

Difficulties and Breakthroughs of Chinese New Energy Automobile Enterprises in EU Data Compliance

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Abstract: *With the rapid development of the global new energy automobile industry and the increasingly strict data protection regulations in the EU, the data compliance challenges faced by China new energy automobile enterprises in the EU market are increasingly prominent. This paper aims to discuss the difficulties and breakthrough strategies of China new energy automobile enterprises in EU market data compliance. This paper deeply analyzes the main difficulties of China's new energy automobile enterprises in EU data compliance, including the lack of understanding of the legal system and cross-border data transmission problems. Based on this, this paper gives the breakthrough strategies adopted by enterprises, such as strengthening the construction of internal compliance system, international cooperation and compliance consultation, and actively participating in the formulation and dialogue of international standards. By implementing these strategies, China new energy automobile enterprises can achieve remarkable results in EU data compliance, improve compliance level and reduce compliance risks. It has laid a solid foundation for the stable development of enterprises in the EU market. At the same time, the article also points out the future compliance trend and the continuous optimization direction of enterprise coping strategies, and emphasizes the importance of international cooperation and mutual trust in promoting the healthy development of the global new energy automobile industry.*

Keywords: *New energy automobile enterprise; EU data compliance; Internal compliance system; Technological innovation; International cooperation*

1. Introduction

Under the background of global energy transformation and environmental protection in the 21st century, new energy vehicles, as an important means to reduce carbon emissions and promote green travel, are booming around the world at an unprecedented speed [1]. The EU is an important part of the global new energy vehicle market [2]. It not only has a huge consumer group and a mature market system, but also has formulated strict data protection regulations [3]. The implementation of the General Data Protection Regulation (GDPR) has set a new benchmark for data compliance for global enterprises [4]. For new energy automobile enterprises in China, the EU market is both an opportunity and a challenge. On the one hand, it provides broad market space and cooperation opportunities; On the other hand, strict data compliance requirements have become a major obstacle for enterprises to enter and expand the market [5]. Therefore, it is of great significance to deeply study the difficulties and breakthroughs of new energy automobile enterprises in China in EU data compliance, and to enhance their international competitiveness [6]. It can also provide valuable experience and reference for similar enterprises facing similar problems in the process of globalization.

By combing the relevant literature, this study found that although the research on data compliance and new energy vehicle market has made some achievements, the research on the specific difficulties and breakthrough strategies of China's new energy vehicle enterprises in EU data compliance is still insufficient. The purpose of this study is to comprehensively analyze the data compliance problems faced by China's new energy automobile enterprises in the EU market, and to explore the reasons and influencing factors behind them through in-depth analysis of the specific difficulties of enterprises in data collection, processing and transmission. The core purpose of the study is to put forward effective breakthrough strategies to help China new energy automobile enterprises better adapt to EU data compliance requirements, reduce compliance risks and enhance their competitiveness in the international market. This study also defines the problem as how to balance the development needs of enterprises and data compliance requirements, and seeks to achieve sustained growth and innovation of

enterprise business while protecting users' privacy and ensuring data security.

2. Development status and challenges of new energy automobile enterprises in China in the EU market

In recent years, with its strong policy support, perfect industrial chain layout and continuous technological innovation, China's new energy automobile industry has achieved a leap-forward development from scratch [7]. The government has effectively stimulated market demand and promoted the rapid growth of the industry through a series of measures such as providing car subsidies, building charging infrastructure and optimizing the use environment [8]. China's new energy automobile enterprises, such as BYD, Weilai and Tucki, not only occupy a leading position in the domestic market, but also actively seek overseas expansion and set their sights on international markets including the European Union. With their rich product lines and increasing brand influence, these enterprises have laid a solid foundation for the competition of new energy vehicles in China on the global stage.

As one of the important markets of new energy vehicles in the world, the European Union's market scale continues to expand and its growth potential is huge [9]. With the improvement of environmental awareness and the transformation of energy structure, EU governments have introduced preferential policies to encourage consumers to buy new energy vehicles and reduce their dependence on traditional fuel vehicles. The EU has also formulated strict emission standards, which has promoted the rapid development of new energy vehicle technology. Under the dual role of market demand and policy promotion, the EU new energy vehicle market is developing vigorously [10]. However, the market competition is becoming more and more fierce, not only from local enterprises such as Tesla and Volkswagen, but also from the influx of enterprises from other countries such as China and the United States, which makes the market structure more complicated and changeable.

Although China's new energy automobile enterprises have made some achievements in the EU market, they still face many challenges, as shown in Figure 1:

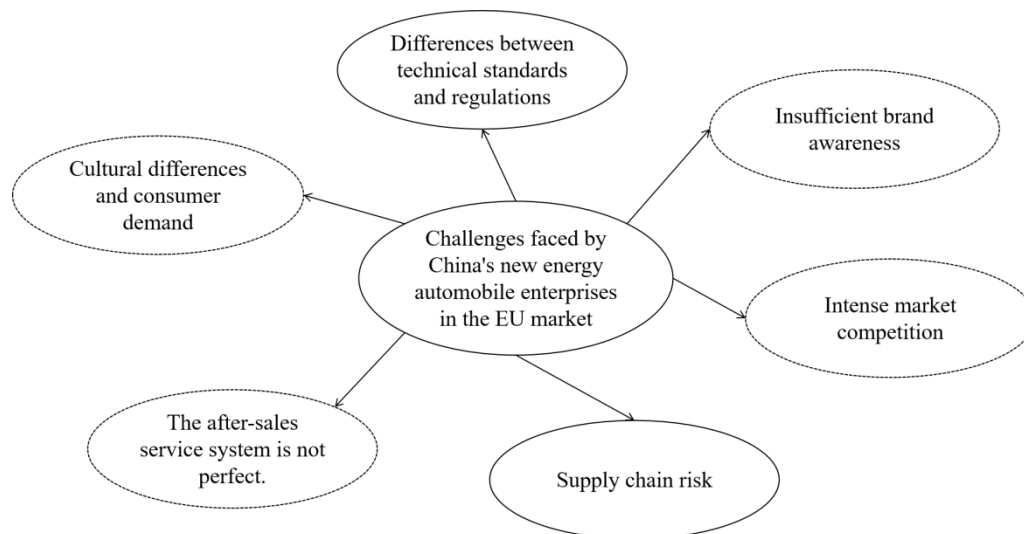


Figure 1 Challenges faced by China's new energy automobile enterprises in the EU market

These challenges in Figure 1 test the technical strength and market adaptability of China enterprises, and put forward higher requirements for their internationalization strategy. Therefore, China's new energy automobile enterprises still have a long way to go in the EU market.

3. EU data compliance framework and its impact on new energy automobile enterprises in China

3.1. Overview of EU data protection legal system

The EU's data protection legal system takes GDPR as the core, which constitutes the most stringent and comprehensive data protection framework in the world. GDPR emphasizes the basic principles of personal data protection (as shown in Table 1) and gives data subjects more rights.

Table 1 Basic principles of GDPR personal data protection and rights of data subjects

Basic principles of GDPR personal data protection	Rights granted by GDPR to data subjects
Legitimacy, fairness and transparency	Access right
Purpose limitation	Right of correction
Data minimization	Right to delete (right to be forgotten)
Accuracy	Restrict the right of disposal
Storage life limit	Data portability right
Integrity and confidentiality	Right of opposition
Principle of responsibility	The right not to be affected by automated decision-making

GDPR sets strict conditions for cross-border data transmission, requiring enterprises to ensure that the data protection level of the receiving country meets EU standards before sending data out of the EU, or to ensure data security through other legal mechanisms such as standard contract terms and binding enterprise rules. The establishment of this legal system not only improves the personal data protection level of EU citizens, but also puts forward higher requirements for data compliance of global enterprises.

3.2. The data compliance status of Chinese new energy vehicle enterprises

Facing the strict data protection requirements of the European Union, China new energy automobile enterprises are still in the process of continuous exploration and adaptation in data compliance. These enterprises have realized the importance of data compliance, and started to strengthen the construction of internal data management system, enhance employees' awareness of data protection, and try to integrate international standards such as GDPR into their daily operations. Due to the differences between China and Europe in legal system, cultural background and market environment, China enterprises still face certain difficulties in understanding and applying EU data protection regulations. For example, in the specific operation of data collection, processing and transmission, how to balance user experience and data compliance requirements, and how to ensure the legality and security of cross-border data transmission are all problems that enterprises need to solve. The cost of data compliance is also a factor that enterprises have to consider, including legal advice, technical upgrading, compliance audit and other aspects of investment.

The challenges faced by China new energy automobile enterprises in EU data compliance are mainly reflected in the following aspects in Table 2:

Table 2 Challenges of China's new energy vehicle enterprises in EU data compliance

Challenge	Challenge content
Complexity of cross-border data transmission	Business needs lead to the need to transmit EU user data back to China for processing.
	Compliance issues involving cross-border data transmission
	A series of measures need to be taken to ensure the legality and security of data transmission.
Protection of users' privacy right	EU users attach great importance to personal privacy.
	GDPR and other laws and regulations must be strictly observed during data collection, processing and storage.
	Any violation of users' privacy rights may lead to serious legal consequences.
Balance between compliance cost and efficiency	Data compliance requires a lot of manpower, material resources and financial resources.
	Need to ensure compliance while maintaining efficient business operations.
	Enterprises need to find a balance between compliance and efficiency.
Dynamic changes of legal environment	EU data protection regulations are constantly updated and improved.
	Enterprises need to continuously pay attention to and adapt to these changes to ensure their compliance.
	Regulatory changes may bring new compliance requirements and increase the compliance costs and risks of enterprises.

On this basis, the specific data compliance challenges faced by the new energy automobile industry in the EU market are further analyzed, especially in combination with the particularity of industry operation practices (Table 3).

Table 3: Specific Data Compliance practices Challenges for China's new energy vehicle enterprises in the EU market

Specific Challenge	Detailed Challenge Content
Processing of Vehicle Owners' Personal Registration Information	Clearly inform the purpose and method of collection to ensure legality and transparency.
	Encrypt data to adhere to principles of minimization, accuracy, and confidentiality.
	Implement strict access controls and conduct regular audits to safeguard rights.
Data outside the vehicle, cabin data, location trajectory data, operation data	Legally inform the necessity of collection and anonymize data to protect privacy.
	Establish strict access controls and regularly clean up data to reduce risks.
	Assess sensitivity and conduct compliance reviews to ensure legal transfer.
	Sign agreements to clarify responsibilities and monitor processes to ensure security.
Compliance of Data Export	Determine legal basis, clarify purposes, recipients, and safeguard measures.
	Conduct risk assessments, formulate measures, and regularly review to ensure compliance.
Compliance Requirements for Data Destruction	Develop policies and procedures to ensure secure data destruction.
	Ensure traceability and verifiability, and conduct regular audits to mitigate risks.
Cross-border Compliance Issues	Involves data export, transfer, and cooperation; strengthen internal compliance systems.
	Participate in international standard-setting to enhance international influence.
	Strengthen international cooperation and consultation to enhance cross-border compliance capabilities.

4. The breakthrough strategy of China new energy automobile enterprises in EU data compliance

4.1. Strengthen the construction of internal compliance system

Facing the strict data protection requirements of the European Union, China new energy automobile enterprises need to build and improve the data compliance system from the inside first. This includes formulating a detailed data protection policy, clarifying the standard process of data collection, processing, storage and transmission, and ensuring that every operation complies with EU regulations such as GDPR. Enterprises should set up a special data protection officer or compliance team. They are responsible for supervising the implementation of data compliance, conducting regular compliance training and auditing, and enhancing the awareness and ability of all employees in data protection.

4.2. Integration of technological innovation and compliance

Technological innovation is an important means to meet the challenge of data compliance. China new energy automobile enterprises should actively develop and apply advanced data encryption technology, anonymous processing technology and access control technology to ensure the security and privacy of user data in the process of collection, processing and transmission. Enterprises can use artificial intelligence and big data technology to optimize data processing processes and improve compliance efficiency. Enterprises should also pay attention to the frontier dynamics of technology development, integrate new technologies into the compliance system in time, and promote compliance upgrade with technological innovation.

4.3. International cooperation and compliance consultation

China new energy automobile enterprises can actively seek cooperation with local enterprises, industry associations and research institutions in the European Union to jointly explore the best

practices of data compliance. Through cooperation, enterprises can deeply understand the data protection culture and legal environment in the EU market and gain valuable compliance experience and resources. Enterprises can also hire professional international legal consulting services to provide customized compliance solutions and legal consulting services for enterprises. These institutions can not only help enterprises to interpret and deal with the complicated EU data protection regulations, but also help enterprises to formulate specific compliance strategies in cross-border data transmission and user privacy protection.

4.4. Actively participate in the formulation and dialogue of international standards

Under the background of globalization, the formulation and dialogue of international standards are of great significance for promoting the internationalization of data compliance. China new energy automobile enterprises should actively participate in the formulation of international data protection standards and promote the formation of more fair, reasonable and transparent international data protection rules. Enterprises should also strengthen dialogue and exchanges with EU and other countries and regions, and conduct in-depth discussions and cooperation on data protection policies and cross-border data transmission. By actively participating in the formulation and dialogue of international standards, enterprises can enhance their international influence and create a more favorable external environment for their compliance operation in the global market.

4.5. Specific strategies for cross-border data compliance

(1) When obtaining data, it should be based on legitimate reasons, specific purposes and prior consent. The consent of the subject should be clear and specific, not a blanket consent. The data subject can change their mind at any time. For sensitive information, separate and explicit consent should be obtained and it cannot be assumed by default.

(2) Before cross-border data transfer, a data security assessment, standard contract, or reporting to the relevant department should be carried out. Especially when dealing with global application systems and cross-border access to servers, a thorough pre-assessment is necessary.

(3) Specific methods for cross-border data transfer: general exemptions, standard contracts, or SCC standard terms, signing standard machines, etc.; in addition, simultaneously seek other more effective cross-border compliance mechanisms.

5. Conclusions

In the process of China new energy automobile enterprises entering the EU market, data compliance has become a threshold that must be crossed. The main difficulties faced by these enterprises in EU data compliance include: insufficient understanding of the EU's complex and strict data protection legal system, compliance problems of cross-border data transmission, and the balance challenge of how to protect users' privacy while maintaining efficient business operation. In order to cope with these difficulties, enterprises have adopted a series of breakthrough strategies.

In terms of breakthrough strategy, enterprises first strengthened the construction of internal compliance system. By formulating detailed data protection policies, setting up special data protection teams, and conducting regular compliance training and auditing, enterprises have improved their overall compliance level. Secondly, the integration of technological innovation and compliance has become the key. By developing and applying advanced data processing technology, enterprises ensure the security and privacy of data, and at the same time improve compliance efficiency. The introduction of international cooperation and compliance consulting has provided valuable compliance experience and resources for enterprises, helping them to better adapt to the data protection requirements of the EU market. Actively participating in the formulation and dialogue of international standards has effectively enhanced the international influence of enterprises and contributed China's wisdom and strength to the improvement of global data protection rules.

It must be emphasized that the establishment of international cooperation and mutual trust is essential to promote the healthy development of the global new energy automobile industry. Under the background of globalization, enterprises from all countries should strengthen exchanges and cooperation, jointly meet global challenges such as data compliance, and promote the formation of an open, cooperative and win-win international environment. Only in this way can China's new energy

automobile enterprises achieve more stable and long-term development in the EU and even the global market.

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