

Research on the Impact Mechanism of Artificial Intelligence on Enhancing Regional Competitiveness in Gansu Province

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ABSTRACT

With the rapid development of the economy, artificial intelligence, as the core driving force of technological revolution and industrial transformation, plays an important role in enhancing the competitiveness of the Gansu region. Artificial intelligence can promote the transformation and upgrading of industries in Gansu, facilitate technological innovation and talent aggregation, and optimize public services and social governance. During this process, there are issues such as imbalanced talent supply and demand, weak infrastructure and insufficient industrial collaboration, which are not conducive to enhancing the competitiveness of the Gansu region through artificial intelligence. Based on this, Gansu Province should focus on talent attraction, education, utilization, and retention to consolidate the foundation of data computing power, improve industrial collaboration mechanisms, in order to better promote regional economic development and enhance the competitiveness of Gansu region.

KEYWORDS

Artificial intelligence; Gansu regional competitiveness; Industrial synergy

1 The positive impact of artificial intelligence on enhancing regional competitiveness in Gansu province

1.1 Promote industrial transformation and upgrading, enhance regional industrial competitiveness

Industrial transformation and upgrading is essentially a process of adjusting industrial structure and improving production efficiency, aimed at promoting the development of traditional industries towards high-end, intelligent, and green development. As the core region of northwest China, Gansu Province is in an important stage of industrial structure transformation and upgrading, and the rapid development and application of artificial intelligence provide new opportunities and impetus for Gansu's industrial transformation. Firstly, artificial intelligence can achieve precise control and dynamic adjustment of production processes through algorithms and data analysis techniques, improve resource utilization efficiency in Gansu Province, reduce production costs, promote the high-end and intelligent development of traditional industries in Gansu, reshape new competitive advantages in industries, and enhance regional competitiveness in Gansu. Secondly, artificial intelligence can promote technological integration and innovation, give birth to new formats such as intelligent security and intelligent logistics, promote the formation of new industrial clusters in traditional industries in Gansu, optimize industrial structure, increase the proportion of emerging industries in industrial structure, and enhance the vitality and competitiveness of regional industrial development in Gansu. Thirdly, artificial intelligence, with its powerful data processing and analysis capabilities, can help traditional industries in Gansu accurately grasp market demand and trends, achieve personalized recommendations and precise advertising in the marketing process, improve sales efficiency and customer satisfaction, promote the extension of industries from low value-added links to high value-added links, and enhance the regional industrial competitiveness of Gansu.

1.2 Promote technological innovation and talent aggregation, strengthen regional innovation driving capabilities

As the core engine of technological innovation, artificial intelligence can provide new momentum for Gansu Province to break through traditional development bottlenecks, cultivate scientific research forces, improve the talent system, comprehensively strengthen the innovation driving ability of Gansu Province, and lay a solid technological foundation and talent support for enhancing the regional competitiveness of Gansu Province. Firstly, artificial intelligence can promote the establishment of innovative platforms such as intelligent computing centers and artificial intelligence laboratories in Gansu Province, accelerate the research and application of science and technology, shorten the transformation cycle of scientific and technological achievements, help Gansu Province achieve technological breakthroughs in new energy, characteristic agriculture and other fields, attract a large number of high-level and specialized talents, and enhance the regional competitiveness of Gansu. Secondly, artificial intelligence can enable Gansu

Province to focus on cutting-edge technological fields, break through key technological bottlenecks, enhance its influence in the field of basic research, create a high-end talent gathering highland, reserve scientific research forces to solve key technological problems in industrial development, enhance the resilience of Gansu's regional economic development, and improve its regional competitiveness. Thirdly, the booming development of artificial intelligence in Gansu Province can generate a large demand for talents. By constructing artificial intelligence industrial parks, introducing preferential policies and benefits and other measures, high-end talents from home and abroad can be attracted, injecting a continuous stream of power into regional innovation and development, and helping to enhance the competitiveness of Gansu region.

1.3 Optimize public services and social governance, enhance regional development soft power

Artificial intelligence can revolutionize the public service and social governance model in Gansu Province through intelligent means, enhancing residents' sense of happiness and urban attractiveness from precise optimization of resource allocation, efficient guarantee of social security, innovative upgrading of service models, and improving the soft power of regional development in Gansu. Firstly, Gansu Province can use artificial intelligence to accurately predict the demand for public resources such as education and healthcare, plan the layout of public facilities and resource allocation reasonably, achieve efficient utilization of public resources, improve the level of regional livelihood security, optimize public services and social governance, and enhance the competitiveness of Gansu region. Secondly, Gansu Province can use artificial intelligence to screen for hidden dangers such as online fraud and financial risks, ensure the safety of residents' lives and property, maintain social stability and harmony, optimize the business environment and residents' living environment, enhance regional attractiveness and sustainable development capabilities, and enhance the soft power of Gansu's regional development. Finally, Gansu Province can build a smart government platform through artificial intelligence technology to achieve "one-stop" government services, reduce transaction processes and time costs, improve government service efficiency, and enhance the soft power of regional development in Gansu. At the same time, Gansu Province can use big data to analyze enterprise needs, provide precise policy support and services for enterprises, optimize the business environment, attract more investment, enhance regional economic development vitality, and improve the competitiveness of Gansu region.

2 The problems and challenges brought by artificial intelligence to enhance the competitiveness of Gansu region

2.1 Imbalance between talent supply and demand, shortage of high-end and adaptable talents

At present, with the rapid development of artificial intelligence technology, the contradiction between talent supply and demand has become prominent in Gansu Province. On the one hand, there is a shortage of high-end leading talents. Compared with developed regions in the east, Gansu Province lacks sustained special support policies and funding in cutting-edge fields such as core algorithm research and development, complex system architecture design, etc., resulting in insufficient reserve of excellent scientific research talents, lagging behind in key technological innovation, and facing significant challenges in the high-end field of artificial intelligence, making it difficult to provide basic support for enhancing the regional competitiveness of Gansu. On the other hand, there is a shortage of skilled talents suitable for the industry. Due to the insufficient connection between the local vocational education and university training system in Gansu Province and industry demand, students' practical abilities are weak, which makes enterprises face the dilemma of "not being able to recruit capable personnel" when recruiting. For example, in the context of intelligent manufacturing, there is a shortage of composite talents who understand both industrial processes and artificial intelligence operations, which hinders the practical application of industries and slows down the pace of regional digital transformation, making it difficult to provide basic support for enhancing the competitiveness of Gansu region.

2.2 Weak infrastructure, insufficient data and computing power support

With the technological revolution and industrial transformation, there are shortcomings in infrastructure construction in some areas of Gansu Province in terms of resources and computing power. In terms of data resources, although Gansu Province has rich data resources such as characteristic industries, geography, and humanities, there are problems such as low standardization of data collection and lack of data sharing mechanisms among multiple departments and industries, which affect the accuracy and application effectiveness of algorithms and cannot accurately guide production. This makes it difficult for Gansu's characteristic industries to optimize their production processes through intelligent technology, thereby hindering the upgrading of industrial intelligence and value creation, hindering the formation of new economic growth points and development advantages, and suppressing the improvement of regional competitiveness in Gansu. In terms of computing power facilities, due to the limited layout of high-performance computing centers and intelligent computing clusters, enterprises in Gansu Province are easily limited by insufficient computing power when conducting

large-scale model training and complex scenario simulations, resulting in longer R&D cycles and reduced innovation efficiency. Compared with regions with abundant computing power, Gansu Province has limited computing resources and high costs, which puts it at a disadvantage in terms of the iteration of artificial intelligence technology and the speed of industrial application landing, thereby weakening the hardware foundation of regional industrial competition and hindering the enhancement of Gansu's regional competitiveness.

2.3 Insufficient industrial synergy and lagging integration of industrial chain and supply chain

Currently, there is a shortcoming in the imperfect industrial synergy mechanism in the economic development of Gansu Province, which has led to financing difficulties for regional industrial development. From the perspective of the industrial chain, there are problems in Gansu Province's industries, such as a lack of local core component manufacturing capabilities in the upstream basic layer of the industrial chain, scattered research and development of enterprises in the midstream technical layer, and insufficient depth of integration between downstream application layers and industries, resulting in long project delivery cycles and insufficient vitality in the industrial supply chain, which is not conducive to enhancing the regional competitiveness of Gansu. From the perspective of industrial ecology, Gansu Province has not established a clear industrial synergy mechanism, resulting in insufficient utilization of industrial synergy. This has led to weak motivation for enterprises in Gansu Province to participate in scientific research, lagging integration between the industrial chain and supply chain, and inability to gather development synergy. This has hindered regional competitiveness from achieving leapfrog improvement through artificial intelligence, which is not conducive to enhancing regional competitiveness in Gansu Province.

3 Suggestions for enhancing regional competitiveness in Gansu province in the era of artificial intelligence

3.1 Focusing on talent attraction, cultivation, utilization, and retention to solve the problem of supply-demand imbalance

Focusing on talent attraction, education, utilization, and retention is conducive to achieving a balance between talent supply and demand, solving the problem of supply-demand imbalance, and laying a solid intellectual foundation for enhancing the competitiveness of the Gansu region. Firstly, establish a precise talent attraction mechanism. The government of Gansu Province should establish a mechanism for talent attraction, education, utilization, and retention around cutting-edge fields such as artificial intelligence core algorithms, targeted the exploration of outstanding talents, enhance the innovation capability of the Gansu region, solve the problem of talent supply-demand imbalance, and provide talent support to enhance the competitiveness of the Gansu region. Secondly, strengthen the construction of practical training bases. In terms of professional settings, universities in Gansu Province should closely follow the development of the artificial intelligence industry, add suitable majors such as intelligent science and technology, and artificial intelligence applications, strengthen the construction of training bases, so that students can have access to real industrial data, equipment, and projects on campus, enhance practical operation ability, cultivate skilled talents who can directly enter enterprise positions, and enhance the regional competitiveness of Gansu. Thirdly, establish a sound knowledge system. Relevant enterprises in Gansu Province should focus on talent attraction, cultivation, utilization, and retention, establish a sound knowledge system, regularly organize technical training and exchange seminars that are in line with the forefront of the industry, enable employees to continuously improve their knowledge reserves, achieve career development and advancement within the enterprise, enhance employees' sense of belonging to the enterprise, and help Gansu Province enhance regional competitiveness.

3.2 Consolidate the foundation of data computing power to strengthen infrastructure support

Consolidating the foundation of data computing power is beneficial for improving data computing infrastructure, strengthening infrastructure support, and providing core hardware guarantees for enhancing the competitiveness of Gansu region. Firstly, we need to coordinate and promote the construction of a data governance system. The Gansu Provincial Government should rely on the government cloud platform to build data collection terminals, establish a data sharing and exchange platform, and at the same time formulate unified data collection standards throughout the province to regulate the data collection behavior of various departments and industries, promote compliant data circulation among government departments, enterprises, and research institutions, consolidate the data computing power base, and enhance the regional competitiveness of Gansu. Secondly, scientifically plan the layout of computing infrastructure. The Gansu Provincial Government should increase funding and policy support for the construction of high-performance computing centers and intelligent computing clusters, establish a computing power dispatch platform, achieve dynamic allocation of computing resources throughout the province, and introduce market competition

mechanisms to attract enterprises to participate in the construction and operation of computing power facilities, strengthen infrastructure support, and enhance regional competitiveness in Gansu. Finally, deepen the integration and empowerment of data and computing power. Enterprises in Gansu Province should explore the application of artificial intelligence based on high-quality datasets and computing resources provided by the government, collaborate with research institutions to develop intelligent solutions that are suitable for the characteristics of Gansu's industries, promote the transformation of artificial intelligence from technical reserves to actual productivity, and use the integration of data and computing applications to support industrial upgrading, strengthen hardware support for regional industrial competition, and help enhance the competitiveness of Gansu's region.

3.3 Improve the industrial synergy mechanism to build a healthy development ecosystem

Improving the industrial synergy mechanism is conducive to innovating financial services, building a healthy development ecosystem, and creating a high-quality industrial ecosystem to enhance the competitiveness of Gansu region. Firstly, promote collaborative efforts in the industrial chain. The Gansu Provincial Government should sort out the shortcomings in the upstream, midstream, and downstream of the industrial chain, introduce core enterprises such as chips in the upstream, and provide policy support, enhance technological synergy through park clustering and fund support in the midstream, publish a list of scenarios downstream to promote the integration of artificial intelligence and traditional industries, unblock bottlenecks in various links of the industrial chain, improve industrial collaboration mechanisms, and enhance the competitiveness of the Gansu region. Secondly, strengthen the role of innovation entities. Universities and research institutes in Gansu Province should improve the incentive mechanism for the transformation of scientific research achievements, actively connect with enterprise needs, customize research and development projects around technical difficulties of enterprises, accurately match scientific research achievements with industrial applications, accelerate the transformation of laboratory technology into industrial applications, build a benign development ecology, and enhance the regional competitiveness of Gansu. Thirdly, innovate service models. Financial institutions in Gansu Province should establish an artificial intelligence industry development fund to share the financing risks of enterprises. At the same time, a financial service docking platform should be established to help enterprises plan financing plans reasonably, provide financial support for the construction of industrial ecology, consolidate development forces, and help Gansu's regional competitiveness to leap forward.

4 Conclusion

Artificial intelligence provides new opportunities for enhancing the competitiveness of the Gansu region, but also brings many challenges. Gansu Province needs to focus on key aspects such as talent, data computing power, and industrial collaboration, accelerate the resolution of development bottlenecks, and deeply integrate artificial intelligence into industrial transformation, technological innovation, and social governance. In this way, it is necessary to seize the opportunity in the new round of technological revolution, promote high-quality development of regional economy, and achieve a comprehensive leap in the competitiveness of Gansu region.

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