China Launched the Drafting of the National Smart Car Innovation Development Strategy

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Abstract: the Automobile Industry is an Important Strategic and Pillar Industry of the National Economy and Closely Related to the Lives of the People. with the Increasing Popularity of Automobiles, China Has Rapidly Entered the Automobile Society. the Current Development of Smart Cars is Not Only an Important Means to Solve the Problems of Traffic Safety, Road Congestion, Energy Consumption, Environmental Pollution, Etc., But Also an Important Support for Deepening Supply-side Structural Reform, Implementing Innovation-Driven Development Strategies, and Building a Modern and Powerful Country. It is of Great Significance to Continuously Meet the Growing Needs of the People. This Strategy Was Developed to Accelerate the Development of Smart Car Innovation.

1. Introduction

Developing Smart Cars and Promoting the Application of New Technologies Will Help Promote the Development of Chips, Software, Information and Communication, Data Services and Other Industries That Rely on Automobiles; Help Reduce Accident Damage, Ensure Life Safety, Ease Road Congestion, Improve Traffic Efficiency, and Promote Energy Conservation. Reduce Emissions, Optimize Service Supply, Enhance People's Well-Being, and Promote Social Harmony; Help Accelerate the Construction of Powerful Countries, Technological Powers, Network Powers, Transportation Powers, Digital China, and Promote the Integration of Military and Civilian Development, Enhance the National Governance Capacity and Comprehensive Competitiveness of the New Era and Security Capabilities[1].

2. Strategic Situation

2.1 Smart Car Has Become the Strategic Direction of the Development of the Automotive Industry

From a technical perspective, automobiles are always an important carrier for new technology applications. With the widespread use of new technologies such as information and communication, Internet, big data, cloud computing, and artificial intelligence in the automotive field, automobiles are being accelerated from artificially controlled mechanical products to smart With the transformation of intelligent products controlled by the system, smart cars have become the strategic commanding heights of industrial technology[2].

From the industrial level, smart cars have become the focus of industrial integration development, traditional automobile enterprises have rapidly transformed, electronic information, network communication and other enterprises have accelerated penetration, automobiles and related industries have been fully integrated, the industrial chain is facing reconstruction, the value chain is continuously extended, and industrial boundaries Increasingly blurred, it presents the characteristics of intelligent, networked and platform zed development. From the application level, the functions and usage of automotive products are undergoing profound changes, from simple transportation tools to intelligent mobile spaces, with functions such as mobile office, mobile home, entertainment and leisure, digital consumption, and public services. New modes of production and life, such as

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networked data services and shared travel, are accelerating.

2.2 China Has the Strategic Advantage of Smart Car Development

In terms of institutional mechanisms, with the advantage of the socialist system with Chinese characteristics and the centralization of the advantages of major systems, the state's overall planning and coordinated promotion of infrastructure construction, network information management, and key industrial layouts are conducive to the scientific and efficient allocation of smart car development resources[3].In the automotive industry, the overall scale has remained world-leading, the market share of independent brands has gradually increased, core technologies have continued to make breakthroughs, and the supply of key components has been significantly enhanced. The new energy vehicle industry system is relatively complete, with batteries, motors, electronic controls and complete vehicles. Strong international competitiveness has laid a solid foundation for the development of smart cars. In terms of network communication, a number of world-class leading enterprises have emerged in the Internet, information and communication fields, and many enterprises have entered the top ten market value of global Internet companies. Communication equipment manufacturers have entered the world's first camp, and mobile communication and Internet operation service capabilities are in place. At the forefront of the world, it has accumulated an important force for the development of smart cars.

2.3 Guiding Ideology

Fully implement the spirit of the 19th National Congress of the Communist Party of China, take Xi Jinping's new era of socialism with Chinese characteristics as the guide, promote the overall layout of the “five in one” and coordinate and promote the “four comprehensive” strategic layout requirements, and firmly establish a new development concept. Supply-side structural reform is the main line, grasping the new round of scientific and technological revolution and major opportunities for industrial transformation, to promote the deep integration of automobiles with advanced manufacturing, information and communication, Internet, big data and artificial intelligence as the main way to develop China's standard intelligence The main direction of the car is to build a smart car and strengthen the country as the main goal, to create a new path for intelligent car innovation and development, to cultivate new industries, to build new competitive advantages, to occupy the strategic commanding heights, and to build a smart car power.

2.4 Basic Principles

Establish an open source and open source, resource sharing cooperation mechanism, make full use of global smart car innovation resources, strengthen core technology research, enhance independent innovation capabilities, and build a smart car independent technology system. Fully mobilize the enthusiasm of all sectors of society, innovate the development model of smart cars, promote the construction of national smart car innovation and development platform, and enhance the ability to implement strategic strategies [5-7].

Give full play to the decisive role of the market in the allocation of smart car development resources, strengthen the company's main position, and stimulate the enthusiasm of various market players to develop smart cars. Breaking industry divisions, eliminating market barriers, innovating industrial systems, production methods, and application models, promoting the integration of automobiles, information and communication, transportation, and defense and military industries, and upgrading the smart car innovation chain, industry chain, and value chain.

2.5 Strategic Vision

By 2025, the technological innovation, industrial ecology, road network facilities, regulatory standards, product supervision and information security systems of China's standard smart cars will be fully formed. The new car is basically intelligent, and the high-level smart car realizes large-scale application. “Human-car-road-cloud” achieves high synergy, and the new generation of vehicle wireless communication network (5G-V2X) basically meets the development needs of smart cars. By 2035, China's standard smart cars have a worldwide reputation, and they have taken

the lead in building a smart car powerhouse, sharing the “safe, efficient, green, and civilized” smart car society.

3. Strategic Tasks

3.1 Constructing an Independent and Controllable Intelligent Automobile Technology Innovation System

Break through key core technologies. Fully explore innovative resources, strengthen open cooperation, collaborative research and development, and vigorously carry out basic forward-looking technology research on complex system architecture, complex environment perception, intelligent decision-making control, human-computer interaction and human-machine interaction, big data application, information security, etc [8]. New electronic and electrical information architecture, multi-category sensor fusion sensing, new intelligent terminal, vehicle intelligent computing platform, vehicle wireless communication network (LTE-V2X/5G-V2X), high-precision space-time service and vehicle basic map, cloud control basic platform Common cross-over technology.

Improve test evaluation techniques. Strengthen the coordination of inter-departmental and cross-domain testing and evaluation agencies establish and improve the intelligent vehicle testing and evaluation system architecture and test basic database to meet the testing needs of China's complex road environment and driving behavior [9]. Focus on research and development of virtual simulation, software and hardware combined simulation, real vehicle road testing and other technical and verification tools, as well as vehicle-level, system-level, component-level test evaluation system. Promote the capacity building of enterprises and third-party testing and evaluation institutions, and establish a national-level intelligent vehicle technology test and safety operation evaluation center.

3.2 Building a Smart Car Industry Ecosystem with Cross-Border Integration

The specific content is shown in Figure 1.

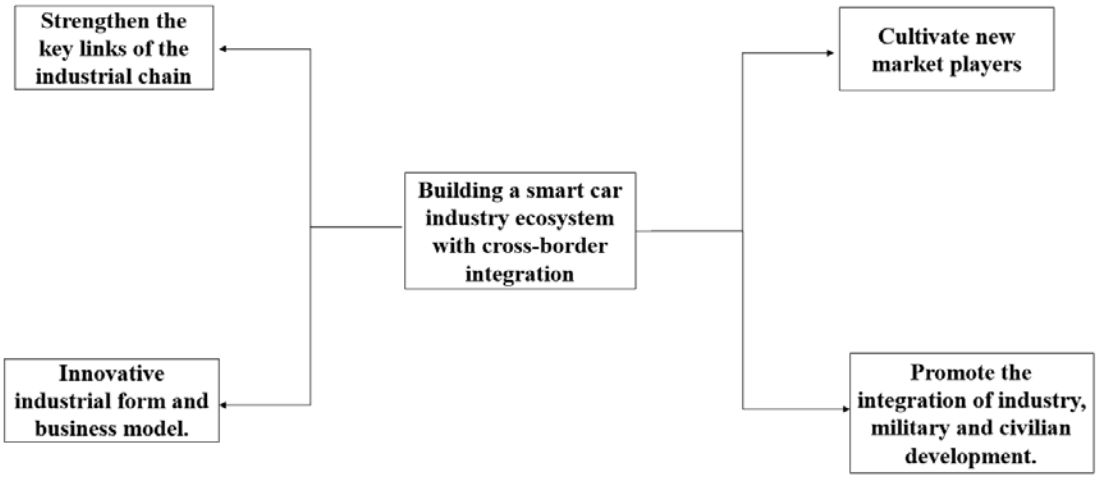

Fig.1 Building a Smart Car Industry Ecosystem with Cross-Border Integration

Strengthen the key links of the industrial chain. Strengthen key enterprises in the fields of automobile manufacturing, information communication, and Internet to cooperate with each other, complement shortcomings, strengths and weaknesses, and focus on promoting sensors, vehicle-mounted chips, central processing units, vehicle operating systems, wireless communication equipment, Beidou high-precision space-time services and vehicles. Adopting a combination of autonomous and network-based development models to accelerate the development and application of intelligent key components and systems, comprehensively improve the intelligent level of the entire vehicle, and cultivate an independent brand of intelligent vehicles with international competitiveness.

Cultivate new market players. Integrate superior resources in the fields of production, learning, research, and use, and form industrial complexes and alliances [10]. Encourage vehicle manufacturers to actively develop new technologies and develop applications, and gradually become smart car product providers and travel service providers. Encourage component companies to enhance the R&D and manufacturing capabilities of intelligent products through zero-zero coordination and overseas mergers and acquisitions, and gradually become a key component and system integration supplier for smart cars. Encourage artificial intelligence, Internet and other enterprises to integrate deeply with car companies and develop into a leader in autonomous driving system solutions. Encourage information communication, Internet and other enterprises to carry out intelligent vehicle data analysis and application, and develop into a versatile, safe and reliable data service provider.

Actively cultivate new intelligent vehicles such as road intelligent facilities, high-precision space-time services and vehicle-based maps, vehicle communications, information security, data services, and smart travel. Strengthen the big data application of smart car complex application scenarios, focusing on data value-added, travel services, financial insurance and other fields to foster new business models. Priority is given to new modes such as smart car sharing and travel in the areas of closed areas, public transportation, and short-distance connections, targeting specific market needs.

Promote the integration of industry, military and civilian development. We will establish a military-civilian integration and innovation center, implement key projects for military-civilian integration, carry out military and civilian joint research, and promote the mutual transformation of scientific and technological achievements. Accelerate the application of Beidou positioning navigation system and high-resolution Earth observation system in the field of intelligent vehicles, and promote the transformation and application of military electronic control, high-performance chips, laser/millimeter wave radar, MEMS and other independent intellectual property military technologies. The development and application of the automatic driving system and cloud control basic platform in the field of national defense military industry.

4. Strategic Guarantee

The specific content of this chapter is shown in Figure 2.

Fig.2 Strategic Guarantee

4.1 Strengthen Organizational Implementation

The National Intelligent Automobile Innovation and Development Leading Group will be established. The leading comrades of the State Council will serve as the team leader. The members will be responsible for the comrades of relevant departments and units of the State Council. They will be responsible for coordinating and coordinating the overall development of smart cars, reviewing major plans, major policies, major projects, and research and resolution. Under the

guidance of the leading group, the National Intelligent Vehicle Innovation and Development Platform will be established to implement the key tasks identified by the national strategy.

4.2 Improve Support Policies

Actively guide social capital and financial capital, increase support for public platforms such as the national smart car innovation and development platform, and promote the research and development and industrialization of core technologies for smart cars. Encourage innovative enterprises with technical characteristics to participate in the development of smart cars, and promote a variety of innovative models such as crowdsourcing, innovation, public support, and crowdfunding.

4.3 Strengthening Talent Protection

We will conscientiously implement the relevant arrangements for national talent planning, and cultivate a group of intelligent automobile strategic planning and technology leading talents and high-level innovation teams with international advanced level. We will implement incentive policies to attract innovative talents, establish a linkage mechanism for major projects and talent introduction, and increase the introduction of international leading talents and key talents. Promote exchanges of talents in the fields of automobiles, information communication, and the Internet, and accelerate the training of a group of composite experts and technology leaders. We will deepen the integration of production and education, encourage enterprises to cooperate with higher education institutions to set up relevant majors, and jointly cultivate creative young and middle-aged scientific and technological talents, management talents and senior technicians.

4.4 Carrying out International Cooperation

Encourage enterprises to introduce foreign advanced technologies and experiences through international cooperation, joint development, equity investment and other means to create a smart car brand with international influence. Support enterprises to accelerate the overseas market layout, enhance overseas R&D capabilities, and enhance international influence and popularity through cross-border mergers and acquisitions, joint ventures and other means. Make full use of multi-bilateral cooperation and high-level dialogue mechanisms to strengthen industrial cooperation and exchanges, and encourage foreign-funded enterprises to actively participate in the development of China's smart car industry. Deeply participate in the formulation and coordination of international standards and regional standards, enhance the right to speak in international standards, promote the Chinese standards to go global, and strengthen the international mutual recognition and acceptance of certification and accreditation results.

5. Conclusion

Smart cars are new things, with new industrial forms, large industry spans, wide application scope, and deep social influence. There are no mature experiences in the world, and there are no precedents for success. It is necessary to actively explore and boldly innovate to strengthen top-level design and strategic planning. Clear direction, build consensus, form synergy, and accelerate progress.

Acknowledgement

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