

ADAS and Autonomous Driving Tier 1 Suppliers Report, 2019-2020

Apr.2020

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

Tier 1 suppliers for autonomous driving: Chinese Tier 1 suppliers have not embarked on the actuation layer, and L3 will spread after 2022

Amid the controversy in L3, some media believe that Audi will give up L3, which is later denied by Audi saying it only elevate the L3 research to Volkswagen Group.

Most OEMs plan to launch L3 models in 2020 except Volvo, Ford and NextEV that will skip L3.

Strictly speaking, the L3 models to be launched by OEMs in 2020 may be prototypes of some high-end models or not real L3 models.

Tier 1 suppliers are not in readiness for large-scale supply to L3 models. Continental, for instance, focuses on L2 + models between 2019 and 2022, and will commercialize L3 models after 2022. Bosch will also begin commercializing the L3 highway pilot (HWP) function after 2022. To increase redundancy of the system, Bosch renders a dual-domain controller architecture to further ensure the system security.

In the realm of autonomous driving, Tier 1 suppliers profit mainly from ADAS. Although Mobileye enjoys the largest market share in terms of ADAS algorithms (including software and chips), it did not secure the highest revenue in 2019 in the ADAS market which also covers control units, millimeter wave radars, map positioning systems, etc.

A case in point is Continental whose ADAS revenue in 2019 posted €4 billion (20% from ADAS domain control unit (ADCU) and 40% from radars).

ADAS Revenue of Some Suppliers, 2019

Tier 1 suppliers	Revenue	Description
Continental	EUR4 billion or so	20% came from ADCU and 40% from millimeter wave radar
Valeo	EUR3.65 billion	Comfort and ADAS
Bosch	EUR2 billion or more	ADAS hardware, E/E architecture, driving functions, software systems, parking functions and systems
ZF	EUR1.8 billion (estimated)	Electronics / ADAS
Aptiv	USD1.3 billion	Active safety
Mobileye	USD1 billion or so	Mainly software and chips
Veoneer	USD700 million	Active safety
Desay SV	RMB200 million to RMB300 million	
NavInfo	RMB100 million or so	

It can be seen in the table below that Bosch, Continental and Valeo stay ahead by deployments among foreign Tier 1 suppliers, and Huawei deploys most widely in Chinese Tier 1 suppliers.

Layout of Main Tier 1 Suppliers for Autonomous Driving

	Perception Layer				Decision Layer	Actuation Layer	Scenarios		
	Vision	Radar	LIDAR	Map localization			Expressway	City	Parking
Bosch	√	√	√	√	√	√	√	√	
Continental	√	√	√	√	√	√	√	√	
Valeo	√	√	√	√	√	√	√	√	
Aptiv	√	√			√	√	√		
ZF	√	√	√		√	√	√		
Veoneer	√	√			√	√	√	√	
Denso	√	√	√		√	√	√	√	
Mobis	√	√			√	√	√	√	
Visteon					√	√	√	√	
Magna	√	√			√	√	√	√	
Baidu				√	√	√	√	√	
Tencent				√	√				
Alibaba				√	√	√	√		
Huawei		√	√	√	√	√	√		
Neusoft	√				√	√			
Reach									
Foryou	√	√							
Desay SV	√	√			√	√	√	√	
NavInfo				√	√	√			

Chinese Tier 1 suppliers have not embarked on the actuation layer, which is undoubtedly their biggest shortcoming. Without the know-how about actuation technology, they cannot control the autonomous vehicles accurately nor have the initiative. It is expected that they will invest in or acquire related companies in the near future to address inadequacies.

Despite lagged far behind foreign Tier 1 suppliers in the underlying hardware of autonomous driving, Chinese Tier 1 suppliers delve more into application scenarios and V2X than foreign counterparts who usually deploy in expressways, urban roads, and autonomous parking, for the three of which Valeo, for example, launched Cruise4U, Drive4U, Park4U , respectively.

Chinese Tier 1 suppliers have laid out more scenarios. Together with partners, Baidu is present in such scenarios as autonomous cleaning, autonomous agricultural machinery, autonomous shuttles, RoboTaxi, autonomous delivery, autonomous buses, autonomous trucks, and AVP.

Alibaba is pivoted on autonomous logistics vehicle to bolster its e-commerce business.

Low-Speed
Logistics
Scenario

+

High-Speed
Logistics
Scenario

Warehouse AGV



+

Low-speed logistics
vehicle



Cainiao Little G

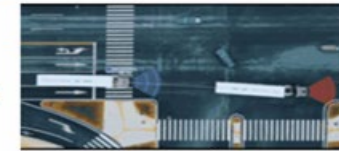


Cainiao Little G 2



Cainiao Little G Plus

Trunk Truck /
Autonomous Truck Fleet



Time: June 2018

Vehicle: The autonomous truck jointly released by Cainiao and FAW Jiefang

Technology Roadmap: Vehicle Intelligence + CVIS

Features: The fleet keeps running at a fixed interval according to the set data. When a random vehicle joins or leaves the fleet, the interval can be adjusted immediately. The pilot vehicle use autonomous driving technology and is followed by other vehicles through the wireless network, mainly suitable for large-scale highway transportation.

Progress: the testing phase; the final sensor solution will be determined according to the demand.

+

Feeder Truck



Alibaba is developing and testing L4 cars



1. ADAS and Autonomous Driving System

1.1 Composition

1.2 Perception Layer

1.2.1 Environment Perception Sensor

1.2.2 Vehicle Motion Sensor

1.2.3 HD Map

1.2.4 V2X

1.3 Decision Layer

1.4 Actuation Layer

2. Policies and Market Environment

2.1 Policies

2.1.1 U.S.

2.1.2 South Korea

2.1.3 China

2.2 Rating of Autonomous Driving System

2.3 Car Safety Ratings Boost the Development of ADAS

2.4 Global ADAS and Autonomous Driving Market Size as well as Competitive Landscape of Tier 1 Suppliers

2.5 Launch Time of ADAS and Autonomous Driving in China

2.6 China's L2 ADAS Penetration Rate

2.7 Launch Planning of L2+ and L3 Vehicle Models

3. Comparison of Global Tier 1 ADAS and Autonomous Driving Suppliers

3.1 Fundamentals

3.2 Development Features

3.3 Perception Layer Layout

3.4 Decision Layer Layout

3.5 Actuation Layer Layout

3.6 ADAS Development Planning

3.7 Autonomous Driving Application Scenarios & Process

3.8 Partners

4. Major Global Tier 1 ADAS and Autonomous Driving Suppliers

4.1 Bosch

4.1.1 Profile

4.1.2 Autonomous Driving Product Layout

4.1.3 Perception Layer Layout

4.1.4 Decision Layer Layout

4.1.5 Actuation Layer Layout

4.1.6 Three Scenarios for Autonomous Driving

4.1.7 Evolution of Autonomous Driving Features

4.1.8 Automated Parking Layout

4.1.9 L4 Demonstration Project

4.1.10 Autonomous Driving Partners

4.1.11 Autonomous Driving Dynamics in 2019-2020

4.1.12 Summary

4.2 Continental

4.2.1 Profile

- 4.2.2 Organizational Structure
- 4.2.3 Perception Layer Layout
- 4.2.4 Decision Layer & Actuation Layer Layout
- 4.2.5 Autonomous Driving Planning
- 4.2.6 Layout of Three Scenarios for Autonomous Driving
- 4.2.7 Autonomous Driving Partners
- 4.2.8 Autonomous Driving Dynamics in 2019-2020
- 4.2.9 Summary

- 4.3 Aptiv
 - 4.3.1 Profile
 - 4.3.2 Revenue and Orders
 - 4.3.3 Overall Layout and Positioning
 - 4.3.4 Perception Layer Layout
 - 4.3.5 Decision Layer Layout
 - 4.3.6 Autonomous Driving Route
 - 4.3.7 L4 Solutions and Demonstration Projects
 - 4.3.8 Autonomous Driving Partners
 - 4.3.9 Autonomous Driving Dynamics in 2019-2020
 - 4.3.10 Summary

- 4.4 Valeo
 - 4.4.1 Profile
 - 4.4.2 Perception Layer Layout
 - 4.4.3 Decision Layer Layout
 - 4.4.4 Autonomous Driving Development
 - 4.4.5 Layout of Three Scenarios for Autonomous Driving
 - 4.4.6 Autonomous Driving Layout in China
 - 4.4.7 Main Partners
 - 4.4.8 Autonomous Driving Dynamics in 2019-2020
 - 4.4.9 Summary

- 4.5 ZF
 - 4.5.1 Profile and Operation
 - 4.5.2 Product Layout
 - 4.5.3 Perception Layer Layout
 - 4.5.4 Decision Layer Layout
 - 4.5.5 Actuation Layer Layout
 - 4.5.6 Layout of Scenarios for Autonomous Driving
 - 4.5.7 Autonomous Driving Solutions
 - 4.5.8 Autonomous Driving Partners
 - 4.5.9 Autonomous Driving Dynamics in 2019-2020
 - 4.5.10 Summary

- 4.6 Hyundai Mobis
 - 4.6.1 Profile and Operation
 - 4.6.2 Global R&D Institutes
 - 4.6.3 Perception Layer Layout
 - 4.6.4 ADAS Features and Layout
 - 4.6.5 Autonomous Driving Planning and Strategy

4.6.6 Dynamics of ADAS and Autonomous Driving in 2019-2020

4.6.7 Summary

4.7 Veoneer

4.7.1 Profile

4.7.2 Operation

4.7.3 Major Products and Customers

4.7.4 Milestones

4.7.5 Perception Layer Layout

4.7.6 Decision Layer Layout

4.7.7 Overall Autonomous Driving Layout

4.7.8 Autonomous Driving Development Planning

4.7.9 Main Partners

4.7.10 Autonomous Driving Dynamics in 2019-2020

4.7.11 Summary

4.8 Visteon

4.8.1 Profile

4.8.2 Operation

4.8.3 Main Products

4.8.4 Decision Layer Layout

4.8.5 L3/L4 Autonomous Driving Tests

4.8.6 Development Planning for ADAS and Autonomous Driving

4.8.7 Autonomous Driving Partners

4.8.8 Autonomous Driving Dynamics in 2018-2020

4.8.9 Summary

4.9 Magna

4.9.1 Profile and Operation

4.9.2 ADAS Features Accomplished

4.9.3 Perception Layer Layout

4.9.4 Autonomous Driving Dynamics in 2018-2020

4.9.5 Summary

4.10 Denso

4.10.1 Profile

4.10.2 Operation

4.10.3 Global R&D Bases

4.10.4 Perception Layer Layout

4.10.5 Autonomous Driving Investment and R&D Layout

4.10.6 Autonomous Driving Tests

4.10.7 Autonomous Driving Planning

4.10.8 Cockpit Planning around Autonomous Driving


4.10.9 Autonomous Driving Dynamics in 2019-2020

4.10.10 Summary

5. Comparison of Tier 1 ADAS and Autonomous Driving Suppliers in China

5.1 Fundamentals

5.2 Development Features



5.3 Perception Layer Layout	6.2.8 Summary
5.4 Decision Layer Layout	
5.5 Autonomous Driving Scenarios, Planning, Tests and Partners	6.3 Alibaba
	6.3.1 Profile
	6.3.2 CVIS
	6.3.3 Autonomous Driving Solutions
	6.3.4 Summary
6. Major Tier 1 ADAS and Autonomous Driving Suppliers in China	
6.1 Baidu	6.4 Huawei
6.1.1 Profile	6.4.1 Profile
6.1.2 Development Course of Autonomous Driving	6.4.2 ICV Solutions
6.1.3 Apollo Open Platform	6.4.3 L4 Intelligent Driving Solutions
6.1.4 Perception Layer Layout	6.4.4 Perception Layer Layout
6.1.5 Decision Layer Layout	6.4.5 Decision Layer Layout
6.1.6 Mass Production Solution for Autonomous Driving	6.4.6 Autonomous Driving Path
6.1.7 Autonomous Driving Test	6.4.7 ICV Partners
6.1.8 Operation of RoboTaxi	6.4.8 Summary
6.1.9 Autonomous Driving Partners	
6.1.10 Summary	6.5 Foryou Corporation
6.2 Tencent	6.6 Desay SV
6.2.1 Profile	6.6.1 Profile
6.2.2 Perception Layer Layout	6.6.2 Perception Layer Layout
6.2.3 Autonomous Driving Data Cloud Platform	6.6.3 Decision Layer Layout
6.2.4 TAD Sim Simulation Platform	6.6.4 V2X Solutions
6.2.5 Autonomous Driving Solutions	
6.2.6 5G CVIS Open Source Platform	
6.2.7 Smart Mobility Layout	

6.6.5 Autonomous Driving Test

6.6.6 Partners

6.6.7 Future Planning

6.6.8 Autonomous Driving Dynamics

6.6.9 Summary

6.7 Neusoft Reach

6.7.1 Profile

6.7.2 Business Layout

6.7.3 ADAS Product Line

6.7.4 V2X Product Line

6.7.5 Decision Layer Layout

6.7.6 Partners

6.7.7 Future Planning

6.7.8 Summary

6.8 NavInfo

6.9 TUS Cloud Control

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