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**Emerging
Research
Motors**

**Automakers Strategy
Report, 2022--Xpeng**

Sept.2022

XPeng P7 drives overall sales growth, and three new models will be launched from 2022 to 2023 to drive new growth.

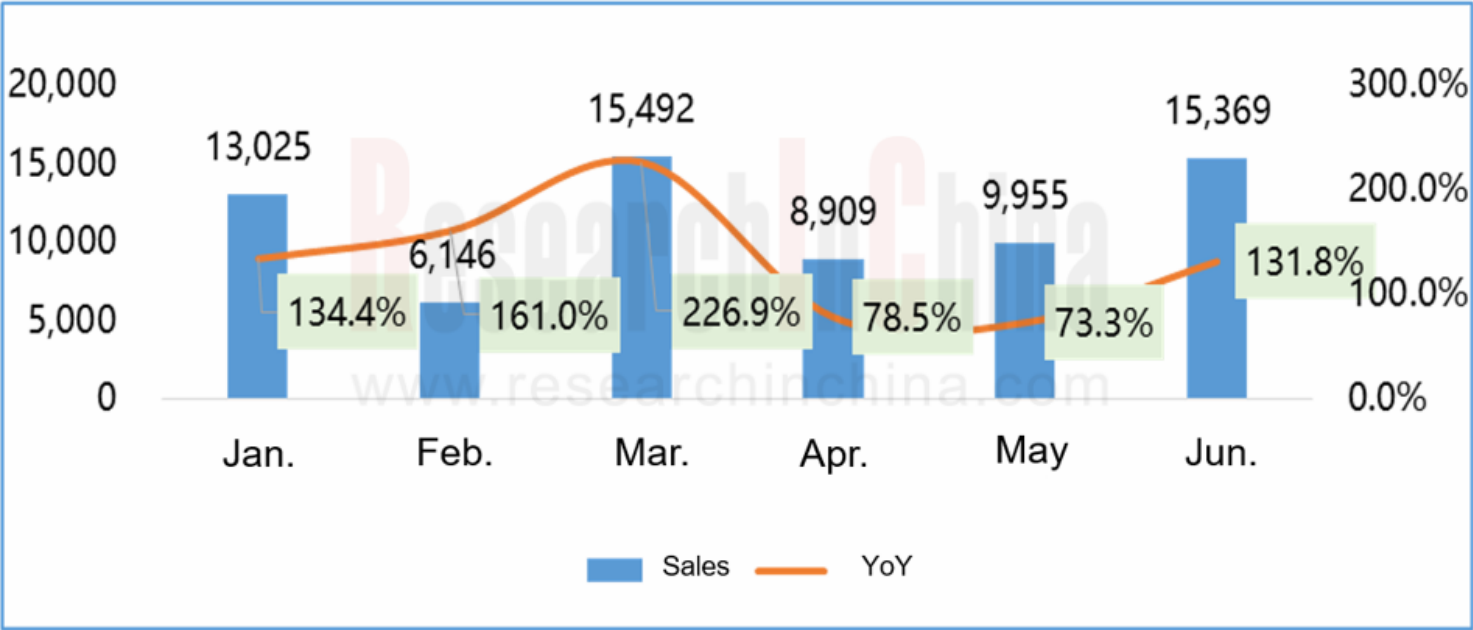
In 2022H1, XPeng Motors sales reached 68,896 vehicles, up 129.5% year-on-year. By model, P7 had the highest sales at 35,268 vehicles, accounting for 51.2%, followed by P5 with 23,179 vehicles, occupying 33.6%.

XPeng Motors has developed two major vehicle manufacturing platforms - David and Edward. Among them, David platform is designed for vehicles with a wheelbase of 2.6m-2.8m, and developed G3 series and P5. Edward platform is designed for vehicles with a wheelbase of 2.8m-3.1m, and already developed P7 and G9.

In terms of car-making planning, G9 was launched in September 2022, focusing on concept of ultra-fast charging, using 800V high-voltage SiC platform to achieve an ultra-fast charging of 5 minutes and a replenishment of more than 200km. In addition, XPeng also plans to launch a new car in 2023 on the newly built B-class platform and C-class platform respectively, covering a product matrix in the range of 150,000-400,000 yuan.

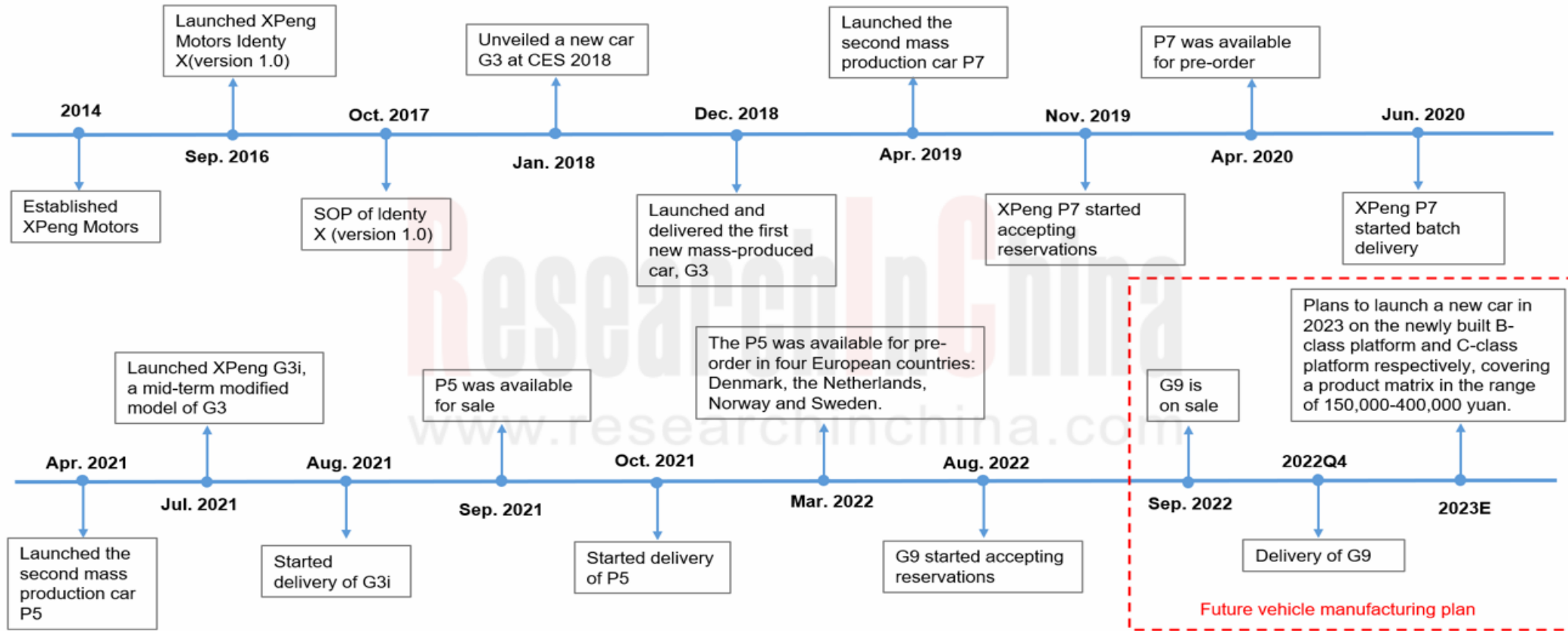
Sales Volume of XPeng Motors, 2022H1

(Unit: Vehicle)



Source: ResearchInChina

Car-making History and Planning of XPeng Motors



Source: ResearchInChina

With OTA, the field of intelligent driving is the first to land urban NGP

According to ResearchInChina, since XPeng Motors' first OTA upgrade in January 2019, a total of 37 OTA upgrades have been implemented as of July 2022, about once every 1.2 months.

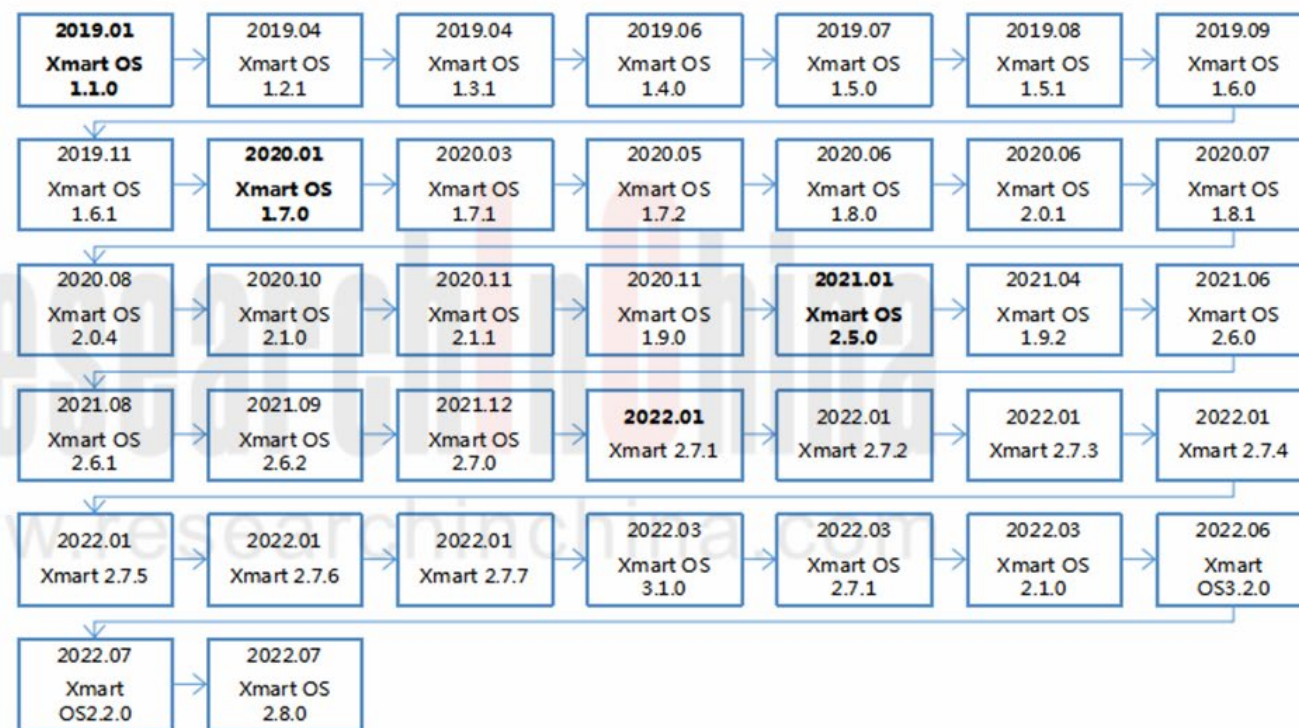
In terms of years, there are 8 times in 2019, 10 times in 2020, 6 times in 2021, and 13 times from January to July 2022.

In terms of categories, as of July 2022, XPeng has 279 OTA functions, and the upgrade content mainly includes six categories: IVI system, body and control, power system, information and data, cockpit and ADAS-related functions. Among them, IVI system and ADAS categories have the most updates, accounting for 72.4% in total.

OTA Update Frequency of XPeng Motors

Comparison of OTA Update Frequency between XPeng Motors and Other Emerging Automakers

Brand	Time of First OTA Update	Number of OTA Updates (as of Jul. 2022)	OTA Update Frequency
XPeng Motors	Jan. 2019	37	1.2 months/time
NIO	Sep. 2018	27	1.7 months/time
WM Motor	Dec. 2018	20	2.2 months/time
Li Auto	Dec. 2019	16	2.0 months/time



Source: ResearchInChina

With OTA, the field of intelligent driving is the first to land urban NGP

In January 2021, XPeng made NGP Navigation Guided Autopilot (public test version) function available to users for the first time through an OTA upgrade. In addition to providing common capabilities that competing products can provide (such as on/off ramps, automatic lane change, etc.), XPeng NGP is also deeply optimized for scenarios in China's road conditions, such as large truck avoidance and nighttime overtaking alert functions that Tesla NOA does not have.

On September 17, 2022, XPeng successively pushed urban NGP to some P5 users in Guangzhou through OTA, becoming the first car brand in China to mass-produce high-level intelligent assisted driving in urban scenarios. After the relevant procedures are reported and reviewed, the urban NGP will be released to the general public in Guangzhou. Its characteristics are as follows:

Full-stack self-research + LIDAR: urban NGP will be implemented on the XPeng P5 equipped with two LIDARs (provided by DJI Livox). **XPeng urban NGP mainly relies on three perception information routes:** the first is to form an accessible space with LIDAR perception, which is equivalent to the 3D space identified by LIDAR in the range that vehicle can drive; the second is the lane line based on road surface; and the third is trajectory of the car nearby, such as turning without a lane. **The overall traffic efficiency is close to 90% of the manual navigation time:** with mass production of urban NGP, the proportion of available time of XPeng intelligent assisted driving in the user's car-using time has increased to nearly 90%.

Comparison between XPeng NGP and Its Competitors

Navigation Pilot Assistance System	Xpeng NGP	NIO NOP	Tesla NOA
Launch Time	Jan. 2021	Oct. 2020	Oct. 2018
Model Example	P5	ET7	Model 3
Price	Free	39,000	64,000
Sensor Configuration	2*LIDAR 13*camera 12*ultrasonic radar 5*radar 1*high-precision positioning unit	1*LIDAR 12*camera 12*ultrasonic radar 2*high-precision positioning unit 1*V2X	8*camera 12*ultrasonic radar 1*radar
Position	RTK + high-precision inertial navigation	GPS + general inertial navigation	GPS + general inertial navigation
Map	Navigation map + high-precision map (AMap)+ SR map	Navigation map + high-precision map (Baidu)	Navigation map (Baidu)
Voice Interaction	√	√	-
Start Method	Column-mounted shifter	Button design	Column-mounted shifter
Navigation Pilot Assistance Function Push Status in Urban Scenario	Pilot in Guangzhou from September 17, 2022	Planned for 2023	In July 2021, FSD Beta V9.0 was launched, and the urban scenario was added for the first time
Available Road Coverage	Closed highway, expressway, ring highway and urban road	Closed highway, expressway, ring highway	Closed highway, urban road
Speed Setting	Integrated road speed limit, high precision map, traffic speed, step-by-step change according to ramp radius	High-precision map-based 60km/h	According to the current speed limit sign Follow the ramp speed limit sign

Functional Evolution of Xpeng NGP

Update Time	OTA Version	Model	NGP Realization Function
Jan. 2021	Xmart OS 2.5.0	P7	<ul style="list-style-type: none"> Added NGP automatic navigation guided pilot: NGP can realize automatic navigation assisted driving from point A to point B based on the navigation route set by the user. After the NGP is turned on, the large screen of the vehicle will display information such as a 360° viewing angle around the vehicle, environmental simulation, speed limit instructions and construction reminders, allowing the driver to understand the surrounding status of the vehicle in real time.
Jun. 2021	Xmart OS 2.6.0	P7	<ul style="list-style-type: none"> Added voice lane change in NGP state: In NGP state, the driver can control the vehicle to change lanes to the left and right through voice commands. Added function of staying away from large vehicles in NGP state: When parallel with large vehicles, it will be properly moved to the other side of the lane, ensuring more safe space and a more secure driving experience. Added NGP self-recovery function: When the driver takes over the vehicle through the steering wheel, enters the new lane again and meets the NGP opening conditions, the NGP will be automatically restored. Improve the experience of slowing down in the NGP state in response to cutting vehicles. Further improve the accuracy of automatically adjusting the speed limit value in the NGP state. Optimize the display experience of the instrument cluster in the NGP state. Optimize the security of NGP in some scenarios.
Aug. 2021	Xmart OS 2.6.1	P7	NGP curve crossing optimization: optimize the curve speed limit logic under NGP status, and reduce the speed appropriately when the curve vision is poor.

Jan. 2022	Xmart OS 2.7.0	P7	Optimization of NGP beta: Optimize the cone bucket display strategy, off-ramp experience and congestion following experience under NGP status; Optimize the function of linking NGP switch status with account and user habit group, which will remember the NGP switch status of different accounts or different habit groups.
Mar. 2022	Xmart OS 3.1.0	P5	Optimize night assisted safe driving tips, cone bucket display experience, off-ramp experience, congestion following experience, etc.
Jun. 2022	Xmart OS 3.2.0	P5	Added highway NGP enhancement version.
Jul. 2022	Xmart OS 2.8.0	P7	Optimize the NGP voice broadcast experience, briefing mode or detailed mode, switch at will. Optimize the way of disengaging NGP warning, XPeng-owner can click or touch the button on the steering wheel to disengage the warning.

Expanding three branch businesses and exploring the future mobility

In addition to the intelligent driving business, Xiaopeng has also expanded three branch businesses, which together form "quartet" of future mobility.

Branch 1: Layout of Robotaxi, testing new ideas for assisted driving software

In February 2022, XPeng established an autonomous driving company--Guangzhou Pengxu Automatic Driving Technology Co., Ltd.

In July 2022, XPeng registered the trademarks "XPENG ROBOTAXI", "XPeng Zhihang" and "XPeng Zhixing" for Robotaxi business.

On the one hand, it creates commercial value through the capability of mass production pre-installed Robotaxi software and hardware, and future cooperation with various mobility operators; on the other hand, it provides a new idea for XPeng to test assisted driving software through Robotaxi's operation in generalized scenarios.

Branch 2: Entering the field of robotics to create an ecological collaboration between cars and robots

Like Tesla, XPeng also aims at the bionic robot, and released the third-generation prototype of intelligent robot horse "Little White Dragon" in July 2021. The XPeng bionic robot also chooses motor control mode. In addition to saving costs, the motor control can better complement and coexist with AI technology. XPeng has launched in-vehicle AI intelligent voice assistant "Little P" in 2020, through which XPeng linked the robot and automotive business with AI technology. Meanwhile, the intelligent robots have won the support of XPeng Motors in mass production capacity, sales channel, and user operation.

XPeng Intelligent Robot Horse



Source: XPENG Robotics

Branch 3: Layout flying cars and make efforts for air mobility

In terms of flying cars, XPENG AEROHT has developed five generations of flying cars from 2013 to March 2022. XPENG X2 is the fifth generation of XPENG AEROHT's self-developed two-person intelligent electric flying car, combining the core technology of the fourth-generation product XPENG X1. At the same time, XPENG AEROHT is promoting the R&D of the sixth-generation flying car XPENG X3, and will invest 85% of its budget in the development of this product.

XPENG X3



Source: XPENG AEROHT

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