IHS Markit®

Automotive Industry Weekly Digest

02 Aug – 06 Aug 2021

Contents

[Sales Highlights] SAIC targets overseas sales volume of 550,000 units in 2021

SAIC has sets its overseas vehicle sales target at 550,000 units this year and around 1.5 million units by 2025, according to a company statement. The automaker plans to develop five regional markets with annual sales volume of 50,000 vehicles including the Middle East, Australia and New Zealand, ASEAN Nations, India, and Europe. SAIC currently has more than 1,000 overseas sales and service outlets, and has launched four international shipping routes to Southeast Asia, Mexico, western South America and Europe and KD factories in Thailand, Indonesia, India, and Pakistan.

Outlook and implications

SAIC exported 390,000 vehicles last year, up 11.3% year on year (y/y). In the first six months of this year, exports reached 265,000 units, up 112.8% y/y. Its sales in overseas market is mainly driven by its MG and Maxus brand which together sold 166,000 units in the first half in the overseas market. SAIC's biggest markets outside China include Australia, India, Thailand, Chile, Egypt, Saudi Arabia, and the UK. The MG brand accounts for almost about 100% of SAIC's sales in India, Saudi Arabia, the UK, and Thailand while it accounts for more than 75% of SAIC sales in Chile and over 60% in Australia, according to IHS Markit's light-vehicle sales data.

[Sales Highlights] Used-car sales in China grow 52.9% y/y in H1

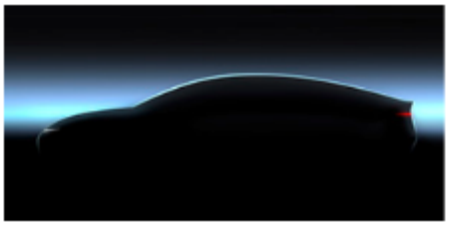
Used car sales increased by 52.9% year on year (y/y) in China during the first half of 2021, according to China Daily, citing data from the China Automobile Dealers Association (CADA). In June alone, sales of used cars were 1.53 million units, up by 17.8% y/y. In terms of different segments, sedans, multi-purpose vehicles (MPVs), and sport utility vehicles (SUVs) showed a growth rate of more than 50%. According to CADA deputy secretary-general Luo Lei, the used-car market will exceed 16 million units this year and 30 million units by 2023.

Outlook and implications

Along with a low base of comparison due to the coronavirus disease 2019 (COVID-19) virus pandemic, which affected China's vehicle industry in the first half of 2020 and resulted in a very high growth rate of used-car sales, the growing popularity of used cars is driven by several factors. One is the reduction of VAT on used cars from 2% to 0.5% by the Chinese government. China's Ministry of Commerce also recently announced that it would remove unwarranted restrictions and accelerate cross-province registration for used-car trading to boost consumption. The shortage of semiconductor chips that has affected the automotive industry globally and resulted in a shortage of new vehicles has led to consumers shifting to used cars as an alternative. The increasing popularity of used cars is likely to increase the resale value of vehicles and would be a motivation for existing owners to sell their vehicles and buy a new one more frequently than before.

[OEM Highlights] VW Group to drive synergies and scale though new SSP architecture

IHS Markit perspective	
Implications	VW is currently investing hugely in digital systems development but perhaps the most important element to the company's future technology is the recently announced Scalable Systems Platform (SSP).
Outlook	SSP will be a fully unified architecture that VW describes as a 'next generation mechatronics platform', which will underpin up to 40 million vehicles over its lifetime across the Group's brand and segment range. Its successful execution and rollout will be essential for VW's medium- and long-term profitability.



The Volkswagen (VW) Group is currently in the process of massively scaling up its investment and development in digital systems as it speeds up its plan to move from being a conventional carmaker to a digital mobility provider. However, while it is keen to promote its digital credentials as much as possible as it looks to change the perception of the company among investors and analysts, it will remain a massive industrial business that manufactures more than 10 million vehicles a year. So while much of the commercial battleground among carmakers and the tech industry disruptors will be fought over digital features, applications and offering flexible touch-of-a-button mobility options, all this will continue to be underpinned by hardware. To this end, VW announced its planned Scalable Systems Platform (SSP) architecture back in March. The architecture will first be launched on a production vehicle in 2026 and will eventually underpin up to 40 million vehicles, becoming the most widely used automotive platform ever in the process. This technology will be absolutely key to the VW Group driving the kind of synergies and economies of scale that will drive profitability as the era of electrification and autonomous vehicles (AVs) is ushered in. Announcing the strategy earlier this year, the VW Group said in a statement "The SSP (Scalable Systems Platform) as Volkswagen Group's next generation mechatronics platform will significantly reduce complexity over time. As the successor of MQB, MSB, MLB, as well as MEB and PPE, it will extend the consolidation from three ICE-platforms to two BEV-platforms, to finally one unified architecture for the whole product portfolio."

The VW Group has already said that it will open up the use of the platform to other OEMs as a form of 'open-source' technology. Presumably this will see VW take some kind of licencing fee from every non-Group vehicle built on the architecture, but the more vehicles that are built by other OEMs on the architecture, the more potential there is for driving even more purchasing synergies and economies of scale. In order to boost the volume and manufacturing synergies of battery production as well, the architecture will be integrated into VW's unified cell concept. The Group will introduce one unified battery cell format with up to 50% cost reduction and up to 80% use cases by 2030. The architecture will be available in several different versions, while retaining the ability to use the same modular component and electronic stacks, in order to support multiple vehicle segments

and concepts across the VW Group brand portfolio. One image shown in introducing the SSP strategy in a VW Group presentation showed four different SSP platform options; SSP n, SSP 3, SSP 2 and SSP 1.

Outlook and implications

While VW has made much of its investment in digital technologies and architectures in recent months in order to show it is not falling behind the big tech companies that may attempt to enter the automotive industry and disrupt it, VW will remain a massive industrial car manufacturer. The move to battery electric vehicles (BEVs) presents both opportunities and challenges in this regard. Hitherto it has been difficult to drive profitability from BEVs because of the high cost of batteries, while the relatively small volumes seen so far have made it difficult to amortise development costs. However, these problems are easing as increasing battery production volumes bring cell costs down, while rising sales volumes will begin to boost profits over time. However, the more scale and standardization VW can drive from a common platform the better it will be in the medium to long-term for the VW's bottom line, and this is what is driving the move the SSP. The relative simplicity of BEV platforms in comparison to ICE vehicles also offers opportunities in this regard. However, VW must also be careful that the using a standard vehicle architecture for the vast majority of its model offerings across brands from Skoda to Porsche does not dilute product differentiation or how the end customer experiences these products. Commenting at the recent launch of the VW's Strategy 2030 plan, Audi CEO Marcus Duesmann gave some hints as to how this will be achieved. He said, "It will not be one size fits all. We can still address specific vehicles and brand requirements, through the combination of the different modules. Considering the scalability of modules, Porsche will be able to offer a dedicated performance version for the top specifications." But he also admitted there will be considerable overlap between some brands and models. He added, "We will be able to use the same combination of E3 [software] stack, autonomous driving stack and powertrain for a Porsche entry model and for the VW performance model." How VW manages this overlap will be key, but company executives would no doubt point to the fact that this is little different to the way things are now and have been for more than two decades as a result of VW's ICE platform-sharing strategy.

[OEM Highlights] Xpeng forms technology subsidiary in Henan

Chinese electric vehicle (EV) startup Xpeng Motors has formed a Hainan-based technology subsidiary that will focus on development of AI-based application software, the brokerage of secondhand vehicles, and the sale of new automobiles and charging piles, reports Gasgoo. Called the Xiaopeng Motors Technology Co., the new company involves a registered capital of CNY20 million (USD3.1 million) and is fully controlled by Xpeng.

Outlook and implications

Xpeng, also known as Xiaopeng Motors, is among a group of EV startups established in China due to growing demand for new energy vehicles (NEVs). It established a new mobility service subsidiary, Chuxiong Xiaopeng Smart Mobility Technology Co, in the city of Chuxiong (China) in April last year. The subsidiary has registered capital of CNY2 million and has been established through the EV maker's Guangzhou-based smart travel technology branch. The new company will work on building a smart mobility ecosystem that includes ride-hailing services, car leasing services, sales of new and used cars, and research of automobile manufacturing technologies. Last month, Xpeng, received permission from the Hong Kong stock exchange (HKEX) for listing. The capital raised is likely be used to fund technology development, new vehicle launches, and the expansion of sales points in China. In order to meet the growing demand for its vehicles, in April, Xpeng 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.

[Technology Highlights] Hyundai Mobis develops brainwave-based ADAS technology

Hyundai Mobis has introduced M.Brain, the “world's first” brainwave-based advanced driver assistance systems (ADAS), according to a company press release. M.Brain assesses the driver's condition in real-time by detecting brainwaves around the ears using earpiece sensors. The software technology that analyses and determines data from brainwaves is crucial. Hyundai Mobis is dedicated to research and development, and has even used machine learning to interpret brainwave signals. M.Brain can also be linked to a smartphone app to alert the driver when the driver is losing concentration. The accident prevention technology also provides alerts for various sensory organs, including via sight (LEDs around the driver's seat), touch (vibrating seat), hearing (headrest speaker), and so on. “Brainwave-based technology has endless possibilities for development because it can measure large amounts of data, which is why Hyundai Mobis is considered an innovative technology,” said the company.

Outlook and implications

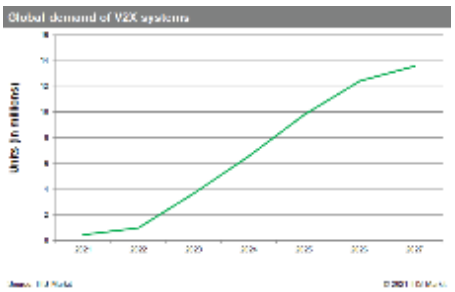
Hyundai Mobis plans to apply various bio-healthcare technologies to public transportation with a view to contributing to public safety. M.Brain will test-apply in Gyeonggi-do's public buses first. The global in-vehicle healthcare market has now taken its first step, and heartbeat measurements or eye tracking technologies are introduced.

[Technology Highlights] V2X-based safety applications to benefit from 5G technology

Rising demand for V2X systems coupled with the launch of 5G is expected to lead to advanced safety applications

Source: Getty Images/metamorworks

The aptly termed vehicle-to-everything (V2X) communication is the backbone of a safe and secure driving ecosystem. V2X is a communications technology that allows a vehicle to share information with other vehicles, roadside infrastructure, and pedestrians to create a system that informs users of what is in front of them and impending dangers like collisions. According to IHS Markit data, global V2X demand is set to increase by a compound annual growth rate (CAGR) of around 85% by 2027 from current deployment volumes.



The primary role of V2X systems is arguably to ensure safety. These can be divided into vehicle-to-vehicle (V2V), vehicle-to-pedestrian (V2P), and vehicle-to-infrastructure (V2I) for safety applications.

V2V communication wirelessly exchange information about speed and position of surrounding vehicles to avoid crashes and ease traffic congestion. V2V enables cars to broadcast and receive messages and create an overall awareness of other vehicles in proximity. After receiving the message, the technology enables the vehicle to determine potential crash threats. Drivers are warned by visual and/or audible alerts. V2V communication can have a range of up to 300 m to detect threats that are not visible to the driver, due to traffic, rough terrain, or weather. It uses crash avoidance systems that use radars and cameras to detect collision threats.

V2P is a form of communication which uses direct cellular broadcast between a car and a pedestrian or multiple pedestrians in the immediate area, or vulnerable road users such as cyclists. The technology issues warning alerts to pedestrians and cyclists of an approaching vehicle, and warnings to the vehicle of the vulnerable road users.

V2I technology helps capture data from vehicles and share the information with a variety of devices to improve traffic and highway systems. This as a whole forms the Intelligent Transport System (ITS), which allows for a bidirectional exchange of messages from infrastructure components such as lane markings, road signs, and traffic lights.

Currently, two key sets of standards for V2X communication exist, namely dedicated short-range communications (DSRC) and C-V2X. DSRC is based on the IEEE 802.11p standard, which is defined for fast-moving objects.

DSRC enables secure, high-speed communication between vehicles and infrastructure without cellular connectivity. In simple terms, C-V2X is essentially a cellular-based system, while DSRC is like Wi-Fi that uses wireless standard called WAVE. In 2019, Volkswagen launched the eighth-generation Golf with 802.11p-based V2X as standard equipment using a chipset from NXP. Companies such as Autotalks and Applied Information have developed dual-mode hardware that can be used for both DSRC and C-V2X.

Some of the common safety features on vehicles are based on sensors including radars, lidars, and cameras. Data registered by these sensors can be transmitted to other cars and even pedestrians via V2X technology.
With the growing V2X deployment, the industry is looking to expand its safety-related applications using V2X. One of the interesting developments is Audi's partnership with Blue Bird, Applied Information, and Temple to deploy C-V2X technology for safety around school zones. The solution, which is being tested, will not only warn drivers when they are approaching a school safety zone through instrument displays and audio alerts but warn drivers when the vehicle nears a stationary school bus for picking up or dropping off students. The roadside units (RSU) installed in school safety zones will use flashing signs that would broadcast messages to vehicles indicating the location of the school and the reduced speed limit. Onboard units (OBU) are being developed to broadcast C-V2X safety messages from school buses to vehicles.

Outlook and implications

With the imminent use of 5G in the auto industry, the scope of safety applications will only increase. 5G's low latency is especially crucial for applications relying on real-time time updates. The increase in the use of over-the-air (OTA) updates, which is used for software and firmware, allows automakers to remotely update and enhance safety applications and this will also improve with 5G. The Global Certification Forum (GCF) recently announced a partnership with 5G Automotive Association (5GAA) to support interoperability, reliability, and safety of emerging C-V2X systems. The 5GAA includes and is backed by some of the leading names such as Audi, Continental, Ericsson, Harman, Samsung, Marelli, Pirelli, Qualcomm, TIM, and Vodafone.

The use of data from V2X-enabled vehicles, for example if the car comes across a slippery or damaged road, will enable local municipal bodies to identify issues in a more cost-effective and less time-consuming manner. In fact, automakers and suppliers have been tying up with local governments to test V2X safety applications in certain locations in urban areas. For example, Mercedes Benz tied up with the district of Zollernalb in Germany in 2019, to test safety on slippery roads during winters. Mercedes-Benz cars with Live Traffic Service will relay information such as slippery road conditions, captured by ESP or ABS sensors and the GPS data to the Daimler Vehicle Backend using mobile radio network. This information is displayed on digital maps in the two road maintenance depots in Zollernalb district. HERE Technologies, Tom Tom, the transport authorities in six European countries, Daimler, BMW, and Ford have been testing how information about acutely hazardous conditions can be relayed using V2X technology.

Along with electrification, the auto industry has been heavily investing in software. The monetization of software services is already seen as a significant revenue stream. It is no wonder why OEMs such as Volkswagen is looking to develop at least 60% of all its software in-house. This shift to focus on software could lead to more updates via over-the-air deployed by automakers to improve safety systems in cars, and potentially leading to the growth of V2X-based safety applications. For instance, Ford is launching its Mach-E model in mainland China with C-V2X technology; the automaker aims to enable drivers to anticipate potential driving hazards and improve traffic safety and efficiency. Its advanced firmware over-the-air (FOTA) updates will upgrade driver-assist technologies and safety systems.

As with Audi's involvement in school-zone safety, the scope for safety applications using V2X can be expanded to include hospitals and residential areas/townships where the speed limit is significantly reduced. Enhancing current applications and broadening the scope for the future is significant as it forms part of the core for fully autonomous driving.

[GSP] Global Sales and Production Commentary -2021.07

Global sales

June 2021: +5.8%; 6.92 million units vs. 6.54 million units
YTD 2021: +27.5%; 41.33 million units vs. 32.41 million units

Auto demand prospects in the COVID-19 age will be largely determined by the path of the pandemic, especially an emerging race between vaccine and variants. Effective vaccination programs should continue to improve population immunity levels through late summer, progressing well in the US, UK, mainland China, and Europe. Elsewhere, progress is mixed with a blend of limiters, including vaccine supply constraints, authorization delays, administrative bottlenecks, and reluctant populations. There are new concerns on the emergence and spread of the Delta variant of the COVID-19 virus, alongside ongoing semiconductor shortages and emerging workforce pressures. The evolving post-COVID-19 landscape is intensifying operational and economic pressures on the global automotive industry, especially as OEMs and suppliers gauge “new normal” demand levels.

After a 3.5% contraction in 2020, world real GDP is projected to increase 5.8% in 2021, 4.7% in 2022, and 3.1% in 2023. This forecast reflects a slight downgrade for the United States. The JPMorgan Global Composite Output Index (compiled by IHS Markit) retreated 1.9 points to 56.6 in June, which is a level that is still indicative of robust expansion. The price of Dated Brent crude oil is projected to average USD67 per barrel (/bbl) in 2021 and USD66/bbl in 2022–23, up from USD42/bbl in 2020.

As vaccines become more widely available and lockdowns end, consumer spending is reviving with support from fiscal stimulus and excess savings accumulated during the pandemic. The autos demand recovery is gaining traction but not all markets are enjoying growth evenly. As some markets approach pre-pandemic demand levels with supported from much improved economic fundamentals, others continue to navigate more challenging conditions including lingering COVID-19 impacts, new variant risks, and continued supply-chain pressures, especially semiconductor shortages. Demand in the first half of 2021 rose 27.5% but clearly comparative year-on-year (y/y) figures will reflect the lockdown months of 2020 for some time.

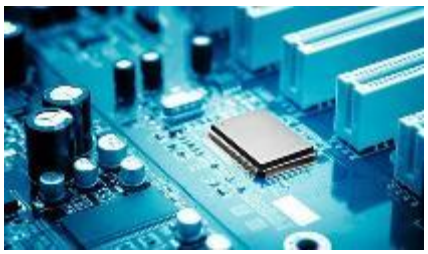
Global demand for 2021 is reset to 84.6 million units, up by 10.2% y/y, marking a mild downgrade on supply concerns (chips). IHS Markit analysts foresee improving momentum for 2022 and 2023 as risks recede (upgraded). For reference, 2020 global demand posted 76.9 million units, down by 14%, with the year a virtual write-off as runaway virus levels and stringent lockdown restrictions decimated the auto industry.

Recent months have witnessed an unprecedented flurry of OEM announcements on their electrification plans for the coming 5–15 years. Electric vehicles are fast evolving from a compliance side hustle into fully fledged core offerings for many OEMs. Policy makers and regulators have also been sharing their visions for a greener future,

most recently the EU and the UK. Transformational change is clearly on the agenda, making sense of it all represents an ongoing challenge.

Mainland Chinese—first in, first out—demand in the year to June 2021 posted 11.58 million units (down 15.1% y/y). Comparing the year to June 2021 against the same period of 2019 offers another way to gauge recovery prospects, with demand now only 1.9% below pre-COVID-19 levels. For 2021, IHS Markit analysts foresee 25.05 million units, up by 5.9% y/y—marking no change and reflecting robust economic conditions and semiconductor supply risks. This effectively stretches the expected demand recovery cycle into 2022. Effective pandemic containment limited 2020 losses to just 4.6% to 23.7 million units.

In the US—back in business—massive fiscal stimulus and favorable COVID-19 trends are driving robust growth in jobs and consumer spending, helping fuel auto demand. Despite this, IHS Markit analysts foresee 16.7 million units for 2021 (up 14.4% y/y), a downgrade as constrained domestic production caps auto rebound (for now), largely reflecting prevailing supply-chain issues, especially chips and worker shortages. For reference, 2020 US auto demand posted 14.6 million units, down 14.6% y/y.



In Europe—work in progress—improving vaccination rollouts are helping the easing of containment measures but recovery momentum has been curtailed by supply chain and Delta virus concerns. The 2021 Western and Central European demand forecast is reset lower at 15.1 million units, up 8.8%. A second summer of COVID-19 vacation travel disruption is a particular risk for Southern European economies. Automotive demand for 2020 posted 13.8 million units (down 23.6% y/y). Most markets remain below 2019 levels of demand (pre-COVID-19) for the coming few years. In July, the EU released their “Fit for 55” Green Deal proposal, which includes revised CO2 targets for 2030 set at a challenging a 55% drop for passenger cars (versus 2021 levels).

Global production

June 2021: +6.9%; 6.45 million units vs. 6.03 million units
YTD 2021: +29.2%; 39.40 million units vs. 30.49 million units

The year-on-year comparison of the forecast for June is less than straightforward; 12 months ago, following the experience of mainland China, many markets were starting to open back up after short, sharp periods of lockdown. The latest estimate shows that output of 6.45 million units rose by 6.9%, which seems modest given the prevailing conditions in June 2020 but consistent with the headwinds in second quarter 2021, in which supply chain disruption is still very much to the fore. In the first half of 2021, the year-to-date output is estimated to have reached 39.40 million units, which is up by 29.2% over the first six months in 2020.

[Supplier Trends and Highlights] Lizhi partners with Xinghe Zhilian for in-car communications and entertainment

Partnership comes after tie ups with Xpeng, Li, and WM Motor

Source: Getty Images/Grassetto

Lizhi has partnered with Xinghe Zhilian Automotive Technology to integrate its audio products into Xinghe Zhilian's in-car communications and entertainment network, the audio company said in a press release on 16 July.

"We are pleased to collaborate with Xinghe Zhilian Automotive Technology Co., Ltd. to further apply LIZHI's audio products to more in-car scenarios and further boost the application of LIZHI's audio technology in vehicles through Xinghe Zhilian's IoV network," said Jinnan (Marco) Lai, Founder and CEO of Lizhi.

Outlook and implications

LIZHI is an online UGC audio community and interactive audio entertainment platform in mainland China. In June, Li Auto announced that it would integrate LIZHI Podcast in its vehicles. LIZHI also partnered with WM Motor in April, under which the automaker will integrate LIZHI's audio product into its in-car system for electric vehicles (EVs). Earlier that month, Xpeng Motors became the first OEM to feature LIZHI's new 'Livestream Podcast' service on the LIZHI Podcast app.

"We believe that the partnership may also accelerate LIZHI's foray into the field of in-car audio and bring LIZHI's extensive podcast content and immersive audio experiences to a wider range of users," Lai added.

[Supplier Trends and Highlights] RoboSense to supply second-generation solid-state LiDAR to GAC Aion

GAC Aion, a wholly owned subsidiary of GAC Group's new energy vehicle (NEV) business, will integrate RoboSense's second-generation solid-state LiDAR into its autonomous system ADiGO, reports Gasgoo. RoboSense said that this LiDAR is based on a two-dimensional MEMS chip scanning architecture that help improve its perception capabilities.

Outlook and implications

GAC Aion has stepped up its efforts in the field of autonomous vehicles (AVs). Its autonomous system ADiGO 3.0 version allows the Aion LX and Aion V to have Level 3 automated capabilities on highways and urban expressways. The company introduced the Aion LX with Level 3 automated capabilities in 2019, and last year announced plans to pilot Level 4 AV operation in designated regions in 2023. RoboSense offers LiDAR sensor systems incorporating LiDAR sensors, AI algorithms, and IC chipsets to enable smart vehicles to have perception capability. The company claims that its LiDAR systems have been widely deployed for future mobility, including autonomous passenger cars, robotaxis, robotrucks, robobuses, and automated logistics vehicles.

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