



# Automotive Industry Weekly Digest

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## [Sales Highlights] Xpeng and NIO Report Substantial Growth in Vehicle Sales During Q2

### IHS Markit perspective

<b>Implications</b>	NIO and Xpeng both experienced strong delivery results, thanks to growing consumer demand for their smart EVs. In order to accommodate growing demand for its models, Both NIO and Xpeng are working towards expanding their production footprint in China. NIO has started construction of a smart EV industrial park in Hefei, and Xpeng has announced plans to invest in a manufacturing plant in Wuhan. The new plant will have an annual production capacity of 100,000 units and will expand Xpeng's production network and support the launch of new models.
<b>Outlook</b>	IHS Markit forecasts sales of NIO and Xpeng vehicles will be around 80,300 units and 48,700 units during 2021.

Chinese electric vehicle (EV) startups NIO and Xpeng have reported substantial increases in vehicle sales during the second quarter of 2021.

NIO said that its vehicle deliveries in June increased by 116.1% year on year (y/y) to 8,083 vehicles. The deliveries consisted of 1,498 units of the ES8 sport utility vehicle (SUV), 3,755 units of the ES6 SUV, and 2,830 units of the EC6, a coupé-style variant of the ES6. In the second quarter, cumulative deliveries of the ES8, ES6 and EC6 stood at 21,896 units, up 111.9% y/y, while for the first half of the year, total deliveries stood at 41,956 units.



In a separate statement, Xpeng said that it delivered 6,565 vehicles in June, a 617% y/y increase, and a 15% month-on-month (m/m) rise. Last month's deliveries included 4,730 P7s, the sports smart sedan, and 1,835 G3s, its smart compact SUV. In the second quarter, the company sold 17,398 vehicles, up 439% y/y, while the year to date (YTD) sales stood at 30,738 units, up 459% y/y.

Xpeng plans to launch the G3i SUV, the new mid-phase facelift version of G3, in July, with deliveries planned for September this year. It also plans to launch its third production model, the P5 family-friendly smart sedan, in the third quarter of 2021, with deliveries expected in the fourth quarter of 2021.

### Outlook and implications



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Both companies experienced strong delivery results, thanks to growing consumer demand for their smart EVs. NIO's mid-size electric SUVs, the ES6 and EC6, have become the company's backbone models, while the ES8 still appeals to consumers looking for a large six-seater SUV. The EC6 and ES6 are positioned in the premium EV segment with hefty price tags, but through its battery leasing programme NIO has effectively lowered the overall costs for both models. Xpeng operates on a smaller scale in terms of delivery volumes. It recently unveiled details of its third production model, the P5 electric sedan, featuring the in-house developed autonomous operation system XPILOT 3.5 and Xmart OS 3.0, Xpeng's latest in-car operation system.



To accommodate growing demand for its models, Both NIO and Xpeng are working towards expanding their production footprint in China. NIO has started construction of a smart EV industrial park in Hefei, Anhui province. Called the Neo Park, the facility covers an area of 11.2 million square metres and includes manufacturing and research and development (R&D) facilities with designed annual capacity of 1 million vehicles and 100 GWh of batteries. The R&D will focus on development of technologies related to complete vehicles, core parts, and autonomous vehicle operation. Xpeng has also announced plans to invest in a manufacturing plant in Wuhan. The new plant is to have an annual production capacity of 100,000 units and will expand Xpeng's production network and support the launch of new models. Xpeng currently produces its two models, the G3 SUV and P7 sedan, at two separate locations. The G3 is produced in Zhengzhou under a contract manufacturing deal with Haima Auto, while the P7 is produced at Xpeng's Zhaoqing plant. With two new plants under construction, Xpeng will soon have the capacity to build its models at its own facilities in the next few years. The new investment in Wuhan will also help the startup to gain support from the local government to boost sales of its EVs.

NIO, which has been one of the most successful EV startups, is also starting to look at moving into foreign markets. It has recently received European Whole Vehicle Type Approval (EWVTA) for its ES8 SUV. The ES8 is now officially approved for mass production and licence plate registration in all European Union countries. The automaker plans to establish a full-fledged ecosystem in the region encompassing cars, services, and digital experience, with the ES8 SUV the first model to be introduced in Norway this year, followed by the ET7 in 2022. Pre-orders for the ES8 will begin from July, while sales are expected to start from September.

IHS Markit forecasts sales of NIO and Xpeng vehicles will be around 80,300 units and 48,700 units during 2021.



## [Technology Highlights] AutoX launches Gen5 fully driverless system

AutoX has launched its fifth-generation fully driverless system, AutoX Gen5, for robotaxis. It features 50 sensors and a vehicle control unit of 2200 TOPS (trillion operations per second) computing power. The AutoX Gen5 system has 28 cameras, six high-resolution LiDARs, and 4D RADAR with 0.9-degree resolution that provides 360-degree coverage around the vehicle. The AutoX LiDAR stack generates 15 million points every second. Dr Jianxiong Xiao, CEO and founder of AutoX, said, "Safety is our No. 1 priority, and it has to be built on a reliable foundation. Gen5 was created for fully driverless robotaxis in cities and is designed for the safety of our users and everyone on the road."



### Outlook and implications

AutoX launched its first-generation autonomous system, AutoX Gen1, in 2017. The company claims that Gen5 is a major upgrade that provides seamless navigation of China's complex urban driving environment. AutoX claims that its autonomous vehicle (AV) platform, AutoX Driver, can handle the densest and most dynamic traffic conditions in cities around the world. The company is operating more than 100 robotaxis in Chinese cities including Shanghai, Shenzhen, and Wuhan. Earlier this year, AutoX launched a fully driverless robotaxi pilot programme for the public in Shenzhen. In 2020, California's Department of Motor Vehicles (DMV) issued a permit to AutoX to allow it to test its AVs without a human back-up driver.

## [Technology Highlights] Baidu partners with Great Wall Motor on automated valet parking system

Baidu has partnered with Great Wall Motor (GWM) on automated valet parking (AVP) system, reports Gasgoo. Baidu's AVP system is likely to be first integrated with GWM's WEY Mocha model, which is expected to be launched in the market in the second half of 2021.



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## Outlook and implications

The companies' partnership date back to 2016, when they agreed to collaborate on high-definition map positioning technology. GWM joined Baidu's autonomous vehicle (AV) platform, Apollo, as one of the first partners in July 2017. In 2018, the companies announced their strategic co-operation on intelligent connected cars, AV technology, shared vehicles, and big data. Until now, Baidu internet of vehicle (IoV) products are integrated on several GWM production models, including the second-generation Haval H6 and the H4 Pro.



## [OEM Highlights] GM inaugurates Advanced Design Centre in China

General Motors (GM) has inaugurated its upgraded GM China Advanced Design Centre in Shanghai. According to a company statement, the new upgraded centre doubles the advanced design capacity of GM in China and will contribute to the company's ongoing effort to ramp up battery electric vehicle (BEV) development. The upgraded 5,000-square-metre Advanced Design Centre includes two full-size milling platforms; a colour, material and finish (CMF) studio; a head-mounted-display (HMD) studio; and a virtual reality room. The company claims that the new centre will help designers create new mobility concepts, leveraging techniques that include conceptual innovation, digital design, VR and immersive technology applications with physical full-size models, as well as design verification.



### Outlook and implications

The expansion of the design centre will help GM to boost its local capacity and attract talent to support the development of vehicles for the Chinese market. China is currently the largest overseas market for GM, and IHS Markit expects GM's light-vehicle sales in China to reach over 1.554 million units in 2025, surpassing sales in the US. To support sales expansion in China, GM is expected to channel more resources to support the growth of the Cadillac brand in the premium market and start production of a new generation of BEVs based on its BEV3 platform. The push for EV launches will certainly need to be backed by efforts from both design and engineering to bring to the market a range of competitive new vehicles. Meanwhile, according to media reports last year, GM plans to import a range of models into China to improve its brand image and support sales. The Chevrolet Tahoe, Suburban, and Cadillac Escalade are named as a few possible models to be launched in China through GM's import channels.

## [OEM Highlights] FAW-Volkswagen JV establishes mobility service subsidiary

The passenger-car joint venture (JV) between FAW Group and Volkswagen AG (VW) has established an independent subsidiary to operate its mobility service brand Mobje Mobility, reports Gasgoo. The new company,



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named Mobje Smart Mobility Co, involves a registered capital of CNY400 million (USD62 million) and is to offer services such as car leasing, hourly car rental, and ride-hailing.



## Outlook and implications

Mobility services are witnessing impressive annual growth rates and by establishing their own mobility service ventures, OEMs are preparing for an expected fall in personal car ownership. The FAW-VW JV made a foray into the mobility service sector in April 2018 by launching car-sharing service brand Mobje Mobility. The service was launched as a trial operation in the Chinese city of Changchun and was later expanded to the deployment of over 1,000 cars. Following this, the car-sharing service was launched in Chengdu.





## [Supplier Trends and Highlights] Mogo Auto, Telematics Information Technology lead autonomous driving project in China

The company will offer a one-stop solution that includes intelligent road construction, self-driving vehicle upgrades, and smart city transportation platform operation in the cloud.



Source: Getty image/IGphotography

According to a press release on Business Wire dated 5 July, Mogo Auto Intelligence and Telematics Information Technology Co., Ltd., an autonomous driving tech start-up headquartered in Beijing, is in charge of the project titled "intelligent transportation project with an investment of USD80 million."

Local media reports that "the company will provide a one-stop solution covering intelligent road construction, self-driving vehicle upgrade and smart city transportation platform operation in cloud management." Hengyang City is one of China's transportation hubs with multiple major highways and railways crossing there.

### Outlook and implications

With a designed mileage of 200 km (approximately 124 miles), it has been the largest one among all L4-level autonomous driving projects released worldwide. According to the company's press release, a 38-km-long intelligent road will be deployed and put into use in September during the project's first phase. By that time, there will be approximately 500 self-driving vehicles on city streets, including robo-buses, robo-taxis, self-driving shuttle buses, and other public service vehicles that provide firefighting, street sweeping, distribution, and emergency medical services.

The project is another example of a Chinese high-tech company taking the lead in cutting-edge science and technology around the world. According to the company's official website, Mogo Auto was founded in 2017 as a world-leading full-stack autonomous driving technology and operating service provider. It has been testing and operating fleets of self-driving vehicles in Beijing, Jiangsu, Hunan Province, and other areas.



## [GSP]North America Sales and production Commentary -2021.06

### North America Sales

**May 2021: +44.3%; 1.83 million units vs. 1.27 million units**

**YTD 2021: +31.8%; 8.153 million units vs. 6.185 million units**

COVID-19 mitigation efforts continue across the region, but the pandemic situation, along with auto production levels pressured by supply chain issues, present the biggest immediate risks to auto sales levels. The strong pace of sales over the past three months and continued announced production downtimes for some OEMs point to some supply constrained demand levels this summer. At the same time, the strong pace of recent sales also points to upside potential to projected annual volume totals as consumers—at least in Canada and the United States—remain confident and buying conditions remain positive.

In the US, with a sales pace of 17.0 million units seasonally adjusted annual rate (SAAR), light vehicle sales reports reflected the assumption that May demand levels would retreat from the pumped-up levels of March and April. The dynamics of the announced production slowdowns brought on by various supply chain issues are beginning to creep into some OEM results in May, but the still strong sales pace for the month reflects that consumers are finding new vehicles to purchase. Given that inventory issues will only be amplified by the strong selling rates, there could be further retreat in the pace of sales in June and July. However, the limited inventory seemingly remains the only thing standing in the way of auto consumers at the moment. The June 2021 forecast release reflects an annual level of 16.8 million units in 2021 and 17.0 million units in 2022, up 391,400 units and 240,600 units, respectively, from the previous forecast setting.



Even as a third wave of COVID-19 virus infections affects the country, Canadian consumers continue to sustain their capacity to spend, and those willing, ready, and able to enter a new car purchase continue to do so. However, harder lockdown provincial measures implemented in April and extended through May, especially in Ontario, along with potential vehicle inventory pressure have caused a slight slowdown in the new auto sales recovery. New auto registrations in May 2021 are estimated to have been more than 153,000 units; while an improvement of more than 37% from the year-ago level, it would mark the second consecutive month-over-month volume decline and the opposite direction of the normal spring seasonal pattern. A surging housing market, reopenings, and consumers with plenty of room to spend set up the potential for any build up in pent-up auto demand to be released in the second half of the year. The softer recent results have led to a slight downgrade in the 2021 volume projection, which now stands at 1.82 million units (down 51,000 units from previous forecast level). Sales are expected to reach 1.92 million units in 2022, matching the pre-COVID-19 pandemic level reached in 2019. For three years before the current COVID-19 effect, Mexican light vehicle demand was leading the region in auto sales declines, and the current situation adds additional pressure to an economy that was already stagnating. Auto sales in the country continue to reflect the weakest recovery levels within the region and



calendar year (CY) 2020 demand reflected a 28% decline for the year. Volume in 2021 so far has sustained this trend, with year-to-date (YTD) volume up a mild 14.7% through May 2021, but on a positive note May 2021 sales volume reached more than 85,000 units, more than double the year-ago level. Demand in CY 2021 is expected to jump 14%, to 1.08 million units, with demand rising 1.34 million units by 2024, eclipsing the level during the pre-COVID-19 CY 2019.

While the region progresses toward “normalcy”, the early 2021 vehicle demand levels—at least in the US and Canada—reflect that consumers continue to roar back, thanks to economic stimulus and economic reopening activity (where possible). While auto sales appear to have motored back to prepandemic levels, the potential vehicle supply issues stemming from supply chain constraints present the next wrinkle to the near-term outlook. Stock management will continue to be an important variable moving through the immediate forecast. Automakers continue to assess their assembly operations, as pressure builds from supply chain constraints including semiconductor shortages, inclement weather effects in February, and news of congestion at various ports. The combination of slower production and strong demand portend to inventory constrained demand levels in the immediate term, perhaps the only thing out there with the potential to cool down the auto consumer heading into the summer. Regional sales are projected to increase 15% in 2021, to 19.72 million units, followed by a moderate and sustained rebound across the region, with light vehicle sales bumping against the 20.3-million-unit level by CY 2023.

## North America production

**May 2021: 348.8%; 1.05 million units vs. 234,266 units**

**YTD 2021: 41.9%; 5.71 million units vs. 4.02 million units**

The production outlook for 2021 was revised down 291,382 units, or 1.9%, to 15.13 million units for the year amid the ongoing semiconductor shortage and other supply chain and logistical issues. Ford continues to experience greater exposure to the semiconductor shortage with continued downtime extensions, along with planned downtime that extends into September 2021 that results in a reduction of 189,811 units for the year. Stellantis quietly continues to extend downtime relating to the semiconductor shortage, resulting in production be reduced 89,838 units for 2021. Honda struggled in May bringing to forecast for the year down 36,939 units, with Hyundai announcing the semiconductor shortage has taken a toll at their Montgomery, Alabama, plant that results in the loss of 22,047 units for the year. Honda and Hyundai could work to recover the lost volume through the remainder of 2021, but at this time the forecast does not stretch to recoup the lost volume, as manufacturers continue to struggle with adequate supply of semiconductors. The economics along with demand for autos and the inventory situation all support far higher levels of production in 2022, but production is expected to remain constrained with mostly baseline production levels to total 17.1 million units, an increase of 13.1%, or 2.0 million units, from 2021. In some instances, most notably for the Detroit 3–produced full-size trucks, there is minimal upside since these plants work around the clock with little room to squeeze in incremental overtime. It is possible, but currently, the forecast remains constrained to the semiconductor supply chain dynamics. The quarterly progression for 2021 continues to reflect the first and second quarters as being the most affected by the shortages with the advent of normalcy beginning in the third quarter with baseline operating levels with some overtime returning to recover lost volume in the fourth quarter. Production in the second quarter of 2021 was revised down 5.1%, or 174,735 units, to 3.28 million units on continued semiconductor shortage–related downtime that spills into the third quarter that was revised down 3.0%, or 125,051 units, to 4.08 million units. Many manufacturers have plans in place to work at least partially through the summer shutdown season that



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bolsters the outlook. With improvements in supply for semiconductors expected to continually improve, production in the fourth quarter was revised higher by a marginal 0.5%, or 22,791 units, totaling 4.17 million units.



## [VIP ASSET] 5G on wheels - Revolution or evolution?



In this week's episode of Autology, we discuss 5G's impact on the IoT ecosystem and specifically on the automotive industry, including the transition away from 4G LTE, the first applications to deploy it, and the implications that will result.

Infrastructure investments are bearing fruit by way of rapidly available 5G connections to our smart devices. These same developments are already seeing application in healthcare, manufacturing, and even automotive.

Automotive services like virtual personal assistants and over-the-air software updates are already here to stay, but 5G will be the trigger for next generation services such as advanced safety features brought on by vehicle-to-everything communication and full vehicle upgradability. When this will happen and at what cost are just some of the key questions discussed by our industry experts.

### Speakers:

- Andreas Kohn, Chief Operating Officer at Rolling Wireless
- Beatriz Minamy, Principal Technical Research Analyst, Connected Car at IHS Markit
- Brian Rhodes, Research & Analysis Manager, Connected Car & Vehicle Experience at IHS Markit

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## [VIP ASSET] China's leading EV startups build sector growth

### Costly business

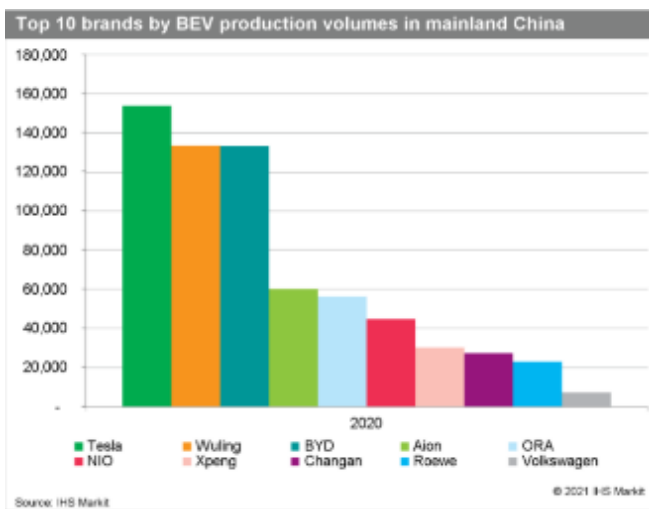
In previous analysis by IHS Markit, we have pointed out that a large number of startups have been at risk of disappearing from the EV sector as the car-making business, an capital-intensive endeavour, requires constant financial support from investors, while no immediate return can be guaranteed. When raising funds in capital markets, startups are assessed for their ability to bring a concept vehicle to series production quickly, the pace of sales volume and revenue growth, as well as sources of revenue streams. Companies behind the curve have a gloomy outlook.



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EV startup Bordrin suspended operations in mid-2020 owing to lack of financial support. Formed in Nanjing in 2017, Bordrin was among a slew of Chinese startups that aimed to rival Tesla in the EV market. Bordrin's first model, the iV6 SUV, made its debut at the Shanghai Motor Show in 2019; however, since then, the company has been struggling to launch series production of the iV6, let alone invest in new models and platforms. According to local media reports, Huang Ximing, chief executive of Bordrin, admitted that the company and its leadership team missed opportunities to secure financial backing from investors and the changed market environment made it hard for Bordrin to stick to its business plan. The market environment that Huang was referring to is the slowdown in EV sales amid the COVID-19 outbreak and worsened financing outlook during 2020 as investors grew wary of small-scale startups.

Byton was another startup struggling to stay in the competition. Byton revealed its production M-Byte electric SUV at the CES expo held in Las Vegas, Nevada (United States), in January 2020. Prior to the unveiling of the production car at the CES, the startup had already begun trial production of the model in Nanjing (China) in November 2019. However, the market launch of the M-Byte was delayed because of the impact of the COVID-19 pandemic. At the height of the COVID-19 pandemic, the company suspended operations at its Chinese and US offices for six months starting from July 2020. At the beginning of 2021, Byton made a renewed effort to bring its product to the market by forging a partnership with Foxconn Technology Group to accelerate the launch of the M-Byte. Under the partnership, the two companies aim to begin volume production of the M-Byte in the first quarter of 2022, a delay of around a year and a half from Byton's original timeline of mid-2020. According to a Bloomberg report, Foxconn plans to invest around USD200 million in the startup. However, the details of specific investment amounts involved in the partnership have not yet been announced by either company.

China's auto market is expected to continue to expand over the next five years, with sales of light vehicles (LV) forecasted to reach more than 28.7 million units in 2025, up 22% from 2020. With automakers accelerating launches of new-generation zero-emission vehicles, BEVs are set to account for a bigger share in the country's LV market, supported by favourable government policies, a well-developed supply chain, and an expanding public charging infrastructure. In November 2020, China's State Council approved a development plan for the country's NEV industry over 2021–35. The country's top policy-maker envisions NEVs, which primarily consist of BEVs, PHEVs, and fuel-cell vehicles, to account for 20% of new vehicle sales in China by 2025, with BEVs becoming a main type of vehicle in the market by 2035. To speed up the adoption of BEVs, megacities are fine-tuning their policies to favour BEVs. Shanghai, for instance, announced in February that PHEVs would no longer



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be granted dedicated NEV licence plates from 2023 onwards, while BEV buyers would still be able to apply for a free NEV licence plate. Such policies will continue to nudge new vehicle buyers towards pure EVs and support the expansion of aspirational EV makers.

China's state-backed automakers have started early in the rollout of NEVs. Chinese automakers such as SAIC Motor have already launched a full range of NEV product lines in the market, consisting of BEVs and PHEVs. However, the emergence of startup rivals over the past five years has weakened the competitive edge of these state-backed automakers. With no burden from the past and an aggressive business approach, startup companies such as NIO and Xpeng will have a better chance of gaining a foothold in the premium EV market, a goal that their state-owned counterparts have for years failed to achieve. For consumers, a large part of the appeal of startup brands lies in their "out-of-the-box" approach towards product design, marketing, brand building, and customer engagement. These new players tend to be more expressive in terms of their corporate culture and brand values. The kind of unique lifestyles they stand for appeal to the younger generation of auto buyers and attract them to their brands. With their products gaining traction in the market, China's leading EV startup companies are not just taking market share from Tesla, but also snapping up market share from established automakers who are racing towards the EV era.

It is too soon to conclude that some of the leading EV startups will stay on the fast track in the next phase of their development, given that even some of the market leaders have been operating at a loss and will continue to face high operational costs. NIO managed to achieve a positive gross margin in 2020 through increased sales volume and improved manufacturing efficiency. However, NIO posted a combined net loss of CNY16.6 billion for 2019 and 2020. Xpeng reported a net loss of CNY2.73 billion in 2020 on revenue of CNY5.84 billion. Both companies will need to secure fresh capital to fund their hefty investment in autonomous driving technologies, product development, and sales network expansion. NIO's upcoming new model, the ET7 sedan, provides a preview of what to expect from the aspirational Chinese brand. With the ET7, NIO aims to reset the bar for luxury, intelligent EVs. The model is designed to deliver advanced automated driving capability, supported by the NIO Aquila Super Sensing system, which consists of 33 sensors, including lidar sensors, high-resolution cameras, millimetre-wave radars, and ultrasonic radars. The ET7 is also the first model from the NIO vehicle family powered by NVIDIA's DRIVE Orin chip for autonomous driving vehicles. The high-level of technology content of the ET7 indicates the model was a capital-intensive project from the beginning and there is limited space to bring its manufacturing costs down by sharing common components with NIO's high-volume models, the ES6 and EC6. It would be a challenge for the company to translate its investment in a niche product to a range of high-margin products that it could sell in volumes.

As the competition grows, many startup companies risk being squeezed out of the sector, while new entrants with strong technology capability, a unique business model, and extensive financial resources will become the focus of the new round of EV investment. Chinese smartphone maker Xiaomi Corporation, for instance, has been making headlines recently with its plan to enter the EV business. Xiaomi plans to spend CNY10 billion (USD1.5 billion) in the initial phase of EV development and has committed to a total investment of USD10 billion over the course of the next 10 years to support its EV business. The company's EV subsidiary will be overseen by Lei Jun, CEO of Xiaomi. At this stage, Xiaomi is still at a very early stage of planning for its EV business and many analysts warn that the company may underestimate the challenges of starting fresh in car manufacturing. However, more tech companies are likely to follow Xiaomi, Baidu, and Foxconn in seeking to enter the EV sector, drawn by the massive opportunities presented by the automotive industry's transition to an all-electric, autonomous era.

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## Email

[AsiaPacificAutomotive@ihsmarkit.com](mailto:AsiaPacificAutomotive@ihsmarkit.com)

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