Semantics, Thematic Characteristics, and Evolution of China's Artificial Intelligence Policy: A Quantitative Analysis of Policy Texts (Postprint)

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Abstract

[Purpose/Significance] Policies, as a special factor, play a guiding, regulating, and constraining role in the development of China's artificial intelligence industry. This study investigates the current status of policy promulgation and proposes recommendations to foster the healthy development of artificial intelligence in China. [Method/Process] This research selects 66 representative national and provincial/ministerial-level artificial intelligence policy texts in China as study objects. Through BERT-Based hybrid LDA model modeling and semantic quantitative analysis methods, it conducts a comprehensive investigation from both internal semantic and external attribute perspectives, focusing on policy semantics, thematic characteristics, and their evolution. [Results/Conclusion] Currently, China's artificial intelligence policy instruments are primarily demand-oriented, with policy themes focusing on promoting domain integration while emphasizing basic technology research and practical achievement transformation. The study proposes that China should establish a coordinated mechanism for the overall planning of artificial intelligence policies, explore new models and pathways for practical benefit transformation while emphasizing artificial intelligence risk governance, and continuously deepen policies regarding international cooperation and competition.

Full Text

Study on Semantics, Thematic Features and Evolution of Artificial Intelligence Policies in China: Quantitative Analysis Based on Policy Texts

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Abstract: [Purpose/significance] As a special factor, policy plays a guiding, regulating, and constraining role in the development of China's AI industry. This study explores the current status of policy introduction and proposes recommendations to promote the healthy development of AI in China. [Method/process] We selected 66 representative national and provincial-level AI policy texts as our research objects and employed BERT-Based hybrid LDA modeling and semantic quantitative analysis methods to comprehensively investigate both internal semantics and external attributes in terms of policy semantics, thematic features, and their evolution. [Result/conclusion] Currently, China's AI policy tools are primarily demand-oriented, with policy themes focusing on promoting domain integration while emphasizing basic technology research and practical 成果转化. We propose that China needs to establish a coordinating mechanism for the overall planning of AI policies, explore new models and pathways for transforming practical benefits while emphasizing AI risk governance, and continuously deepen international cooperation and competition.

Keywords: artificial intelligence; policy text analysis; topic feature analysis; semantic quantitative analysis; LDA modeling; BERT-Based hybrid modeling

1 Literature Review

The momentum of AI development is currently robust, and as a crucial element, it synergizes with various fields and industries. Policies and regulations have consistently played a vital role in direction-setting and resource allocation in its development. However, theoretical research on AI policies lags slightly behind, with relatively few achievements. As of April 8, 2023, a full-database search in CNKI using "policy text analysis" as the subject term yielded 2,786 results, while a search using "policy analysis" returned as many as 45,400 results. In contrast, a precise search using the professional search expression SU=(SU='artificial intelligence' AND SU='policy analysis') OR SU=(SU='artificial intelligence' AND SU='policy text analysis') across the entire database produced only 55 results.

Existing AI policy research primarily unfolds from three perspectives: content quantification, bibliometrics, and semantic analysis. In terms of content quantification, most studies proceed from policy tool theory by encoding policy texts and constructing multidimensional frameworks for analysis. For instance, Lü Wenjing et al. [4] and Mao Zijun et al. [3] built two-dimensional analysis frameworks based on policy tools and the innovation value chain, respectively encoding policy texts for content analysis units and combining them with the PMC index model to measure and analyze the current status and existing problems in China's AI industry policy formulation. Tang Zhiwei et al. [5] employed binary logistic regression methods to compare and analyze AI industry policies between

China and the United States in recent years from three dimensions—policy objectives, tools, and implementation—and proposed policy recommendations. In bibliometrics, research mainly focuses on quantitative analysis of external attributes of AI policies. For example, Jin Shuanglong et al. [6] conducted quantitative analysis on the publication quantity, timing, and effectiveness of AI policies, providing a data foundation for subsequent policy comparison and evaluation. Shan Xiaohong et al. [7] analyzed changes in economically concentrated and developed regions before and after the introduction of China's national representative AI policies by quantifying policy types, quantities, and subject attributes. Regarding semantic analysis, studies often combine data mining and natural language processing methods to explore textual connotations. Yuan Ye et al. [8] selected text mining methods, using Python, Gephi, and other text mining and graph analysis tools to conduct quantitative analysis of China's AI planning. Zhang Tao et al. [9] compared the similarity of AI policy texts across Chinese provinces, identifying differences in regional policy formulation and proposing recommendations. Song Wei et al. [10] conducted cluster analysis and social semantic network analysis on local AI policies in China, obtaining their thematic clustering and distribution characteristics.

Currently, China's AI policy research is in its initial stage [11], with relatively thin achievements and similar research perspectives and methods. Some studies focus only on national-level policies or analyze policy texts from a single province or city, lacking overall representativeness in their findings, and the research on policy tool types and effectiveness frameworks requires further supplementation and enrichment. The innovation of this study lies in using the BERT-Based hybrid LDA model to mine text topics, which effectively controls the weight of BERT's semantic information and LDA's thematic information to discover potential text topics, better exploring the thematic evolution process of AI policy texts. It comprehensively investigates policy semantics, thematic features, and their evolution from both internal semantics and external attributes, selecting nearly 500,000 characters of representative AI policy text corpora at national and provincial levels as research objects, making the research scope more comprehensive and the research objects more representative.

2.1 Research Framework and Methods

Referring to scholars' dimensions for policy text analysis [12-14], policy internal semantics refers to in-depth exploration of text content from the policy tool perspective, while policy external attributes include policy keywords, issuance time, and institutions. This study analyzes China's AI policies from both "internal semantics" and "external attributes" through policy semantics, thematic features, and their evolution. Regarding internal semantics, analysis combines policy tool types and policy effectiveness dimensions. The structure of policy tool types reflects policymakers' value preferences and development model orientation, and their quantitative exploration can more comprehensively understand the value or interest attributes embedded in AI policies [15]. Quantifying policy effectiveness demonstrates policy authority and the importance attached by policy-making bodies at all levels to AI domain development. Two-dimensional analysis of policy tool types and policy effectiveness enables more thorough understanding of policymakers' value orientation and future development trends. Regarding external attributes, the core is policy thematic feature and evolution analysis, implemented through training and outputting via the BERT-Based hybrid LDA model, illustrating highly concerned policies and their changes along with the government's internal logic in leading a domain's development [16], helping decision-makers track innovation and knowledge flow [17]. Through analysis of both "internal semantics" and "external attributes," a more comprehensive understanding of China's AI policy introduction and guidance direction will be achieved. The analytical framework of this study is shown in Figure 1 [Figure 1: see original paper].

2.2 Data Sources and Text Selection

Considering data integrity and retrieval system usability, this study's data primarily originates from the PKULAW database (http://www.pkulaw.cn/), supplemented by collecting policy text data from official websites of the Ministry of Industry and Information Technology, Ministry of Science and Technology, Ministry of Transport, National Development and Reform Commission, National Health Commission, and other state institutions. The search process used "artificial intelligence" as the keyword for precise searches of synonymous terms. The retrieval date was April 8, 2023. The search results showed 100 central regulations and departmental policy provisions related to "artificial intelligence," of which 97 are currently effective.

To ensure representativeness and timeliness, policy texts were selected according to the following criteria: (1) Prioritize national-level effective policy texts, focusing on those issued by the State Council and its subordinate ministries and commissions, with some representative provincial and municipal documents as supplements; (2) Focus on policy texts issued in recent years, specifically from 2015 to 2023; (3) Select documents closely related to AI development, including those directly targeting AI development (i.e., with "artificial intelligence" in the title) and those with strongly relevant content; (4) Exclude expired policy texts. Finally, 66 AI policy samples with the strongest relevance were compiled, comprising nearly 500,000 characters of full text as the research corpus.

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3 Internal Semantic Analysis of Artificial Intelligence Policies

Based on the issuance timing of major AI policy documents in China, AI policy development can be divided into three phases: exploratory development phase (2017 and earlier, hereinafter T1), state-guided phase (2018-2019, hereinafter

T2), and stable development phase (2020 and later, hereinafter T3). After preliminary screening, the three phases contain 5, 19, and 42 policy texts respectively. The T1 period lacked overall guidance and support from national-level macro policies, with only sporadic policies issued by industries and departments, characterized by small quantity, dispersion, and limited content coverage. During the T2 period, with the launch of national AI action plans and development plans, attention to AI industry development increased significantly, with notable improvements in both policy quantity and effectiveness. In the T3 period, policies gradually intensified intervention in AI industry development, with high-effectiveness policies such as industry standards and specifications being issued successively, and low-effectiveness policies such as specific implementation regulations being steadily implemented.

3.1 Policy Tool Dimension Policy tool theory categorizes policy tools into three types from the perspective of tool function: supply-side, demand-side, and environment-side. Balanced use of these three types ensures policy rationality and scientificity [18]. Supply-side policy tools play a direct promoting role; demand-side policy tools stimulate domestic demand and play a pulling role; environment-side policy tools exert indirect influence. The roles of supply-side, demand-side, and environment-side policy tools in China's AI development are shown in Figure 2 [Figure 2: see original paper]. Supply-side policy tools refer to government support for AI industry talent, technology, and direct financial investment, as well as information technology support and resource integration to assist industry development, representing important manifestations of policy support for AI development. Demand-side policy tools stimulate AI market demand through various regulations, actively guide pilot projects, and provide financial support to pull rapid industry development. Environment-side policy tools supervise AI construction and development, create favorable development environments, and indirectly promote its development. Notably, policy type classification cannot rely solely on policy titles. For example, the two important guiding documents "New Generation Artificial Intelligence Development Plan" and "Three-Year Action Plan for Promoting New Generation Artificial Intelligence Industry Development (2018-2020)," although their titles belong to demand-side policies, cover content across supply-side, demand-side, and environment-side aspects, serving as top-level overall planning and guidance policies. Statistical classification of tool types for AI policy text content (including composite policies) across T1, T2, and T3 periods yields the results shown in Figure 3 [Figure 3: see original paper].

The characteristics of policy tool type changes across the three phases from T1 to T3 are evident. The overall quantity of AI policies and each type of policy tool has increased significantly, demonstrating China's continuously growing emphasis on AI domain development at the macro level and expanding coverage areas. In terms of types, China has shifted from primarily supply-side AI policy tools to primarily demand-side policy tools. T1 and T2 were in the preliminary exploration and state-guided phases, relying on issuing supply-side policies for promotion. After entering the T3 period, the government correspondingly increased demand-side policy issuance to stimulate the internal vitality of cross-domain integrated development of AI and multiple fields, mobilizing synergistic development momentum. Within the continuously positive development environment, environment-side policy tools also increased synchronously, laying an environmental support foundation for future sound development.

3.2 Policy Effectiveness Dimension According to the "Regulations on the Handling of Official Documents of Party and Government Organs" (General Office [2012] No. 14) [19] and combining characteristics of China's AI policy texts, this study quantifies policy effectiveness into five categories, with results shown in Table 1 .

Based on the above grading scores combined with the previously defined phase divisions, the quantified scores for China's AI policy effectiveness across T1, T2, and T3 periods are 11, 29, and 63 points respectively. The year 2017 marks the turning point from T1 to T2, representing a critical year for China's AI development. Since AI was first incorporated into national development planning in 2017, the quantified scores for policy effectiveness began to increase significantly. The quantified scores across the three phases show overall steady growth, indicating rising national attention to AI industry development and presenting a favorable development trend overall.

China's AI policy-issuing units cover national and provincial-level government units across extensive domains. Within this study's timeframe, multi-subject collaborative policy formulation at the national level totaled 12 items, with the National Development and Reform Commission and Ministry of Industry and Information Technology participating more frequently. The joint subject combination mostly follows the pattern of "Provincial/Municipal People's Government + Informatization Committee + X." The trend of expanding departmental domains, increasing quantities, and strengthening intensity in policy issuance demonstrates AI industry's positive attempts at multi-domain integration, achieving breakthroughs in the "AI + old industry = new industry" model. Policy formulation primarily centers on the State Council and its subordinate departments, with other national government organizations and provincial/municipal departments providing close cooperation to supplement and perfect the overall architecture of AI policy-issuing units, achieving top-level planning, lower-level deployment, and bottom-level implementation with complementary levels and functions.

3.3 Two-Dimensional Quantitative Analysis of Policy Tools and Effectiveness Extracted two-dimensional quantitative data for China's AI policy tools and effectiveness from 2017-2021 is presented in Figure 4 [Figure 4: see original paper]. The years 2017 and 2019, as transition years between phases T1 and T2, show distinct phase characteristics. In 2017, the State Council issued the "New Generation Artificial Intelligence Development Plan" and the

Ministry of Industry and Information Technology issued the "Three-Year Action Plan for Promoting New Generation Artificial Intelligence Industry Development (2018-2020)," two landmark policies representing the first national-level policy directives in China's AI domain, marking China's entry into the T2 phase. After 2017, the quantity of supply-side policies increased significantly, with governments at all levels actively promoting AI development in response to national directives, and policy effectiveness also improved accordingly. After 2019, the national level successively issued the "Guidelines for the Construction of National New Generation Artificial Intelligence Innovation Development Pilot Zones" and the "Guidelines for the Construction of National New Generation Artificial Intelligence Standard System," two documents belonging to supply-side and demand-side policy types, marking China's transition from the state-guided phase (T2) to the T3 phase. During this phase, the number of supply-side policies issued decreased slightly, while demand-side policies grew steadily and became the main policy tool type. Meanwhile, policy effectiveness scores further jumped, demonstrating that governments at all levels are continuously deepening their advancement in the AI domain, with clearer policy orientation.

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4 External Attribute Analysis of Artificial Intelligence Policies

This study employs the BERT-Based hybrid LDA model for external attribute analysis of China's AI policy texts, including the following processes: text data preprocessing and dataset construction, BERT-Based hybrid LDA model training, and model evaluation and optimization, as shown in Figure 5 [Figure 5: see original paper]. It should be noted that the BERT-Based hybrid LDA model mentioned here refers to the mixed use of BERT model and LDA model, which differs from the BERT-LDA model. The key difference is that the BERT-Based hybrid LDA model can customize weights according to different requirements for semantic information and thematic information in text classification. The BERT-Based hybrid LDA model can fully utilize BERT's semantic information and LDA's thematic information, helping to improve text classification effectiveness, particularly demonstrating advantages for the characteristics of AI policy text research with small-scale corpora, long texts, and inconsistent text classification systems.

4.1 Text Vectorization Representation and Model Parameter Optimization This study uses weighted averaging to combine the BERT-Based model with LDA. The detailed steps for text vectorization representation in the BERT-Based hybrid LDA model are as follows: (1) BERT-Based text representation: Assume the BERT-Based model represents each text as a vector with dimension d, denoted as BERT-Based_{vector}, i.e., BERT-Based_{vector} = [v_1, v_2, ..., v_d]. (2) LDA topic distribution: Assume the LDA model represents each text as an n-dimensional topic distribution vector, denoted as

LDA_{distribution}, i.e., LDA_{distribution} = [p_1, p_2, …, p_n], where p_i represents the probability of the text in topic i. (3) Text vectorization representation: Using weighted averaging to assign different weights to the BERT-Based vector and LDA topic distribution, where the weight for the BERT-Based vector is α and the weight for LDA topic distribution is β, the text vectorization representation is Mixed_{vector} = $\alpha\times$BERT-Based_{vector} + $\beta\times$LDA_{distribution}. Mixed_{vector} is a vector with dimension d+n.

In the BERT-Based hybrid LDA model, BERT's semantic information and LDA's thematic information can influence AI text classification to varying degrees through parameter adjustment. By observing three major evaluation metrics—precision (P-value), recall (R-value), and F1-value—obtained through continuous experimentation on the text corpus, the optimal parameter solution for this study's BERT-Based hybrid LDA model was ultimately determined as $\alpha = 0.78$ and $\beta = 0.22$. At this point, the F1-value, precision, and recall reached 91.12%, 91.11%, and 90.92% respectively, meaning the weighted text vectorization representation is Mixed_{vector} = 0.78×[v_1, v_2, …, v_d] + 0.22×[p_1, p_2, …, p_n]. This indicates that in China's AI policy text classification process, semantic information contributes more significantly, while the unsupervised LDA model accounts for a smaller proportion. This approach fully utilizes BERT's semantic information while considering LDA's thematic information, making text features more comprehensive and rich.

4.2 Thematic Feature Analysis of Artificial Intelligence Policy Texts
Based on the above experiments and model parameter tuning, perplexity was used to determine the optimal number of topics for the T1 to T3 periods, selecting the topic number with the lowest perplexity as the topic quantity for the BERT-Based hybrid LDA model. From Figure 6 [Figure 6: see original paper], it can be concluded that the topic numbers corresponding to the lowest perplexity for the T1 to T3 periods are 3, 7, and 14 respectively.

During the T1 period, AI was just emerging in China, with various AI projects springing up. The thematic content is shown in Table 2 , mainly including: Topic0—national support for AI project development; Topic1—focus on AI industry development; and Topic2—technology development and platform construction.

During the T2 period, AI developed rapidly in China and was integrated into various industry sectors. The thematic content is shown in Table 3 . Topic0's high-frequency keywords reflect China's overall planning for AI development and construction through policies. Topics1 and Topic6 highlight T2 period characteristics, showing that China's AI during the rapid development phase emphasized innovative development of basic technologies and conscious service application construction. Topics2 and Topic4 indicate that during this period, China established seminars and project application support for AI development, promoted intellectual property development in this field, and emphasized protection of intellectual achievements in AI product inventions. Topics3 and Topic5 keywords show that during this phase, AI, as an auxiliary technology, deeply integrated with the development of the Internet of Things and medical fields. Compared with the T1 period, T2 period themes were more specific, AI application fields were richer, and development involved more diverse subjects.

The thematic content of the T3 period is shown in Table 4 . Notable themes include Topic1 and Topic4 on the medical industry and intellectual property definition, with industry standards and specifications beginning to emerge, benefiting AI domain development. Topics3, Topic5, Topic7, and Topic10 highlight AI talent cultivation, fully emphasizing the driving role of human subjective initiative in AI domain development. Topics7 and Topic12 enhance social attention to AI and incentivize development emphasis and talent cultivation in related fields through hosting various AI-related competitions and publicity activities. Topics0, Topic2, Topic6, Topic8, Topic9, Topic11, and Topic13 repeatedly mention multi-scenario applications of AI. Notably, Topic2 first addresses ethical issues in AI applications for elderly-friendly services, which is currently one of the focal issues in global AI development.

4.3 Thematic Evolution Analysis of Artificial Intelligence Policy Texts

This study further investigates the evolution process of China's AI policy themes by calculating cosine similarity between themes in adjacent periods, where higher cosine similarity indicates greater similarity between two themes. By calculating the average similarity between adjacent period themes as a threshold, similarities exceeding this threshold are considered to indicate correlation between themes, and results are filtered accordingly. The final thematic evolution results are shown in Figure 7 [Figure 7: see original paper].

The T1 period was the initial development period, with highly general keywords and small semantic content gaps in AI policy texts. The T2 period saw active state intervention in guiding and planning AI development, with more specific and clear thematic terms, commercial companies joining as important participants in this domain, and initial application in industrial production such as IoT and medical devices. The T3 period witnessed rapid AI development, with national policies standardizing intellectual property, industry standards, and ethical development, and strengthening multi-scenario AI applications and talent team construction.

AI product R&D and technology and industry development were the most correlated themes from the T1 to T2 periods, continuing as key development areas into the T2 period. The system development and project construction emphasized in the T1 period were inherited in the T2 period, while policy guidance and project review themes emerged as new themes in the T2 period. From the T2 to T3 periods, the most correlated themes were AI industry standard specifications and application scenarios, among which the theme of product R&D was mentioned across all three periods, indicating that transforming AI into practical application products is a key focus of domain development. Policy planning and industry regulation were mentioned generally in the T2 period but were inherited and specifically detailed in multiple fields such as medical care and logistics in the T3 period, such as evolving in the T3 period to emphasize specific planning for algorithm and model optimization in technology sectors and university teacher team cultivation and pilot work.

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5 Conclusions and Recommendations

5.1 Research Conclusions (1) China's AI policy tools prioritize stimulating domestic demand, supplemented by environment shaping
China's AI development has entered and will remain in a long-term stable development phase. Analysis of trends in AI policy tool changes reveals that China's AI policies have shifted from relying on supply-side policy tools for direct promotion to demand-side policies playing the primary role. Demand-side policy tools expand AI domain capacity through industrial incubation, capital inflow, and promotional activities, effectively stimulating domestic demand vitality across various industry sectors for AI, thereby achieving industrial upgrading. Throughout each development phase, environment-side policies have played an important auxiliary role by regulating industry behavior standards and requirements, positively influencing AI domain development and shaping a suitable development environment.

(2) AI domain integration gradually expands, integrating as a new element into existing domains
The continuous enrichment of domains covered by relevant policy-issuing departments reflects the expanding scope of multi-domain cross-integration of AI technology. As a new element, AI technology empowers existing industries under the active promotion of policies, achieving deep industrial integration through the new development model of "AI + old industry = new industry." This helps existing industries such as medical care and elderly care expand development directions, providing new solutions and optimization paths while achieving multi-dimensional self-development, aligning with the real needs of current society driven by technology, data, and demand.

(3) Policies emphasize AI basic technology research and value practical application transformation of research results
Basic technology research is the key and driving force for sustainable development in the AI industry. National policy formulation focuses on practical realities, emphasizing themes related to basic construction such as AI product R&D, technological innovation, and industry development in policy texts across periods, reflecting China's high emphasis and strategic layout on AI basic research. Simultaneously, prominent themes with keywords such as practical technology transformation and product R&D have appeared multiple times in AI development policy texts across various phases.

5.2 Areas for Improvement (1) Policy formulation and implementation coordination capabilities need improvement, requiring more practical data support

The lack of an overall coordination mechanism in policy formulation and implementation across levels and regions may lead to inconsistent policy objectives, uncoordinated policy measures, and non-sharing of policy resources. Research on old and new high-frequency keywords shows that high-frequency terms in national-level policy texts often only slowly become keywords in provincial and municipal AI policy texts in the next phase, indicating certain lag in response. There exists a phenomenon where old keywords in macro policies become high-frequency keywords in the next phase of provincial and municipal policies. Central and local AI policy formulation and implementation have not yet fully achieved overall planning, with certain issues such as policy overlap, conflict, omission, and even mutual cancellation existing in regional policy formulation, awaiting the formation of a powerful pattern of overall advancement. Additionally, regional policies need improvement in accurately grasping the current status, trends, and needs of AI development in different regions due to insufficient practical data support.

(2) Crisis prevention awareness in the AI domain is relatively weak, and risk response capabilities need improvement

The absence of policies on risk assessment and regulatory mechanisms may make it difficult to timely identify and address the adverse impacts and potential hazards of AI technology, unable to maximally protect legitimate rights and interests such as personal privacy, data security, and intellectual property, and avoid ethical issues like bias, discrimination, and misuse. From the T1 to T3 phases, terms related to ethics, safety, and crisis early warning have not appeared in AI policy high-frequency word lists. AI policies need to increase emphasis on ethics, law, safety, and other aspects to prepare for effectively preventing and resolving risks and challenges brought by AI.

(3) International cooperation and competition strategic layout capabilities need improvement, requiring better utilization of existing resources

The formulation and implementation of China's existing AI policies mainly focus on domestic regional development, with international-level cooperation and competition strategic layout capabilities needing improvement. There is a need to further integrate and utilize international platform resources and better absorb relevant experiences from developed countries and regions in AI policy formulation and development.

5.3 Policy Recommendations (1) Coordinate AI policy formulation and implementation, optimizing policy effectiveness structure

Horizontally, establish and improve cross-departmental and cross-regional policy coordination mechanisms to coordinate overall AI policy formulation and implementation, selecting policy tool types based on actual needs and conditions to construct an AI policy governance framework that suits China's national conditions. Vertically, accelerate the construction of AI domain regulations to fill policy gaps in relevant areas. Governments at all levels and in all regions can refer to strategic documents such as the "New Generation Artificial Intelligence Development Plan," combine them with China's AI development status and future trends, and issue relevant laws and regulations to provide more legal basis for AI technology R&D, application, and supervision.

(2) Promote deep integration of policy formulation with the real economy, exploring new models and pathways

AI technology ultimately needs to transform into practical benefits through deep integration with the real economy. In this process, it is necessary to fully leverage the fundamental resource role of data, using policy formulation and implementation to drive the construction of a data-driven, cross-boundary integrated, and co-creative intelligent economic form. Strengthen data openness, sharing, and circulation to stimulate data value and innovation vitality. Take real economy needs as the orientation, deeply explore AI's role in various application scenarios and implementation solutions, form a virtuous cycle between technology and industry, promote increasingly deep integration of AI with manufacturing, transportation, medical care, agriculture, and other fields, and continuously drive quality, efficiency, and dynamic transformation.

(3) Emphasize AI risk governance, establishing sound supervision mechanisms and standard systems

Strengthen research on AI-related legal, ethical, and social issues during policy formulation to construct foundational theories and value objectives for ethical and judicial systems in the AI era for society as a whole. Design ethical norms and evaluation indicators applicable to different groups and application scenarios to provide deep theoretical resources for AI risk governance. As AI technology integrates with various domains, it is necessary to value the risks and challenges involved, establish a multi-interactive ecological administrative management system including government, public, media, enterprises, and third-party evaluation institutions, and create effective constraint and error-tolerant correction management mechanisms. Simultaneously, improve social feedback response efficiency to timely revise and improve policy measures that are not adapted to AI development needs.

(4) Deepen international cooperation and competition, actively participating in global AI domain governance

Strengthen international exchanges and cooperation, deeply understand AI policy formulation and strategic layout in various countries and regions, and draw on experiences in AI policy formulation, technological innovation, industrial application, and talent cultivation from various countries. Pay attention to initiatives and actions in AI governance by international organizations and forums such as the United Nations, G20, and OECD. Actively participate in the formulation and implementation of global AI governance, enhance China's discourse power and influence in global AI governance, and promote the construction of an AI rule system that aligns with China's interests and values.

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Note: Figure translations are in progress. See original paper for figures.