The information presented in this section, including certain facts, statistics and data, is derived from the market research report prepared by CIC, which was [**REDACTED**] *by us, and from various official government publications and other publicly available publications, unless otherwise indicated. We believe that these sources are appropriate for such information, and we have taken reasonable care in extracting and reproducing such information. The information derived from official government publications has not been independently verified by our Company, the Joint Sponsors, any of our or their respective directors, officers or representatives or any other person involved in the* [**REDACTED**] *and no representation is given as to its accuracy.*

OVERVIEW OF THE SMART VEHICLE MARKET

Technological advancements are reshaping the automotive industry. The robust development in algorithms, software, and processing hardware is accelerating the adoption of assisted and autonomous driving solutions in smart vehicles. These innovations are revolutionizing the way people travel by offering enhanced safety, efficiency and overall experience.

Definition of Smart Vehicle: A New Generation of Vehicle Powered by Technologies

Smart vehicles represent a new generation of vehicles that can perceive their own status, understand their surrounding environment, make prompt decisions and react in due time.

Smart vehicles adopt driving automation technologies that encompass capabilities of perception, prediction, path-planning and decision-making to improve road safety and enhance experience for both drivers and passengers.

Levels of Autonomous Driving

According to the Taxonomy of Driving Automation for Vehicles GB/T 40429-2021《汽車駕駛自動化分級》, automation functions can be categorized into:

- **Level 0**, *Emergency Assistance*: A system at this level cannot continuously perform the vehicle's lateral (steering) or longitudinal (acceleration/brake) movement control for dynamic driving tasks but has the capability to continuously perform some detection and response to objects and events within dynamic driving tasks.

- **Level 1**, *Partial Driver Assistance*: A system at this level continuously performs the vehicle's lateral or longitudinal movement control for dynamic driving tasks within its designed operational conditions and has the capability for some detection and response to objects and events that are relevant to the driving task. The driver and the system jointly perform all driving tasks, with the driver supervising the behavior of the driving automation system throughout the journey and performing appropriate responses or actions as necessary.

- **Level 2**, *Combined Driver Assistance*: A system at this level continuously performs both the vehicle's lateral and longitudinal movement control for dynamic driving tasks within its designed operational conditions and has the capability for some detection and response to objects and events that are relevant to the driving task. The driver and the system jointly perform all driving tasks, with the driver supervising the behavior of the driving automation system throughout the journey and performing appropriate responses or actions as necessary such as during the system malfunctions, chaotic lane markings and vehicles or pedestrians disorder.

  The level 2+ is commonly used in the industry to describe system that require constant human supervision and can offer functions surpassing Level 2 but not fully reaching Level 3.

- **Level 3**, *Conditionally Automated Driving*: A system at this level continuously performs all dynamic driving tasks within its designed operational conditions. The driver needs to take over driving and become the driver when the system requests intervention, malfunctions, or in other specific situations, such as: (i) the system is unable to recognize or incorrectly recognizes lane markings, causing deviations from the intended driving path; (ii) the sensors are obstructed or encounter interference from rain, snow, and serve weather conditions, degrading the system's perception capabilities; and (iii) road potholes, mud, and other road conditions that may cause the vehicle to become uncontrollable.

- **Level 4**, *Highly Automated Driving*: A system at this level continuously performs all dynamic driving tasks and executes minimal risk maneuver in response to system failure within its designed operational conditions. When the system requests intervention, the user is not required to respond, as the system is capable of automatically reaching a minimal risk condition.

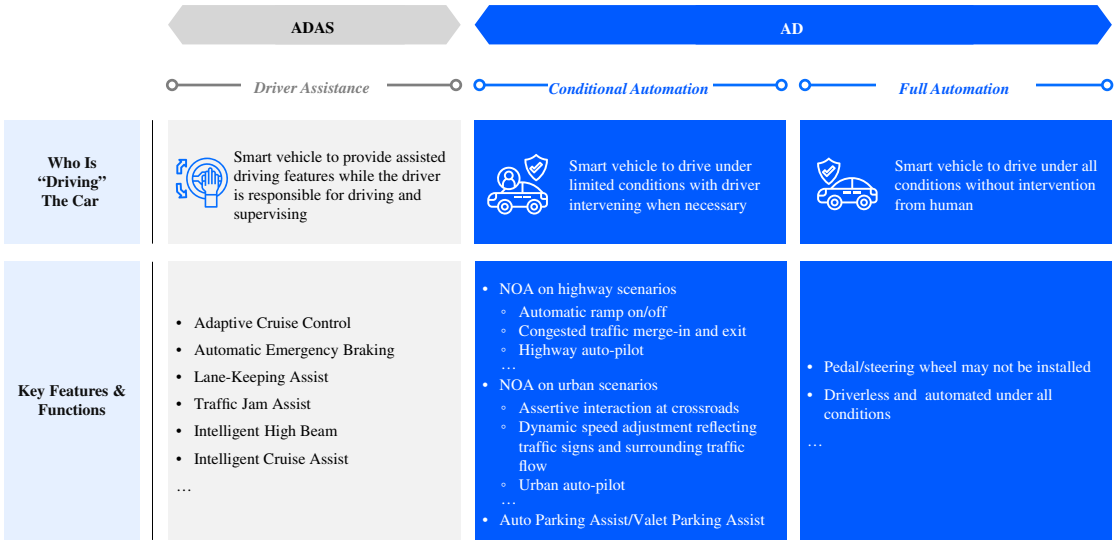
- **Level 5**, *Fully Automated Driving*: A system at this level continuously performs all dynamic driving tasks and executes minimal risk maneuver in response to system failure under all roadway and environmental conditions that can be managed by the vehicle. In environments where the vehicle can operate, there are no limitations on the designed operational conditions and geographical range (excluding restrictions due to commercial and regulatory factors, and more), and the user is not required to respond to intervention requests.

The Technological Development of ADAS to AD is Expected to Lead the Smart Vehicle Evolution

There are mainly two categories of driving automation: ADAS and AD.

- **ADAS,** or **Advanced Driver Assistance System**, refers to technologies and features that assist the human driver in various driving tasks, such as lane departure warning, lane centering, adaptive cruise control, automatic emergency braking and more. ADAS is designed to provide assistance to the human driver and enhance safety, while the human driver needs to remain engaged at all times. ADAS features can enhance driving convenience and safety. The level of technologies required by ADAS are lower than AD, and ADAS generally requires simpler sensor set consisting of cameras and/or radar. The processing capacity and software requirements for the ADAS solution are also relatively low. According to CIC, ADAS typically provides functionalities at Level 2 and below;

- **AD,** or **Autonomous Driving**, refers to technologies and features with higher levels of automation compared to ADAS, which ultimately aims to achieve full automation where the vehicle can operate without human intervention. In recent years, NOA feature has emerged to enable conditional automation, including suggesting and making lane changes, navigating interchanges and taking exits especially on highways. As AD technologies continue to advance from conditional automation to high automation and full automation, smart vehicles are expected to become capable of handling more complex urban driving scenarios and navigating through diverse and challenging road conditions. AD can achieve all the functionalities of ADAS while offering a richer combination of driving features. It can control vehicles in a manner similar to an experienced human driver, providing a more complete, smooth, and comfortable driving experience. Under suitable driving conditions, AD can operate with minimal human intervention. The technological requirements for AD are higher compared to ADAS, typically requiring more advanced sensor set, processing capacity, software, and algorithms. At the current stage, AD can achieve the functionalities and driving experience of Conditional Automation level, such as NOA on highways and in urban scenarios. The goal of AD is to achieve full automation, where paddle and steering wheel may not be installed, and the vehicle can drive to anywhere in any conditions as an experienced human driver can do. According to CIC, AD typically provides functionalities at Level 2+ and higher level of functionalities.



Source: *Interviews with market participants, third-party industry reports, white papers, industry publications, news and government statistics and CIC research*

In recent years, ADAS has been in mass production and rapidly becomes a standard feature in the latest vehicle models. According to CIC, the penetration rates of ADAS technologies in the global and China passenger vehicle markets were both over 50% in 2023.

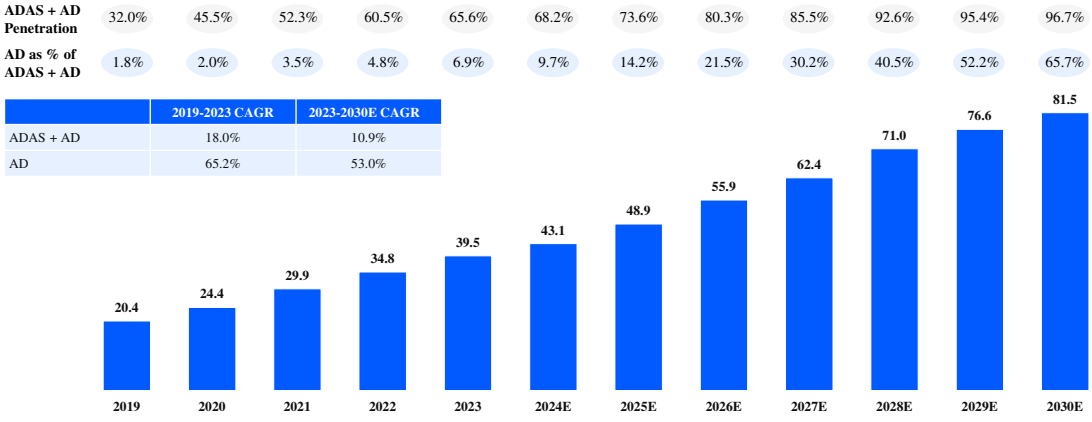
Concurrently, there is ongoing progress towards more advanced AD solutions, thanks to the technological development, favorable government policies as well as increasing consumer enthusiasm for the driving automation features for safer and more efficient driving experiences. AD adoption is at the tipping point of even wider acceptance as the NOA feature marks a key milestone in the evolution towards full automation, which has been increasingly accepted by OEMs and consumers. Smart vehicles with NOA feature can maneuver through intricate road conditions with minimum human intervention, substantially minimizing effort required for driving. Major OEMs, particularly leading NEV manufacturers, have been emphasizing the NOA feature as one of the key selling points for their latest vehicle models. As a result, AD solutions that enable advanced features such as NOA are expected to benefit significantly and undergo substantial growth in the near future.

In the mid- to long-term, as AD technologies continue to iterate and evolve, together with favorable government policies, it is expected that higher-level AD solutions will be commercialized and increasingly adopted by mass-produced vehicles in the future. High-level AD solutions will reshape the way people travel, bringing transformational changes to the mobility industry. New business models such as Robotaxi operation are expected to emerge, generating significant market opportunities.

The number of smart vehicles on the road has grown rapidly on a global scale. Out of a total of 60.3 million new passenger vehicles sold worldwide in 2023, approximately 39.5 million were smart vehicles with driving automation functions installed, representing a penetration rate of 65.6%. The sales volume of smart vehicles is expected to further increase to 55.9 million and 81.5 million by 2026 and 2030, respectively, representing penetration rates of 80.3% and 96.7%. Moreover, AD solutions are expected to gradually become mainstream, accounting for over 60% of the driving automation solutions by 2030, according to CIC.

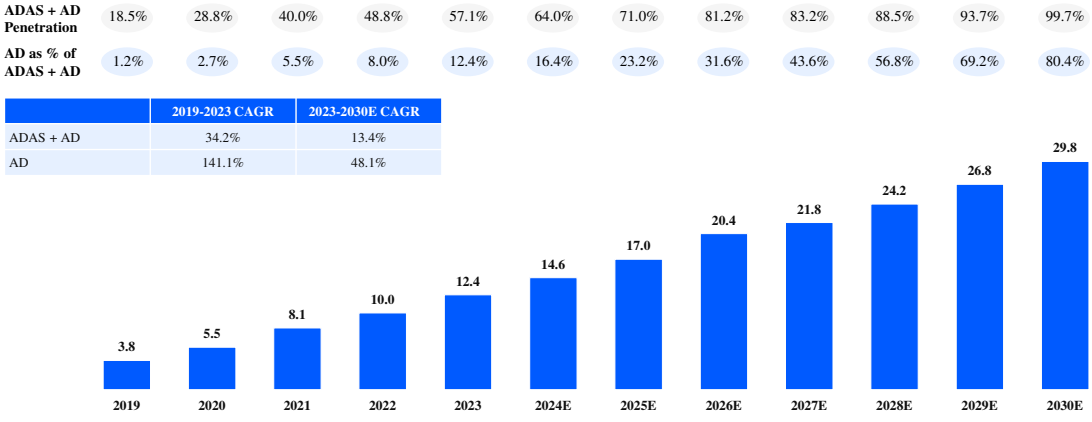
China is the world's largest new passenger vehicle market with 21.7 million new passenger vehicles sold in 2023, among which 12.4 million were smart vehicles, representing penetration rate of 57.1%. According to CIC, smart vehicles sales volume in China is expected to reach 20.4 million and 29.8 million in 2026 and 2030, respectively, representing penetration rates of 81.2% and 99.7%. Chinese OEMs, especially NEV OEMs, are at the forefront of adopting AD solutions into their vehicles. As a result, it is expected that nearly half of the driving automation solutions deployed in passenger vehicles in China would be AD solutions by 2027, and the percentage will further increase to over 80% by 2030, well ahead of the global AD adoption curve. According to CIC, Chinese OEMs generally update their car models in every three to four years and introduce new generations in every five to six years.

Sales Volume of Smart Vehicles, Global, 2019A-2030E (Million Units)



Source: SALI data released by China Banking and Insurance Regulatory Commission, CIC

Sales Volume of Smart Vehicles, China, 2019A-2030E (Million Units)

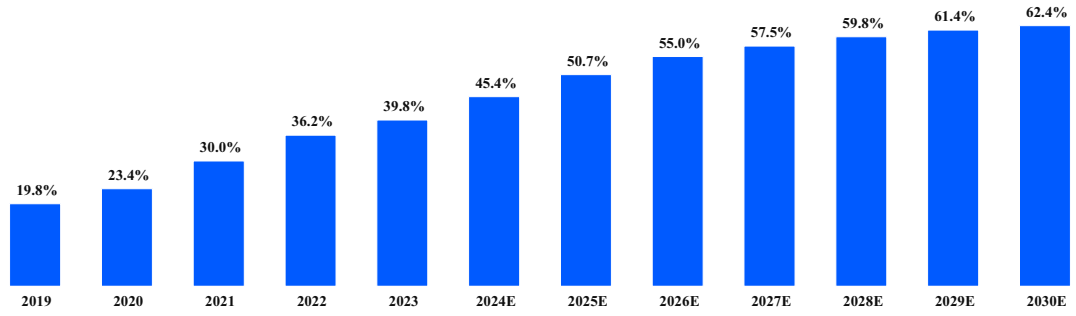


Source: SALI data released by China Banking and Insurance Regulatory Commission, CIC

The major players in the smart vehicle market in China include Chinese OEMs, foreign OEMs and sino-foreign joint ventures. Chinese OEMs have been gaining share in the smart vehicles market in China over the past few years. According to CIC, market share of Chinese OEMs increased from 19.8% in 2019 to 39.8% in 2023, and is expected to exceed 60% in 2029. Chinese OEMs' advancements in technologies, particularly in ADAS and AD features have made these domestic brands highly competitive. In addition, improvements in local manufacturing capabilities and supply chain support have also led to rapid progress in product quality and cost-effectiveness for domestic brands.

Chinese OEMs are more inclined to select domestic suppliers in order to better cater to the demand and preference of the Chinese customers. In contrast, sino-foreign joint ventures and foreign OEMs typically make decisions on supplier selection at their global headquarters. As Chinese OEMs continue to gain market share in the smart vehicles market, the domestic suppliers for the automotive components and solutions are also expected to gain shares and achieve greater growth.

Market Share of Chinese OEMs in China's Smart Vehicle Market, 2019A-2030E (%)



Source: SALI data released by China Banking and Insurance Regulatory Commission, CPCA, CIC

Key Drivers for the Smart Vehicle Market

- **Consumer acceptance and preference for autonomous features which bring enhanced safety and efficiency in driving**: According to CIC, a global survey conducted by a global tier-one supplier in 2022 indicated that 89% of respondents in China, 75% in Japan, 57% in the United States and 50% in Germany consider driving automation as a useful development in passenger vehicles. In China, it is estimated that the commuters in China's top tier cities spend an average of over 80 minutes every day on the road. Smart vehicles with autonomous features can free up time and boost productivity for drivers and passengers during these long commutes. This value proposition is expected to further incentivize OEMs to increase the installation of AD features into their vehicle models in the future.

- **Enhanced standards for driving safety**: According to CIC, research conducted across different countries in the past decade has concluded that over 90% of traffic accidents are caused by human errors. To reduce the human errors and save lives, governments and OEMs have been continuously pushing for adoption of new technologies to achieve higher safety standards. For example, smart collision avoidance features have been included in the rating standards of C-NCAP and E-NCAP. The adoption of more advanced driving automation technologies in smart vehicles is expected to further enhance driving safety.

- **Robust technological development to empower more advanced autonomous features with cost-efficiency**: Significant advancements have been made in driving automation technologies. The fundamental driving force is the development in processing capacity and efficiency that has underpinned the development of other related technologies, such as information transfer and storage, algorithms and a variety of more sophisticated software applications. As these technologies continue to iterate and become more advanced overtime, smart vehicles are able to support features that deliver greater safety, comfort and convenience for consumers, thus further accelerate smart vehicle penetration. On the other hand, ADAS and AD solutions are becoming more cost efficient with continued progress in technology development and product commercialization.

- **Ongoing investment and favorable policies**: The growing number of, and the ongoing investment into research and development of smart vehicle are conducive to both the technology development and the commercialization of driving automation solutions. Supportive government policies globally for testing and deployment of smart vehicles and related facilities have further accelerated market growth. Please refer to "— Key Trends for the Smart Vehicles Market in Major Economies" for more details on the government policies in global major economies.

Key Trends for the Smart Vehicles Market in Major Economies

China

There are significant demands in China for driving automation solutions to enhance driving safety and mobility experiences. China is featured with notably high population density and traffic density in major cities. As of December 31, 2023, China's 15 largest cities had an average population of over 10.0 million, and there were 94 cities nationwide with car ownership surpassing one million, according to CIC. Moreover, road network in China is becoming increasingly complex due to newly constructed tunnels and overpasses, creating additional challenges for the drivers to navigate through. Therefore, Chinese consumers have a high level of acceptance and a strong preference for autonomous functions. According to CIC, based on surveys conducted among consumers in 2022, driving automation functions rank as the second most important factor when they consider a NEV purchase, after cost-efficiency.

In addition, Chinese government has also strongly supported the development of smart vehicles and driving automation technologies. In 2020, eleven departments from the central government jointly issued a policy paper for the development and innovation of smart vehicles, outlining a blueprint for supporting smart vehicle development over the next 30 years by published the Smart Vehicle Innovation and Development Strategy in February 2020. In November 2023, four ministries in China jointly released a new pilot program namely The Notice of Implementing the Pilot Program of Access and On-road Traffic of Intelligent Connected Vehicles for smart vehicles, greenlighting pilot open-road program for vehicles with high-level AD solutions and paving the way for the commercialization of advanced AD technologies. These pilot programs expanded the access and on-road testing scope of smart vehicles, which facilitated the testing of AD technologies in China. The pilot programs are also initiating access and on-road testing of smart vehicles with high-level AD solutions, as well as enhancing and refining regulations to elevate the performance and safety levels of autonomous driving vehicle products. Thanks to the supportive policies, as of June 30, 2024, seven OEMs received testing licenses for Level 3 autonomous driving under urban conditions, and ten received testing licenses for highway conditions, according to CIC. Among them, five out of the seven and six out of the ten are the Company's customers of Horizon Pilot. The Company is capable of providing AD algorithms, software and processing hardware to facilitate the road testing activities of its customers, which help the testing vehicles to monitor environment and make decisions, like overtaking slower vehicles, without driver input in certain conditions.

As a result, China is the world's largest smart vehicles market, with sales volume of smart vehicles of 12.4 million in 2023. China also has the highest AD penetration rate in the world, with around 1.5 million passenger vehicle sales equipped with AD solutions in 2023.

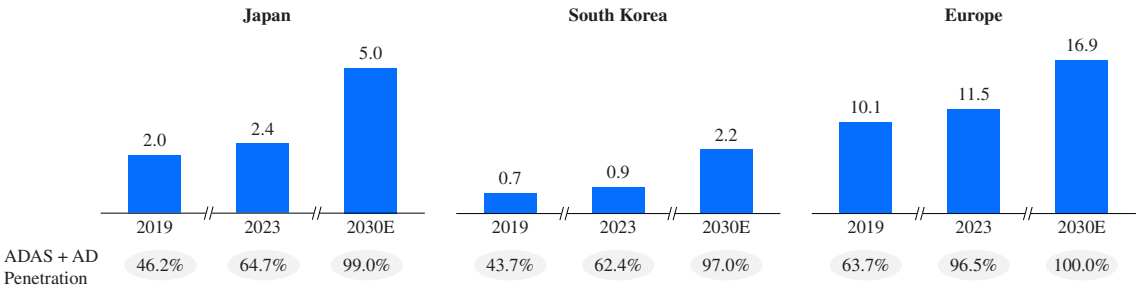
Overseas

Countries worldwide have also shown strong interest and made significant progress in the adoption of driving automation technologies. In the European market, car manufacturers and tier-one suppliers are collaborating with autonomous driving solution providers to collectively advance the application of driving automation technologies. In 2022, Germany introduced passenger vehicles with advanced automation technologies that require no human intervention in certain driving scenarios. In Japan, the conditional automation technologies were introduced in 2021 by Honda. In 2023, the Japanese government revealed plans to set up autonomous vehicle lanes on public roads in 2024, and if realized, the lanes would be the first for self-driving vehicles on a public road in Japan. In the United States, driving automation technologies have also received wide attention.

Favorable policies to promote the development of smart vehicles have been introduced globally. In Europe, the European Union has already made it mandatory for new vehicles to be equipped with automatic emergency braking (AEB) systems. At the same time, it is also enhancing the legal framework to support the application of more advanced AD technologies for conditional automation. In May 2018, the European Commission released the On The Road to Automated Mobility, proposing a vision goal to achieve a fully automated driving society by 2030. The new Vehicle General Safety Regulation started to apply in July 2022, introducing a

range of mandatory advanced driver assistant systems to improve road safety and establishing the legal framework for the approval of automated and fully driverless vehicles in the EU. In the United States, the U.S. Department of Transportation has issued guidelines and principles to support the development and deployment of autonomous vehicles, including Automated Vehicles 4.0, and the Automated Vehicles Comprehensive Plan. In Japan, the Ministry of Economy, Trade and Industry (METI) and the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) jointly launched the Project on Research, Development, Demonstration and Deployment (RDD&D) of Automated Driving toward Level 4 and Its Enhanced Mobility Services in 2021. Further in 2022, the Act Partially Amending the Road Traffic Act was enacted, which included provisions for establishing a permission system for driverless automated driving. These provisions on automated driving took effect in April 2023. In South Korea, the South Korean government announced the Future Vehicle Industry Development Strategy in October 2019, which outlines the commitment to take the leap towards a leading country in the future car industry by 2030. In 2022, The Ministry of Land, Infrastructure and Transport of South Korea unveiled the Mobility Innovation Roadmap to establish South Korea's leadership in the mobility sector and to promote innovative services. The favorable support of policies and regulations around the world is expected to continuously facilitate and accelerate the adoption of smart vehicles. The following graphics set forth the sales volume and forecasted sales volume of smart vehicles, as well as ADAS and AD penetration rates, in Japan, South Korea and Europe for the periods indicated:

Sales Volume of Smart Vehicles, 2019A-2030E (Million Units)



Note: Europe includes European Union countries, European Free Trade Association countries and UK.

Source: *the International Organization of Motor Vehicle Manufacturers, interviews with market participants, white papers, industry publications, news and CIC research*

OVERVIEW OF THE ADAS AND AD SOLUTIONS MARKET

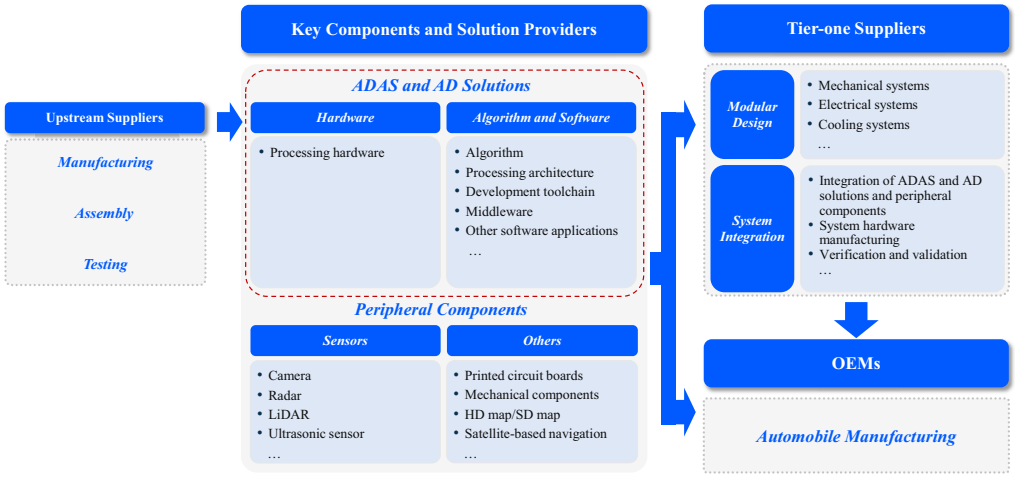
Definition and Value Chain of ADAS and AD Solutions: ADAS and AD Solutions Are Key Parts of the Value Chain and Act as Brains for the Smart Vehicles

In the traditional automotive industry, OEMs typically rely on an organized supply chain with multiple tiers of suppliers providing various components and integrated systems needed. This is also the case with the value chain of ADAS and AD solutions, with multiple levels of suppliers providing components and integration services to OEMs who then deploy the ADAS and AD solutions to the vehicle models. Due to stringent standards for safety and quality assurance, OEMs typically require a lengthy verification and testing process for supplier selection. As a result, layers of suppliers for OEMs are generally stable, and tend to be concentrated towards the top players who are more experienced and reputable within the industry.

The chart below illustrates the value chain of ADAS and AD solutions. The upstream suppliers mainly include hardware manufacturers who provide manufacturing, packaging and testing services. ADAS and AD solutions play a critical role in enabling a variety of driving automation functions and they effectively act as brains for the smart vehicles. The solutions consist of algorithms, software and processing hardware that support the development and deployment process. In addition to the ADAS and AD solutions, peripheral components like sensor and others also play important roles allowing the smart vehicles to perceive their surrounding environment. There are also mapping service companies that provide high-definition maps.

Tier-one suppliers are responsible for modular design and system integration, including the design of mechanical, electrical and cooling systems, as well as integrating the algorithm, software and processing hardware with peripheral components.

Recently, due to the high technical requirements for the design and development of driving automation functions, some OEMs also cooperate directly with key components and solution providers including ADAS and AD solution providers to develop customized driving automation functions, so as to achieve faster time-to-market and provide consumers with better driving experience.



Source: *Interviews with expert participants, government statistics, listed companies' public filings, white papers, news disclosures, and CIC analysis.*

Significant Growth Potential for Global and China ADAS and AD Solutions Market

The market size of ADAS and AD solutions represents the value of both the hardware and software related to the solutions. It is expected to grow significantly, mainly driven by (1) the increasing sales of smart vehicles with ADAS and AD solutions as mentioned above; and (2) higher value created by AD solutions which demand larger processing capacity to support more advanced features under all driving scenarios, as well as to provide system redundancy.

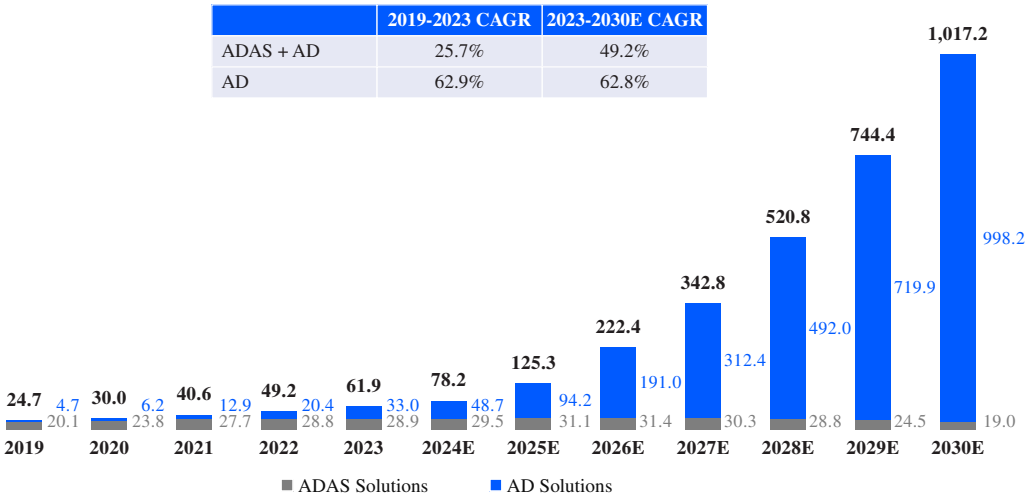
According to CIC, the dollar content per vehicle for AD solutions is over ten times higher than that of ADAS solutions for a smart vehicle. Moreover, as the AD solutions continue to evolve and upgrade, the dollar content per vehicle for AD solutions is expected to further increase in the future. As a result, the market size of AD solutions is expected to experience significant growth at scale in the coming years.

According to CIC, it is estimated that the global market size of ADAS and AD solutions will grow from RMB61.9 billion in 2023 to RMB1,017.1 billion in 2030, representing a CAGR of 49.2%.

In China, the total market size of ADAS and AD solutions amounted to RMB24.5 billion in 2023. It is estimated that the total market size will grow at a CAGR of 49.4% in China to RMB407.0 billion in 2030.

Market Size for ADAS and AD Solutions, Global, 2019A-2030E (RMB Billion)

	2019-2023 CAGR	2023-2030E CAGR
ADAS + AD	25.7%	49.2%
AD	62.9%	62.8%

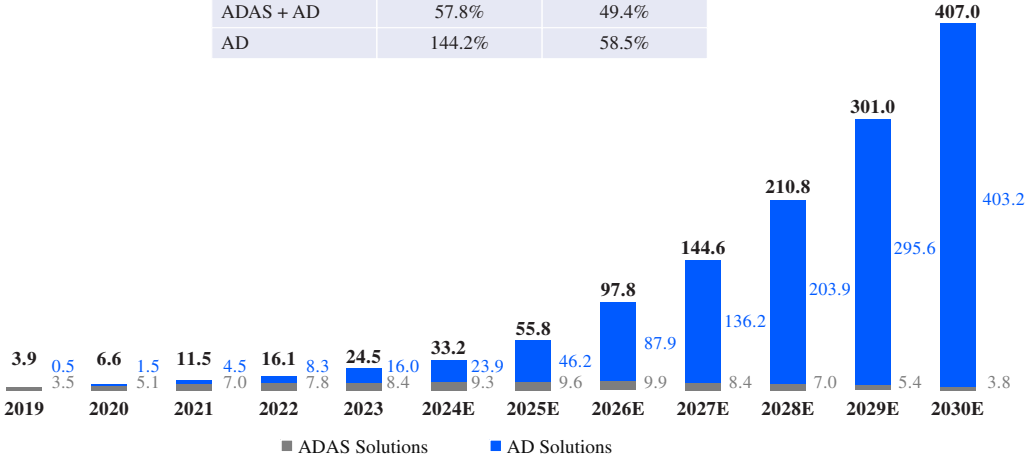


Source: *Interviews with expert participants, government statistics, listed companies' public filings, news disclosures, and CIC analysis.*

Note: Not including peripheral components such as camera, radar and LiDAR.

Market Size for ADAS and AD Solutions, China, 2019A-2030E (RMB Billion)

	2019-2023 CAGR	2023-2030E CAGR
ADAS + AD	57.8%	49.4%
AD	144.2%	58.5%



Source: *Interviews with expert participants, government statistics, listed companies' public filings, news disclosures, and CIC analysis.*

Note: Not including peripheral components such as camera, radar and LiDAR.

Key Trends for the ADAS and AD Solutions Market

- **Popularization of ADAS and AD solutions**: ADAS solutions with active safety features have been prevailing in mass production and becoming standard features in the latest vehicle models. According to CIC, the penetration rates of ADAS solutions in the global and China passenger vehicle markets were both over 50% in 2023. Concurrently, growing consumer demands and advancing technologies for safer and more efficient experiences are driving industry towards more advanced AD solutions. The penetration rate of ADAS and AD solutions is expected to increase to 96.7% by 2030 globally, among which AD solutions will account for over 60% of the total ADAS and AD solutions.

- **Increasing demand for energy efficiency driven by centralized architecture and complex algorithm**: A more centralized electrical structure can improve hardware integration and co-optimization among components. This approach decreases the number of required control units, emphasizing the importance of processing solutions and their underlying software, which in turn require increased processing capacity and efficiency. On the other hand, the increasing complexity of algorithms for advanced driving scenarios also underscores the vital role of processing and energy efficiency. As smart vehicles are now managing a greater volume of real-time information from sensors such as cameras, radars, and LiDARs, ADAS and AD solutions must prioritize minimizing energy consumption while delivering optimal performance.

- **Higher value created by AD solutions**: As mentioned above, AD solutions are expected to upgrade to provide more advanced features to tackle complex driving scenarios such as urban traffic and offer safer and more efficient driving experience. In addition, as AD solutions evolve into full automation, system redundancy is important to ensure the availability of backup solutions in case of system failure, so as to enhance safety performance. As a result, higher processing capacity, more advanced software and more system redundancy will lead to higher dollar content per vehicle for AD solutions.

- **Open platform for customization and partnership**: According to CIC, OEMs often prefer to work with open-platform solutions in order to maintain flexibility in product designs. Specifically, leveraging open and flexible solutions and services, OEMs are able to develop differentiated and customized products to conveniently and efficiently meet various needs from the consumers. In light of the continuous technological breakthroughs taking place across the value chain, a widely connected and collaborative ecosystem is conducive to the overall industry, where participants can easily collaborate.

- **Direct interaction and collaboration between ADAS and AD solutions providers and OEMs**: The automotive supply chain is also evolving, with the key participants along the value chain being more connected and interrelated. Instead of going through tier-one suppliers in the traditional value chain, OEMs nowadays start to collaborate directly with ADAS and AD solutions providers, as they see ADAS and AD functions becoming critical to their product offering. Through direct collaboration with ADAS and AD solutions providers, OEMs are able to develop customized driving automation functions more

efficiently, achieving faster time-to-market and providing consumers with better driving experience. In addition, OEMs can obtain more comprehensive understanding of ADAS and AD solutions, which will help them maintain and iterate their products more easily.

Open Platform and Close Platform

The open platform approach (also called white-box approach) is different from the close platform approach (also called black-box approach) in the following aspects:

- **Commercial Flexibility**: The open platform approach allows for selective choice among various software, hardware, technology pillars and packaged solutions in accordance with a customer's specific commercial needs and technological capabilities. In contrast, the black-box approach provides limited packaged solutions, restricting the customer's ability to make own developments or hybrid according to their own needs.

- **Technical Flexibility**: The open platform approach helps customers gain a better understanding of the internal mechanism of ADAS and AD system. The open platform approach allows customers to engage in secondary development of algorithms, software and even processing hardware to a certain extent. In contrast, the black-box approach typically keeps the internal mechanism of the ADAS and AD system opaque to users, limiting customers' further development.

- **Time to Market Flexibility**: The open platform approach allows solution providers and OEMs to engage in collaborative development, thereby shortening the duration from research and development to mass production. In contrast, the black-box approach requires OEMs to conduct testing and optimization on a completed solution, resulting in a longer time to market as compared to open platform approach.

Competitive Landscape

The major market participants in the ADAS and AD solutions market include: (i) suppliers focusing on ADAS and AD solutions for automotive industry, who have deep technical expertise in driving automation, (ii) general processing hardware suppliers that manufacture processing hardware for various industries, and (3) a small number of OEMs that develop in-house solutions. In addition, a growing number of technology companies have entered, or are reported to have plans to enter, the market for ADAS and AD solutions. For details, see "Risk Factors — Risks Related to Our Business and Industry — Technology companies, OEMs and tier-one suppliers have been self-developing, and may start to self-develop, ADAS and AD solutions, or technologies that are similar to ours, which may reduce their demand for our solutions." Nonetheless, the overall ADAS and AD solutions market should not include companies that adopt the all-by-itself business model who develop these functions in-house, as such all-by-itself companies do not procure ADAS and AD solutions from the market.

The ADAS and AD solutions market in China is concentrated, with a few top suppliers holding the majority of the market share. Most of them are global suppliers with years of industry experience and extensive customer base.

We are the only China-based company among the top five ADAS and AD solutions providers in China. We were the second-largest and the largest ADAS solutions provider to Chinese OEMs in China by solution installation volume in 2023 and the first half of 2024 with a market share of 21.3% and 35.9%, respectively, according to CIC. We were also the fourth-largest and the largest ADAS and AD solutions provider in China by overall solution installation volume in 2023 and the first half of 2024, with a market share of 9.3% and 15.4%, respectively.

Top 5 ADAS Solutions Providers to Chinese OEMs in China, by Solution Installation Volume[1] in 2023 and the first half of 2024

Ranking	Provider	ADAS Solution Installation Volume, the first half of 2024	Market Share, the first half of 2024	ADAS Solution Installation Volume, 2023	Market Share, 2023	Market Share, 2022	Market Share Change (2023 vs. 2022)
		(Millions)	*(%)*	*(Millions)*	*(%)*		
1	**Horizon Robotics**	**0.71**	**35.9%**	**0.85**	**21.3%**	**3.7%**	**+17.6%**
2	Company A[2]	0.53	26.9%	1.07	26.6%	26.1%	+0.6%
3	Company C[4]	0.35	17.7%	0.70	17.4%	13.3%	+4.1%
4	Company B[3]	0.11	5.7%	0.73	18.3%	39.1%	-20.9%
5	Company D[5]	0.04	2.3%	0.15	3.6%	5.2%	-1.5%

Source: China Banking and Insurance Regulatory Commission; CIC

Top 5 ADAS and AD Solutions Providers in China, by Solution Installation Volume[1] in 2023 and the first half of 2024[6]

Ranking	Provider	ADAS and AD Solution Installation Volume, the first half of 2024	Market Share, the first half of 2024	ADAS and AD Solution Installation Volume, 2023	Market Share, 2023	Market Share, 2022	Market Share Change (2023 vs. 2022)
		(Millions)	*(%)*	*(Millions)*	*(%)*		
1	Company A[2]	1.68	28.7%	3.44	29.2%	29.5%	-0.2%
2	Company C[4]	1.18	20.1%	2.35	19.9%	21.4%	-1.4%
3	Company B[3]	1.00	17.0%	2.82	24.0%	24.2%	-0.2%
4	**Horizon Robotics**	**0.90**	**15.4%**	**1.09**	**9.3%**	**2.2%**	**+7.0%**
5	Company D[5]	0.28	4.8%	0.60	5.1%	7.6%	-2.5%

Source: China Banking and Insurance Regulatory Commission; CIC

Notes:

1 ADAS and/or AD solution installation volume refers to the number of ADAS and/or AD solutions that are installed on the passenger vehicles and sold to end customers within a time period. The vehicle sales information is collected by CIC, based on SALI data released by China Banking and Insurance Regulatory Commission, as all new passenger vehicles sold in China are subject to SALI payment. According to CIC, the definition of industry ranking by solution installation volume as provided above is in line with common industry practice. However, the installation volume of ADAS and/or AD solutions may not always match the processing hardware deliveries reported by solution providers. This discrepancy can be attributed to several factors: (1) OEMs often maintain inventories of processing hardware based on their own management policies and strategies; (2) there may be a time delay between the delivery of processing hardware to OEMs and the actual sale of passenger vehicles to end customers; and (3) some passenger vehicles may be equipped with multiple units of processing hardware.

2 Founded in 1999 and headquartered in Israel, Company A is a provider of ADAS and AD technologies and solutions. It was listed on the Nasdaq in 2022.

3 Founded in 1984 and headquartered in the United States, Company B provides processing hardware and programmable logic devices to customers in automotive and general industrials sectors. Company B was acquired by a Nasdaq listed company in Feburary 2022.

4 Founded in 2002 and headquartered in Japan, Company C is a solutions provider for a broad range of industries including automotive, industrial, electronics, and more. It was listed on the Tokyo Stock Exchange in 2003.

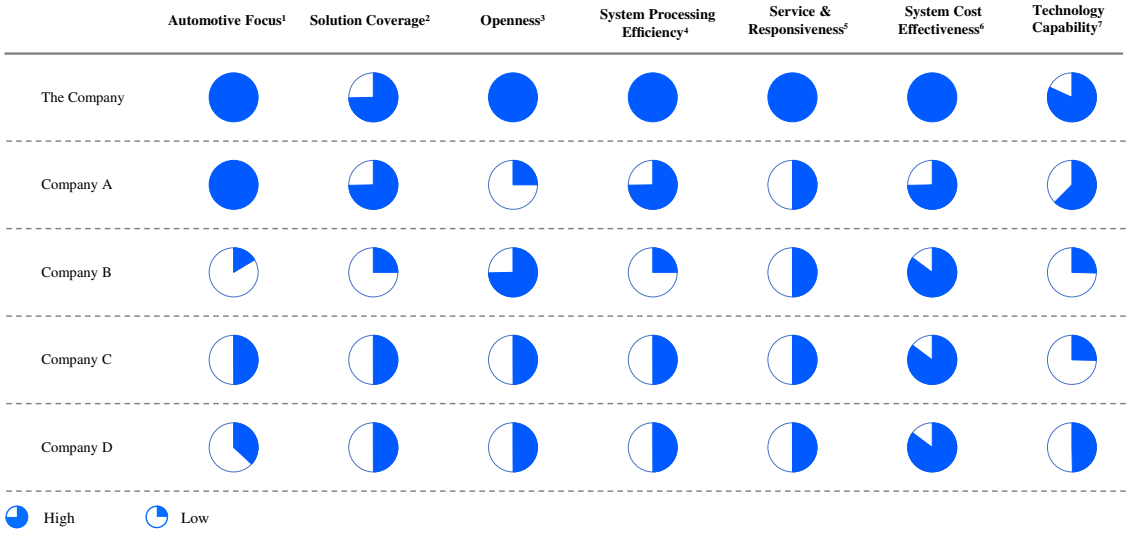
5 Founded in 1930 and headquartered in the United States, Company D is a hardware company that manufactures integrated circuits and processing hardware. It was listed on the NYSE in 1953 and was transferred to the Nasdaq in 2012.

6 Ranking and market share calculation excluding OEMs which produce ADAS and AD solutions in house.

Competitive Analysis of ADAS and AD Solutions Market

The below chart illustrates the competitive analysis between the Company and its key competitors on the various performance aspects.

Competitive Analysis of The Automotive Product Solutions Market



Source: Interviews with expert participants, government statistics, listed companies' public filings, news disclosures, and CIC analysis.

Notes:

1 Measured by the end-customer focus. Market players who are dedicated to automotive customers are generally able to deliver more tailored products and solutions for automotive use.

2 Measured by the range of products and services provided by the market players related to both ADAS and AD solutions.

3 Measured by the openness of the solutions architecture provided by the market players, including the flexibilities for third parties to develop and design customized solutions.

4 Measured by the amount of information such as images and frames that can be identified and processed within a period of time.

5 Measured by the customer service quality and response time to customers' requests in China.

6 Measured by the processing power per unit cost, efficiency and performance.

7 Measured by MPI (miles per intervention), which is a performance metric used to measure the distance a vehicle can travel autonomously before requiring human intervention or driver takeover. High MPI is only achievable with higher-level AD solutions. Generally ADAS solutions still require drivers' attention on the vehicle.

Barriers to Entry and Key Success Factors

- **Stringent quality standards**: The ADAS and AD solutions, as the brain of a smart vehicle, are a critical component that needs to meet the highest standards of safety and quality assurance. Meeting these standards requires passing rigorous review and approval processes which often take years. Automotive-grade components need to be able to withstand harsh weather such as extreme temperatures from -40 to 150 degrees Celsius, environments from humid to dry and adverse road conditions including extremely bumpy roads. Such stringent quality standards cast high barriers for new entrants.

- **Expertise in both software and hardware**: The development of processing hardware requires advanced engineering and years of dedicated research, which is difficult for new entrants to replicate or surpass in the short term. In addition, since algorithms are optimized under a certain set of specifications and criteria, and as each application on processing hardware is unique, solution providers taking a software-hardware co-optimization approach is better positioned to yield the best results. Therefore, new entrants would need to devote a significant amount of resources to both hardware and software development simultaneously. Lastly, since software upgrades are more frequent, being a software expert enables solution providers to have better visibility of an algorithm's development trend. OEMs are inclined to partner with companies that have expertise in both software and hardware instead of one-dimensional players.

- **First mover advantage**: First movers in the industry have accumulated extensive industry experience and market know-how used to train and improve their algorithms as well as guide hardware design. OEMs and tier-one suppliers each have distinct preferences, design needs, and a thorough design, verification and testing process. Therefore, by establishing partnerships early on, first movers would become deeply involved in the product designs, enabling first-movers to shape the underlying specifications and thereby creating an entry barrier against potential competitors. Moreover, first movers have the opportunity to establish an open-sourced platform that allows OEMs and tier-one suppliers to develop customized products and solutions within their own ecosystem, resulting in high switching costs and customer stickiness. Lastly, first movers could benefit from economies of scale, thus offering cost-efficient solutions to customers.

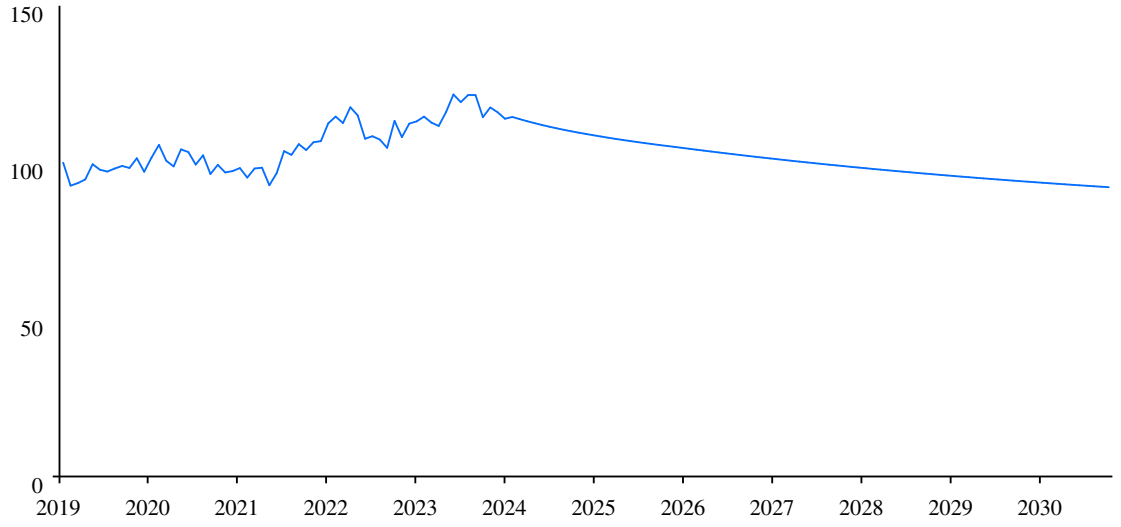
- **Accumulation of industry know-how, local expertise and service capabilities**: Companies need to accumulate deep industry know-how to launch successful ADAS and AD solutions with the highest degree of performance and reliability. Companies that have achieved mass production enjoy significant competitive advantages, as they have access to valuable real-world insights that allow them to iterate and improve their products more efficiently. Achieving mass production requires significant financial resources, human capital and time. In addition, companies that have adjusted their products to challenging road conditions in countries such as China can easily deploy their products into other countries with less complex road conditions. Therefore, it is challenging for new entrants with limited industry know-how to compete with industry incumbents who have already accumulated in-depth knowledge.

Price Trends of Automotive Semiconductors

The COVID-19 pandemic has led to disruptions in the auto-part supply-chain, such as production halts, decreased output and extended delivery, among other issues. As the market demand for auto-parts remained strong during the pandemic, such disruptions resulted in varying degrees of auto-parts shortages globally, including the automotive semiconductors. As a result, the global average price of automotive semiconductors hiked approximately 10.4% in 2022. Starting from the second half of 2023, the impact of automotive semiconductor shortages on the global automotive industry has started to subside, and the global supply of automotive semiconductors is gradually returning to normal, as evidenced by the growth rate of global average price of automotive semiconductors decelerating to approximately 5.0% in 2023, which rate is expected to turn negative in 2024, according to CIC. In the future, assuming the supply and demand of automotive semiconductors returns to normal post-pandemic, the price of automotive semiconductors is expected to follow a decreasing trend due to technological advancements and economic of scale.

The following chart illustrates the actual and forecasted price trends of automotive semiconductors over the period indicated. The price trend is based on the price of automotive semiconductors in 2019, which is set as 100.

The price index of Global Automotive semiconductors, 2019A-2030E



Source: World Semiconductor Trade Statistics, CIC

SOURCE OF THE INDUSTRY INFORMATION

CIC was [**REDACTED**] to conduct research and analysis of, and produce a report on, the global and China's ADAS and AD solution industry and related economic data at a fee of approximately US$100,000. The [**REDACTED**] report has been prepared by CIC independently without the influence from the Company or other interested parties. CIC offers industry consulting services, commercial due diligence and strategic consulting. With a consultant team actively tracking the latest market trends in various industries such as automotive, consumer goods and services, agriculture, chemicals, marketing and advertising, culture and entertainment, energy and industry, finance and services, healthcare, TMT and transportation, CIC possesses the most relevant and insightful market intelligence in these sectors. Except as otherwise noted, all of the data and forecasts contained in this section are derived from the CIC Report. We have also referred to certain information in the "Summary," "Risk Factors," "Business" and "Financial Information" sections to provide a more comprehensive presentation of the industry in which we operate.

CIC employed both primary and secondary research methods using a variety of resources. Primary research included interviews with key industry experts and leading participants, while secondary research involved analyzing data from publicly available sources, such as the National Bureau of Statistics and General Administration of Customs of the PRC. The market projections in the CIC Report are based on the following key assumptions during the forecast period: (i) that the overall global social, economic, and political environment is expected to maintain a stable trend over the next decade; (ii) that related key industry drivers are likely to continue driving growth in global and China's ADAS and AD solution industry during the forecast period; and (iii) that there is no extreme force majeure or set of industry regulations in which the market situation may be affected either dramatically or fundamentally.

Our Directors confirm that, to the best of their knowledge, after making reasonable inquiries, there is no material and adverse change in the market information since the date of the CIC Report, which may qualify, contradict or have an impact on the information in this section.