passenger-kilometers in urban areas by 2025.

Moreover, given an aging and more urban population, private vehicle purchases are falling. In response, car manufacturers are seeking out new revenue streams from services and developing new business models tailored to **shared mobility**. Many car manufacturers are already forming new ecosystems to make private mobility more flexible and affordable. Toyota, for example, recently invested in both JapanTaxi and Uber, in part to make Japanese taxi operators more efficient and, eventually, to develop ride-hailing services for shared robo-taxi fleets.

Exhibit 1

Travelers rely heavily on public transit in Japan, especially in megacities, such as Tokyo.

Share of passenger-kilometers by mobility mode, 2016, %



Source: Ministry of Land, Infrastructure, Transport and Tourism: annual report on changes in automotive distances traveled

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A constrained regulatory environment

Regulations currently limit the number of taxis in circulation, control pricing, and impose parking and licensing requirements, thereby limiting options for passengers and mobility providers. Since Uber launched in Japan, in 2015, the company has been allowed to operate only under its premium chauffeur brand, Uber Black, since owners of private cars are prohibited from transporting passengers for fares. Under those conditions, the company has struggled to gain penetration: in 2017, Uber accounted for less than 1 percent of all rides in Tokyo.[7] In contrast, Tokyo operator Nihon Kotsu launched JapanTaxi, an e-hailing service that provides for in-app reservations and payments. It has achieved five million downloads to date.[8] Since then, Uber, Didi, and Sony have adopted the same e-hailing model, without challenging either the supply of taxis or existing price structures.

The government—aware that in certain rural areas, public transport is fast becoming too costly to support—is exploring alternatives. Ride-hailing options are an interim solution. With the government's approval, Uber is piloting an e-dispatch service for a dozen companies on Awaji Island as public-transit options are streamlined. While this basic e-hailing service is more efficient than current public-transport solutions, the question remains as to how much value a basic e-hailing service can create and at what price for the customer.

Intensifying investments in ride hailing creates new ecosystems

As of the second quarter of 2018, Japanese companies and their venture-capital arms had invested close to $40 billion[9] in ride-hailing companies. The investments, dominated largely by Softbank's Vision Fund and Toyota, have been ploughed into global ride-hailing giants such as Didi, Grab, and Uber. Given the stagnancy of the local taxi market at home, these investors are placing their bets overseas in an attempt to **build new ecosystems around future mobility offerings**.

As we have already seen, recent investments give traditional car manufacturers short-term growth opportunities, as well as partners to develop **self-driving technologies**. For instance, Toyota's investment in the Southeast Asian company Grab, now at around $1 billion in total, will include the development of new services, such as insurance,

financing, and predictive maintenance. Going further, Toyota's $500 million investment in Uber to develop self-driving cars jointly highlights many players' strategy to develop robo-taxis faster by benefiting from shared capabilities through partnerships, as Google's Waymo splits from the pack in terms of kilometers simulated and commercial readiness.[10]

Within Japan, players seem to have a choice between two strategies: bringing technologically superior global players into the existing market or forming local ventures and alliances. Softbank, the de facto owner of ride-hailing globally (given its Vision Fund has positions in Uber, Didi, Grab, Ola and 99),[11] is pushing for the elimination of restrictions on it in Japan. Until that happens, Softbank continues to help the companies in which it has invested—Didi and Uber—to build a user base by trying out limited versions of their ride-hailing services and launching ancillary delivery services, such as Uber Eats.

Conversely, other investors are forming local partnerships that can extend the range of services under the protection of existing regulations. NTT Docomo and Toyota—bringing together car manufacturers, taxi operators, telcos, and e-hailing app providers—invested $20.2 million and $69 million, respectively, in JapanTaxi, a ride-hailing app spun off from the Tokyo taxi operator Nihon Kotsu. As builders of a nascent ecosystem, these players can leverage each other's capabilities and offerings to reinforce the benefits of the mobility megatrends.

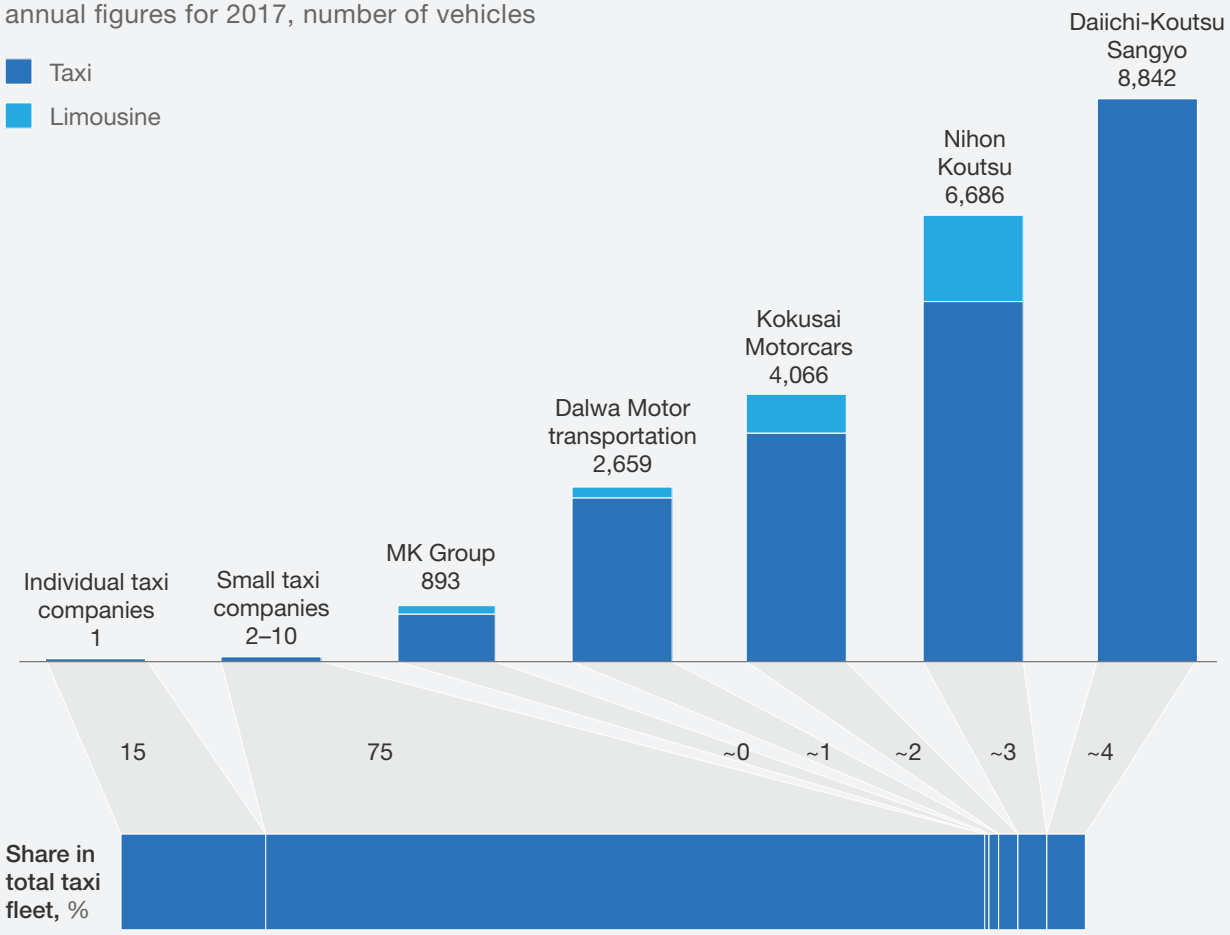
Fragmented competition in the local taxi market

Nevertheless, Japan's taxi market remains highly fragmented, since most fleets focus regionally. Our analysis of annual reports indicates that small companies with up to ten cabs constitute 90 percent of the national fleet of 240,000 cars (Exhibit 2). Because of this fragmentation, providers of e-hailing apps, which run on algorithms that require scale to optimize routes and supply, must work with multiple operators to capture a large enough user base and fleet network. Sony, for instance, launched a ride-hailing service trial in March 2018 by forming an alliance with six taxi operators, including Daiwa Motor. Even JapanTaxi, whose coverage now extends to over 60,000 taxis, about a quarter of the market, across 870 operators in all 47 prefectures, sought to further partner with their traditional competitor Tokyo Musen in order to bolster coverage. TThe severity of the fragmentation and the lack of a dominant market leader, today, leave plenty of room for new players to try to consolidate operators under their umbrellas.

Exhibit 2

Small companies dominate the taxi business in Japan.

Distribution of national taxi fleet by player size,
annual figures for 2017, number of vehicles



McKinsey&Company | **Source:** Company websites; McKinsey analysis

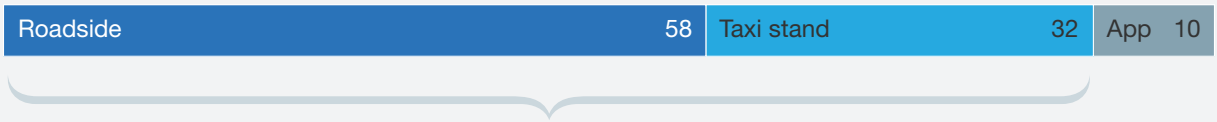
Largely satisfied urban passengers

Altogether, about seven million users—5 percent of the population—have downloaded ride-hailing apps in Japan, compared with an estimated 30 percent in the United States and 20 percent in China.[12] One reason for this low penetration rate is an ample supply of traditional taxis in cities. In central Tokyo, taxi wait times average less than five minutes, and taxis hailed on the streets or at stands account for 90 percent of total passenger fares in the country (Exhibit 3). Line, the instant-messaging platform, found this out the hard way: in mid-2018, it discontinued its in-app ride-hailing service, Line Taxi, citing low usage rates.

Exhibit 3

In Tokyo, taxi passengers usually hail a cab or find one at a stand.

Fare division by mode of hailing in Tokyo, % of fares



90% of Tokyo taxi fares are done old-school, by hailing, or by waiting in line

Average wait time in Tokyo for hailing a taxi is about 3 minutes but can be significantly longer in mornings or rain

Japan is a cash-heavy society, with around 70% of fares paid nondigitally

McKinsey&Company | **Source:** McKinsey Mobility Consumer Survey, June 2018

Open questions

As taxi operators, technology providers, and investors come together to form new ecosystems, there is a growing push to revitalize private mobility services in Japan. These partnerships have the potential to not only boost utilization, efficiency and affordability but also develop solutions to differing urban and rural challenges. Doing so will allow players to consolidate a large user base for future offerings such as robo- and flying taxis. To achieve these feats, Japan's mobility industry must answer three critical questions:

1. Will major stakeholders agree to new demand-based mobility offerings that optimize supply and reduce prices, so that ride-hailing services can add value?
2. Can mobility providers consolidate operators to build a sufficiently large customer base and fleet, thus allowing the demand aggregators to deploy their full range of services and make money from the next generation of mobility offerings?
3. Can companies form ecosystem-level partnerships and develop meaningful suites of services that solve specific use cases (urban or rural, youth or elderly, passenger or commercial) and offer better and more benefits than current mobility offerings do?

Both new and incumbent players recognize that to compete with other widely available, more convenient, and cheaper modes of mobility, their services must become more efficient and affordable. To realize these goals, they will ultimately have to go much further than e-hailing apps. By forming partnerships, mobility players can initially develop use-case-driven solutions that solve specific transportation challenges for people and businesses in Japan. The expansion of such partnerships into ecosystems could ultimately unlock significant benefits by making investments in infrastructure, vehicle technology, and mobility services less risky.

The challenges of aging demographics and accelerating urbanization are not limited to Japan. Over the next 20 years, several other European and Asian countries will have to rethink and redesign their mobility offerings to fit the demands of different customer segments. If mobility players can address the issues successfully, they will be able not only to penetrate Japan's massive market but also to use lessons learned to move into other highly regulated markets.

Urban commercial transport in 2030 will look dramatically different than it does today. Consumer expectations will probably be higher and demand for individual mobility will increase, potentially bringing more congestion, pollution, and, ultimately, frustration. Getting ride-hailing right sets the stage for more efficient and convenient future mobility offerings, such as robo- or flying taxis and intermodal mobility. Such solutions depend on the innovative technologies featured in e-hailing apps that can optimize supply in circulation, trip routes, and pricing by accelerating the accumulation of customers and mobility data. Enabling ride-hailing solutions today will probably help mobility players form ecosystems and accelerate the shift to shared-mobility solutions that could relieve intensifying pressures on many urban mobility systems.

Shivin Agarwal and **Yoshishige Shiota** are consultants in McKinsey's Tokyo office, where **Dominik Luczak** is a partner, **Robert Mathis** is a senior partner, and **Ichiro Otobe** is a senior adviser.

Notes

1. Chloe Aiello, "Uber's loss jumped 61 percent to $4.5 billion in 2017," CNBC, February 13, 2018, cnbc.com.
2. Bloomberg, "Uber's revenue spiked 70% last quarter. But it still lost tons of money," May 24, 2018, fortune.com; CNBC, "Meet the 2018 CNBC Disruptor 50 companies," May 22, 2018, cnbc.com.
3. Tim Hornyak, "Japan's big brands are trying to shake up its taxi industry," CNBC, April 3, 2018, cnbc.com.
4. Annual report: The current state of the taxi market, Ministry of Land, Infrastructure, Transport and Tourism, 2017, mlit.go.jp.
5. Japan National Tourism Organization Statistics Database, Trends in visitor arrivals to Japan by year.
6. Annual report: Changes in automotive distances traveled, Ministry of Land, Infrastructure, Transport and Tourism, 2017, milt.go.jp.
7. Reed Stevenson, "The 'taxi prince' fighting to make sure Uber won't win in Japan," Bloomberg, November 14, 2017, bloomberg.com.
8. Wataru Suzuki, "Taxi app battle intensifies despite Japan's ban on ride sharing," Nikkei Asian Review, July 30, 2018, asia.nikkei.com.
9. Pitchbook Deals Database, Softbank Vision Fund deal history and capitalization tables.
10. Heather Somerville, "Toyota to invest $500 million in Uber for self-driving cars," Reuters, August 27, 2018, reuters.com.
11. Chloe Aiello, "Uber's loss jumped 61 percent to $4.5 billion in 2017," CNBC, February 13, 2018, cnbc.com.
12. Wataru Suzuki, "Taxi app battle intensifies despite Japan's ban on ride sharing," Nikkei Asian Review, July 30, 2018, asia.nikkei.com

Contacts

Robert Mathis is a Senior Partner in McKinsey's Tokyo office.
robert_mathis@mckinsey.com

Dominik Luczak is a Partner in McKinsey's Tokyo office.
dominik_luczak@mckinsey.com

Ichiro Otobe is a Senior Advisor in McKinsey's Tokyo office.
ichiro_otobe@mckinsey.com

Yoshishige Shiota is a Consultant in McKinsey's Tokyo office.
yoshishige_shiota@mckinsey.com

Shivin Agarwal is a Consultant in McKinsey's Tokyo office.
shivin_agarwal@mckinsey.com