ADAS/AD Industry Chain Report, 2020 -- OEMs

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STUDY GOAL AND OBJECTIVES

This report provides the industry executives with strategically significant competitor information, analysis, insight and projection on the competitive pattern and key companies in the industry, crucial to the development and implementation of effective business, marketing and R&D programs.

REPORT OBJECTIVES

- To establish a comprehensive, factual, annually updated and cost-effective information base on market size, competition patterns, market segments, goals and strategies of the leading players in the market, reviews and forecasts.
- To assist potential market entrants in evaluating prospective acquisition and joint venture candidates.
- To complement the organizations' internal competitor information gathering efforts with strategic analysis, data interpretation and insight.
- To suggest for concerned investors in line with the current development of this industry as well as the development tendency.
- To help company to succeed in a competitive market, and

METHODOLOGY

Both primary and secondary research methodologies were used in preparing this study. Initially, a comprehensive and exhaustive search of the literature on this industry was conducted. These sources included related books and journals, trade literature, marketing literature, other product/promotional literature, annual reports, security analyst reports, and other publications. Subsequently, telephone interviews or email correspondence was conducted with marketing executives etc. Other sources included related magazines, academics, and consulting companies.

INFORMATION SOURCES

The primary information sources include Company Reports, and National Bureau of Statistics of China etc.

Abstract

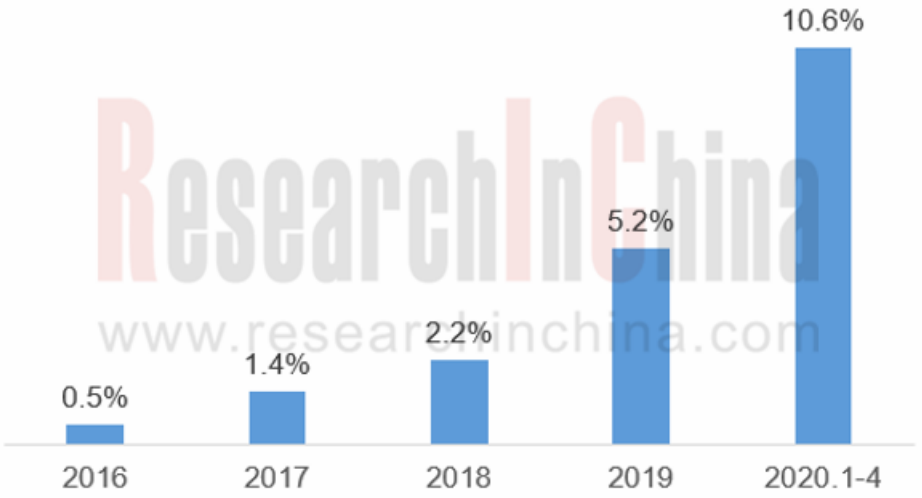
OEM Autonomous Driving Research: Successive Launch of L2 Models on Market, Foreign Plan for Mass Production of L4 Models Earlier Than China

I. L2/L2+ models are successively available on the market

Over years of rapid growth, mainstream OEMs have spawned L2 ADAS systems and upgraded related functions, equipping their vehicles with core capabilities e.g., ACC, lane keeping assist (LKA)/lane centering assist (LCA), active steering (under driver's confirmation) and traffic sign recognition, at all speeds. Deep fusion of these capabilities is of the essence for mass production.

In China, installation rate of L2 ADAS was 10.6% in the first four months of 2020, 5.4 percentage points higher than in 2019. China has achieved initial success in development of ADAS/AD technology. Foreign brands like Volvo and Toyota, and new homegrown brands such as Lynk & Co, WEY, Geometry and EXEED stay ahead in installation.

Installation Rate of L2 ADAS in China, 2016-2020



Source: ResearchInChina

II. L3 is expecting policy incentives

L3 automated driving is challenged as concerns technology and regulations. OEMs have mixed attitudes towards it:

- South Korea has been the first one to release L3 standards: Hyundai is expected to make headway in market;
- Europe and the US have yet to loosen their policies: Audi slows its pace of commercializing L3;
- China's policy still remains unclear but OEMs calls for it: GAC and Changan Automobile already gear up for mass production; Geely and Chery will follow up at any time.

The released L3 solutions integrated with LiDAR and HD map, allow for hands-off steering wheel in the scenarios of highways and city fast roads but require good road conditions, e.g., physical road dividing lines and clear lane lines.

Typical L3 Systems of OEMs

Region	OEM	System	Application Scenario	Features	Applied Models
Europe & Americas	Mercedes-Benz	Drive Pilot	Highways (physical road dividing lines, clear lane lines, not bad weather conditions, HD map coverage)	The system takes over autonomous driving functions (max. speed: 128 km/h).: "start and stop" function ACC which enables the vehicle to decelerate automatically according to speed limit signs; distance keeping system; active blind spot detection; brake assist at intersections	Mercedes-Benz S (launched in 2020) Mercedes-Benz C-Class (launched in 2021)
	Audi	Traffic Jam Pilot	Highways or multi-lane roads, all with divided median strips	Traffic jam pilot: full intervention below 60 km/h; automatic acceleration, deceleration, and steering	Audi A8 (released in 2017), mass-produced ones without the system
South Korea & Japan	Toyota	Guardian	Enclosed roads	Automatic braking and steering in the case of obstacles; driver status analysis and active intervention	Lexus (launched in 2020)
	Honda	/	Highways	Automated driving on multi-lane roads/highways or in traffic jams	Legend (launched in 2020)
China	Changan Automobile	/	Highways, city fast roads	Recognition of targeted obstacles (vehicles, pedestrians, etc.), lane lines, guardrails, traffic signs, etc.; environment, long-time feet off, hands off and eyes off until intervention alerts from the system	UNI-T Flagship (launched in June 2020)
	Great Wall Motor	i-Pilot 1.0	Highways	Work on highways, and trunks and ramps of city fast roads; independent operation in special conditions, e.g., road maintenance, traffic congestion, and tunnels	WEY (launched in 2021)
	GAC	ADiGO	City fast roads, highways	Daily driving in cities: traffic jam pilot, parking assist; driving on highways: IACC + LKA, lane changing, complex curves	Aion LX (launched in Jul 2020); Aion V (presold in April 2020)

Source: ResearchInChina

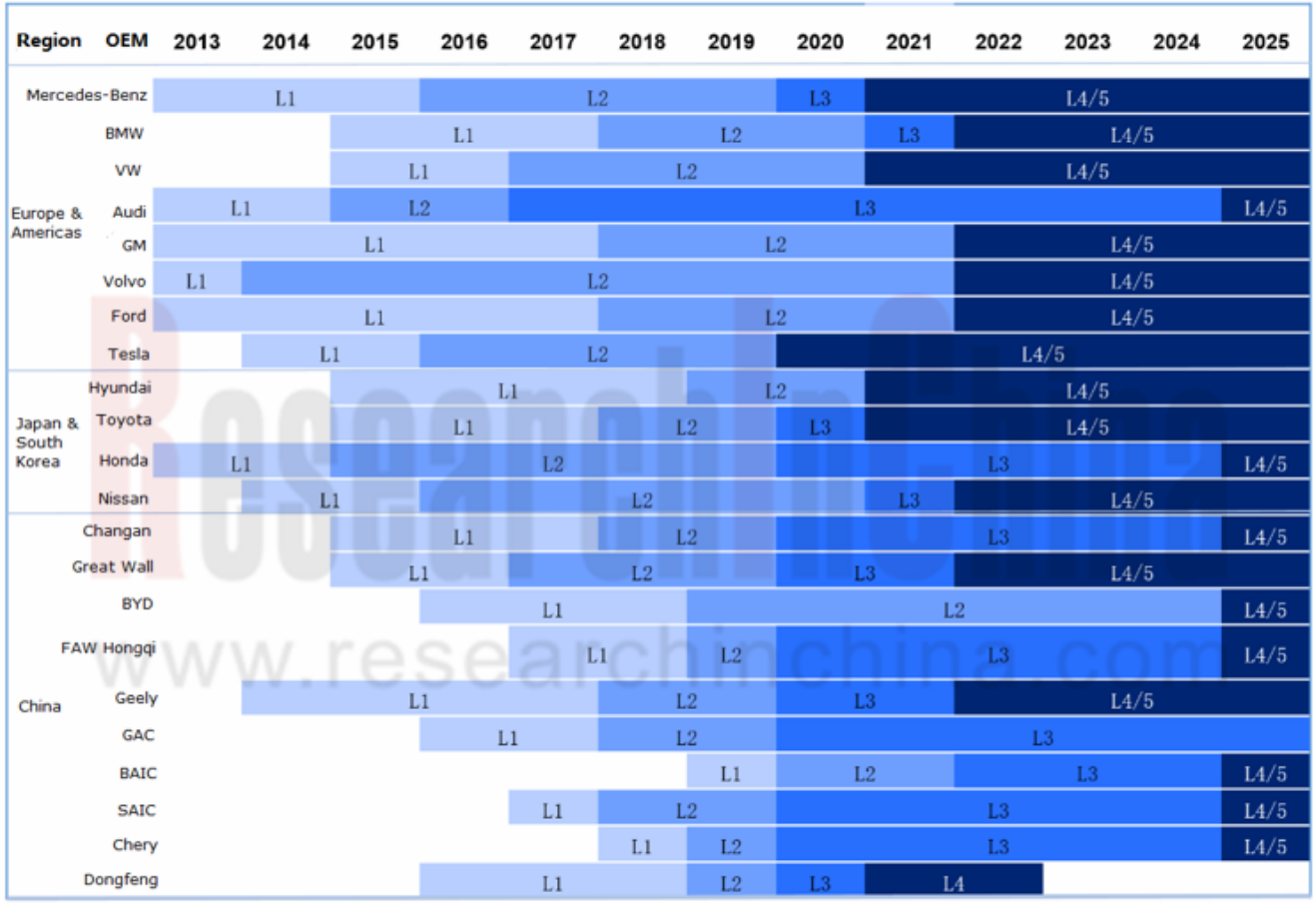
L3 Technical Solutions of Some OEMs								
	Forward-facing Camera	Surround-view Camera	Forward Radar	Front Angle Radar	Rear Angle Radar	Ultrasonic Radar	LiDAR	HD Map
Mercedes-Benz	Stereo	4	√				√ Valeo Scala	√
Audi	1 Mono	4		2	2	12	√ Valeo Scala	
Toyota	√	√					√	
Honda	√			2	2		5	
Changan	1 Mono	4	1	2	2	12		√ Baidu
Great Wall	1 Mono	4	1	2	2	12	3	√ Baidu
GAC	1 Mono	4	1	2	2	12		√ Baidu

Source: ResearchInChina

III. Foreign plan for mass-production of L4 models is earlier than China

- ◆ European and American OEMs stay ahead of others in L4 development; Mercedes-Benz and GM have carried out L4 pilot projects; BWM, VW and Audi have unveiled implementation plans in details;
- ◆ Korean and Japanese OEMs begin to seek external collaborations for faster launch of L4. Examples include Hyundai's cooperation with Pony.ai and Honda's partnership with GM Cruise. Toyota originally planned to roll out L4 at the Tokyo 2020 Olympic Games but the COVID-19 pandemic makes the plan uncertain;
- ◆ Chinese OEMs see L4 as a long-term plan. Only few of them, like Changan Automobile and FAW Hongqi are attempting at L4 tests.

ADAS/AD Progress and Planning of OEMs Worldwide



Source: ResearchInChina

In late June 2020, Volvo and Waymo announced that Waymo becomes “the exclusive global L4 partner for Volvo”. Volvo will leverage Waymo autonomous driving technology to build electric robotaxi and equip its two sub-brands Polestar and Lynk & Co. With the help of Waymo, Volvo is hopeful to be one of the first-movers in L4 camp.

In 2020, autonomous driving bellwethers secure enormous investments and leading automakers seize more of the market. Third or fourth-tier auto manufacturers go bankrupt at a faster pace. The ultrahigh technical barriers of autonomous driving encourage the survival of the fittest among OEMS.

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