

Investigating the Influence of Digital Economy Growth on Industrial Structural Optimization and Upgrading

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Abstract: With the rapid development of the social economy, science and technology continue to upgrade and optimize, ushering in the digital era, which provides technical support for industrial innovation and development across all sectors. At this stage, vigorously developing the digital economy has gradually become the only means to optimize and upgrade the industrial structure. Therefore, local leaders and relevant departments need to enhance the importance of constructing the digital economy, enabling the local industrial structure to be optimized and upgraded under the impetus of the digital economy, ultimately promoting overall economic high-quality development. To this end, this paper, combined with existing research results, first elaborates on the positive impact of the digital economy on the optimization and upgrading of the industrial structure. It then analyzes the challenges hindering the process of industrial structure optimization and upgrading and proposes practical pathways to address them, benefiting relevant stakeholders.

Keywords: Digital economy; Industrial structure; Optimization and upgrading; Path exploration

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1. Introduction

With the rapid development of modern science and technology, the digital economy has gradually become the mainstream choice for economic development in various countries. As China's digital economy becomes increasingly integrated into the transformation and upgrading of the industrial structure, it will be a new development direction in the future and will contribute to the high-quality development of our overall economy^[1]. As an economic revolution in the new era, the digital economy serves as a new driving force for local economic development and a fresh engine for regional economic growth. Local governments need to engage in active planning and rational policy layout, effectively leveraging their strategic advantages in the face of fierce competition. They should accelerate the empowerment of the industrial structure with the digital economy, aiming to optimize and upgrade it, and thereby create a new path for the transformation and breakthroughs in the industrial structure^[2].

2. The positive impact of digital economy growth on industrial structural optimization and upgrading

2.1. Improving product and service quality

In China, the growth of traditional industries has been impeded by a lack of recognition of the importance of independent innovation. This has led to a failure to establish more advanced production models or update existing development models in line with the requirements of the industry. As a result, achieving a steady upgrading of the industrial structure has proven to be a challenge^[3]. With the support of digital technology, it can not only take the initiative to change the traditional industry but also promote the research and development of new products, which provides a good condition for the construction of the digital supply chain. For example, digital technology can be adopted in the data analysis part of the production process, which will produce a large amount of data information in the production and operation process of the industry. Therefore, the flexible use of digital technology can realize the collection, collation, and analysis of information, so that the data and information can be rationally utilized, and at the same time, it can improve the service level of the industry and promote the upgrading of industrial products.

2.2. Reduce market transaction costs

With the support of digital technology, it is possible to optimize the work of the digital economy, reduce market transaction costs, achieve the purpose of best distribution and maintenance of social order, and further promote the scientific development of all walks of life in our country. For example, in the traditional manufacturing industry, digital technology is applied to a specific production process and permeates into every link^[4]. In this way, the digital transformation of the industry can be accelerated, and the output can be increased within the scope of the relevant industry. According to the data of the demonstration project of digital technology by the Ministry of Commerce, through the use of digital technology, the continuous combination of the digital economy and real economy can be promoted, the production efficiency of the industry can be improved, and a lot of costs can be saved.

2.3. Optimize the economic and industrial structure

The development of the digital economy cannot be achieved without the support of big data, so it is necessary to meet the individual needs of users and avoid waste. It has enhanced the internal driving force for regional economic development. The rapid application of digital technology in traditional industries can improve the digitalization degree of traditional industries and promote the gradual realization of scientific management in various industries with the support of digital platforms^[5]. At the same time, it can also further improve the industrial economic structure, thereby promoting the upgrading of industry.

2.4. Promoting green development

Traditional economic development needs the support of natural resources, and only when natural resources are regarded as a necessity for industrial development can high-quality regional economic development be promoted^[6]. If not managed, it will easily cause damage to the ecological environment. The digital economy itself has some unique features that are consistent with the concept of green and sustainable development and can empower traditional industries in the perspective of digital economy development, provide energy for industries, and protect the ecological environment.

3. Challenges during the process of industrial structural optimization and upgrading

3.1. Backward core digital technologies

In the communication industry, there is a lack of awareness and practical ability of technological innovation, it is difficult to develop patented technologies that can meet international standards and ensure adaptation to safety. For some high-end equipment, it is difficult to increase research investment, which leads to short-term innovation ability can not be improved. In particular, in some key digital technologies, there is a lack of international voice. Additionally, in the domestic manufacturing industry, most of the high-tech products rely on external supplies, it is difficult to fully play their advantages, let alone master the core digital technology, which can only act as a foundry in the production process, thus it is urgent to develop more high-end digital core technology^[7].

3.2. The lack of digital technical personnel

The sustainable development of any field requires the support of outstanding talents, and the field of the digital economy is no exception. It needs a large number of professional digital technical talents to infuse an inexhaustible impetus into the digital economy growth. In this way, human resources can be provided for the digital economy, and rational planning and strategic objectives can be made according to the development of the digital economy. However, the actual situation is not the case. At this stage, China lacks high-quality and high-level professionals in digital technology innovation, has not established a personnel training mechanism, has not invested more energy in digital technology innovation, and ultimately cannot keep up with the pace of industrial structure optimization and upgrading.

3.3. The system is in urgent need of improvement

With the rapid development of the digital economy, the existing relevant laws and regulations have not been optimized according to various problems and chaos, which makes the laws and regulations of the digital economy not sound and standardized. The root cause of the above problems is that social development cannot keep up with the development of the digital economy, so it is difficult to effectively remedy the loopholes in the current digital economy. In addition, there is also a lack of a regulatory system, so it is prone to various adverse events and social chaos, which restricts the stable development of the digital economy. In the process of managing the digital economy, if a supervision system that meets its development requirements cannot be formulated, it is difficult to regulate and supervise the relevant working procedures, which ultimately increases the risks of the digital economy and restricts the high-quality development of the real economy.

3.4. Potential cyber security risks

The normal and safe operation of the digital economy can provide more comprehensive and accurate data information for the optimization and upgrading of the industrial structure. The infrastructure of the digital economy affects network security. If it cannot operate and manage on the basis of ensuring personal privacy, improving laws and regulations, and lacking supervision and management, it is easy to have data leakage, resulting in malicious use of personal information.

3.5. Poor governance of the digital economy

At present, in the context of global integration, the digital economy is playing a catalytic role in all fields, but the digital economy governance systems and rules differ from region to region, making it difficult to realize data sharing. In particular, some developing countries do not have a large voice to participate in the discussion on the

digital economy, so it is impossible to achieve accurate management of the digital economy on a global scale. Therefore, active participation in digital economic governance is crucial for reducing uneven development in China ^[8].

4. Digital economic growth path for industrial structural optimization and upgrading

4.1. Enhancing innovation capacity in core digital technologies

Innovation and optimization of digital technologies in various industries will help change the way traditional digital technologies are used and continue to expand the scale of digital economy development. To ensure that digital technology can better serve the optimization and upgrading of industrial structure, it is necessary to fully tap its potential in industry productivity and operational efficiency, seize the opportunity of the development of digital economy, strengthen the research and development and application of core digital technologies, and promote the innovative development of digital economy ^[9]. In actual operation, it is necessary to establish a scientific and reasonable core digital technology innovation system, thereby achieving the purpose of effective empowerment, achieving the established development goals of the digital economy, and realizing the wide application of digital technology by creating a scientific and reasonable core digital technology innovation system. In view of the application and transformation of core digital technology patents, the existing patent system should be improved as soon as possible to handle the relationship between patent technology and innovative applications as well as establish a patent system in line with the innovation of the digital economy.

4.2. Strengthen the management of the quality of digital technicians

To improve the professional ability and overall quality of digital technical personnel, it is necessary to establish a demand-oriented and reliable demand-oriented mechanism, thus improving the overall quality, expanding the team members, planning the overall local industrial structure at the present stage, and rationally allocating human resources. In terms of talent selection and recruitment, local governments need to formulate recruitment conditions that meet the examination conditions, which should have both solid theoretical knowledge and rich practical work experience, and constantly improve their data application ability in the fields of data exchange and scientific research, thereby providing talent support for promoting the high-quality development of regional economy. In addition, in terms of training innovative talents, local governments need to encourage strategic and in-depth cooperation between enterprises and schools, further improve the training mechanism for innovative talents, and build a more creative and cohesive digital economy talent team. All regions should also actively do a good job in talent reserve, improve the creativity of digital technology employees, guide them through incentive systems, and enhance their work enthusiasm and enthusiasm. Strengthening research on theoretical and practical applications would make a greater contribution to the development of the digital economy ^[10].

4.3. Carry out institutional reform in light of the development of the digital economy

The current regulatory system of the digital economy is already struggling to adapt to the rapid development of the Internet era. Without innovation and reform, it could easily lead to various illegal and criminal activities. Therefore, in the practical operational process, there is a constant need for improvement in the regulatory system and strengthening of supervision and management over digital enterprises. This is crucial for effectively preventing the potential risks that digital technology may pose to the development of real industries. Local government agencies must consistently adhere to the “people-oriented” principle of talent management and institutional reform to foster the development of the digital economy ^[11]. The development of the digital

economy differs significantly from traditional industries. Hence, proactive steps should be taken to change the traditional development mindset and to devise a management system suited to contemporary needs. This approach will ultimately facilitate the deep integration of the digital economy with the optimization and upgrading of the industrial structure.

4.4. Strengthen security management of the digital economy

In the process of application and development of the digital economy, numerous insecure factors persist, leading to digital security risks, personal privacy violations, and other issues. Therefore, it is imperative to establish a more robust data protection system to mitigate insecure factors and prevent infringements. Local government departments must enhance laws and regulations pertaining to the digital economy and enforce stricter standards to ensure the security and reliability of data information. For economically underdeveloped towns and villages, efforts should be directed towards enhancing network coverage and fostering collaboration among relevant industries. This will facilitate increased investment in the development of the digital economy and the optimization and upgrading of the industrial structure. It is essential to implement comprehensive security management of digital intelligent infrastructure and adeptly address potential data security risks ^[12].

4.5. Promote the development of industrial digitization and bridge the digital divide

To foster the effective integration of the digital economy with the real industry, it is imperative to enhance the construction process of digital infrastructure and swiftly implement digital management in traditional sectors such as industry and agriculture. This initiative will pave the way for a new digital economy paradigm and establish a robust foundation for future industrial development. Currently, some traditional industries have yet to fully embrace the digital economy and recognize the advantageous applications of digital technology. Thus, it is essential to continually expand the coverage of digital information and integrate digital networks into the developmental fabric of various regions ^[13]. Firstly, relevant departments must augment support for the digital economy, particularly in areas where industrial digitalization lags, thereby facilitating the optimization and upgrading of the industrial structure. Secondly, regions should prioritize the adoption of communication technology, Internet of Things (IoT) technology, and artificial intelligence (AI) to enhance digital capabilities. This will advance the construction of digital network platforms and offer more accessible services for the integration of the digital economy and industry ^[14]. Simultaneously, promoting the integration of digital technology with the real economy through financial guidance is crucial. This approach will narrow the digital divide between urban and rural areas, fully leveraging the advantages of digital technology.

4.6. Focus on the management of the digital economy on a global scale

The digital economy stands as a crucial driver of economic development in the modern era, playing a pivotal role in shaping the global economy. To effectively govern the digital economy and chart a new course forward, it is imperative to acknowledge the regional development disparities it encounters. Collaborating with other nations worldwide, we must engage in discussions on the governance principles governing the global digital economy. This entails eliminating various factors that impede digital economy development and fostering cooperation among countries to promote sustainable growth ^[15]. By addressing challenges such as information asymmetry and difficulties in information sharing through international collaboration, the way for the inclusive and equitable advancement of the digital economy on a global scale can be paved.

5. Conclusion

In summary, amidst the shifting landscape of science and technology, the judicious and scientific utilization of digital technology can propel the optimization and upgrading of industrial structures. This, in turn, fosters the development of local industrialization, drives the transformation and upgrading of regional industries, and provides robust momentum for high-quality economic development. Hence, it is imperative to intensify exploration into the positive impacts of digital economy development on the optimization and upgrading of industrial structures. Leveraging the effectiveness of the digital economy across various fronts is essential to ultimately realizing the transformation and optimization of industrial structures, thereby contributing to the long-term growth of the overall economy.

Disclosure statement

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