S&P Global
Mobility

百度智能云

Special Interview: Baidu AI Cloud software-defined vehicles (SDVs)

August 2024

Background

S&P Global Mobility

The emergence of software-defined vehicles (SDVs) represents a seismic shift in the automotive industry and the broader mobility ecosystem. SDVs go beyond being traditional vehicles and function as platforms for connectivity, data generation, personalization and monetization. They have the potential to disrupt established business models, drive innovation and reshape our perception of vehicles. SDVs have implications that extend beyond the automotive sector, impacting public transportation, city planning and the energy industry. However, there are still unanswered questions regarding consumer acceptance, regulatory adaptation and the leadership role of traditional automakers versus tech giants in this new era of computers on wheels.

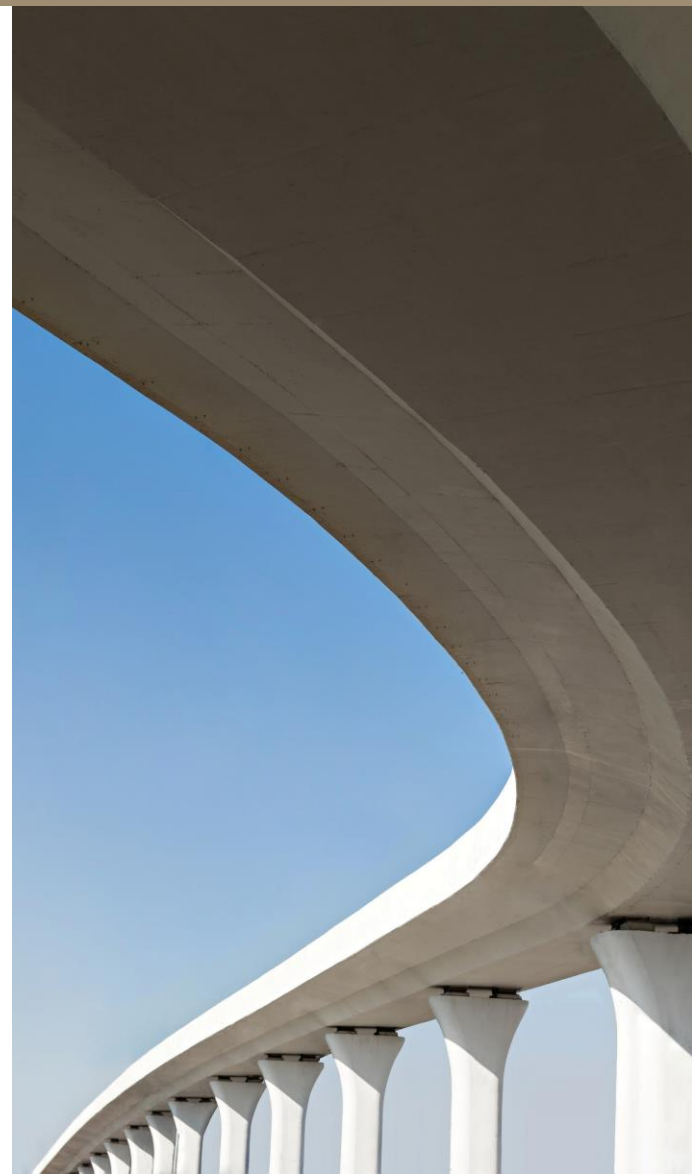
Founded in 2000 and headquartered in Beijing, China, Baidu Inc. is an AI company. Baidu AI Cloud serves as the company's infrastructure for the smart era. With a range of AI technology capabilities, Baidu AI Cloud supports clients across various industries with its technology and solutions.

To learn more about this business and how it is strengthening its foothold in the automotive industry,we spoke to Mr. Xiao Meng, Baidu AI Cloud Auto Business Unit Vice President.

Key takeaways

S&P Global Mobility

- OEMs have diverse cloud resource needs, including IT systems and private clouds for digitalization. They also require data storage for customer operations, connected cars, and third-party applications, which can be fulfilled by Baidu's public cloud resources. AI R&D for autonomous driving demands increased GPU compute power. Compliance is paramount, as sensitive data must be processed and stored separately in the cloud.
- Baidu serves various sectors, including technology, government, power, and automotive companies. "There are 20-30 major automakers with fierce competition. The top 15 major automakers and many new energy vehicle brands are Baidu's customers. Baidu provides excellent basic cloud services and various AI capabilities including large models.". Collaboration is key, as Baidu works closely with OEMs to develop better services and products.
- Automakers are collaborating with non-traditional Tier 1 tech companies like Baidu AI Cloud, which offers cloud resources and AI capabilities. This trend is expected to grow, transforming vehicles into intelligent connected cars. In China, 4-6 major cloud service providers compete fiercely. Larger companies offer standard public cloud services, while smaller ones focus on personalized projects. Baidu aims to leverage AI to provide better services and products to OEMs.
- In the short term, Large Language Models (LLMs) won't change the automotive industry's car-selling model but can enhance efficiency and the digital experience. They may lead to subscription services for automated driving and improve in-car interactions. LLMs also boost marketing, automate office tasks, and aid R&D. Long-term, LLMs and AI could impact the business model, as seen with Baidu's Robotaxi, but the shift from car ownership to shared mobility is uncertain.。



Question 1

S&P Global Mobility

S&P Global Mobility:

Could you share an overview of Baidu’ s strategy, involvement and motivation in the automotive industry, particularly around the areas of the cloud, vehicle experience?

Baidu AI Cloud:

OEMs have diverse cloud resource needs. They require cloud resources for their IT systems and private clouds to facilitate digitalization. Customer operations, connected cars, and third-party application data also necessitate data storage, including Baidu's public cloud resources.

AI R&D for autonomous driving also demands increased GPU compute power.

Compliance is another important aspect, as sensitive data must be processed and stored separately in the cloud. Baidu's strategy aligns well with these OEM needs as they provide compute power, cloud platforms, and architecture. Baidu is also a significant player in the Chinese mapping industry, which is important for compliance purposes.

The development of an autonomous driving tool chain and AI capabilities, such as large models and digital assistants, further contribute to the revenue growth of cloud services to meet OEMs' needs. We offer OEMs access to large models for model building and the development of new applications.

Question 2

S&P Global Mobility

S&P Global Mobility:

How does the nature of collaboration between Baidu and your automotive customers differ from other industries?

Baidu AI Cloud:

The automotive industry is a vital sector in China, accounting for approximately 10% of the country's GDP. Within this industry, Baidu provides services to various sectors, including technology companies, government entities, the power industry, and automotive companies.

The automotive sector has a high concentration of 20-30 OEMs, giving them significant pricing power and making the cloud service market highly competitive. Baidu stands out by offering superior services, some of which are personalized according to the specific requirements of their clients.The top 15 major automakers and many leading new energy vehicle brands are all using Baidu's services. We provide cloud services and various AI capabilities, including large models, which will help our customers enhance their competitiveness in the era of new energy vehicles.

Collaboration is a key aspect of Baidu's approach, as they work closely with OEMs to develop and deliver better services and products.

Question 3

S&P Global Mobility

S&P Global Mobility:

With the emergence of Chinese suppliers and increased collaboration between tech companies and automakers, how do you anticipate the collaboration landscape to evolve in the future, and what opportunities could this create for further partnerships and innovations?

Baidu AI Cloud:

Automakers are now collaborating with tech companies that are not traditional Tier 1 suppliers. Baidu AI Cloud, for example, offers cloud resources and AI capabilities to OEMs. This collaboration between tech giants and automakers is expected to increase in the future. Vehicles are no longer just modes of transportation; they are becoming mobile homes, robots, and even second living rooms. AI and technology can be applied in intelligent connected cars to enhance the user experience.

In China, there are 4-6 major cloud service providers, and the competition among them is fierce. The auto cloud business is projected to grow, but it is challenging to predict market share due to the intense competition. Different companies have different strategies: larger companies focus on providing public cloud services with standard offerings and lower costs, while smaller companies focus on personalized projects to create more touchpoints with customers and drive business growth.

In the future, AI will drive more demand from users and foster innovation. Baidu, with its AI capabilities, aims to provide better services and products to its OEM clients.

Question 4

S&P Global Mobility

S&P Global Mobility:

How do you see large language models transforming the automotive industry and its business models? What potential applications could we anticipate in the automotive sector?

Baidu AI Cloud:

In the short term, Large Language Models (LLMs) will not fundamentally change the automotive industry's business model, which revolves around selling cars. However, LLMs can enhance company efficiency and improve the digital experience for customers. While subscription services for automated driving functions may emerge in the future, they are unlikely to alter the business model significantly. LLMs have the potential to enhance the digital experience within the car, such as through multi-round conversations with drivers and passengers. For instance, an LLM integrated into the cockpit operating system can understand and respond to commands like "The weather is a bit stuffy and hot," automatically adjusting the climate temperature. LLMs can also serve as virtual assistants, welcoming occupants, providing active alerts, and connecting to emergency services.

Question 4

S&P Global Mobility

S&P Global Mobility:

How do you see large language models transforming the automotive industry and its business models? What potential applications could we anticipate in the automotive sector?

Baidu AI Cloud:

LLMs have applications beyond the car as well. They can be used in marketing, such as live streaming with digital human assistants to boost vehicle sales on social media platforms. LLMs can also automate office tasks for thousands of colleagues and assist in research and development by creating vehicle requirements, writing test cases, and optimizing codes.

In the long term, the combination of LLMs and AI technology could have a significant impact on the business model. For example, Baidu's robotaxi service operates hundreds of autonomous taxis without human supervisors in the [Chinese] city of Wuhan. As autonomous driving technology advances, more people may choose autonomous ride-hailing services. However, the turning point between shared mobility services and passenger car ownership is still uncertain and will require further analysis and time.

Moderator

S&P Global Mobility

Matthew Beecham

AutoTechInsight Research Manager,
Supply Chain & Technology,
S&P Global Mobility

Matthew Beecham is a research manager for S&P Global Mobility's AutoTechInsight platform.

Matthew brings almost three decades of industry knowledge and an extensive network to his role. His expertise spans ATI domains, providing shop floor insights and conducting high-level interviews.

He has worked for GlobalData plc, Just Auto, HORIBA MIRA, Economist Intelligence Unit (EIU), McKinsey, AT Kearney, and Supplier Business, a predecessor of ATI.

Matthew's academic credentials include a PhD in Automotive Technology Transfer from Cranfield University.

Fanni Li

Principal Research Analyst,
Automotive Supply Chain & Technology,
S&P Global Mobility

Fanni is Principal Research Analyst focused on Connected Car and related technology at S&P Global Mobility. Her responsibilities include China market research and analysis of digital cockpit and connected car, as well as global market analysis of over the air updates, connected services and vehicle software paid updates.

Fanni has more than 10 years working experience in automotive industry with engineering background. Prior to joining S&P Global, she worked for global OEM engineering centre in China for several years focusing on project management and product development of infotainment domain products.

Fanni holds a Master of Engineering in Mechatronic System from University of Technology of Compiegne in France, along with an MBA from University of Canberra.

Partner

S&P Global
Mobility

Xiao Meng

Vice General Manager of Automotive Business, Baidu AI Cloud

Mr. Xiao has twenty years of experience in software architecture from desktop to cloud to in-vehicle embedded, and is well versed in the application of computer technology in industry sectors. Mr. Xiao is well versed in the application of computer technology in various industries, including manned space simulator, internet communication, gaming, finance, and intelligent connected car. He has rich experience from software architecture to implementation. He has published a number of articles related to intelligent driving domain controller software architecture, in-vehicle middleware, and data closed-loop, which are well received by the industry. He is now responsible for Baidu AI Cloud automotive industry solutions, empowering OEMs with digital transformation.

Corporate Profile

S&P Global
Mobility

S&P Global Mobility

S&P Global Mobility enables customers to anticipate change and make decisions with conviction.

We help them to optimize their businesses, reach the right consumers, and shape the future of mobility. Leveraging technology and data science, we provide unique insights, forecasts and advisory services spanning every major market and the entire automotive value chain—from product planning to marketing, sales and the aftermarket.

With a legacy dating back to the 1920s when R. L. Polk published the first vehicle registration reports, our solutions are used by nearly every OEM, more than 95% of tier one suppliers, media agencies, governments, insurance companies, and financial stakeholders to provide actionable insights that enable better decisions and better results.

Baidu AI Cloud

Founded in 2000 and headquartered in Beijing, Baidu Inc. is an AI company. Baidu AI Cloud serves as the company's infrastructure for the smart era. With a range of AI technology capabilities, Baidu AI Cloud supports clients across various industries with its technology and solutions.

Contact Us

Americas	+1 800 447 2273
EMEA	+44 1344 328 300
Asia Pacific	+604 291 3600
Japan	+81 3 6262 1887

AskMobility@spglobal.com

Corporate Mobility Site

JP | CN | KR | EN

Calendar | Community | Conversation

Mobility LinkedIn Group

Automotive WeChat

Mobility Customer Bulletin

Mobility YouTube