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Research on the Role and Strategies of Artificial Intelligence in the Regional Economic Development of Yunnan and Its Function as a Radiation Center for South Asia and Southeast Asia

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Abstract: As the core technology in the era of digital economy, artificial intelligence (AI) is also a key engine driving high-quality regional economic development and enhancing the level of opening-up. As China's radiation center for South Asia and Southeast Asia, Yunnan boasts border location advantages, a foundation of characteristic industries, and support from opening-up policies. The application of AI can not only activate the momentum of regional economic development within the province, but also strengthen Yunnan's digital connectivity, industrial driving, and trade radiation capabilities to neighboring regions. Based on the current situation of Yunnan's regional economic development and the requirements for building a radiation center, this paper analyzes the realistic foundation for AI to empower Yunnan's economic development, expounds the core role of AI in the transformation and upgrading of Yunnan's regional economy and the improvement of border opening-up, and finally puts forward targeted strategies from the aspects of overall planning, infrastructure consolidation and industrial integration. The research aims to provide useful references for Yunnan to take AI as the starting point to realize coordinated regional economic development and strengthen its radiation function for South Asia and Southeast Asia.

Keywords: Artificial intelligence; Yunnan regional economy; Radiation center for South Asia and Southeast Asia; Digital economy; Industrial intelligence; Border opening-up

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1. Introduction

High-quality development is the core task of economic construction in the new era, and coordinated regional development and high-level opening-up are important paths to achieve high-quality development. Located in

the southwest border of China, Yunnan is a land hub connecting South Asia and Southeast Asia, and the state has clearly endowed Yunnan with the strategic positioning of building a radiation center for South Asia and Southeast Asia. At present, digital technology is accelerating its penetration into the real economy. Yunnan has issued policies such as the *Yunnan Provincial New Generation Artificial Intelligence Development Plan*, *14th Five-Year Plan for Digital Yunnan*, and *Yunnan Provincial Comprehensive Implementation of the "AI+" Action Plan*, and the AI industry and application scenarios have been gradually implemented, but the overall development is still in the initial stage. Based on Yunnan's reality, this paper focuses on the integration path of AI with regional economic development and radiation center construction, systematically analyzes the mechanism of action and realistic shortcomings, and puts forward implementation strategies to help Yunnan seize the opportunities of AI development and take a road of coordinated development of the digital economy and regions with border characteristics and opening-up traits.

2. Realistic foundation for AI to empower Yunnan's regional economic development

2.1. Improved policy system and clear development orientation

In 2019, *Yunnan Provincial New Generation Artificial Intelligence Development Plan* was issued to clarify the goals and paths for the development of the AI industry; in 2022, *14th Five-Year Plan for Digital Yunnan* was released, incorporating AI into the priorities of digital infrastructure and digital economy construction; in December 2025, *Yunnan Provincial Comprehensive Implementation of the "AI+" Action Plan* was introduced, focusing on six fields including science and technology, industry, people's livelihood, governance, and open cooperation to promote the in-depth integration of AI and the real economy and serve the construction of a radiation center for South Asia and Southeast Asia. These policies have set a clear direction for AI to empower the regional economy and strengthen radiation functions.

2.2. Initial scale of digital infrastructure and consolidating computing power support

The steady progress of Yunnan's digital infrastructure construction provides support for the development of AI. Kunming has become the fourth city in China gathering the international communication service exit and entry bureaus of the three basic telecommunication enterprises, with 13 cross-border land optical cables connecting Laos and Myanmar built, and the international transmission bandwidth and network diversion capacity significantly improved [1]; 5G networks cover urban and rural areas extensively, and fixed broadband reaches all administrative villages. In addition, Yunnan is promoting the construction of an integrated big data center system, planning a supercomputing center, laying out green data centers and AI computing power centers, supporting Kunming, Yuxi, and other places to build a central Yunnan data center cluster, and gradually forming a computing power system of "edge-cloud collaboration and echelon supply" [2]. These infrastructure achievements provide stable network and computing power guarantees for the implementation and application of AI technology.

2.3. Initial intelligence of characteristic industries and continuous expansion of application scenarios

AI is penetrating into Yunnan's plateau characteristic agriculture, non-ferrous metals, biomedicine, green energy, cultural tourism, and other industries, and the exploration of industrial intelligent applications continues to advance. For example, in the agricultural field, AI is used for precision planting and intelligent

monitoring of diseases and insect pests [3]; in the service industry, "Yunling Translation" supports two-way translation of 108 languages including Vietnamese, Lao and Burmese, the digital platform of the South Expo and the intelligent service system for cross-border e-commerce have been put into use, and smart tourism and smart ports are gradually promoted [4]. These application scenarios cover all links of production, circulation, and service, accumulating practical experience for the large-scale application of AI.

2.4. Prominent advantages of border opening-up and initial cross-border digital integration

Yunnan has numerous border ports and is an important gateway for trade between China and South Asia and Southeast Asia. Since the 14th Five-Year Plan period, Yunnan has promoted the construction of smart ports, promoted intelligent customs clearance modes such as "two-step declaration" and "advance declaration" to improve port customs clearance efficiency [5]. The operation of the China-Laos Railway has become digital, with functions such as intelligent scheduling of cross-border logistics and cargo tracking implemented, and cross-border cargo transportation covering 19 countries and regions. The combination of border opening-up and digital technology provides realistic scenarios for AI to serve cross-border cooperation and strengthen radiation functions [6].

3. Key value of AI in helping Yunnan play the role of a radiation center for South Asia and Southeast Asia

3.1. Consolidating cross-border digital connectivity and building an international information hub

AI is the core technology for Yunnan to build a digital hub for South Asia and Southeast Asia. Multilingual AI translation systems can solve the language barrier between Yunnan and neighboring countries, making cross-border communication, trade negotiations, and people-to-people exchanges smoother [7]. Combined with AI computing power, Kunming International Communication Exit and Entry Bureau has formed a low-latency and high-stability cross-border digital channel, becoming an information transfer station connecting China with South Asia and Southeast Asia [8]. Cross-border digital connectivity driven by AI has upgraded Yunnan from a geographical hub to a digital hub, laying a solid digital foundation for the construction of the radiation center.

3.2. Improving cross-border trade efficiency and expanding bilateral trade scale

AI can drive the whole-process upgrading of Yunnan's cross-border trade. Smart ports use AI to inspect goods, complete customs clearance approval, and logistics scheduling, shortening customs clearance time and reducing trade costs. With the help of AI for precision marketing, intelligent product selection, and cross-border payment risk control monitoring, cross-border e-commerce platforms help Yunnan enterprises explore the South Asia and Southeast Asia markets [9]. AI makes trade between Yunnan and neighboring countries more convenient and efficient, promoting the continuous expansion of the bilateral trade scale. From January to August 2025, Yunnan's import and export volume to countries jointly building the "Belt and Road" increased by 12.5% year-on-year, which shows that intelligent trade services are an important support.

3.3. Promoting cross-border industrial collaboration and strengthening industrial radiation capacity

Yunnan exports agricultural intelligent technology, biomedicine research and development technology, green energy operation and maintenance technology to South Asian and Southeast Asian countries through AI platforms, driving the upgrading of local industries [10]. At the same time, relying on AI, Yunnan carries out cross-border industrial division of labor and cooperation with neighboring countries to form cross-border industrial clusters.

3.4. Deepening cross-border people-to-people exchanges and enhancing regional cooperation stickiness

Applications driven by AI, such as multilingual services, smart cultural tourism, and online education, make cultural exchanges, educational cooperation, and tourism interconnection more convenient. AI extends regional cooperation from the trade level to the people-to-people level, enhances the cooperation stickiness between Yunnan and neighboring countries, and consolidates the social foundation for the construction of the radiation center.

4. Implementation strategies for AI to empower Yunnan's regional economy and radiation center construction

4.1. Improving top-level design and coordinating the integrated development of AI and radiation center construction

Yunnan needs to formulate a special plan for the integration of AI and radiation center construction, clarifying key tasks such as cross-border AI cooperation, port intelligence and digital hub construction; establish a cross-departmental coordination mechanism to coordinate resources from departments of industry and information technology, commerce, customs, development and reform, etc., to form policy synergy [11]; connect with the national "Data Element ×" Three-year Action Plan, integrate data elements and AI into the priorities of regional economic development, and highlight Yunnan's border opening-up and cross-border radiation characteristics.

4.2. Consolidating digital infrastructure and building a cross-border AI computing power hub

Continuously upgrade cross-border digital infrastructure, expand Kunming International Communication Exit and Entry Bureau, optimize China-Laos and China-Myanmar cross-border optical cables, and improve cross-border network stability and bandwidth; promote the construction of an integrated computing power system, accelerate the implementation of supercomputing centers and green data centers, extend computing power to border areas, and connect with the national "East Data West Calculation" project [12]; strengthen data security and cross-border data flow supervision, and improve the data security system.

4.3. Promoting the in-depth integration of AI and characteristic industries and activating economic momentum

Focus on Yunnan's advantageous industries and create a number of AI application demonstration scenarios. In the agricultural field, promote intelligent planting, disease and pest monitoring and agricultural product

traceability systems to improve the standardization level of plateau characteristic agriculture; in the industrial field, promote intelligent mineral exploration, unmanned mines, intelligent power dispatching and intelligent research and development of biomedicine to drive the intelligent transformation of resource-based industries; in the service industry, upgrade multilingual translation, smart cultural tourism and intelligent cross-border e-commerce services to improve service industry efficiency [13]. Relying on the "AI+" Action Plan, cultivate industry-specific large models and form a promotable industrial intelligent model.

4.4. Strengthening AI application in border ports and improving open radiation capacity

Comprehensively promote the construction of smart ports, use AI to realize intelligent customs clearance inspection, logistics scheduling and risk prevention and control, and promote convenient customs clearance modes such as "Two-Country One-Inspection"; promote the linkage between ports and border industrial parks, rely on AI to develop cross-border processing, intelligent logistics and cross-border finance to expand the port economy; upgrade the intelligent operation system of the China-Laos Railway, improve the efficiency of cross-border cargo transportation, and build an intelligent international logistics channel; rely on free trade pilot zones and comprehensive cross-border e-commerce pilot zones to develop AI cross-border trade application scenarios and expand Yunnan's trade radiation to South Asia and Southeast Asia [14].

4.5. Deepening cross-border digital cooperation and expanding the functions of the radiation center

Relying on Yunnan's location advantages, build a China-South Asia-Southeast Asia AI cooperation platform, hold digital cooperation forums and technical exchange meetings to promote the exchange of technology, standards and talents; jointly build AI application demonstration projects with neighboring countries, focusing on agriculture, cultural tourism, ports, education and other fields to export Yunnan's intelligent technologies and solutions [15]; rely on Kunming International Data Exchange, standardize cross-border data flow cooperation and build a regional data service center; promote the cross-border application of multilingual AI technologies such as "Yunling Translation" to deepen cooperation.

5. Conclusion

At present, Yunnan has the policy, infrastructure, industrial, and opening-up foundation for AI development, and the role of AI in industrial upgrading, resource allocation, innovation improvement, and cross-border cooperation is gradually emerging. Yunnan needs to base on its own location advantages and industrial characteristics to promote the integration of AI with the regional economy and radiation center construction. Through the implementation and application of AI technology, solve the problems of unbalanced regional development and slow transformation of traditional industries within the province, realize coordinated regional economic development, and at the same time consolidate the foundation of cross-border digital connectivity, industrial radiation and people-to-people exchanges, truly become a digital hub, industrial highland and opening-up frontier for South Asia and Southeast Asia, and contribute Yunnan's strength to the country's high-level opening-up and coordinated regional development.

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Disclosure statement

The authors declare no conflict of interest.

References

[1] Chen LJ, Wang CG, Wang MJ, et al., 2025, Review and Prospect: The 10th Anniversary of China's Peripheral Diplomacy and the Construction of a Radiation Center for South Asia and Southeast Asia. South Asian and Southeast Asian Studies, 2025(1): 1–36 + 155.

[2] Liang M, 2024, Driving the Quality and Efficiency Improvement of Yunnan's Plateau Characteristic Agriculture with New Quality Productive Forces. Socialist Forum, 2024(11): 12–13.

[3] Mi JN, 2024, Generative Governance: A New Governance Paradigm in the Era of Large Models. Social Sciences in China, 2024(10): 119–139 + 207.

[4] Wen X, Zhang C, Guo R, et al., 2024, Challenges and Suggestions for Promoting the Construction of Open Source Innovation Ecosystem of Large Models in China. Bulletin of the Chinese Academy of Sciences, 39(8): 1313–1326.

[5] Xue Y, Wei J, 2024, Research on the Impact of Artificial Intelligence on High-quality Regional Economic Development. China Business & Trade, 33(14): 15–18.

[6] Zheng XF, Liu Q, 2024, Promoting High-level Opening-up and Accelerating the Construction of a Radiation Center for South Asia and Southeast Asia—Summary of the Theoretical Seminar on "Steadily Expanding Institutional Opening-up between Yunnan and Neighboring Countries". Journal of the Party School of the Yunnan Provincial Committee of the CPC, 25(1): 169–172.

[7] Xia S, Jia ZG, 2023, Seizing the Opportunity of the 10th Anniversary of the "Belt and Road" to Accelerate Yunnan's Construction of a Radiation Center for South Asia and Southeast Asia. Globalization, 2023(6): 96–104 + 136.

[8] Liu JH, 2023, Research on the Impact of Digital Finance on High-quality Regional Economic Development and Countermeasures. China Circulation Economy, 2023(20): 157–160.

[9] Ma Y, 2023, Yunnan: Striving to Promote the Construction of a Radiation Center for South Asia and Southeast Asia. New West, 2023(8): 32–36.

[10] Ren BP, 2023, Theoretical Logic, Practical Path and Policy Transformation of High-quality Regional Economic Development in China in the New Development Stage. Journal of Sichuan University (Philosophy and Social Sciences Edition), 2023(3): 81–90 + 193.

[11] Li JM, Yin Q, Zhang YZ, et al., 2023, Analysis on the Synergistic Effect of the Composite System of "Open Corridor-Border Port-Border Regional Economy". Journal of Commercial Economics, 2023(5): 171–175.

[12] Chen N, Cai YZ, 2023, Artificial Intelligence Technological Innovation and Coordinated Regional Economic Development—Analysis of Technological Development Status and Regional Impact Based on Patent Data. Research on Economics and Management, 44(3): 16–40.

[13] Zhao SL, 2022, Building a Digital Hub for the Radiation Center for South Asia and Southeast Asia. Socialist Forum, 2022(10): 45–47.

[14] Zhao RJ, 2022, Fully Building a Frontier Gateway for the Radiation Center for South Asia and Southeast Asia. Socialist Forum, 2022(6): 18–20.

[15] Chen DY, Tang YG, 2021, Measurement and Analysis of the Impact of Artificial Intelligence Industry on Regional Economic Development. Science and Technology Management Research, 41(2): 138–144.