Research on the Legislative Path of China's AI Risk Classification and Full-cycle Regulatory——Based on the Experience of the EU AI Act

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Abstract. As the world's first comprehensive AI regulatory legislation, the EU AI Act establishes a dynamic regulatory mechanism covering the whole chain of R&D, deployment, and application through a four-level classification system. In particular, it strictly regulates the implementation of algorithm impact assessment, external entity certification and ex post accountability for high-risk systems, providing an institutional model for the balance between technological innovation and risk prevention and control. China's current AI legislation is based on the *Data Security Law* and the *Personal Information Protection Law*. There are shortcomings in risk classification management, whole chain supervision, and international standard mutual recognition. Learn from the experience of the EU, and enlighten China to establish scenario risk assessment indicators in the fields of health care, finance, etc., support cross sectoral expert committees and dynamic list management, and consider combining the full cycle regulatory logic of the EU with China's regulatory sandbox mechanism, to improve the whole chain regulatory system from algorithm impact assessment to post responsibility inversion.

Keywords: EU AI Act, Risk classification, Full-cycle regulatory, China's AI legislation.

1. Introduction

The global development of AI technology has created the need for cross-border coordination of regulatory frameworks. As the world's first comprehensive legislation focusing on AI risk governance, the EU Artificial Intelligence Act (EU AI Act) adopts a risk-based grading and classification strategy to build a four-level regulatory system from "unacceptable risk" to "minimal risk" [1]. This model not only sets strict full-cycle regulatory obligations for high-risk AI systems but also provides a paradigm reference for global AI governance by establishing a "translation mechanism" between technical standards and legal rules, bridging the gap between technological complexity and legal texts.

As a leading country in the application of AI, China urgently needs to respond to two major challenges in improving its regulatory framework: on the one hand, the current documents are still vague in regulating core issues such as algorithm transparency and data privacy protection; on the other hand, the intensified competition in international technical standards puts pressure on Chinese companies' cross-border compliance. In this context, the "risk-adaptive regulation" concept of the EU AI Act is of great reference significance.

The core significance of this article lies in two aspects: first, through the comparison of Chinese and European legislation, it reveals the localization adaptation path of the risk classification mechanism and avoids the simple transplantation of EU experience [2]; Second, it proposes a "government-enterprise-public" collaborative governance framework to promote the transformation of China's AI legislation from passive response to forward-looking design.

Given the significance of this article, it is necessary to systematically sort out the existing research in academia on the empirical insights of the EU AI Act. Current research mainly presents three perspectives: feasibility of institutional transplantation [3], governance paradigm adaptability [4], and effectiveness of risk regulation [5]. Existing research generally focuses on the innovativeness of the EU "risk classification-full-cycle regulatory" paradigm, with particular attention to the governance

flexibility of the framework through the four-level classification structure of "unacceptable risk-minimal risk" and the dynamic calibration mechanism constructed in Chapter III for high-risk AI systems [1].

Existing research has not yet reached a consensus on three dimensions. First, should the risk assessment subject be led by the government or co-governed by the industry; Second, should the risk level adjustment cycle be fixed or event-driven; Third, the issue of the allocation of regulatory power in cross-border data flow scenarios.

Based on this, the core issue that this article intends to study is how to build a dynamic grading framework and full-cycle regulatory system with technical responsiveness. This article does not aim to explore the systematic construction at the macro-institutional design level, but focuses on the rule construction and operational path recommendations at the specific implementation level. If China's legislation is to establish transparency rules similar to those of the EU, it needs to establish a external entity verification mechanism and a dynamic spot check system. Existing research focuses on system design, but ignores the configuration of computing power and the construction of regulatory technology capabilities at the execution level.

The innovative value of this article lies in its breakthroughs in three dimensions: theoretical construction, practical path, and international rules. On the theoretical level, this article proposes a "dynamic adaptive governance" framework, embeds the "scenario sensitivity" theory into the risk classification standard, breaks through the limitations of the EU's static classification model, and designs an adaptation parameter system based on the differentiated characteristics of AI application scenarios such as medical and financial. At the practical level, it will build a "central-local-enterprise" collaborative governance system to strengthen the vertical coordination and horizontal coordination of regulatory resources. At the international rules level, it will propose a "risk pyramid" model with data sovereignty protection as the core, promote innovation in the mutual recognition mechanism between domestic and international standards, and help the diversified development of global governance rules for AI.

2. The Core Mechanism of the EU AI Act

2.1. Legislative Background and Evolution

The legislative background of the EU AI Act can be traced back to the booming development of AI technology in the past decade, especially the social changes caused by deep learning, big data, and algorithm innovation. With the continuous maturity and application of these technologies, there is a wide range of attention and discussion on issues such as privacy, data protection, intellectual property, security, and ethics. With the penetration of AI technology in the fields of medicine, transportation, public administration, etc., EU member states are increasingly in need of unified regulatory rules.

In 2018, the policy document The Future of Artificial Intelligence gathered consensus among member states for the first time, proposed a strategic orientation of "giving equal importance to development and regulation", and laid the foundation for subsequent legislation. Subsequently, between 2019 and 2020, the European Commission further issued a series of consultation documents and policy communications, clarifying the legislative objectives and main principles. On this basis, in April 2021, the European Commission formally proposed the draft of the Artificial Intelligence Act.

The exponential iteration of AI technology has reshaped the social production paradigm, but it has also given rise to systemic governance problems such as the lack of ethical norms, blurred boundaries of power and responsibility, and lagging regulatory frameworks. Against this background, the EU has started a legislative exploration process, and its evolutionary path has shown phased and systematic characteristics.

EU legislative practice shows that the construction of an AI regulatory system requires achieving a dynamic balance between technical characteristics, social risks, and governance costs. The EU's four-tier risk classification system has evolved in three stages: the 2018 Ethical Guidelines for

Artificial Intelligence first proposed the concept of risk classification, the 2020 White Paper on Artificial Intelligence refined the classification standards, and the 2023 EU AI Act legalized it into operational rules, reflecting the gradual transition of regulatory strategies from principled guidance to specific regulations.

Specifically, EU AI Act defines the boundaries of high-risk systems through the dual standards of technology application scenarios and impact dimensions, and includes eight major areas such as biometrics, critical infrastructure, and education and employment within the scope of mandatory compliance. Taking the medical diagnosis AI system as an example, in addition to passing the algorithm transparency review and clinical verification, a manual supervision mechanism must also be established. The 2023 amendment further strengthens full-cycle regulatory, adds training data traceability requirements for generative AI, and reflects the dynamic adaptation mechanism of legislation to technology iteration.

As the world's first comprehensive regulatory framework, the legislative practice of the EU AI Act presents the dual characteristics of technological governance and value balance.

2.2. Risk-based Supervision System

To study the reference value of the risk-grading regulatory mechanism of the EU AI Act, it is necessary to first clarify its definition criteria and classification logic for AI risks. EU legislation innovatively constructs a four-level risk spectrum and a differentiated full-cycle regulatory framework. This risk-oriented regulatory paradigm builds a dynamic balance between risk prevention and control and technology promotion by accurately identifying and systematically constraining the negative externalities of technology applications. The system divides AI risks into the following four categories based on the degree of social impact of technology applications, and constructs a differentiated full-cycle regulatory framework.

Unacceptable risks refer to technology applications that pose a direct threat to individual safety, social life, and basic rights. The legislation adopts a strict enumeration definition, specifically covering scenarios such as using subconsciousness to manipulate behavioral decisions and implementing targeted influence on vulnerable groups. EU AI Act imposes a comprehensive ban on such applications, supplemented by retroactive regulatory requirements, to form a preventive regulatory closed loop.

Secondly, high-risk applications focus on social foundations such as education, medical care, and employment, and their regulatory design emphasizes full-process compliance review. Taking medical AI as an example, legislation requires the establishment of penetrating supervision from algorithm verification to clinical application, and through mandatory quality certification and continuous monitoring mechanisms, ensure that technology applications do not deviate from public welfare goals [6].

Thirdly, the limited-risk applications mainly involve secondary risks caused by a lack of transparency, and the regulatory focus is on establishing interpretability standards. Legislation sets the bottom line requirements for information disclosure, forces technology providers to fulfill their obligation to explain algorithmic decisions, and ensures the substantive right of users to know and choose [7].

Finally, the minimal-risk applications adopt the principle of inclusive prudence and guide market self-discipline through industry self-regulation. This risk-stratified governance model not only avoids the suppression of technological innovation by excessive regulation but also reserves trial-and-error space for emerging applications [7].

The above-mentioned risk classification and differentiated regulatory mechanism reflect the EU's institutional balance between incentives for technological innovation and social risk prevention and control.

2.3. Full-cycle Regulatory of High-risk Systems

The full-cycle regulatory framework established by the EU AI Act provides an institutional paradigm for the governance of high-risk AI systems. Its innovation is reflected in the fact that the regulatory node is moved forward to the R&D and design stage, running through the entire process of deployment and application, and establishing a traceability responsibility system to form a binding regulatory closed loop. This full-cycle dynamic governance paradigm has important comparative law value for improving China's AI legal system.

At the R&D regulation level, the EU AI Act establishes the principle of preventive supervision and requires developers of high-risk AI systems to conduct full-cycle compliance reviews. According to the technical standards in Article 16 of the EU AI Act, developers must conduct algorithm ethical impact assessments to ensure that system design follows basic principles such as non-discrimination and transparency. At the same time, it is mandatory to establish traceable technical documents and solve the "technical black box" dilemma through the configuration of algorithm interpretation rights.

Supervision at the deployment stage highlights the characteristics of collaborative governance, and a compulsory certification procedure is established by the *General Product Safety Directive*. Article 43 stipulates that high-risk AI systems must obtain a external entity conformity assessment certificate, and market regulators conduct continuous monitoring through algorithm audits and other means. It is worth noting that the legislation creates the concept of "intended use environment" and requires that the deployment plan include a risk mitigation plan, reflecting adaptive regulatory thinking. In addition, the EU AI Act embeds CE certification and ISO technical standards into the compulsory certification procedure. The EU AI Act uses Article 43 to design a system for external entity conformity assessment, and achieves a dynamic balance between risk prevention and control and industrial compatibility through the legalization of technical standards.

The post-event accountability mechanism presents the characteristics of public-private law collaboration. A gradient administrative penalty system is established at the public law level, with a maximum fine of 30 million euros or 6% of global turnover for systemic risks; presumed fault liability is introduced at the private law level, and the difficulty of proving is reduced through the mandatory data retention obligation in Article 69. The systemic event reporting system created in Article 71 of the EU AI Act is more innovative, requiring operators to establish an algorithm failure database to provide data support for the iteration of regulatory rules.

3. The Current Status and Challenges of China's AI Legislation

3.1. Current Legal Framework

Against the backdrop of the reconstruction of the global digital governance landscape, the coordinated implementation of the *Data Security Law of the People's Republic of China* and the *Personal Information Protection Law of the People's Republic of China* marks the transformation of the data governance paradigm from decentralized regulation to systematic governance. The two laws have formed a data governance normative hierarchy with Chinese characteristics by constructing the triple protection dimensions of "domestic security-public interests-individual rights", providing an institutional sample for the construction of the rule of law in the digital economy era. In addition, the promulgation of the *Interim Measures for the Administration of Generative Artificial Intelligence Services* marks the in-depth expansion of China's algorithm governance system into the field of generative AI. It is the first time that a full-cycle regulatory framework for generative AI has been systematically constructed, and through the closed-loop design of "technical filing-data traceability-content review-accountability mechanism", it contributes a Chinese solution to global algorithm governance.

In terms of risk classification management, China's current legislative system has certain institutional shortcomings. Although the *Data Security Law* has established a data classification and classification protection system to achieve differentiated regulation of core data, important data, and

general data, it still needs to be improved in terms of the refined construction of risk assessment standards and dynamic adjustment mechanisms.

In terms of full-cycle regulatory, China's current legislation has formed a relatively systematic system design. The *Data Security Law* establishes a data security review system to implement penetrating supervision on data processing activities that affect or may affect domestic security; at the same time, it establishes a data export control system to maintain data sovereignty through a two-tier mechanism design of negative lists and white lists. The *Personal Information Protection Law* achieves an upgrade of the governance paradigm through a three-element normative structure of principles, rights, and obligations. That is, at the normative level, it innovatively introduces scenario-based rules such as "separate consent" and "right of withdrawal"; at the implementation mechanism level, Article 58 creates a clause requiring large platforms which involving a huge number of users to establish independent supervisory agencies; in the field of cross-border flow regulation, Article 38 constructs a triple compliance mechanism of "security assessment-certification-standard contract".

The coordinated implementation of the two laws has formed the basic governance framework for data governance. The *Data Security Law* focuses on the macro-governance dimension of domestic security protection, while the *Personal Information Protection Law* focuses on the micro-regulatory level of individual rights relief.

3.2. Existing Problems in China's AI legislation

The risk classification and full-cycle regulatory model of the EU AI Act provide important institutional references and theoretical inspiration for China's AI legislation. In contrast, China's current legislation still has room for improvement in terms of the refinement of risk governance and the integrity of the regulatory system, which is specifically reflected in the dual challenges of institutional transplantation.

Firstly, as a core institutional tool to address the challenges of AI regulation, the risk classification management mechanism has become the most prominent shortcoming in China's current legislative system due to its rule design defects. The EU achieves differentiated regulation through four risk classifications, providing a model for balancing security and innovation. However, when China draws on this mechanism, it faces institutional barriers to the mutual recognition of domestic standards systems and international standards: on the one hand, the existing standards system is not international enough, making it difficult to connect with international rules, which restricts the cross-border circulation of AI products and services.

Secondly, a full-cycle regulatory framework is another core dimension to ensure the safety and reliability of AI systems. The EU's full-cycle regulatory framework achieves three-dimensional governance through the integration of multiple links. In this field, although China has established a preliminary legislative framework for AI supervision, it still faces challenges. In addition, the application and recognition mechanism of international standards is not yet mature, and technical barriers hinder the cross-border coordination and mutual recognition of regulatory rules.

Therefore, the existing problems of China's AI legislation are concentrated in the "double barriers" in the process of system transplantation, namely the lack of adaptability between the domestic standard system and international rules, and the lag in the construction of the international regulatory mutual recognition mechanism. These two major obstacles restrict the effective implementation of risk classification and full-cycle regulatory compliance, and need to be focused on at the legislative level.

4. The EU AI Act's Implications for China's AI Legislation

4.1. Analysis of the Legislative Advantages of the EU AI Act

The EU AI Act takes the "ban list" as the institutional foundation, and establishes absolute prohibition norms for AI applications that infringe on human dignity and endanger democratic systems. Its core legislative advantage is more reflected in the innovative design of the regulatory

mechanism, that is, through a four-level regulatory system to build a full-cycle regulatory framework, with the precautionary principle as the legal basis, to achieve front-end prevention and process control of technological risks. The four-level regulatory system created by the EU AI Act divides AI applications into four categories: unacceptable risk, high risk, limited risk, and minimal risk, and constructs a differentiated regulatory matrix, providing an institutional model for precise risk prevention and control.

The scientific nature of this classification mechanism lies in the fact that it achieves full-cycle penetrating regulatory control from R&D, deployment to application through the dynamic matching of risk level and supervision intensity. For example, a pre-certification system is implemented for "high-risk" applications, and industry self-discipline rules are adopted for "limited risk" applications, forming a hierarchical governance structure of "rigid constraints-flexible guidance". This refined supervision model provides a typical reference for subsequent system comparisons.

Different from the EU's "risk prevention first" concept, China's current "negative list" system focuses more on stimulating market vitality. Its system design follows the market access negative list management model, and allows market players to make independent decisions under the law, except for the prohibited or restricted items listed in the list. This "principle permission & exception prohibition" model not only releases the vitality of technological innovation, but also requires enterprises to actively identify and prevent technological ethical risks during the market access stage, reflecting the governance logic of "development first, bottom line control".

Through the comparison of normative construction dimensions, it can be seen that both list systems use the negative list model to define the risk boundaries of technology applications and establish the legal bottom line of AI governance through behavioral prohibition norms. Their common characteristics are reflected in that the compliance level of technology applications is improved through the risk classification mechanism, and the regulatory effectiveness is optimized by using list-based legislation, to ultimately achieve a dynamic balance between technological innovation and rights protection. Based on commonality, the difference between the two is mainly reflected in the regulatory logic dimension, that is, the EU pursues a comprehensive ex ante regulatory model of "principle prohibition & exception permission", while China adheres to the inclusive and prudent regulatory strategy of "principle permission & exception prohibition". This difference essentially reflects the difference in the legal concept between the continental legal system and the socialist legal system with Chinese characteristics in terms of risk perception dimensions and the choice of regulatory intervention timing.

Institutional comparative studies show that China's AI legislation needs to be based on a normative stance of technological neutrality and build a rule system that is both internationally compatible and locally adaptable to achieve a paradigmatic unity of security and development values. The theoretical implication of this conclusion is that the institutional effectiveness of the negative list model depends on the dynamic balance between risk prevention and control and innovation incentives. Based on the normative intent of institutional comparison, China's AI legislation can promote the localization of the EU experience by promoting the systematic connection between technical standards and legal norms, building a dynamic balance mechanism between rigid bans and flexible supervision, and promoting the compatibility of international rules and domestic governance. The above path provides practical guidance for building an institutional framework that has both risk prevention and control effectiveness and technology promotion functions.

4.2. Analysis of the Optimization Path of China's AI Legislation

4.2.1 Risk Classification Management

China's AI legislation can refer to the EU's risk spectrum classification method, but it needs to be localized. Firstly, build a catalog of high-risk applications that suits domestic conditions, and set gradient compliance requirements in dimensions such as data security and algorithm ethics; second, for limited risk scenarios, it is advisable to adopt a soft law governance path of "standard first & certification guidance"; thirdly, explore the regulatory sandbox mechanism in the lowest risk

applications, and promote the benign interaction between regulation and innovation through experimental legislation. The transplantation of this classification governance framework requires the simultaneous improvement of three supporting systems: establishing a cross-departmental risk assessment expert committee, formulating a dynamically adjusted risk list management mechanism, and building a quantitative indicator system for algorithm impact assessment. Through institutional innovation, the governance efficiency can be improved, and ultimately a regulatory system with both safety bottom line and development flexibility can be formed, promoting the paradigm shift of AI governance from passive response to active leadership.

Regarding full-cycle regulatory of high-risk systems, China's legislation can focus on transplanting three mechanisms. First, build a hierarchical assessment system for algorithm impact in the R&D stage; second, refer to the EU conformity assessment procedure and add an AI special certification module to the *Measures for Cybersecurity Review (2021)*; third, improve Article 69 of the *Personal Information Protection Law* and establish a rule for the reversal of the burden of proof of AI damage. It should be noted that the system transplantation needs to be adaptively transformed, such as incorporating the classification and grading catalog of the Office of the Central Leading Group for Cyberspace Affairs into the certification procedure to achieve an organic connection between foreign experience and the local regulatory framework. By building a full-cycle regulatory system of "preventive review-cooperative certification-traceability accountability", the regulatory accuracy of AI governance can be effectively improved. This system design not only conforms to the objective law of the evolution of technological risks, achieves a dynamic balance between security value and innovation needs, and contributes oriental wisdom to global AI governance.

In terms of standardization and legal interoperability mechanisms, China's AI legislation can focus on the logic of three systems. Firstly, the quantitative indicator system for risk classification. The EU adopted the matrix assessment method of "scope of impact & degree of harm" when listing high-risk applications through Chapter III. This technical path can be adapted to the *Personal Information Protection Law* to build a localized risk classification catalog. Secondly, node control technology for full-cycle regulatory. The EU embeds algorithm impact assessment (AIA) in the R&D stage, sets up CE certification procedures in the deployment stage, and implements continuous monitoring in the operation stage. This three-stage regulatory framework of "prevention-control-relief" can connect with the existing institutional resources of the *Measures for Cybersecurity Review (2021)*. Thirdly, the collaborative governance mechanism for responsibility allocation. The "joint liability of digital service providers" rules established in Article 26 of the EU have the possibility of institutional coupling with Article 32 of the *Data Security Law*.

4.2.2 Full-cycle Regulatory Model

In the context of comparative law on AI legislation, China's reference to the EU AI Act needs to focus on the feasibility of institutional transplantation of the full-cycle regulatory model, especially the coordinated adaptation path between its post-monitoring mechanism and China's regulatory sandbox system. As the core framework for AI safety governance, the value of full-cycle regulatory lies in ensuring system reliability through full life cycle management. The EU AI Act has established a full-cycle regulatory system covering design and development, production and marketing, application services, and even decommissioning and disposal, requiring regulatory entities to establish a closed-loop governance mechanism including risk assessment, standard creation, compliance certification, and market supervision.

As the institutional pillar of the EU regulatory framework, the post-event monitoring mechanism established by the EU AI Act requires high-risk AI system providers to build a full-cycle regulatory framework and imposes mandatory reporting obligations to the competent authorities in the event of compliance deviations or systemic failures. The institutional innovation of this mechanism lies in achieving continuous regulatory coverage of AI applications through the construction of a dynamic risk control closed loop. China's AI regulatory system has shown dynamic evolution characteristics in response to technological iteration. The Regulatory Sandbox, an innovative governance tool first developed and deployed by the Financial Conduct Authority in 2015, has the core idea of achieving

a balance between innovation and regulation by building a limited exemption test field. It has institutional characteristics such as real-time evaluation and controllable risks. By building a limited exemption test field, it achieves a balance between technological innovation and regulatory constraints under a risk-controllable institutional framework [8]. This "regulatory experimentalism" path provides a progressive governance solution for the assessment of the safety threshold of AI systems.

From a comparative law perspective, the EU ex-post monitoring mechanism and China's regulatory sandbox present a significant phased complementary relationship: the former focuses on continuous supervision of the entire product cycle, while the latter focuses on risk prevention and control management in the R&D stage. This institutional difference provides an institutional space for integrating innovation in the construction of a stepped regulatory framework. In terms of institutional coordination, the EU ex-post monitoring mechanism can serve as a standardized reference system for China's regulatory sandbox. Specifically, it can be designed as follows: requiring sandbox test entities to preset ex-post monitoring plans that meet EU standards and include them in the core evaluation indicators of product safety certification; at the same time, transforming the mechanism into an effectiveness evaluation tool for regulatory agencies to build a compliance verification system covering the full-cycle of AI products. At the level of corporate compliance governance, the EU experience provides an institutional mirror for the improvement of the internal control mechanism of Chinese AI companies. By internalizing the ex-post monitoring standards, companies can build a dual-track compliance architecture - following the requirements of the regulatory sandbox in the R&D stage and implementing continuous monitoring specifications in the application stage, thereby achieving the coordinated unification of innovation incentives and risk prevention and control.

The theory of institutional transplantation shows that the EU's ex-post monitoring mechanism and China's regulatory sandbox have significant complementary effects. By building a composite regulatory system of "front-end sandbox testing & back-end continuous monitoring", it can not only improve the institutional completeness of China's AI legislation but also enhance the social credibility of technology applications, thereby promoting the steady development of the AI industry. It is worth noting that the localization practice of the full-chain regulatory model still faces institutional barriers to domestic standards and international mutual recognition - on the one hand, the internationalization process of China's AI standard system needs to be accelerated to achieve substantive alignment with international standards and promote cross-border technology and service flows; on the other hand, it is necessary to promote the localization and application of international standards under the framework of a balance between security and innovation to eliminate technical barriers in international trade.

In response to the above-mentioned institutional barriers, we can build a response strategy. Firstly, we should deeply participate in the formulation of international AI standards and promote the international transformation of Chinese AI standards through institutionalized cooperation with international standardization organizations such as ISO; secondly, we should establish a mechanism for mutual recognition of domestic and foreign standards and achieve effective connection of the standard system through technical docking, standard comparison and other paths; third, we should strengthen communication and coordination with major trading partners and international organizations, build an open and inclusive international cooperation mechanism, and create an institutional environment for the internationalization of Chinese AI products.

The implementation logic of full-cycle regulatory lies in the dynamic control of the entire process of AI product development, testing, listing, application and abandonment, covering three dimensions: ex ante risk assessment, in-process continuous monitoring and post-event responsibility tracing: ex ante assessment ensures product safety through comprehensive risk assessment before market access; in-process monitoring relies on continuous performance tracking of application scenarios to achieve risk warning; post-event accountability forms a governance closed loop through security incident investigation, responsibility division and illegal punishment. This regulatory model can not only

ensure product safety and reliability, but also promote technological iteration and upgrading through feedback mechanisms. The construction of a full-cycle regulatory system helps to form a full-cycle regulatory closed loop from research and development to market, application, and recycling, which is of decisive significance to enhancing the public's trust in AI products. Based on the localization of EU experience, China can build an institutional ecology for the healthy development of AI in a balance between innovation and security. The risk classification and full-cycle regulatory model established by the EU AI Act provides important institutional inspiration for China's AI legislation. Through the localization of this model, my country can build an AI legal framework that fits the domestic conditions, and achieve the multi-governance goals of protecting public interests and maintaining social order while promoting technological innovation.

5. Conclusion

China can build a regulatory system that suits its domestic conditions based on the experience of the EU and in combination with the characteristics of local technological development and industrial ecology. Firstly, a scientific risk assessment system should be established to systematically analyze the potential risks of AI applications and clarify the classification standards and differentiated regulatory rules; secondly, a regulatory mechanism covering all aspects of design, development, circulation, and use should be established to refine the main responsibilities of each stage, such as strengthening product compliance management through the CE marking equivalence system and improving regulatory transparency through database construction. In the process of system transplantation, it is necessary to focus on the localization of EU rules, and while preventing the risk of technology abuse, reserve space for technological innovation and industrial development through flexible regulatory design, and ultimately form a legal environment that both protects the public interest and stimulates innovation vitality, and promotes the safe and sustainable development of the AI industry.

Future research needs to focus on systematically evaluating the evolution trends and risk characteristics of AI technology at home and abroad, and on this basis, build a legal regulatory framework that is both locally adaptable and internationally compatible. Specifically, it is necessary to promote in-depth interaction among the government, scientific research institutions, industry, and the public in legislative participation through interdisciplinary research and multi-subject collaboration, and build a technology development ecosystem that is security-oriented, transparent, traceable, and efficiency-first based on policy tool innovation. In addition, given the dynamic changes in the iteration speed of AI technology and application scenarios, it is necessary to establish a normalized regulatory evaluation and update mechanism, respond to new governance needs in technological innovation through adaptive adjustments to legal rules, and ultimately lay an institutional foundation for the long-term development of China's AI industry in the balance between risk prevention and control and innovation incentives.

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