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# Research on the Cognitive Characteristics of U.S. Think Tanks Regarding China's Artificial Intelligence and Its Implications

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## Abstract

[Purpose/Significance]Artificial intelligence, as a key driver of the new wave of technological revolution, has become a focal point in global strategic competition. This study analyzes strategic reports published by U.S. think tanks regarding China's AI development to explore their cognitive characteristics and developmental trends, providing insights for China to formulate response strategies.[Method/Process] 78 representative reports from nine U.S. think tanks were selected as samples. By employing topic modeling methods (LDA and DTM) and textual analysis, the core themes of the reports were categorized and their evolution analyzed. The study systematically examined the U.S. think tanks' AI strategies regarding China from three dimensions: innovation drivers, security governance frameworks, and the construction of international discourse power. It also compared the differences in strategic characteristics between the Trump and Biden administrations.[Result/Conclusion] The study found that U.S. think tanks' AI strategies concerning China exhibit comprehensiveness and interdisciplinarity, with a focus on innovation development in areas such as education, technology research, economic markets, and national security, as well as on security governance frameworks including ethics, legal regulations, and social impacts. While think tanks during the Trump administration were guided by Cold War thinking, those under the Biden administration shifted toward technological governance and global rule competition. Based on the cognitive characteristics of U.S. think tanks, it is recommended that China enhance intelligence analysis, strengthen independent technological innovation, and promote international dialogue and cooperation to safeguard its technological advantages and global discourse power.

**Keywords:**Keyword China-related Artificial Intelligence, Keyword U.S. Think Tanks, Keyword Cognitive Characteristics

# 1 INTRODUCTION

The rapid development of artificial intelligence (AI) has sparked a new wave of technological revolution on a global scale, becoming a contested high ground of innovation for nations and a strategic domain with profound implications. As a critical technology shaping the future, AI not only symbolizes a nation's capacity for technological innovation but also serves as a core mechanism to ensure national security and safeguard national interests. Against the backdrop of intensifying global competition, AI applications have become a central element in the “technology race” among major powers. In 2019, the Brookings Institution and the Tsinghua University’s Center for International Security and Strategy engaged in informal Track-II dialogues on the application of AI in national security(Xiao et al., 2024). In 2023, Barry Pavel, Director of the National Security Research Division at RAND Corporation, noted that with the rapid advancement of AI technologies, traditional geopolitical frameworks are undergoing profound transformations, with increasing interactions between nations and emerging technologies continuously reshaping the foundations of the global order(Barry et al., 2023). In a 2024 report by the Center for Strategic and International Studies (CSIS), Benjamin Jensen, a senior research fellow at the Future War and Strategy Project, observed that AI is becoming an essential part of the national security toolkit, enhancing decision-making and intelligence advantages and elevating a nation’s position in international competition(Benjamin et al., 2024). Synthesizing these research findings and expert opinions leads to a clear conclusion: the development of AI is not merely a symbol of technological progress but also a strategic resource vital to national security. Its applications in national strategy and military defense have become decisive factors in shaping the future global order. As one of the world's leading think tanks, American think tanks have paid particular attention to China's AI development under this context, conducting in-depth studies on China's AI strategies across fields such as military, education, healthcare, and society. However, domestic academic research on national AI strategies in China remains primarily focused on strategic documents: on the one hand, analyzing the content of AI strategic documents to reveal global AI strategy trends and challenges; on the other, conducting comparative studies of AI strategies across nations to explore strategic layouts and policy orientations, providing references for China's AI strategy. In contrast, few studies have systematically analyzed the overall framework and cognitive characteristics of American think tanks' AI strategies on China from the perspective of national security intelligence. Thus, this paper adopts LDA and DTM topic modeling approaches to analyze 78 representative reports from U.S. think tanks. From the perspective of intelligence studies, it dissects the strategic themes and their evolution, examines the cognitive traits of U.S. think tanks regarding China's AI strategies, and offers insights for China to enhance its international discourse power in AI and respond to potential challenges posed by the U.S. to national security.

# 2 RESEARCH DESIGN

This study outlines a research roadmap aimed at conducting an in-depth exploration of U.S. AI strategic reports using a Dynamic Topic Model (DTM). The main research steps are as follows:

(1)Collect U.S. think tank reports on AI strategies related to China and classify them by publication time;

(2)Preprocess the textual data;

(3)Determine the optimal number of topics based on perplexity and coherence, and conduct a thematic analysis of the DTM results;

(4)Quantify the attention to different topics across various phases and identify focus areas;

(5) Analyze the cognitive characteristics of U.S. think tanks concerning AI strategies in China, and summarize insights and countermeasures for China.

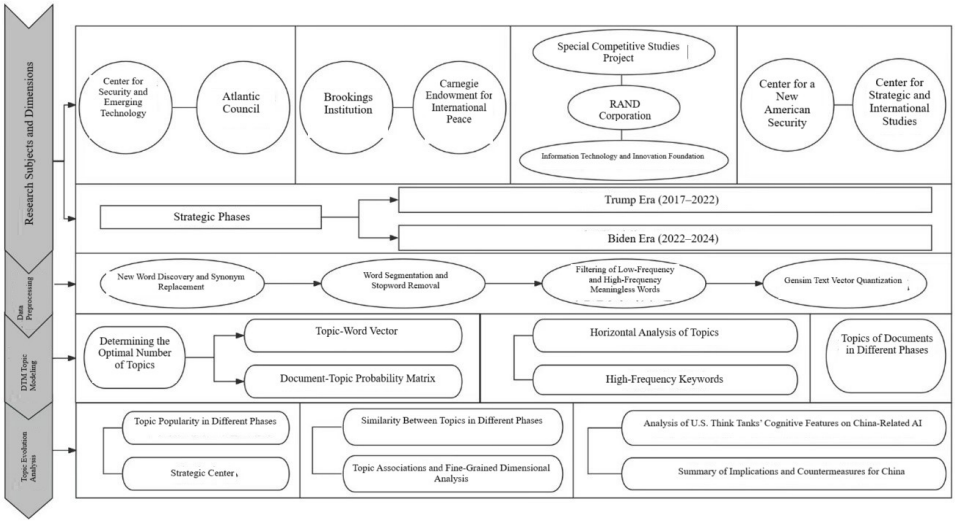


Figure 1 Research Idea Map.

## 2.1 Collection of samples from think tanks

According to the Global Think Tank Report 2020, compiled by the "Think Tanks and Civil Societies Program" at the University of Pennsylvania, nine U.S. think tanks were selected as research samples based on their global think tank rankings and rankings in the field of national security. These include: the Center for Security and Emerging Technology (CSET), the Atlantic Council, the Brookings Institution, the Carnegie Endowment for International Peace (commonly referred to as the Carnegie Endowment), the RAND Corporation, the Information Technology and Innovation Foundation (ITIF), the Special Competitive Studies Project (SCSP), the Center for a New American Security (New America), and the Center for Strategic and International Studies (CSIS).

From the perspective of think tank authority, all nine selected think tanks are highly influential, ranking among the top think tanks globally. Regarding their research focus, they have published numerous high-quality reports on topics such as artificial intelligence and national security, as well as the development of AI in China. In terms of report authorship, the contributors are primarily senior researchers, seasoned analysts, and senior advisors from U.S. government departments, demonstrating outstanding academic analytical skills and profound scientific expertise. Additionally, some authors have work and living experiences in China, enabling them to examine the AI competition between China and the U.S. from an international perspective. Their firsthand experiences in China further enrich their analytical insights. In this study, the nine selected think tanks not only possess widely recognized authority and influence but also offer a diverse range of research achievements that effectively meet the objectives of this study, providing a solid theoretical and empirical basis for in-depth analysis.

This paper uses the above nine think tanks as data sources to collect report samples from mainstream American think tanks on the topic of "China-related AI national strategies." For text collection, keywords such as AI China/Chinese/Beijing/CPC, Artificial Intelligence China/Chinese/Beijing/CPC, and Technological Competition and China were used. The collection period starts from the release date of China's New Generation Artificial Intelligence Development Plan (July 2017) to September 2024. Report samples, including PDF-format reports and web pages from U.S. think tanks, were divided into two periods: the Trump administration (2017–2020) and the Biden administration (2021–2024). A total of 78 reports were collected, with 18 reports from the Trump period and 60 reports from the Biden period.

Table.1 U.S. Think Tank Artificial Intelligence Strategy Report (partial)

| | Strategic Report | Time | Author |
|---|---|---|---|
| RAND Corporation | Chinese Perspectives on Big Data Analytics | 2020 | Derek Grossman, Senior Defense Analyst at RAND, specializes in national security policy and Indo-Pacific security issues. |
| | Distribution of Chinese AI Export Technologies and Data Security | 2023 | Dr. Jennifer Bouey, the Tang Chair in China Policy Studies at RAND, is a senior policy researcher, and an epidemiologist. |
| | Exploring the Impact of Generative AI on Chinese Military Cyber Influence Operations | 2024 | Nathan Beauchamp-Mustafaga, a senior policy researcher at RAND, focuses on Asian security issues. |
| | …… | | |
| Center for Security and Emerging Technology (CSET) | Comparative Assessment of AI Education in the U.S. and China | 2021 | Dahlia Peterson, a State Department Fellow at Georgetown University's CSET. |
| | Evaluating the Demand for China's AI Talent Pool | 2022 | Diana Gehlhaus is a former researcher at CSET and a senior advisor for the U.S. Department of Defense Chief Digital and AI Office (CDAO). |
| | AI in China's Healthcare: Implications of Big Biological Data for the Bioeconomy | 2024 | Caroline Schuerger, a researcher at Georgetown University's CSET |
| | …… | | |
| Carnegie Endowment for International Peace | China's New Initiatives on AI Governance Cannot Be Ignored | 2022 | Matt Sheehan, a researcher at Carnegie, focuses on global technology issues with an emphasis on China. |
| | China's AI Regulations and Their Development | 2023 | |
| | Tracing the Roots of China's AI Regulations | 2024 | |
| | …… | | |
| ITIF (Information Technology and Innovation Foundation) | How Innovative is China in AI? | 2024 | Hodan Omaar, Senior Policy Manager for AI Policy at ITIF's Center for Data Innovation. |
| | China is Rapidly Becoming a Leading Innovator in Advanced Industries | 2024 | Robert D. Atkinson, founder and president of ITIF, is recognized as a top global technology policy think tank. |
| | How Innovative is China's Robotics Industry? | 2024 | |
| | …… | | |
| Atlantic Council | A Coordinated Framework for Competing with China in Technology | 2022 | Peter Engelke, Senior Fellow for Strategic Initiatives; Emily S. Weinstein, a Research Fellow at Georgetown University's CSET. |

| | | | |
|---|---|---|---|
| | Evaluating China's Responses to U.S. Technology Competition | 2023 | Peter Engelke, Senior Fellow for Strategic Initiatives. |
| | Assessing China's AI Development and Predicting Future Technology Priorities | 2024 | Hanna Dohmen, Nonresident Fellow at the Atlantic Council's Global China Hub. |
| | …… | | |
| Brookings Institution | The Geopolitics of AI and the Rise of Digital Sovereignty | 2022 | Benjamin Cedric Larsen, Head of AI and Machine Learning at the World Economic Forum's San Francisco Fourth Industrial Revolution Center. |
| | The PLA Strategic Support Force and AI Innovation | 2022 | Amy J. Nelson, former Research Fellow at the Brookings Institution's Foreign Policy Program and the Strobe Talbott Center for Security, Strategy, and Technology. |
| | A Roadmap for U.S.-China AI Dialogues | 2024 | Graham Webster, Visiting Scholar at Stanford's Program on Geopolitics, Technology, and Governance. |
| | …… | | |
| Center for Strategic and International Studies (CSIS) | The Impact of China's Uneven High-Tech Development on the U.S. | 2020 | Scott Kennedy, Senior Advisor and Chair in Chinese Business and Economics at CSIS. |
| | Choking China's Path to an AI Future | 2022 | Gregory C. Allen, Director of the Wadhwani Center for AI and Advanced Technologies at CSIS. |
| | Assessing and Mitigating Risks of AI in China | 2024 | Lily McElwee, Deputy Director and Fellow at CSIS's Freeman Chair in China Studies, focuses on China's foreign policy and international engagement. |
| | …… | | |
| Center for a New American Security (CNAS) | China's Plan to "Lead" AI: Objectives, Prospects, and Issues | 2017 | Graham Webster, a scholar at Stanford and editor-in-chief of the DigiChina project. |
| | China Threatens U.S. AI Dominance | 2020 | Elsa B. Kania, Adjunct Senior Fellow at CNAS's Technology and National Security Program. |
| | U.S.-China Competition and Military AI | 2023 | Jacob Stokes, Senior Fellow at CNAS's Indo-Pacific Security Program. |
| | …… | | |
| Special Competitive Studies Project (SCSP) | Generative AI: The Future of Innovation Drivers | 2023 | Ylli Bajraktar, CEO and President of SCSP. |

## 2.2. Data processing

Before constructing the topic model, the textual data needs to be preprocessed. The preprocessing steps for think tank reports primarily include the following: dividing the text into independent tokens, removing stop words, eliminating punctuation and numbers, performing lemmatization and stemming, and filtering out invalid words. First, the raw text is segmented into meaningful lexical units using the Jieba tokenizer, and stop words (e.g., "and," "the," "is," etc., which appear frequently but have low semantic contribution) are removed. Second, part-of-speech tagging is conducted on the words, and words with specific parts of speech are selected based on the research requirements to enhance the semantic directionality of the topic model. Third, stemming and lemmatization are performed to extract the morphological roots of words (e.g., "running" is reduced to "run"), improving the uniformity and comparability of the textual data, while punctuation and non-alphabetic characters are removed. Finally, words with low frequency across the corpus are filtered out to reduce noise and focus on representative terms. Ultimately, a bag-of-words model is constructed, converting the preprocessed text into term frequency vectors, which provides a structured data format for the topic model.

## 2.3. Research Method

(1)Dynamic Theme Model

The Dynamic Topic Model (DTM), developed by David M. Blei et al., is an extension of the Latent Dirichlet Allocation (LDA) model. In 2012, Dai-Feng Li and colleagues conducted experiments to verify that the DTM model can dynamically process time-series-based document datasets, identify and track dynamic topics within the dataset, and reveal the co-evolution trajectories of topics and their associated terms within a specific domain (Li et al., 2012). The DTM model first discretizes and segments the U.S. think tank reports on China-related AI strategies based on chronological order. It then assumes that the topic distributions and topic content across adjacent time slices evolve over time(Blei and Lafferty, 2006), thereby identifying temporally continuous collections of report data.

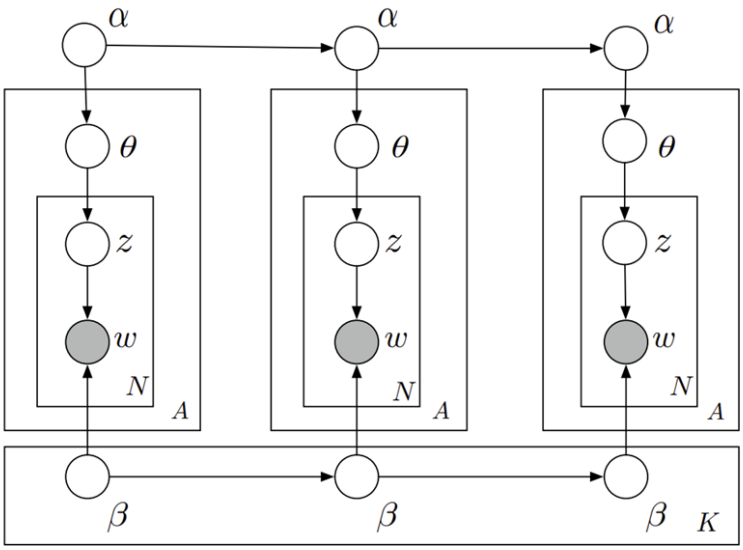


Figure 2 DTM Schematic.

The Dynamic Topic Model (DTM) is a dynamic extension of the traditional Latent Dirichlet Allocation (LDA) model, incorporating the concept of time series into the original structure. It consists of three layers: documents, topics, and words (Huang and Zhu, 2024). In the model, K represents the number of topics, A indicates the number of document distributions within each time slice, and N denotes the distribution of topic words within a single document. z and ω represent the generated topics and topic words, respective-

ly. Both ∂ and β are Dirichlet prior distribution parameters, representing a virtual perception of topic and word concepts before inputting data into the model. Specifically, ∂ represents the potential topics that a document may belong to, while β represents the potential distribution of topic words under each topic. After data is input, when ∂ corresponds to a specific document, θ becomes the topic model of that document and ∂ serves as the conjugate prior distribution of θ. This means that when the observed data (i.e., words in the document) updates θ, the posterior distribution remains in the form of a Dirichlet distribution. The document-topic distributions and word-topic distributions in each time slice are interdependent. For example, at time slice t, the document-topic distribution αt and the word distribution βt, k related to topics depend on the parameters ∂t-1and βt-1,k,k from the preceding time slice.

(2)Research Method

Using the DTM topic analysis method, this study delves into the foreign think tank literature on China during the Trump and Biden administrations. By mining and extracting the topics from the literature, it analyzes the interactions and unique characteristics among topics, time periods, texts, and content. As an extension of LDA, DTM incorporates the influence of time on topic distributions, making it easier to observe the evolving trends of topics over time, trace and analyze the shifting focal points of China-related think tanks in different periods, and reveal the changes in U.S. think tanks' perceptions and attitudes toward China's military, economy, society, and technology.

This paper studies the China-related AI national strategies of think tanks from two perspectives: document characteristics and topic evolution features. First, in terms of China-related think tank topics, it uncovers the focal points and distribution characteristics of think tanks concerning the topic of AI national strategies. Second, in terms of the framework, it examines the changing trends in topic popularity within China-related think tank literature across different time periods, identifying the temporal characteristics of think tanks' attention to China's AI national strategy.

# 3 RESEARCH RESULTS

## 3.1. Analysis of the Strategic Theme of Artificial Intelligence in China by American Think Tank

As an unsupervised learning technique, the LDA topic model lacks a clear standard for determining the optimal number of topics during the training process. Whether the number of topics is excessive or insufficient, directly affects the model's performance. Currently, two widely adopted criteria for evaluating the reasonableness of an LDA model are coherence and perplexity. The following presents the results of determining the optimal number of topics based on these two metrics:

Perplexity is the inverse of the probability of a sentence. The higher the probability of a sentence, the more it aligns with natural language patterns, resulting in lower perplexity, meaning the model finds the sentence less “perplexing.” According to the perplexity trend line as the number of topics changes, perplexity decreases as the number of topics increases. However, when the number of topics becomes too large, the model tends to overfit. Therefore, the perplexity trend line alone cannot determine the optimal number of topics, requiring coherence as a supplementary metric.

Coherence evaluation is a method based on word co-occurrence frequency, which quantifies the semantic association between words within a topic. By calculating the coherence score of each topic and comparing configurations with different numbers of topics, the number of topics that maximize the coherence score can be identified. In general, as the number of topics increases, coherence scores improve accordingly. However, after reaching a certain threshold, the score plateaus and no longer increases significantly. The number of topics corresponding to this saturation point is usually considered the optimal choice. From the coherence trend line as the number of topics changes, it can be observed that the score continues to rise starting from 8 topics and does not plateau. Combining both metrics, 11 topics might appear to be the optimal choice.

However, given that only 78 reports were collected, selecting 11 topics would result in an average of about 7 reports per topic, which is insufficient for subsequent analysis. Therefore, the optimal number of topics is determined to be 7.

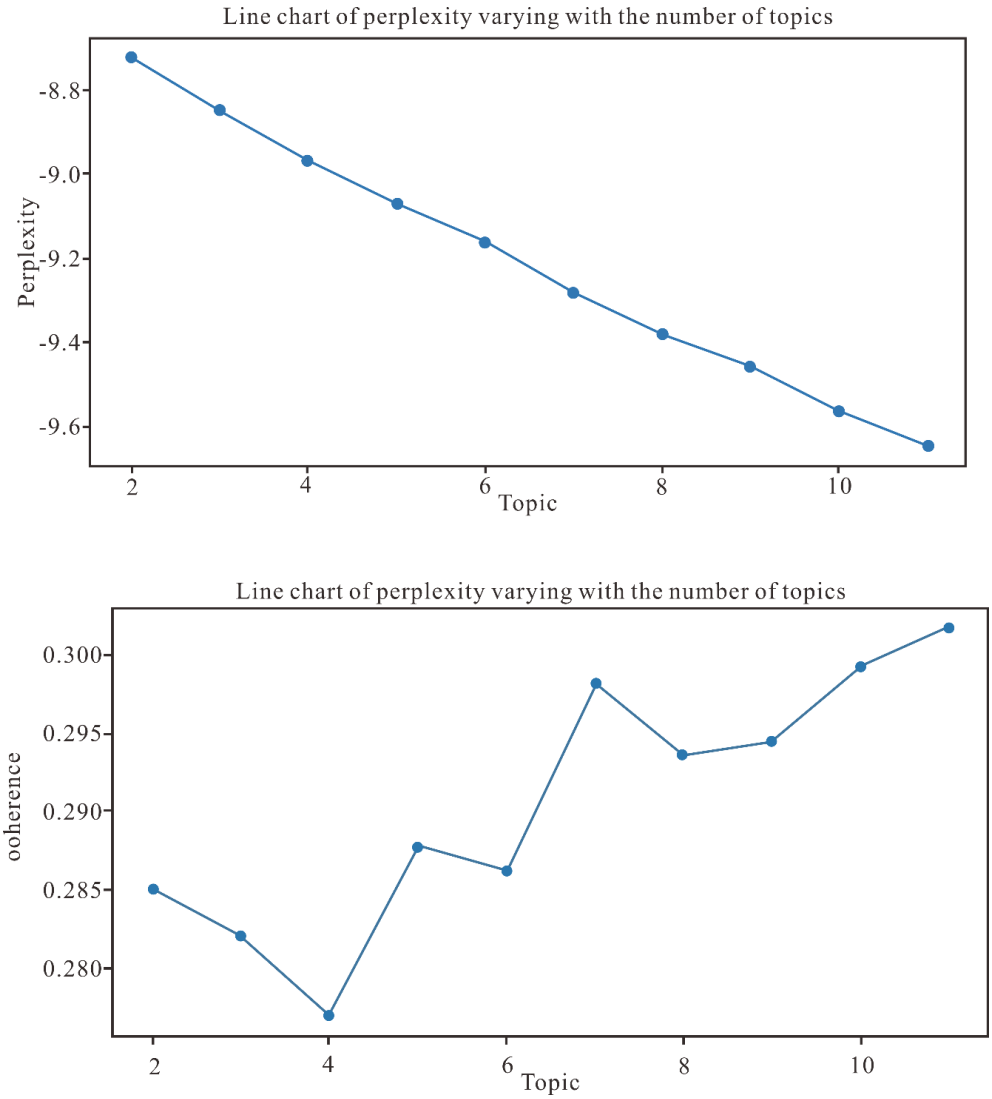


Figure 3 Degree of Consistency Confusion.

By training the DTM topic model on reports related to China's AI strategies published by U.S. think tanks between 2017 and 2024, a "topic-word" association matrix and the corresponding word weight distribution can be generated. Based on the significant weighted words within each topic, the classification attributes of each topic are systematically interpreted and categorized. This experiment identifies 7 potential topics through perplexity and coherence metrics. For each topic, the 10 keywords with the highest average weights across different time periods are selected as the core keywords representing that topic. These keywords reveal the core issues embedded within U.S. think tanks' reports on China-related AI strategies and their evolutionary trends over time, thereby providing theoretical insights and empirical evidence for understanding the U.S.'s policy directions in the field of artificial intelligence.

Table.2 U.S. Artificial Intelligence Strategy Thesaurus.

| Number | Theme | Theme keywords |
|---|---|---|
| 1 | Educational Technology | Algorithm \| popularity \| annotate \| issue \| curriculum \| generative \| education \| equipment \| teacher \| school |
| 2 | Biomedical Research | medical \| genetic \| diagnose \| patient \| health \| gene \| synthetically \| disease \| hospital \| research |
| 3 | National Defense & Security | safety \| weapon \| warfare \| police \| army \| frontier \| risk \| stability \| political \| crime |
| 4 | Economy & Market | contract \| salary \| procurement \| ally \| withstand \| spending \| cluster \| fund \| trading \| vendor |
| 5 | Science & Technology R&D | brain \| technology \| chip \| innovation \| research \| data \| firm \| investor \| robot \| science |
| 6 | AI Ethics, Law, and Governance | regulation \| trace \| governance \| regulator \| manipulation \| interpretability \| rein \| draft \| sovereignty \| ethic |
| 7 | Social & Political Impact | counterintelligence \| homeland \| cod \| campaign \| coercion \| cognitive \| expert \| election \| misuse \| influence |

Within the analytical framework of thematic categorization, U.S. think tanks' reports on China-related AI strategies exhibit significant interdisciplinarity and comprehensiveness, covering multiple fields such as national defense and security, economic markets, technological innovation and R&D strategies, AI ethics, legal regulatory frameworks, and assessments of social and political impacts. These reports reveal the U.S. think tanks' comprehensive insights into China's AI applications and developments. From a thematic classification perspective, there exists a close internal connection and interdependence among different themes. Areas such as education, national defense and security, economic markets, and technological R&D constitute the core pillars of AI innovation and development, while themes like AI ethics, legal regulation, and social-political impacts collectively form the framework for AI governance and security. By organizing these themes, it is evident that U.S. think tanks, in their research on China-related AI strategies, analyze China's AI development and construct systematic analyses and counterstrategies around three key dimensions: core pillars, governance frameworks, and international discourse.

(1)Core pillar layer: driving force for innovative development

Based on the analysis of collected think tank reports, most U.S. think tanks' reports on China's AI strategies primarily focus on how AI is developing and its close integration with economic and military fields. U.S. think tanks argue that China views technology as the "main battlefield" for competing with the United States, with its goals centered on an intertwined context of education, technology, economy, and military. According to the U.S. think tank research findings, China's advancements in key areas such as educational technology, economy and markets, and scientific research and development have become core drivers of AI innovation, posing a substantial challenge to the United States' global technological leadership. These think tanks highlight that China is gradually establishing a comprehensive AI development system, from fundamental research to practical applications, through policy support and resource allocation in education and technology (Dahila et al., 2023). This system has allowed China to achieve significant advantages in high-end talent cultivation, which extends to AI applications in biomedical and military fields (Stevens et al., 2024; Konaev et al., 2023), driving innovations in healthcare and defense technologies (Lee et al., 2023). U.S. think tanks observe that, despite various constraints, China's AI development demonstrates strong re-

silience, rapidly penetrating multiple segments of the economy and industrial chains. As China accumulates technologies and expands markets across key areas, the combination of market demand and technological advantages gives China the potential for breakthrough development. In response, U.S. think tanks stress the importance of enhancing their own drive for independent innovation and supply chain autonomy to counter the challenges posed by China's technological rise(Lee, 2024; O'Neil, 2024; Allen, 2019; Mariano et al., 2023; SCSP Staff, 2023). They also recommend that the government implement stricter controls on technology exports, particularly in areas such as chips, semiconductor manufacturing equipment, and supercomputing, to curb China's momentum in the global AI landscape (Sheehan, 2024; Cary, 2023; Webster & Hass, 2024; Engelke & Weinstein, 2019).

(2)Security Governance Layer: Construction of AI Security Framework

U.S. think tanks' research on China's AI ethics, legal frameworks, and governance systems reflects their concern and vigilance regarding China's growing influence on global AI governance standards. According to their analysis, China's AI governance has undergone a multi-phase evolution, from early exploration to comprehensive legislation, gradually forming a relatively systematic governance framework that encompasses key areas such as data privacy, technical ethics, and regulatory policymaking. Think tanks like the Carnegie Endowment for International Peace have identified three major developmental stages in China's governance policies using a "policy funnel model"—early exploration, targeted regulation, and comprehensive legislation—highlighting China's efforts to systematize and diversify AI governance [23]. These think tanks argue that the maturation of China's AI governance system could serve as a model for other developing countries, posing a potential challenge to a global governance framework centered on "democratic values."

U.S. think tanks assert that the increasing sophistication of China's AI governance system may enable it to serve as a technological governance paradigm for other developing nations, thereby expanding its global influence. Against this backdrop, U.S. think tanks continue to strengthen international governance narratives rooted in democracy and freedom, aiming to construct an adversarial AI governance framework by contrasting and critiquing the Chinese model. By portraying China's model as "non-transparent" or "lacking ethical constraints," they seek to gain discursive dominance in global governance rules, prevent the expansion of the Chinese model into other regions, and counteract its potential "infiltration" into the global governance system.

(3)Discourse Framework Layer: International Discourse Power and Cognitive Shaping

U.S. think tanks attempt to construct a negative narrative framework around China's AI development, aiming to shape a global perception of China as a potential threat to the international order. Studies have found that reports often associate China's AI technologies with "political control" and "potential risks" (Beauchamp-Mustafaga, 2024)while claiming that China's technological advancements in military AI could lead to security dilemmas and even destabilize global strategic balance to some extent. Through such adversarial rhetoric, think tanks seek to portray China's military AI development as a significant threat, reinforcing the "China threat" narrative. Additionally, U.S. think tanks view China's application of AI technologies and big data analysis as a "totalitarian" governance tool, emphasizing the stark contrast between China's use of AI and the democratic models of the West. By embedding a "China threat" discourse paradigm into international narratives, these think tanks frame China's governance model in opposition to ideals of freedom and transparency in international governance, guiding global opinion toward a negative perception of China's AI governance. This allows the U.S. to dominate the global security discourse (Jones et al., 2023). It is evident that U.S. think tanks depict China's AI development as a "potential threat" to global security, thus providing a rational basis for international cooperation and restrictive technology policies. The framing of the "China threat" narrative not only supports U.S. diplomatic and policy initiatives but also establishes a legitimate foundation for the U.S. to set international technological standards within the global technology sector.

## 3.2. Analysis of the popularity of the strategic theme of artificial intelligence related to China by American think tanks

Calculate the popularity of various topics related to China's AI strategies across different strategic phases, and present this data in the form of a heatmap, as shown in Figure 4.

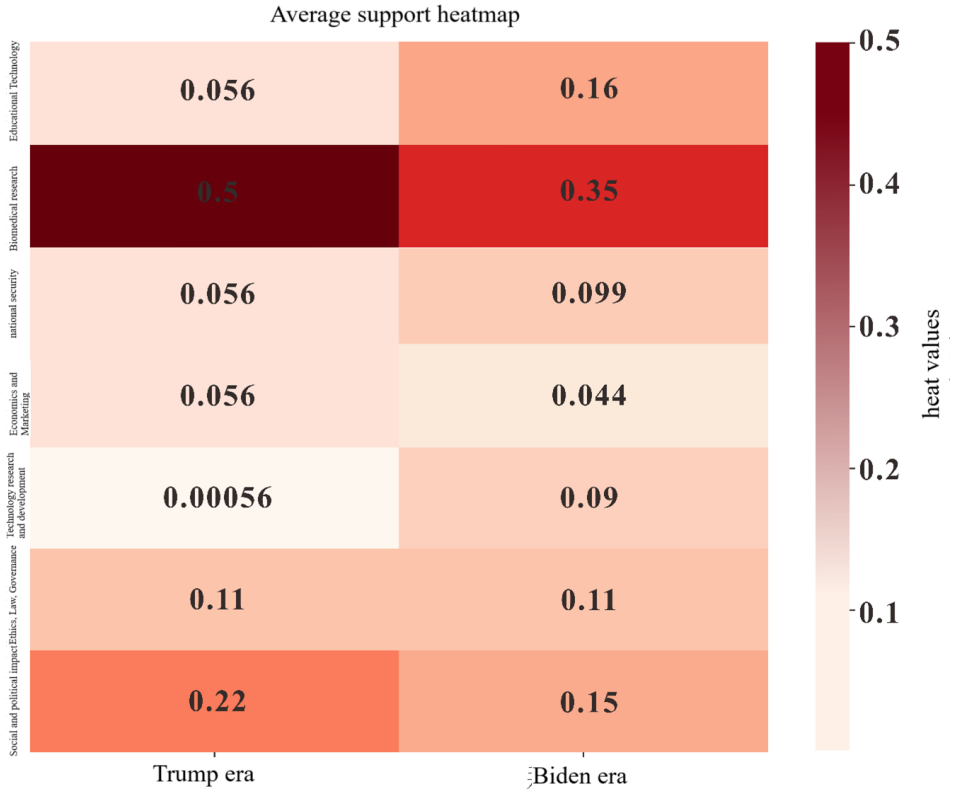


Figure.4 heat map.

(1)Trump era

During the Trump administration, American think tanks paid greater strategic attention to China in the areas of biomedical research, the economy and markets, and sociopolitical impacts compared to the Biden administration. Their focus exhibited the following characteristics: First, a concentration on specific fields. In the biomedical sector, U.S. think tanks primarily focused on China's technological advancements in areas such as biological data collection, genomics research, and vaccine development. Their motivation was not only to address pandemic prevention but also to express concerns over China's achievements in the biomedical field, especially the widespread application of AI technologies that contributed to its success in combating pandemics. In the economic and market sector, under the "America First" national security strategy(Xia & Ma, 2022), Trump's economic policy toward China centered on tariff wars and trade protectionism. Attention to AI in the economy was subsumed within the broader framework of trade policies, with the outbreak of COVID-19 further reinforcing the prioritization of domestic economic, biomedical, and sociopolitical impacts. Moreover, the U.S. agenda of discrediting China's pandemic success crowded out policy discussions regarding the influence of Chinese AI in economic markets. Second, the reinforcement of antagonistic rhetoric in the sociopolitical domain. The U.S. think tanks' focus on China's sociopolitical influence ranked second only to that in the biomedical field, highlighting ideological confrontation. Trump's frequent references to COVID-19 as the "China virus," "Wuhan virus," or "Kung Flu" were echoed by think tanks, which repeatedly employed such negative China-related terms. Furthermore, they politicized the tracing of the virus's origins, tying conspiracy theories about the pandemic to China. This strategy aimed to tarnish China's international image by framing the debate about COVID-19 accountability and exacerbating negative perceptions of China's role in global governance and human rights(Chen, 2023).

(2)Biden era

During the Biden administration, U.S. think tanks expanded their China-related AI strategy into a multidimensional competitive framework, showcasing a long-term and systematic containment strategy against China through military technology and comprehensive competition. The key characteristics are as follows: First, a strengthened focus on national defense and security to curb the rise of military technology. Under Biden, attention to China in the realm of national defense and security increased, and U.S. think tanks shifted their research focus on China-related AI strategies increasingly toward national security. Reports on China-related AI strategies released by U.S. think tanks, from the perspective of national security, analyzed the applications of AI in military, intelligence, and surveillance and reconnaissance technologies, comparing China and the U.S. in these areas. The goal was to leverage AI technologies to enhance the U.S.'s national security capabilities. Second, balanced development across multiple domains to reinforce the strategy of comprehensive competition. Heatmaps indicate that, compared to the Trump era, the Biden administration's focus is more evenly distributed, with an emphasis on both innovative development and security governance. Unlike Trump's unilateral confrontational approach, the Biden administration seeks to build a "democratic values"-oriented framework for technology governance through multilateral cooperation, aiming to limit China's influence in international rule-setting. While U.S. think tanks' attention to sociopolitical impacts and AI governance has somewhat diminished during Biden's term, these themes have been integrated into the broader framework of competition over technology standards and values. The Biden administration increased investments in defense, the economy, and technological R&D, adopting a multidimensional competitive strategy to constrain the comprehensive development of China's AI.

# 4 THE COGNITIVE CHARACTERISTICS AND DEVELOPMENT TRENDS OF ARTIFICIAL INTELLIGENCE RELATED TO CHINA IN AMERICAN THINK TANKS

## 4.1. Cognitive characteristics of American think tanks on China's artificial intelligence

(1)Comprehensive insights and interdisciplinary integration. U.S. think tanks, in their research on China's AI development, cover a wide range of topics, including AI education, national defense and security, economic markets, technological R&D, ethical and legal governance, and sociopolitical impacts. These fields are interconnected, forming a dual-track research model driven by innovation and security governance. In terms of innovation, U.S. think tanks focus on key metrics such as China's military applications of AI, R&D investment, and talent cultivation, asserting that education is the foundation of economic and AI technological development. They recognize that China has begun emphasizing interdisciplinary and integrative research through "AI+X," combining disciplines such as philosophy, political science, economics, computer science, and psychology with areas like educational technology, national defense, economic markets, and sociopolitical governance. This approach spans from the strategic significance of military AI technologies to the application of AI in social governance, from the technological integration in economic markets to the establishment of international rules. It creates an AI ecosystem of coordinated development across multiple fields, progressing from basic research to industrial applications. This ecosystem demonstrates China's AI resilience in the face of U.S. technological blockades. In terms of security governance, U.S. think tanks propose the "policy funnel" model, linking the ethical and regulatory frameworks of AI governance to China's capacity to expand international technical standards. They analyze the policy evolution in China's development of AI-related ethics and regulations while monitoring and forecasting future trends in China's AI governance.

(2)Focusing on core domains and constructing a technological defense framework. Based on collected think tank reports, U.S. think tanks have produced abundant research results on China's military and AI

technology sectors. They assert that the militarization of AI represents a critical transformation in the future of warfare and that the integration of AI with China's military is foundational for the Chinese military's ability to compete with the U.S. as a "world-class military." China's "military-civil fusion" strategy has significantly enhanced the efficiency of AI's military applications by integrating military demands with civilian technological resources. This strategy has driven advancements in unmanned combat systems, intelligent weaponry, and battlefield command systems, achieving notable breakthroughs in areas such as drones, target recognition, and strategic decision-making support. Many think tank scholars, influenced by hegemonistic ideologies, argue that China's advancements in military AI applications have created an asymmetric advantage over the U.S. in key areas, undermining U.S. military superiority in the Taiwan Strait and the Indo-Pacific region. They also suggest these advancements challenge America's technological leadership and pose greater security risks to U.S. regional partners. To maintain its technological hegemony, U.S. think tanks recommend that the U.S. government adopt national strategies backed by diplomacy, economic initiatives, and military measures, including investments in deterrence capabilities, diplomatic crisis management infrastructure, and arms control. These measures aim to compel China to make similar or equivalent investments in military and diplomatic domains to contain China's growth.

(3)Confrontational logic and the narrative of a security dilemma. Analyzing the themes of U.S. think tank studies on China reveals a prevalent use of a "confrontational logic" framework, which links China's technological advancements with "security threats." By selectively interpreting and negatively portraying China's AI development, U.S. think tanks associate topics such as Chinese politics and human rights in Xinjiang to distort and discredit China, aiming to construct a logical framework for containing China's rise and strengthening skepticism toward its AI advancements. For instance, reports from the Brookings Institution frequently emphasize China's practices in surveillance technology and data governance, employing terms like "oppression," "privacy infringement," and "lack of transparency" to describe the social applications of Chinese AI technologies. During the Biden administration, U.S. think tanks gradually incorporated this "confrontational discourse framework" into a broader context of technology governance and rules-based competition. Through the construction of a "China threat" narrative, they have shifted criticism of China's technological model into a tool for advancing international rules competition. This strategy seeks to shape a negative global perception of China's AI development, highlighting its opposition to Western liberal democratic values, and reinforcing the role of "identity politics" in shaping international perceptions. This process has inflicted significant "symbolic damage" on China's "national brand," heightened allies' concerns over China's AI technological model, and fostered multilateral cooperation aimed at structurally countering China's soft power projection.

## 4.2. The Cognitive Development Trend of American Think Tanks on China's Artificial Intelligence

Scope: From focusing on a single field to balanced development in multiple fields

During the Trump administration, U.S. think tanks exhibited a relatively narrow focus in their China-related AI strategy, primarily concentrating on the fields of biomedicine and sociopolitical impacts. Their research on China's AI development strategy revealed significant limitations, mainly confined to analyzing China's AI development blueprints, reflecting an exploratory research orientation and an initial understanding stage. Under the Biden administration, the focus expanded to include areas such as national defense, technological R&D, and economic markets, marking a shift from single-point defense to comprehensive competition. The scope of research has moved beyond a mere analysis of China's AI development plans to an in-depth exploration of the challenges posed by China's advancements in various AI-related fields to the United States. Thus, this phase can be characterized as a stage of strategic competition.

The dynamic changes in the strategic phase reflect a growing systematic understanding among U.S. think tanks of China's AI development. In particular, this includes a more comprehensive assessment of China's potential impacts in areas such as defense technology, economic markets, and international governance.

This indicates that the U.S. AI strategy toward China has shifted from short-term domain-specific defense to long-term systemic competition.

Strategically: Upgrading from adversarial discourse to rule-based strategies

U.S. think tanks have expanded the functionality of the "confrontational discourse framework," transforming it from a simple tool of ideological critique into a key instrument for legitimizing global rules competition. In its initial confrontational narratives, China's AI technologies were often portrayed as a direct threat to U.S. national security, particularly in areas such as social governance, military applications, and data usage. However, within the framework of technological governance, confrontational discourse is now assigned deeper objectives. By emphasizing the incompatibility of China's technological model and its potential threats to international technical norms, it provides legitimacy for U.S. leadership in global governance standards. Simultaneously, through narrative transformation, the "confrontational discourse framework" has shifted from pure ideological critique to a tool for promoting the establishment of international technical rules. This shift moves the focus from "highlighting threats" to "shaping norms," fostering multilateral cooperation mechanisms and integrating them into broader practices of international technological governance.

Values: shifting from a "Cold War" mindset to a "competitive" mindset

During the Trump administration, U.S. think tank analyses of China's AI strategy were heavily influenced by a Cold War mentality, framing China's technological rise as the primary threat to U.S. global hegemony. The ideological opposition during this period leaned toward straightforward and direct critiques, highlighting the threat of "technological authoritarianism." In contrast, during the Biden administration, a "sustainable, bipartisan" framework for innovation-driven technological competition was developed against China. This framework emphasizes sustained competition supported by calibrated cooperation with Asian and European allies and partners, seeking to avoid escalating into prolonged confrontation, hostility, or outright conflict. U.S. think tanks further emphasized embedding "democratic values" into international technical standards and governance systems through frameworks such as "trustworthy AI" and "responsible AI." The ideological opposition has gradually shifted from overt criticism to more implicit and structural forms.

## 5 REVELATION

Analyzing U.S. think tank reports reveals a growing negative sentiment toward China's AI development across various domains, accompanied by attempts to contain China through measures such as restricting chip exports and intensifying the arms race. The New Generation Artificial Intelligence Development Plan states: "At present, China faces increasingly complex national security and international competition challenges. It is imperative to adopt a global perspective, integrate AI development into national strategic planning, actively shape initiatives, seize the strategic upper hand in international AI competition at this new stage, create new competitive advantages, expand development opportunities, and effectively safeguard national security (The State Council of China, 2017)."

Firstly, improving intelligence assessment capabilities is crucial. As the U.S. imposes export controls on China's AI technologies, the external environment for China's AI development has become increasingly complex and uncertain. It is essential to conduct forward-looking planning in frontier technology domains, and systematically collect and analyze trends in U.S. think tanks' AI research, developments, application scenarios, and potential threats. By learning from international advanced practices, China must precisely evaluate the competitive landscape of military AI globally, establish robust intelligence-sharing mechanisms, break down departmental barriers, and achieve cross-sectoral, cross-departmental, and multi-level intelligence collaboration to safeguard national security effectively.

Secondly, enhancing independent innovation capabilities is paramount. Accelerating the pace of self-reliance and increasing investments in critical AI fields are necessary to strengthen breakthroughs in key technologies such as advanced chips, semiconductors, and AI infrastructures where external dependencies exist.

Universities, as hubs for innovation in AI development, play a crucial role in nurturing future talent in the AI domain. On the one hand, efforts should be made to strengthen basic education and bridge the urban-rural digital education gap. On the other hand, general AI education in universities should transition towards specialized education, avoiding the proliferation of disorganized and superficial courses introduced merely to capitalize on the "AI gold rush."

Finally, strengthening international discourse power is essential. The U.S. strategically leverages its hegemony in the AI field to dominate global discourse and suppress the development of cutting-edge technologies in other countries. China must release authoritative policy documents, actively participate in and promote international dialogue and cooperation in the AI domain, and foster greater understanding and recognition of China's role within the international community. This includes collaborating with the global community to address AI-related security challenges, establishing mechanisms for international AI dialogue and cooperation, and jointly formulating AI safety standards and governance rules. By promoting a fair and equitable international AI governance system through enhanced collaboration with advanced countries, China can elevate its influence on the global stage and contribute to the healthy development of AI worldwide.

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