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538 – ADAS & Autonomy Forecast

SBD has prepared this report to understand at a regional level the differences in penetration for various types of ADAS and the technologies supporting these features.

ĖE

Our forecasts provide a deeper understanding by estimating the technology and feature penetrations at an OEM level.

#816

Autonomous Strategies & Eco-system

An overview of key suppliers, tech players and OEMs

The shift towards vehicle autonomy is already impacting the automotive industry and will continue to do so as it arrives. Today, the eco-system is evolving rapidly as a number of OEMs announce new initiatives while investing in, or acquiring, suppliers of autonomous technologies and systems. Similarly emerging from the eco-system are a growing number of industry partnerships and new start-ups dedicated to the development of these systems – from specialized system-on-a-chip units through to full sensor suites.

The reach of the autonomous eco-system itself will span multiple sectors. Beyond the development and launch of passenger-oriented features, systems, and vehicles – consumers will also benefit from autonomous service offerings from commercial and mobility service providers. This reach provides expansion opportunities for traditional automotive players as well as an entry point for newer start-ups and consumer technology firms, making the eco-system increasingly competitive.

This report examines this eco-system thoroughly, detailing the autonomous strategies of major OEMs and outlining its latest trends. The key partnerships made by these OEMs are similarly profiled and the ways in which the ecosystem is evolving are identified. Its scope extends further to highlight the technologies used to enable vehicle autonomy while understanding the regulations surrounding autonomous vehicles and services in different regions.

POWERPOINT

COVERAGE

GI OBA

AUT

ADAS &

Autonomy





ANNUALLY





EXCEL



111



Do I have access?

SBD

Key questions answered

- > What are the strategies towards autonomy from major OEMs?
- > What ADAS/AV strategies do suppliers have in place?

- > What partnerships are made and how is the ecosystem evolving?
- > What are the latest trends within the autonomous car ecosystem?

This research supports



PRODUCT PLANNERS





Q

IT





View Excel Data Sheet Sample

Autonomous Strategies & Eco-System

For comprehensive data on every L4 vehicle & service, including coverage, technology, partners & maturity







Autonomous Strategies & Eco-system

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Introduction

Introduction

Tier 1 suppliers, tech players and OEMs are developing and bringing to market products with differing levels of autonomy and different types of mobility services. Some OEMs are pushing harder to develop vehicles with higher levels of autonomy, and leading the deployment of ADAS while others are taking a 'wait and watch' approach. At the same time, the industry is experiencing a shift away from traditional supplier and OEM relationships in favour of deeper collaborations and partnerships and joint ventures.

This report gives a high-level overview of the autonomous ecosystem and highlights key activities between suppliers and tech players, and OEMs. The accompanying Excel spreadsheet provides data on trends that are of interest.

This report identifies the major drivers and barriers for the **six key motivations for the Autonomous Vehicle**.



Section	Content
Autonomy Birds-Eye View	An overview of the key findings from SBD's view of what's important in the world of autonomous driving.
Executive Summary	An overview of the key themes and trends highlighted within this report.
Tech Overview	An introduction to the barriers and enablers to autonomy and an overview of how the industry is approaching the differing levels of autonomy.
Tier 1 Suppliers	Summation of the trends identified in the accompanying Excel spreadsheet.
Tech Players	Overview of tech players entering, and those already established within, the automotive industry.
OEMs	Overview of current OEM players and a comparison of their autonomous readiness scoring.
Industry Collaboration	An overview of the key collaborations taken from the supporting excel document.
Eco-system	Overview of supplier offerings, collaborations and patent activity.
Next Steps	Can SBD help you with any unanswered questions?



We Listened and Invested In Our Report to Align to Your Goals



"I sometimes struggle to relate conclusions from research reports to the Outcomes and KPIs that we are working towards..."

"I would like to see what has recently changed within a forecast or domain to help decide if any changes to strategy need to be made..."

"I can find it difficult to take actionable next steps on Guides without assessing the future direction of the industry..."

"It would be helpful to identify disruptive companies and startups to keep an eye for partnerships in the future..."

"I would like the topics to be more 'forward looking' to help with future planning and take advantage of enabling technologies."



Added an Autonomy **BIRDS-EYE VIEW** chapter with a high-level overview of all our Autonomous reports.

Added **AUTONMOUS DRIVING PATENTS** to the analysis

More **DATA-DRIVEN ANALYSIS** through our segment analysis and Executive Summary.

Added dedicated **OEM GROUP by OEM GROUP ANALYSIS** section to provide an insight to the future of the industry



Example slides from the report



Request price >

How are players deploying L4 autonomy?





Tier 1 Suppliers Focus Their Investment On Software

Tier 1 suppliers continue to play a significant role in the development of new ADAS technologies, as many OEMs lack the research capabilities to deeply specify ADAS solutions beyond their Human-Machine Interface functionality. Even leading OEMs, such as Mercedes-Benz and Volvo, require a great degree of collaboration with the system integrators to deliver automated features to the market.



Investment in autonomy

Lagging Behind

Laggards typically have a **limited product** portfolio and have made limited moves in industry collaboration.

For example, Robosense does not offer sensors beyond lidar respectively.

Traditional

OEMs typically have a wide product offering with regards to autonomy. Most OEMs have been making moves to expand their product offerings, such as by introducing long range lidars.

Typically, well established suppliers have actively sought industry collaborations to accelerate the development and deployment of autonomous systems.

Emerging

Emerging players are **new entrants** in the autonomous space and typically have a **disruptive impact on the industry**. In recent years, Huawei has entered the autonomous ecosystem and through significant investment, research and development now offers a wide sensor product range and is able to compete with leading traditional suppliers.

Other emerging suppliers have focused on specific emerging and enabling technologies such as Innovusion and Livox, who are focused on lidar sensors only. Lidar is seen as a key enabler to higher levels of autonomy.





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Tier 1

Overview

Tier 1 - Overview



Chapter Overview

- SBD have assessed and sorted Tier 1 suppliers into three groups to show their relative position in the autonomous eco-system. These groups are: Traditional, Emerging and Niche.
- Factors like the level of investment in ADAS technologies, breadth of product range and number of collaborations were used to decide a suppliers' position in the autonomous eco-system. The number of regions or countries that they operate in was also considered.
- For example, a supplier may be categorized as niche if it has a limited product range and only operates in a single market, even if it is a leader in that product area.
- In total, 18 Tier 1 suppliers have been profiled, all of which can be found in the excel file included with this report.
- This chapter will also cover a hand-picked selection of the most important mergers, acquisitions and AV pilots carried out by Tier 1's. The Tier 1 activity chosen to be included is highlighted as being significant or otherwise important in showing the overall picture of the market.
- Expert SBD analysis of the strategies being used by Tier 1 suppliers to elevate their position in the autonomous ecosystem is provided, and any trends discussed.

Tech Players

Tech Player Investments and Acquisitions

The largest investments and acquisitions made by tech players are covered in this report and were made into chipsets and mobility. Intel made two of the largest five investments, with acquisitions of chipset suppliers.

Intel acquired Tower Semiconductor to bolster their chip manufacturing capabilities; the company's products include CMOS sensors for ADAS. Intel have also acquired Habana who specialize in AI chipsets for data centers which can train autonomous driving software.

Alibaba have invested in and formed a close partnership with Xpeng, including a \$348M investment providing cloud services to train their autonomous driving software.





- Two-thirds of the investments and acquisitions made by tech players went to software or hardware companies. Artificial intelligence is a key area of software investments where the likes of Waabi, RealAI, Habana and Sensat have received significant investment.
- Significant investment also went into sensor technologies like lidar and imaging radar.

SBD

OEM

4.0

Leader

2024 Generation

2024 Status

Fast

follower

3.0

2.0

1.0

Laggard

Mercedes-Benz Group

	Sales volume			Key Highlights		
2032 SAE Level 2 Level 3 Level 4	Low	Sales volume Medium	High	 Key Highlights Mercedes-Benz is a leader in autonomous driving, having been the first to introduce an SAE Level 3 system in Europe and the USA. Mercedes-Benz has launched the first SAE Level 3 systems to Europe and the USA. Their system is called DRIVE PILOT and provides hands off and eyes off driving on motorways with high volumes of traffic at speeds up to 60km/h with a suitable vehicle in front. This system allows the driver to engage in secondary activities such as using the in-car office, make video calls or use the in-car entertainment. Mercedes-Benz have developed an SAE Level 4 parking system, INTELLIGENT PARK PILOT, in partnership with Bosch. This system is available to use on their high-end models at the APCOA parking garage P6 at Stuttgart Airport. It is currently available on the S-Class, EQS and EQE saloons, however, will expand o the E-Class and EQE and EQS SUVs. 		
2032 SAE evel 2 Level 3		O smart		 Mercedes-Benz have developed an SAE Level 4 parking system, INTELLIGENT PARK PILOT, in partnership with Bosch. This system is available to use on their high-end models at the APCOA parking garage P6 at Stuttgart Airport. It is currently available on the S-Class, EQS and EQE saloons, however, will expand o the E-Class and EQE and EQS SUVs. 		

Passenger vehicle autonomy deployment timeline



NIO Inc

OEM

2024 Generation

2024 Status

Fast

follower

3.0

4.0

Leader

2.0

1.0

Laggard



Key Highlights

 NIO have launched leading autonomous driving systems in China. Their flagship autonomous system is NOP+ (Navigate on Pilot Plus) which is an SAE Level 2 Piloted Driving system which can support driving in cities and highways. NOP+ is available in almost all Chinese cities. The system was initially launched in 2020 as NOP (Navigate on Pilot) for supporting highway driving with entering and exiting ramps and automatic lane changes, however in 2023 the company launched NOP+ which could operate in urban areas. Operating on both urban and highway environments enables NIO to provide drivers with point-to-point assistance for their consumers.

• NIO have expanded their offering outside of China, having opened a Smart Driving Technology Center in Germany. This center will lead the development of NIO ADAS tailored to the needs of European users.

Passenger vehicle autonomy deployment timeline





Toyota, Aurora, DENSO: Collaborate to develop autonomous taxi

Collaboration Detail

- Toyota have partnered with DENSO and Aurora (AV start-up) to develop a fleet of autonomous taxis.
- The autonomous taxis will be based on the Toyota Sienna and be equipped with Aurora's self-driving technology. Denso will support the production of the autonomous driving components.





SBD Analysis

- Aurora's self driving technology has been proven in many years of testing and development. Toyota will benefit from having access to this technology and a route to introducing SAE L4 functionality into the market. Aurora will benefit from partnering with a major OEM as this will give them access to a large fleet of vehicles from a well-established manufacturer.
- To bring this technology and service to market at scale, both Aurora and Toyota will need the experience offered by DENSO in order to produce and manufacture the required components.
- On their own, each player would struggle to meet all of the production, logistical, technological and resource demands of introducing autonomous technology.



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Do you have any questions?

If you have any questions or feedback about this research report or SBD Automotive's consulting services, you can email us at info@sbdautomotive.com or discuss with your local account manager below.



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