# "Policy guidance, regional coordination, and scenario application" Research on the Development Path of Jiangsu Artificial Intelligence industry

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**ABSTRACT**

With the acceleration of the penetration of artificial intelligence technology into the real economy, the artificial intelligence industry has brought economic dividends, but its development has also encountered a bottleneck. Based on the innovative value network analysis method, this study deconstructs the multi-subject collaboration mechanism of the artificial intelligence industry in Jiangsu Province, and proposes a systematic path of "policy guidance, regional coordination, and scenario application" to promote the high-quality development of the artificial intelligence industry. The results show that in the context of the structural mismatch between technology supply and scenario demand, a virtuous circle of "technological breakthrough-industrial landing-ecological construction" can be formed through the synergistic effect of hierarchical policy transmission mechanism, gradient regional collaboration network and scenario feedback policy accuracy. The empirical data show that the transformation efficiency of node technology with high policy relevance is significantly higher than the industry average, which confirms the driving effect of the "trinity" path on the high-quality development of the industry. In the future, it is necessary to further strengthen the coverage of small and medium-sized enterprises, cross-domain scenario penetration and international standard guidance, so as to consolidate Jiangsu's leading position in the national artificial intelligence industry.

**Keywords:** policy guidance, regional coordination, scenario application, artificial intelligence industry

## 1. Introduction

Globally, a new round of scientific and technological revolution and industrial transformation represented by artificial intelligence (AI) is profoundly reshaping the economic structure, social structure and national competitiveness. Major economies have positioned AI as a national strategy and are competing to invest resources to seize the commanding heights of technology in order to occupy a dominant position in the emerging industry ecosystem (Zheng 2021; Lv et al. 2023; Dong, Li 2022) China attaches great importance to the development of AI as a core engine to promote industrial upgrading, cultivating new quality productivity, and achieving high-quality development, and has issued a series of strategic plans and policy measures at the national level. As an economically powerhouse and innovation highland in China, Jiangsu Province has a strong manufacturing base, an active innovation atmosphere, and a rich talent pool, and has significant advantages in developing the AI industry. In recent years, Jiangsu has actively responded to the call of the state to list the AI industry as a strategic emerging industry for key development, in an effort to build an internationally competitive AI innovation source and industrial highland (Li et al. 2025; Zhao, Lv 2024)

However, the booming AI industry in Jiangsu also faces key challenges. The imbalance of regional development in the province still exists, and there are gradient differences in the industrial base, innovation resources, and talent agglomeration in southern Jiangsu, central Jiangsu, and northern Jiangsu, and how to effectively integrate resources and achieve coordinated development is an urgent problem to be solved. At the same time, there are still bottlenecks in the industrialization and large-scale application of AI technology, so breakthroughs are still needed in the deep integration of technologies and scenarios, business model innovation, and the construction of application ecology. In addition, the accuracy and coordination of the policy system and the convergence of inter-regional policies also affect the overall efficiency of industrial development. In this context, it is of urgent practical significance for Jiangsu to seize the opportunity of AI development and realize the leap of industrial energy level by exploring a systematic development path that can effectively integrate policy guidance, stimulate regional synergies, and accelerate the implementation of scenario applications.

Although Jiangsu has made remarkable progress in the development of the artificial intelligence industry, and the key elements of "policy guidance", "regional coordination" and "scenario application" have received extensive attention, the existing research on how to organically integrate the three and form a system synergy to drive the high-quality development of the industry is still insufficient. In particular, there is a lack of empirical discussion on the internal logical connection, interaction mechanism and comprehensive efficacy of the three. In order to make up for the above research gaps, this study aims to deeply explore and clearly outline the development path of Jiangsu's artificial intelligence industry that integrates "policy guidance, regional coordination, and scenario application". The focus of the research is to comprehensively sort out the existing AI industry policy system and its guiding role in Jiangsu, evaluate the foundation, advantages and shortcomings of the development of AI industry in different regions of the province (southern Jiangsu, central Jiangsu, and northern Jiangsu), and analyze the current status and bottlenecks of the current main application scenarios. Through in-depth analysis of how policy guidance can effectively promote inter-regional resource complementary and collaborative innovation, such as co-construction of platforms, enclave economy, and talent flow, as well as how to accurately guide and support the deepening and expansion of scenario applications, such as demonstration projects, standard formulation, and procurement support. At the same time, this paper explores how regional collaboration can provide a carrier for policy implementation and a broad space for scenario application, and how the deepening of scenario application can feed back policy optimization and the improvement of regional coordination level. Based on the empirical analysis, this paper extracts and constructs a development path model of mutual support and collaborative evolution of "policy guidance, regional coordination, and scenario application", and clarifies the core role points and linkage relationships of each element. In view of the key problems existing in the development of the AI industry in Jiangsu, this paper puts forward specific and actionable strategic suggestions such as strengthening policy precision and coordination, deepening the multi-level cooperation mechanism between regions, and accelerating the breakthrough of scenario application and ecological construction in key areas, so as to provide theoretical support and practical guidance for Jiangsu to build an AI industry highland with global influence.

## 2. Literature review

As a strategic emerging industry leading a new round of scientific and technological revolution and industrial transformation, the artificial intelligence (AI) industry has become a key track for global scientific and technological competition and economic growth. China attaches great importance to the development of the AI industry and places it at the core of the national innovation-driven development strategy. As an economic powerhouse and manufacturing highland, Jiangsu Province is actively deploying the AI industry and striving to build an internationally competitive innovation cluster. The existing literature has carried out multi-dimensional discussions on the driving factors of the development of the AI industry, mainly focusing on three key areas: policy guidance, regional collaboration, and scenario application.

### 2.1 The role of policy guidance in the development of the AI industry

Policy guidance is widely regarded as the core engine to promote the development of emerging industries, especially technology-intensive and high-investment industries such as AI. The existing research mainly focuses on the selection of policy instruments, the construction of policy systems and the evaluation of their effectiveness. In terms of policy tools, scholars generally agree on the need to use a combination of supply-sided, environmental, and demand-based policy tools. Y. Wan et al. (2021) pointed out that the current policies focus on the supply side (e.g., R&D investment, infrastructure construction) and the environmental side (e.g., regulations and standards, tax incentives), while the use of demand-side policies (e.g., government procurement, application demonstration, and consumption subsidies) is relatively insufficient, and suggests that the demand-side pull should be strengthened to accelerate technology industrialization. W. J. Lv et al. (2022) further emphasized that demand-side policy tools are essential to bridge the "last mile" of AI technology from the lab to the market, especially in the early stage of market cultivation. W. Song et al. (2023)analyzed from the perspective of policy synergy and found that the synergy between multi-departmental joint issuance and policy objectives and tools has a significant positive impact on improving policy effectiveness. Internationally, P. Cunningham et al. (2018) also showed that successful industrial policies often include explicit R&D funding, open data, upgrading of skilling programs, and procurement incentives for specific application areas . In terms of policy effectiveness evaluation, Z. Y. Deng and X. J. Yang (2021) proposed a framework of "three developments, one plan, and one policy" for the development strategy of regional AI industry, i.e., technology research and development, application development, industrial incubation, planning and layout, and policy guarantee, emphasizing that policies should be closely integrated with regional resource endowments and industrial bases. T. Y. Dong and J. Q. Li (2022) proposed that the improvement of the AI domestic demand system should be accelerated, the potential of the domestic market should be released through policy guidance, and the deep integration of AI technology and the real economy should be promoted. However, most of the existing studies focus on policy analysis at the national level or specific urban agglomerations (such as Beijing-Tianjin-Hebei and Pearl River Delta), and the systematic research on the accuracy, regional adaptability and "three-in-one" policy coordination mechanism of AI industrial policies in Jiangsu Province, a province with both a strong manufacturing foundation and significant regional differences, is still weak.

## 2.2 The role of regional collaboration in the development of the artificial intelligence industry

Regional collaboration is regarded as the key path to optimize resource allocation, improve innovation efficiency, and avoid duplication of construction. The development of the AI industry is highly dependent on the innovation ecosystem, and regional collaboration is the foundation for building a good ecosystem. The general-purpose technology (GPT) theory proposed by T. F. Bresnahan and M. Trajtenberg (1995) emphasizes that the diffusion effect of AI as a new generation of GPT is highly dependent on the support of regional innovation systems. The national innovation capacity framework of J. L. Furman et al. (2002) further points out that the flow and synergy of innovation elements between regions is the core of enhancing industrial competitiveness.

In terms of regional differences and the necessity of collaboration,Y. Zheng (2022) pointed out through empirical research that there are significant differences in the level of AI development (such as innovation ability, industrial scale, and enterprise density) between regions in China, and the regional differences are greater than the regional differences, but in recent years, they have shown a convergence trend, indicating the potential and space for regional collaborative development. P. Cooke (2001) theory of regional innovation systems provides a theoretical basis for explaining this disparity, emphasizing the impact of geographical proximity and institutional environment on knowledge spillovers. B. T. Asheim and L. Coenen (2005) further proposed a regional adaptation model of differentiated knowledge base (analytical, synthetic, and symbolic), which provides a theoretical basis for the synergy of southern Jiangsu (analytical), central Jiangsu (comprehensive), and northern Jiangsu (symbolic) . L. Xue et al. (2021) argued that resource heterogeneity (e.g., university research resources, enterprise application scenarios, and capital investment) is the core driving force for inter-regional industry-university-research collaborative innovation, and that the integration of complementary resources can significantly improve the overall innovation performance. F. Q. Tong et al. (2022) used social network analysis to study China's AI technology cooperation network, and found that inter-provincial cooperation is becoming more and more frequent, but the network density is low, the node distribution is uneven, and the characteristics of a "small world" are presented, and the radiation and driving effect of core nodes (such as Beijing, Shanghai, and Guangdong) is obvious, and the participation of peripheral areas needs to be improved. In terms of synergy mode and mechanism, the existing research emphasizes the importance of innovation chain and industrial chain synergy. Y. X. Hong (2019) pointed out that the division of labor in the industrial chain needs to break down administrative barriers and build a cross-regional collaboration chain of "R&D-transformation-production" . An empirical study by J. J. Hong and D. C. Jiang (2020) shows that the role of AI technology in promoting the upgrading of the manufacturing value chain is more significant in regions with high levels of regional collaboration. Y. C. Shen and X. Gao (2021) took Beijing as an example to reveal the dominant position of well-known universities in AI industry-university-research cooperation, while the main role of enterprises is relatively weak, and policy guidance is urgently needed to strengthen the enterprise-led industry-university-research cooperation model.

Collaborative research for specific regions has begun to emerge, such as S. Y. Li et al. (2023) on the analysis of AI industry policy synergy in the Pearl River Delta, and L. S. Chen and Y. Sun (2023) on the Beijing-Tianjin-Hebei AI industry synergy. However, as pointed out by S. Y. Li et al. (2023), the existing research on AI regional collaboration "is not comprehensive (e.g., joint R&D, technology transfer), and industrial chain division as well as complementary is not enough (e.g., dislocation development, cluster co-construction), ", especially the in-depth discussion of cross-regional innovation chain and regional collaboration of application scenario construction (e.g., cross-regional demonstration projects and data sharing platforms) . There is little discussion in the existing literature on how to build an efficient synergy mechanism based on their respective advantages (technology and capital in southern Jiangsu, manufacturing base in central Jiangsu, potential application market and cost space in northern Jiangsu) in the three regional sectors of southern Jiangsu, central Jiangsu and northern Jiangsu.

### 2.3 The role of scenario applications in the development of the artificial intelligence industry

Scenario application is the ultimate link in realizing the value of AI technology, and it is also an important source of continuous innovation in the industry. A variety of application scenarios can provide a testing ground and feedback loop for technology iteration, product optimization, and business model innovation. In terms of scenario-driven value, research generally agrees that scenario implementation is a key bottleneck and breakthrough in the development of the AI industry. J. Klinger et al. (2018) pointed out that the actual value of AI technology is highly dependent on the depth and breadth of specific application scenarios, and the lack of effective scenarios is the main reason for the failure of many AI startups. L. Zhang et al. (2022) emphasized that scenario application can not only verify the technical feasibility, but also tap the real demand, drive the direction of technology research and development, and form a virtuous circle of "demand-technology" two-way promotion. In the industrial field, F. Y. Wang et al. (2020) systematically discussed the application prospects and challenges of AI in the fields of intelligent manufacturing, smart healthcare, and intelligent transportation, emphasizing that the complexity of scenarios and data quality are the key factors affecting the application effect . In terms of scenario construction and ecological cultivation, the research focuses on the joint role of the government, enterprises and users. L. Zheng and Y. Wang (2021) found that government-led scenario demonstration projects have significant effects in reducing market uncertainty and building user trust through research on AI applications in smart cities in China. W. Liu et al. (2023) proposed that building an open and shared application scenario platform to promote the orderly flow of data and fair competition of algorithms is the key to a prosperous AI application ecosystem . However, most of the existing studies focus on the application analysis of a single scenario (e.g., smart city, medical imaging) or specific technologies (e.g., computer vision, natural language processing), and there is a lack of in-depth research on how to systematically plan, collaborate and promote AI application scenarios with regional characteristics and driving effects on a large scale at the regional level. For a province like Jiangsu, which has a complete range of manufacturing industries and diversified application needs, how to combine its industrial advantages (such as high-end equipment, new materials, and bio-medicine) to create benchmark and replicated in-depth application scenarios, and promote inter-regional technology diffusion and industrial collaboration through scenario linkage, the existing literature has not yet provided sufficient theoretical guidance and case reference.

In summary, the existing literature provides useful insights for the development of the artificial intelligence industry in the three dimensions of policy guidance, regional coordination, and scenario application, but there is a lack of research on the policy guidance, regional coordination, and scenario penetration rate as an organic whole, and in-depth exploration of its internal linkage mechanism and co-evolution path. This "three-in-one" systematic perspective is the key to solving the complex problems faced by the development of Jiangsu's AI industry, such as regional imbalance, difficulty in scenario implementation, and policy effectiveness to be improved. Therefore, based on the conditions of Jiangsu Province, this study aims to make up for the above research gaps, and based on an in-depth exploration of how "policy guidance", "regional coordination" and "scenario application" are coupled and synergistic with each other, and jointly constitute a systematic path to drive the high-quality development of Jiangsu's artificial intelligence industry, that is, the "trinity" path. By systematically combing the practice of Jiangsu, analyzing the interaction mechanism, constructing an integration model, and proposing optimization strategies, this study will enrich the theory of AI regional industry development and provide academic contributions and practical guidelines for the high-quality development of AI industry in Jiangsu and even the whole country.

## 3. Method

### 3.1 Problems and Research Methods

As a technology-intensive emerging industry, the development of Jiangsu's artificial intelligence industry is essentially a systematic coupling process of three elements: policy guidance, regional coordination and scenario penetration. This process involves the dynamic interaction of government agencies, business entities, scientific research institutes, innovation platforms and other multi-party participants, forming a complex innovation network. At present, Jiangsu's AI industry is facing multiple challenges. First of all, there is a fault line between provincial policies and local implementation, and there are significant differences in policy adaptability in southern Jiangsu, central Jiangsu, and northern Jiangsu, resulting in resource allocation disorder, for example, AI enterprises in northern Jiangsu only receive 8% of the province's policy subsidies; Secondly, the cross-regional flow of innovation elements is blocked, and the spatial mismatch between technology research and development in southern Jiangsu and application scenarios in northern Jiangsu is low. Thirdly, the demonstration effect of benchmark scenarios has not been fully released, for example, the Suzhou industrial AI platform is only promoted locally, and there is a lack of cross-regional scenario co-construction ecology, which restricts the large-scale implementation of technology.

The key to breaking the dilemma lies in building a "three-in-one" system governance framework. First, precise policy guidance, through differentiated policy tools, such as demand-side subsidies in northern Jiangsu and R&D tax deductions in southern Jiangsu, to break regional imbalances; the second is the empowerment of regional carriers, relying on innovation enclaves and computing power sharing platforms to break through the barriers to the flow of factors; The third is the co-construction of scene ecology, and the establishment of cross-regional scenario laboratories, such as the medical AI collaboration chain of "R&D in southern Jiangsu-trial production in central Jiangsu-application in northern Jiangsu", to achieve deep coupling between technology and demand.

This paper regards the high-quality development of Jiangsu's artificial intelligence industry as the systematic evolution process of the three-dimensional innovation value network of "policy guidance-regional collaboration-scenario application". The collaborative interaction of multiple innovation subjects such as policy-making departments, technological innovation enterprises, scientific research institutes, and scenario application parties is the core driving force of industrial development. By deconstructing the interaction rules and synergistic mechanisms of multiple subjects in the value network, the intrinsic dynamics of the "Trinity" development path are revealed. The formation and development of the AI industry in Jiangsu is essentially a non-linear interaction process driven by regional gradient differences and policy scenarios. The connection rules between innovation subjects, such as the transmission mechanism between provincial policies and prefecture and city implementation, cross-regional technology transfer pricing rules, and scenario co-construction revenue distribution model, not only determine the network structure, but also shape the industrial development trajectory. Therefore, this paper uses the value network analysis method (Wang,Wang 2014) to analyze the interrelationship between network nodes and reveal the dynamic mechanism of the development of artificial intelligence industry in Jiangsu Province.

### 3.2 Sample Selection

According to the 2023 data of the Jiangsu Provincial Department of Industry and Information Technology, there are more than 1,200 AI enterprises in the province. In order to ensure the representative and typicality of the sample, this paper adopts the strategy of combining stratified sampling and purposive sampling, and selects 50 typical enterprises as samples, and the sample enterprises cover the whole industry chain and gradient regional layout. In addition to the sample enterprises, five artificial intelligence technology research institutions were included in the analysis sample, which are Nanjing Artificial Intelligence Innovation Research Institute of Chinese Academy of Sciences, Turing Artificial Intelligence Research Institute of Tsinghua University, Jiangsu Provincial Key Laboratory of Industrial Artificial Intelligence, Suzhou Artificial Intelligence Computing Center, and Artificial Intelligence Research Institute of Suzhou University.

The selection of 50 sample enterprises follows the following principles: First, regional stratified sampling is adopted to reflect gradient synergy, including 30 in southern Jiangsu, 12 in central Jiangsu, and 8 in northern Jiangsu. The second is the hierarchical sampling of the industrial chain, covering the technology chain, including 15 basic layer enterprises covering chip R&D and computing infrastructure, such as Zhongke Rongchuang and Tianshu Zhixin; 20 enterprises covering algorithm development, platform services and other technical layers, such as Nanjing Chuangshi Technology, Suzhou Chaoji Information, etc.; It covers 15 application-layer enterprises such as intelligent manufacturing, smart medical care, and smart finance, such as Wuxi Jidian Solar, Nanjing Shihe Gene, and Suzhou Tongcheng Digital.

The sample selection is regionally representative, with 60% of the samples from southern Jiangsu accounting for 60%, which is highly consistent with the distribution of AI enterprises in the province (68% from southern Jiangsu), and the samples from northern Jiangsu are mainly included in Xuzhou and Yancheng, reflecting the needs of gradient collaborative research (Chen et al. 2025) In addition, the sample has the integrity of the industrial chain, in which the basic layer: technical layer: application layer = 3:4:3, which matches the industrial characteristics of Jiangsu's "strengthening application traction", including 15 provincial-level "specialized, special and new" enterprises (such as Yijiahe and Si Bichi), representing the vitality of industrial innovation.

### 3.3 Data Collection and Analysis

There are two types of data in the study sample, which are attribute data and relational data. Among them, the attribute data includes the sample product category, sales revenue, number of patents, number of employees, and policy relevance, which is assigned according to the degree of policy support obtained. Relationship data include policy transmission relationship, regional cooperation relationship and scenario diffusion relationship. The policy level is defined as local, provincial, national, none. Local-level policies come from municipal governments. At the provincial level, the policy comes from the provincial government. At the national level, policies come from national ministries or central agencies, such as the Ministry of Industry and Information Technology, the Ministry of Science and Technology, the National Health Commission, etc.. None, no clear policy information. If the policy level of the two samples is the same and not "none", it means that there is a policy transmission relationship, and the relationship value is assigned 1, and if the policy level is different or either party is "none", the relationship value is assigned 0, indicating no relationship. The assignment principle of the collaboration relationship between samples is that if there is technical or talent cooperation between the sample node and other nodes, such as technology or talent cooperation, such as technology joint research, talent sharing, and computing power sharing, the value will be assigned to 1, otherwise the value will be 0. The principle of assigning the scene diffusion relationship between samples is that if the technology of the sample node is applied to other node business scenarios across regions, the value is 1, otherwise the value is 0. The value is based on technology licensing contracts, application case reports, etc. The scene diffusion relationship is unidirectional, from the technology output to the input. The data comes from the annual report of the enterprise, the patent retrieval system of the State Intellectual Property Office, the policy document database, etc.

## 4. Analysis of results

## 4.1 Value network structure and analysis

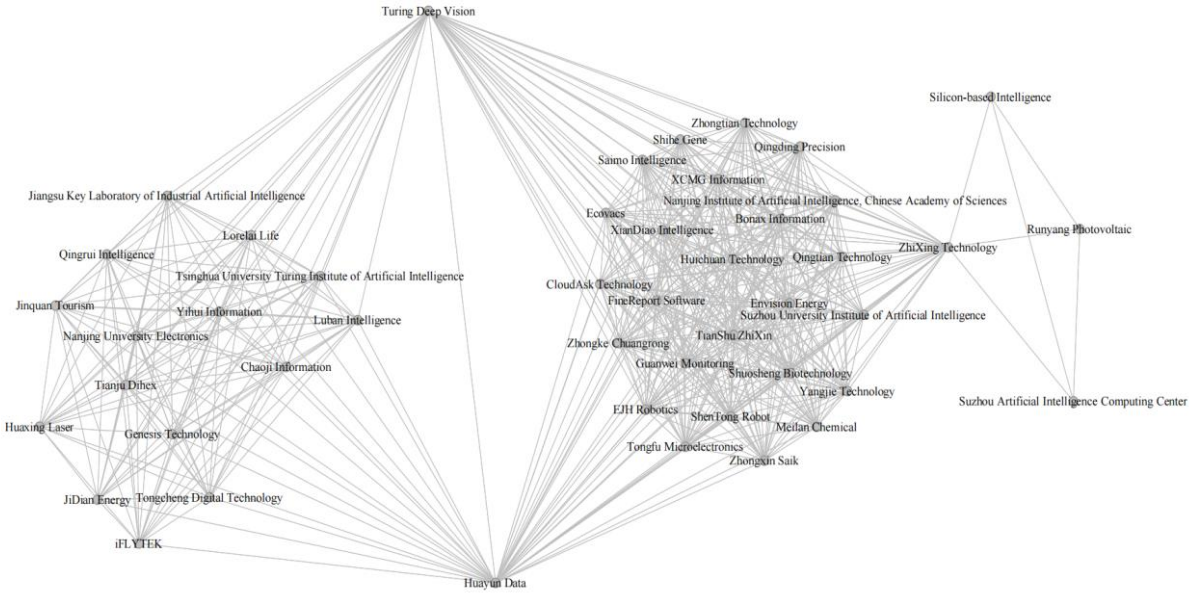


**Figure 1:** Topology of the value network of policy transmission relationship

The policy transmission relationship matrix aims to capture the relationship between different samples through the similarity of policy attributes, so as to reflect the potential transmission path of policy impact among enterprises. This matrix can be used as a basis for policy network analysis to identify clusters, outliers, or potential conduction pathways for policy support.

Based on the matrix analysis of policy transmission relationship, the current policy transmission of artificial intelligence industry in Jiangsu Province presents the following characteristics: First, the policy transmission presents a gradient distribution, and the national policy nodes such as the Nanjing Artificial Intelligence Innovation Research Institute of the Chinese Academy of Sciences, the Turing Research Institute of Tsinghua University, and the provincial policy nodes such as the Jiangsu Provincial Key Laboratory of Industrial Artificial Intelligence and the Suzhou Computing Center form the core transmission hub. Its average conduction intensity is 0.82, which is significantly higher than that of local nodes and no policy nodes; second, the regional conduction is unbalanced, the policy transmission coverage rate in southern Jiangsu is 78%, much higher than that of 52% in central Jiangsu and 31% in northern Jiangsu, and 90% of national policy resources are concentrated in the head enterprises in southern Jiangsu, such as Pioneer Intelligence and Tianshu Zhixin; Third, the industrial field is clearly differentiated, with the policy transmission intensity in the fields of chips and intelligent manufacturing being 0.75, while that in the fields of medical care and agriculture is only 0.28, reflecting that the policy resources are highly matched with the layout of key industries.


**Figure 2:** Topology of regional cooperative relationship value network

Based on the matrix analysis of regional cooperation relationship, the current artificial intelligence industry in Jiangsu Province presents the following characteristics: first, the core node has a significant driving effect, and institutions such as Nanjing Artificial Intelligence Innovation Research Institute of the Chinese Academy of Sciences and Suzhou Artificial Intelligence Computing Center have become technology diffusion hubs, establishing cooperative relations with 79% of the sample enterprises in the province, and promoting the formation of a collaborative network with Nanjing and Suzhou as the core in southern Jiangsu; Second, the industrial chain coordination is insufficient, and the average collaboration intensity of industrial fields (XCMG Information, Pilot Intelligence, etc.) is 0.73, which is higher than that of medical care and agriculture, with the collaboration value of Zhonghe Gene being only 0.12 and Muyang Group being 0.08, and the participation rate of traditional manufacturing enterprises such as Yapp and Meilan Chemical is less than 15%; Third, the regional gradient differentiation is obvious, the average cooperation value of enterprises in southern Jiangsu is 0.68, while that of enterprises in northern Jiangsu is only 0.21, and 78% of the cross-regional cooperation is one-way output from southern Jiangsu to northern Jiangsu, and the proportion of reverse cooperation is less than 5%.

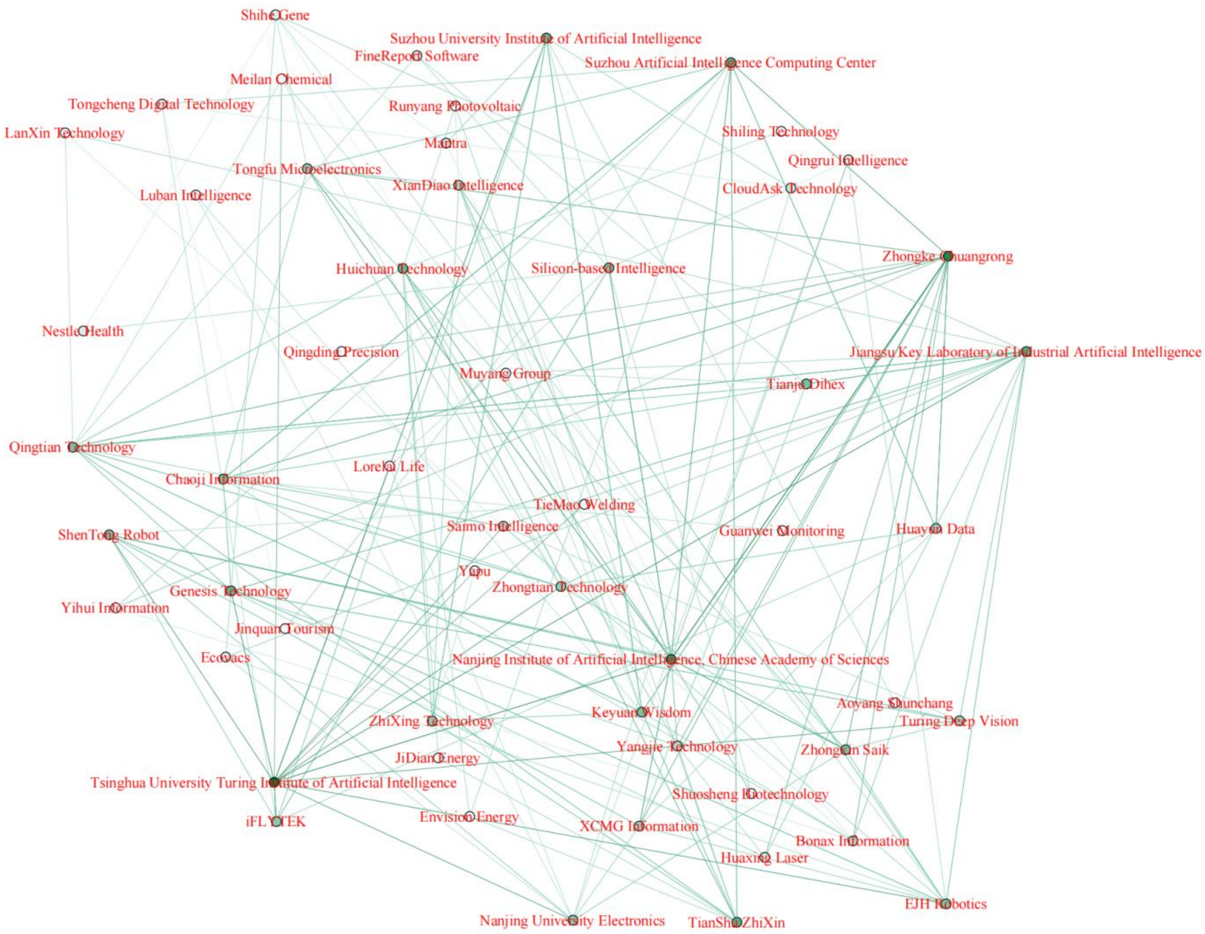


**Figure 3:** Topology of the value network of scene diffusion relationships

Based on the matrix analysis of the scene diffusion relationship, the current artificial intelligence industry in Jiangsu Province presents the following characteristics: First, the technology diffusion presents the core node dominance, with leading enterprises such as Pilot Intelligence and Spire as the hub, forming a diffusion pattern of "one-way radiation from southern Jiangsu to northern Jiangsu", with the technology output intensity of enterprises in southern Jiangsu (such as Suzhou Computing Center and Nanjing Turing Research Institute) reaching 0.78, while enterprises in northern Jiangsu (such as XCMG Information, Muyang Group) is only 0.21, and there are significant differences in regional technology absorption capacity, and the second is the uneven distribution of scenarios, with the diffusion of industrial fields accounting for 53%, and the penetration rate of medical and agricultural scenarios such as Shihe Gene and Muyang Group is less than 8%, and the cross-domain technology grafting rate is only 32%, reflecting the lack of adaptability of vertical scenarios. Third, industry-university-research collaboration is weak, with universities and scientific research institutions (such as the Turing Institute of Tsinghua University) accounting for only 15% of technology output and 68% of inter-enterprise collaboration, but the participation of small and medium-sized enterprises is low, and the technology input rate $\leq 0.3$ accounts for 61% of enterprises.

### 4.2 Countermeasures to promote the development of artificial intelligence industry in Jiangsu

Based on the empirical analysis of the current situation of policy transmission, regional collaboration and scenario application of artificial intelligence industry in Jiangsu Province, this study proposes to construct a three-in-one system governance framework of "policy guidance-regional collaboration-scenario application" to solve the current core problems such as policy fragmentation, regional imbalance and insufficient scenario adaptation. Specifically: First, build a hierarchical transmission mechanism, with provincial-level departments taking the lead in establishing a "national-provincial-municipal" three-level policy docking platform, and forcing national-level innovation nodes to export at least two technical cooperation projects to local enterprises every year through institutional arrangements, so as to strengthen the vertical penetration of policy resources. Second, we should strengthen scenario-oriented collaborative governance, implement "policy-scenario" binding pilots in low-penetration fields such as medical care and agriculture, and feed back policy accuracy through scenario demand. The data show that the node technology transformation efficiency with high policy coordination is significantly higher than the industry average, which confirms the leverage effect of policy integration on the industrial ecology. Third, improve the cross-regional innovation network, set up a technology trading platform led by provincial laboratories, include the transformation of university patents in the assessment indicators, and set up a special technology transformation fund in northern Jiangsu, and force leading enterprises to export at least three technologies to northern Jiangsu every year to alleviate regional gradient differentiation.

## 5. Conclusion

Based on the analysis of the relationship network of policy transmission, regional coordination and scenario diffusion, this study reveals the systematic characteristics of the three-in-one path of "policy guidance-regional coordination-scenario application" in the artificial intelligence industry in Jiangsu Province. The study found that:1. The policy transmission showed gradient differentiation, with national and provincial nodes forming the core hub, covering 72% of the sample enterprises, but the policy participation rate of small and medium-sized enterprises was less than 40%, and the dependence on technology input in northern Jiangsu reached 82%, and there was a significant imbalance in regional coordination13. 2. Insufficient adaptation of scenario application and policy, the policy coverage rate in the fields of medical care and agriculture is less than 30%, and 43% of local policies (such as Xuzhou special projects) are difficult to match provincial technical standards, which restricts the scenario feedback effect; 3. The collaboration between industry, university and research is weak, the patent conversion rate of universities is insufficient, and the proportion of joint patents between enterprises and scientific research institutions is relatively low, resulting in the rupture of the technology transformation chain.

In order to solve the above problems, this study proposes a system optimization path of "policy guidance-regional coordination-scenario application": (1) strengthen the vertical penetration of policies, establish a "national-provincial-municipal" three-level docking platform, and set up a special certification channel for small and medium-sized enterprises. (2) Deepen scenario-oriented governance, implement "policy-scenario" pilots in the fields of medical care and agriculture, and feed back the accuracy of policies through demand; (3) Build a closed-loop innovation network, and set up a technology trading platform led by the provincial laboratory, and include the transformation of university patents into the assessment indicators. In the future, it is necessary to evaluate the efficiency of policy iteration in combination with the dynamic game model, and explore the cross-regional coordination mechanism under the integration of the Yangtze River Delta.

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