



Chinese Connected and Autonomous Vehicle Market Analysis

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Executive Summary

China is late to the CAV
market, but poised to
leapfrog other geographies
to become the leading
developer and consumer of
connected and autonomous
technologies



Summary



Chinese CAV market is forecasted to be \$500 billion by 2030.



Political drivers in place to accelerate the development and adoption of autonomous vehicles at 'China speed'.



Shared mobility services will lead the market for autonomous vehicles.



Local partnerships critical for international corporates due to political policies on domestic advantage.



Genuine consumer need for autonomous vehicles based on congestion and pollution levels.



Barriers to success include regulatory environment and the trade dispute and the complexity of the road network.



Baidu and collaborators (FAW) currently in pole position with Apollo Robotaxi.

Market Sizing and Drivers

China is set to lead and dominate the CAV market by 2030 with Level 4 sales reaching \$2.3 billion¹.



THE MADE IN CHINA PROGRAMME, DESIGNED TO ACCELERATE THE MOVE TOWARDS A HIGHER VALUE ADDED ADVANCED MANUFACTURING COUNTRY, IS STRONGLY FOCUSED ON AUTOS, ESPECIALLY NEW ENERGY VEHICLES (NEVS) AND THE GOAL IS TO PRODUCE 1M ELECTRIC AND PLUG IN VEHICLES BY 2020.



THE MARKET IS FORECASTED TO BE \$500B BY 2030 ACCORDING TO AN ANNUAL [REPORT](#) ON THE NATION'S INNOVATION ECONOMY BY THE SOUTH CHINA MORNING POST AND 500 STARTUPS, A SILICON VALLEY VENTURE FUND AND SEED ACCELERATOR.



IN THEIR RECENT [REPORT](#), MCKINSEY STATES THAT CHINA WILL GENERATE REVENUES OF \$1.1 TRILLION FROM MOBILITY SERVICES AND \$0.9 TRILLION FROM SALES OF AUTONOMOUS VEHICLES BY 2040.

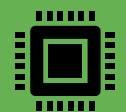
Analysts predict that players in the Chinese CAV eco system could earn trillions of revenue in China, however, with the adoption inflection point expected to be 2025 – 2027, the testing opportunity will hit a peak during the next 5 years before declining.



In unit terms, autonomous vehicles will make up just over 40 percent of new vehicle sales in 2040 and are predicted to account for 66 percent of the passenger-kilometres travelled.



Mass adoption is expected to be seen in the next ten years, with the inflection point predicted to be between 2025 and 2027.



The cost of the total AV system (including sensors, computing platform, and software) should decrease rapidly after the technology matures beyond 2023, to approximately \$8,000 in 2025. Once autonomous vehicles reach the crossover point, adoption will accelerate.

GNSS and LBS Market was worth \$43.93 billion in 2018 and is increasing year on year.

China's satellite navigation and location services industry achieved a total output value of 301.6 billion yuan (about 43.93 billion U.S. dollars) in 2018, up 18.3 percent from the previous year, according to an annual industry report.

The data was published in the White Paper on the Development of China's Satellite Navigation and Location Services Industry (2019), which was released by the GNSS (global navigation satellite system) and LBS (location-based service) Association of China.

The industry's core sectors, which are directly related to the development and application of the satellite navigation technology, include chip, device, algorithm, software, navigation data, terminal equipment and infrastructure. These sectors reported 106.9 billion yuan in output value, accounting for 35.44 percent of the industry's total.

The BeiDou Navigation Satellite System (BDS) contributed 80 percent to the output value generated by the core sectors. The system raked in a total of 194.7 billion yuan with related products and services.



The drivers to lead in this market are compelling, including significant government investment and pollution and congestion challenges



China has serious challenges with congestion and pollution, with over 30% of pollution attributed to engine exhausts. A lottery scheme is used to restrict new cars on the road.



There is political desire to be the market leader in autonomous vehicles and government investment in the sector is driving innovation.



Autonomous vehicles provide an additional use case and revenue stream for much of the masses of consumer data gathered by technology giants.



Shared mobility services have been widely accepted by Chinese consumers which is a strong lead indicator for the take up of CAVs.



China's strategy is to move away from commoditised goods and services and towards high value product and service development.



The current automotive industry is in significant decline and the government need to provide additional opportunities for growth.

Political Environment

The Chinese political environment enables complex industries to align and deliver faster than some western cultures. This is known as 'China Speed'.



CHINESE GOVERNMENT INTENDS TO BECOME THE WORLD LEADER IN ELECTRIC AND AUTONOMOUS VEHICLES AS PART OF THE "MADE IN CHINA 2025" INDUSTRIAL STRATEGY. THIS NATIONAL POLICY IS BACKED UP BY HUNDREDS OF BILLIONS OF DOLLARS OF INVESTMENT IN "SMART CARS" AND THE UPSKILLING OF THOUSANDS OF AI EXPERTS IN THE COMING YEARS



THE TRADE WAR WITH THE US MEANS THAT CHINA IS FOCUSING ON THE DOMESTIC MARKET FOR THE DEVELOPMENT AND ADOPTION OF CONNECTED AND AUTONOMOUS VEHICLES, SUPPORTED BY PARTNERSHIPS FROM OUTSIDE OF THE US, MOST NOTABLY EUROPE.

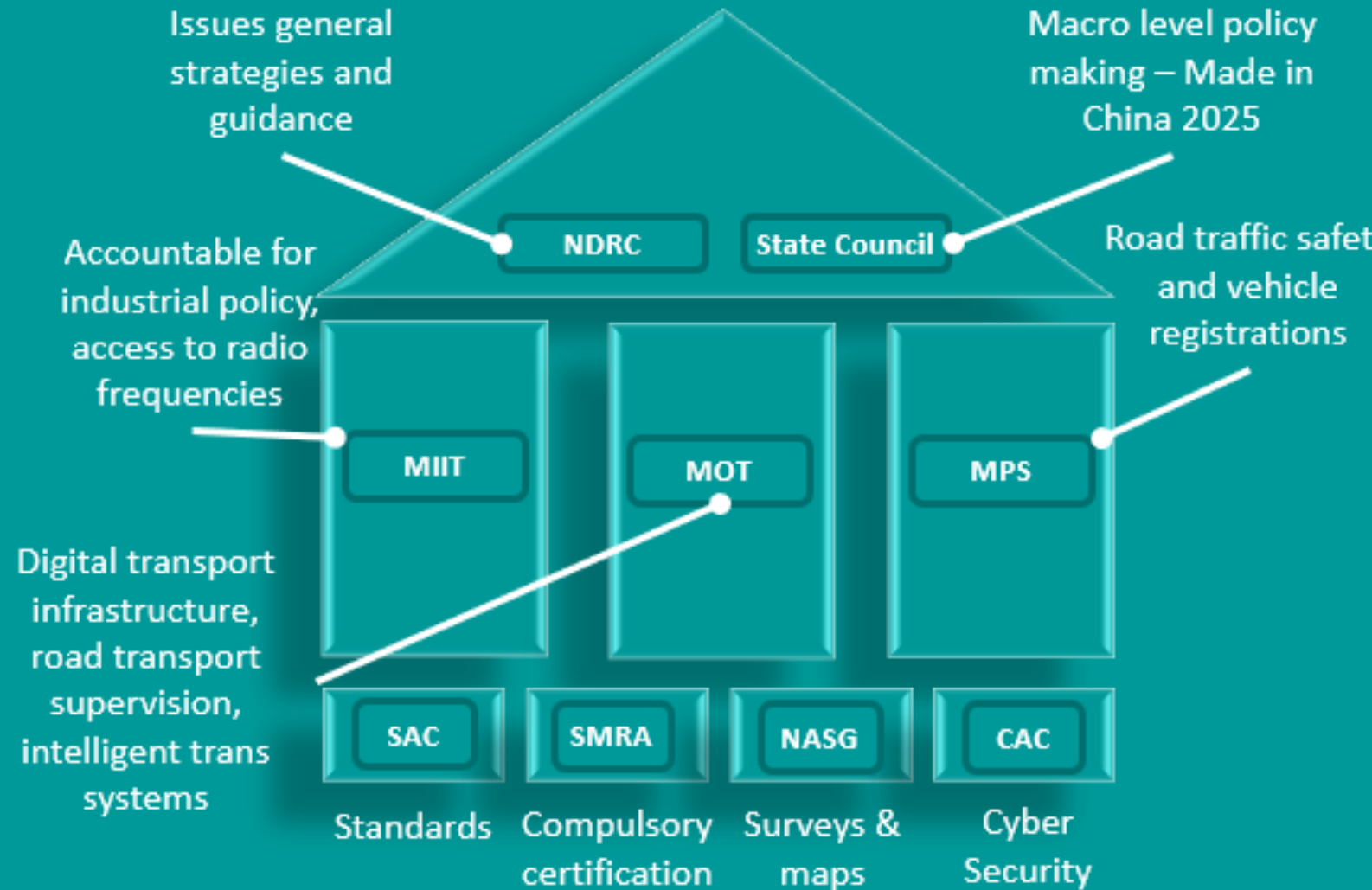


THE POLITICAL STRUCTURE MEANS THAT PROGRESS CAN BE MADE MORE QUICKLY THAN IN MORE WESTERN CULTURES. WHILST THE REGULATORY LANDSCAPE IS COMPLEX, THE TOP DOWN POLITICAL APPROACH MEANS THAT DIFFERENT PARTS OF THE ECO SYSTEM ALIGN VERY QUICKLY.

Regulatory Framework

The regulatory landscape is complicated due to overlapping areas, duplication and responsibility for standards and policy setting sitting at both national and regional levels. Regulation is seen by some as a barrier to CAV deployment.

Chinese CAV Regulators



Regulatory Evolution

In April 2018, the government issued regulations that allowed autonomous vehicles to be tested up to Level 4 on specific roads. Prior to this the regulatory conditions had been highly restrictive. The release of these regulations were driven in part as a reaction to independent provincial testing regulations being established with no commonality.



Baidu accounts for more than half of the issued test licenses

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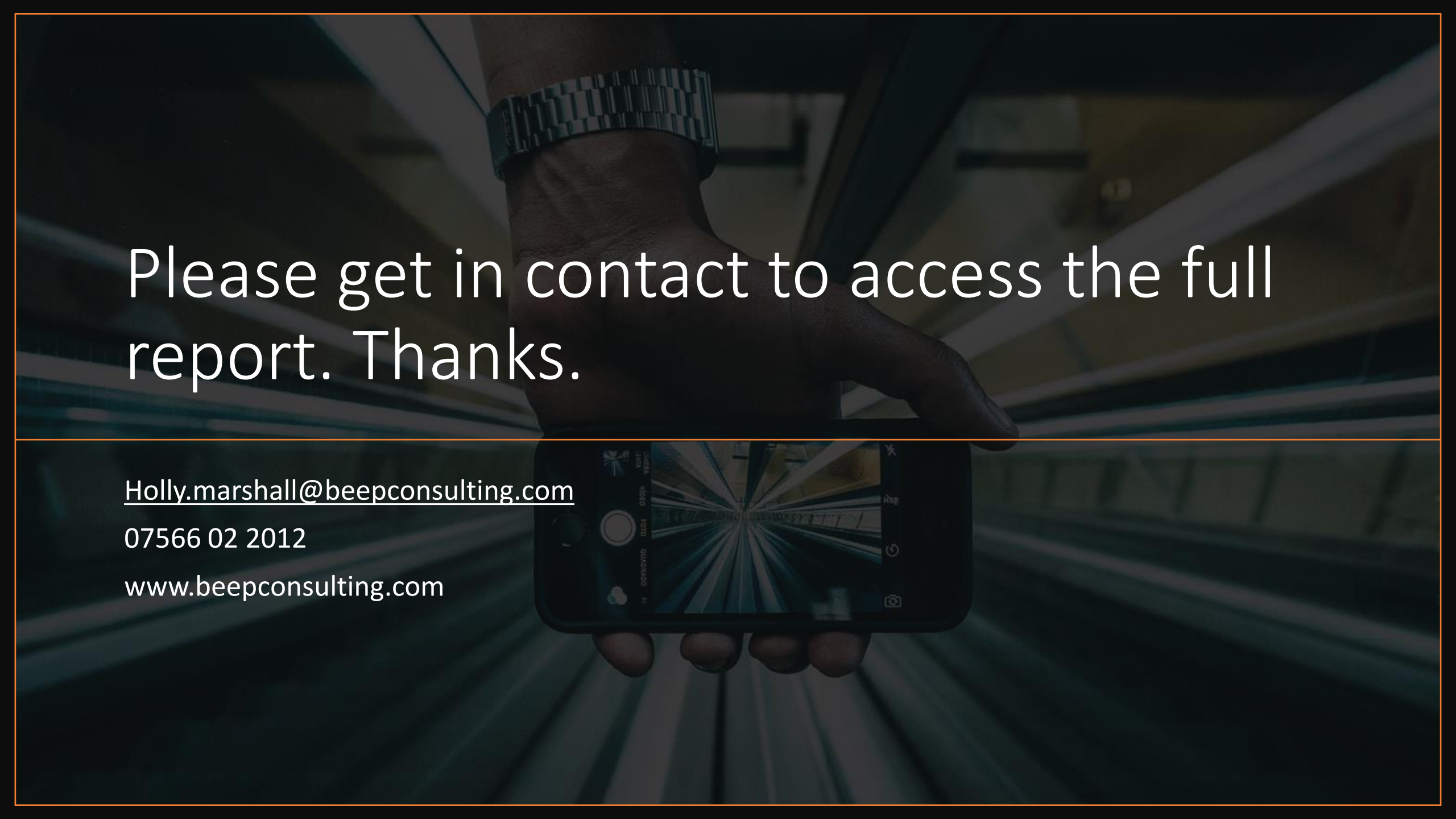


Beijing was the first to set up an autonomous vehicle testing lane in Yizhuang, and now has over 44 roads for autonomous vehicle testing. On 1 March 2018, the Shanghai authorities granted their approval to two companies: the Chinese OEM SAIC Motor and the EV start-up NIO.

92 Standards with a focus on 5G

The communication guidelines issued as part of the 2018 regulations cover 92 standards, with a special focus on 5G V2X technology and LTE-V technology. The 92 standards are categorized into three “layers:” cloud, pipe, and end. The bottom layer, “end,” is the terminal system covering V2X communication equipment, vehicle communication gateway, roadside communication infrastructure, and personal portable communication devices. The middle layer, “pipe” makes communication happen.





Please get in contact to access the full report. Thanks.

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