Research on the Impact of Digital Economy on the Economic Structure of Old Industrial Cities

- Taking Shiyan City as an Example

Shen Ling, Kong Peng*

Party and Government Office of Hubei industrial polytechnic, Shiyan, Hubei Province, China

*4476515@qq.com

Abstract. With the rapid development of information technology, the construction of smart campuses has gradually become an important direction in the field of education. However, in this process, ethical issues related to technology are becoming increasingly prominent[1]. This article aims to explore the boundaries of technological ethics in the construction of smart campuses, and construct a responsibility model, especially by combining quantifiable data anonymization technology, encryption technology, and the combination of hierarchical management and anonymity technology for privacy protection strategies, in order to ensure that the rights of teachers and students are not violated while ensuring technological development.

Keywords: Smart Campus Construction, Technological Ethics, Privacy Protection Strategies, Responsibility Model, Quantifiable Techniques

1 Introduction

Shiyan City, as a typical old industrial city, has long been dominated by traditional manufacturing, with a relatively simple economic structure. However, with the rapid rise of the digital economy, Shiyan City has begun to actively explore the path of digital transformation and strive to build a strong digital economy city. The digital economy, with its unique advantages, has provided new impetus for the economic structure adjustment and industrial upgrading of Shiyan City.

The development of digital economy has not only changed the industrial pattern of Shiyan City, but also profoundly influenced the employment structure and regional economic development model. On the one hand, the digital economy has given birth to a large number of emerging industries and formats, bringing more employment opportunities and economic growth points to Shiyan City; On the other hand, the digital economy has also promoted the transformation and upgrading of traditional industries, improving economic efficiency and competitiveness. However, the development of the digital economy also faces some challenges, such as technological bottlenecks, talent shortages, data security, and other issues. Therefore, while promoting the development of the digital economy, Shiyan City needs to strengthen

© The Author(s) 2024
Y. Kuang et al. (eds.), *Proceedings of the 2024 5th International Conference on Education, Knowledge and Information Management (ICEKIM 2024)*, Atlantis Highlights in Computer Sciences 22,
https://doi.org/10.2991/978-94-6463-502-7_64

technological innovation and talent cultivation to ensure the healthy development of the digital economy.

2 Analysis of the Impact of Digital Economy on the Industrial Structure of Shiyan City

2.1 The Rise of Emerging Industries and the Transformation of Traditional Industries

With the vigorous development of the digital economy, the industrial structure of Shiyan City is undergoing profound changes. On the one hand, emerging industries such as e-commerce, cloud computing, and big data services have rapidly emerged as new engines driving economic growth. These emerging industries not only bring technological innovation and industrial upgrading to Shiyan City, but also attract a large amount of investment and talent gathering, further accelerating economic development[2]. On the other hand, traditional industries are gradually undergoing digital transformation driven by the digital economy. Traditional manufacturing has improved production efficiency and quality by introducing intelligent and automated production lines. At the same time, the service industry has also utilized digital technology to achieve innovation and upgrading of service models, improving service quality and efficiency.

2.2 Integration and Optimization of the Industrial Chain

The digital economy has promoted the integration and optimization of the industrial chain in Shiyan City. Through the application of digital technology, the information flow between various links in the industrial chain is more smooth, and collaborative efficiency is significantly improved. In addition, the construction of digital platforms has also provided more possibilities for cooperation between enterprises, promoting deep integration of the industrial chain. This integration and optimization not only enhances the overall competitiveness of the industrial chain, but also brings more development opportunities for enterprises. For example, through digital transformation, enterprises have successfully transformed from production-oriented to service-oriented enterprises, further expanding their market space.

2.3 New Models of Regional Economic Development

The digital economy has brought a new regional economic development model to Shiyan City. On the one hand, the application of digital technology has promoted the coordinated development of regional economy, strengthened economic connections and cooperation with surrounding areas[3]. On the other hand, the digital economy has also promoted the integrated development of urban and rural economies, promoting the development of emerging formats such as rural e-commerce and digital agriculture.The associated logical architecture is shown in Figure 1

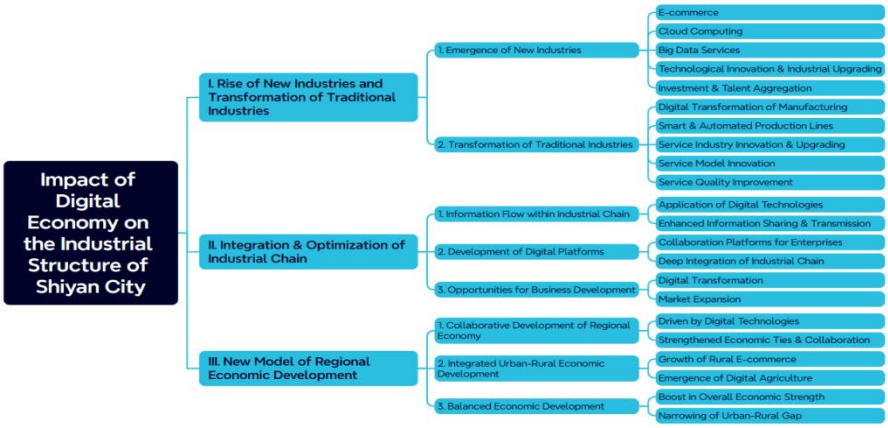

Fig. 1. Impact of Digital Economy on the Industrial Structure of Shiyan City

3 Analysis of the Impact of Digital Economy on the Employment Structure of Shiyan City

3.1 The Emergence and Expansion of Emerging Employment Opportunities

Driven by the digital economy, the employment structure of Shiyan City has undergone significant changes. Firstly, a series of emerging employment positions related to the digital economy have emerged, such as data analysts, artificial intelligence engineers, e-commerce operations, etc. These positions not only have a significant increase in quantity, but also have relatively high salary levels, attracting a large number of young people's attention and participation.

In addition, the rapid development of the digital economy has also driven an increase in demand for other positions in the relevant industry chain. For example, with the prosperity of e-commerce[4], employment opportunities in industries such as logistics, warehousing, and express delivery have also increased significantly. These emerging positions provide more employment opportunities for Shiyan City and help alleviate employment pressure.

3.2 The Transformation and Upgrading of Traditional Positions

The digital economy has not only created new job opportunities, but also had a profound impact on traditional jobs. On the one hand, some traditional positions have achieved transformation and upgrading under the promotion of digital technology. For example, production line workers in traditional manufacturing gradually transform into operators or maintenance personnel in intelligent manufacturing by learning and mastering digital skills.

On the other hand, the digital economy has also given rise to some interdisciplinary and comprehensive positions. These positions require practitioners to possess multiple skills and knowledge backgrounds to adapt to rapidly changing market demands[5]. This cross disciplinary and comprehensive job position has brought new vitality to the employment market in Shiyan City, and also improved the employment competitiveness of workers.

3.3 Improvement and Guarantee of Employment Quality

The development of the digital economy has not only increased the number and types of employment opportunities, but also improved the quality of employment. On the one hand, the application of digital technology has made many jobs more efficient and convenient, reducing the labor intensity of workers. On the other hand, the development of the digital economy has also promoted the improvement of labor skills and career development. By continuously learning and mastering new technologies, workers can continuously improve their professional level and salary benefits.

At the same time, the government and enterprises have also strengthened the protection of the rights and interests of workers in the digital economy field. By formulating relevant policy measures and establishing a sound labor security system, we ensure that workers in the digital economy can receive the necessary rewards and guarantees for their work.

4 Analysis of the Impact of Digital Economy on the Regional Economic Development Model of Shiyan City

4.1 The Accelerated Formation of the Innovation Driven Development Model

Driven by the digital economy, the regional economy of Shiyan City is gradually shifting from traditional factor driven to innovation driven. The application and innovation of digital technology have become the core driving force for economic development, attracting a large number of innovative enterprises and talent gathering[6]. These enterprises and talents have injected new vitality into the economic development of Shiyan City through continuous research and development of new technologies, products, and services.

At the same time, the government has also increased its support for the development of the digital economy and introduced a series of policy measures to encourage enterprises to strengthen technological innovation and research and development investment. These policies provide strong guarantees for the innovative development of the digital economy and further accelerate the formation of an innovation driven development model.

4.2 Deepening the Promotion of Green and Low Carbon Development Models

The digital economy helps Shiyan City achieve green and low-carbon development. By applying digital technology, Shiyan City can optimize resource allocation, reduce energy consumption and environmental pollution. For example, intelligent transportation systems can reduce traffic congestion and exhaust emissions, and smart buildings can improve energy efficiency.

In addition, the digital economy has also spurred the development of green industries. Enterprises in fields such as clean energy, energy conservation and environmental protection have achieved rapid development with the support of digital technology, further promoting the green and low-carbon transformation of the economy in Shiyan City.

4.3 Expansion and Extension of the Open Cooperation Development Model

The digital economy has made it more convenient for Shiyan City to integrate into the global economic system, promoting the expansion and extension of the open cooperation development model. Through the e-commerce platform, products from Shiyan City can enter domestic and international markets more quickly, attracting more investment and trading partners.

At the same time, the digital economy has also strengthened the economic connections and cooperation between Shiyan City and other regions. Through the exchange and sharing of digital technology, Shiyan City can draw on the successful experiences and technological achievements of other regions to achieve mutually beneficial and win-win development.The associated logical architecture is shown in Figure 2

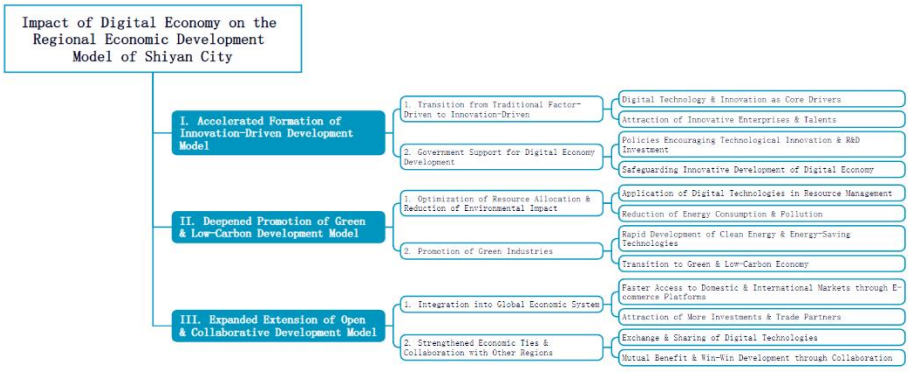

Fig. 2. Impact of Digital Economy on the Regional Economic Development Model of Shiyan City

5 Conclusion

Firstly, the digital economy has transformed the employment landscape in old industrial cities. On one hand, it has created new job opportunities in areas such as e-commerce, data analytics, and digital marketing[7]. These sectors require skilled workers who are proficient in technology and innovation, providing new avenues for employment growth. On the other hand, traditional industries that were once the backbone of old industrial cities may face challenges due to automation and digitization, leading to job losses and displacement.

To balance economic development with social responsibility, Shiyan City should prioritize skills training and reskilling programs for its workforce. This will enable workers to adapt to the changing job market and seize new opportunities created by the digital economy. Additionally, policies should be formulated to protect vulnerable groups, such as those employed in declining industries, and provide them with support and assistance during this transition.

Moreover, the social structure of old industrial cities is also undergoing significant changes due to the digital economy[8]. Digital technologies are breaking down geographical barriers, leading to increased connectivity and interaction between different communities and groups. This can promote social integration and diversity, but also poses challenges in maintaining community cohesion and cultural identity.

Therefore, Shiyan City should promote inclusive digital development that takes into account the needs and aspirations of all its citizens[9]. This includes ensuring access to digital technologies and services for all, regardless of their socio-economic status or geographical location. By doing so, the city can harness the full potential of the digital economy while minimizing its negative social impacts.

In addition to exploring the social and employment impacts of the digital economy, it's also crucial to evaluate the effectiveness of policy formulation and implementation in promoting its development[10]. Policies should be tailored to the specific needs and challenges of Shiyan City and other old industrial cities, taking into account factors such as the local industrial structure, workforce skills, and infrastructure capabilities.

Regular assessments should be conducted to monitor the progress and outcomes of policy implementation, and adjustments should be made as needed to ensure their effectiveness. This requires a close collaboration between government agencies, businesses, and other stakeholders to ensure a coordinated and comprehensive approach to digital economy development.

Reference

1. Lu Yuxiu Research on the Impact of Digital Economy on the High Quality Development of Urban Economy [D] Southwest University of Finance and Economics, 2022
2. Wang Yifei, Hou Nuo Shuqi, Yao Kai The impact of digital economy on the transformation and upgrading of China's industrial structure [J] Business Economics Research, 2022, No.844 (09): 185-188

3. Huang Qunhui, Yu Yongze, Zhang Songlin Internet development and manufacturing productivity improvement: internal mechanism and China's experience [J] China Industrial Economy, 2019, No.377 (08): 5-23
4. Hu Ying, Dong Chao, Wang Bing, etc Research on Digital Collaborative Development of Automotive Parts Industry in Shiyan City [J] Technology Entrepreneurship Monthly, 2021
5. Dong Qingsen, Liu Jie Hubei Shiyan cultivates a green and low-carbon industrial cluster Comprehensive Utilization of Chinese Tire Resources, 2022, No.303 (09): 34
6. Zhu Xiaona, Liao Zhaoguang A Study on the Transformation and Upgrading Strategies of the Tourism Industry in Shiyan City under the Background of Smart Tourism [J] Journal of Yunyang Normal College, 2015, 35 (06): 42-45
7. Xing Hongzhen, Chen Lei Reflection on the Informationization Construction of Automobile Enterprises in Shiyan City under the Background of "New Infrastructure" Journal of Hubei Vocational and Technical College of Industry, 2021, 34 (02): 35-39
8. Li Lin, Zeng Wenhua, Du Dengbo Casting a New Engine of Car City with High tech - A Record of Innovation and Entrepreneurship in Shiyan Economic Development Zone, Hubei Province [J] China High tech Zone, 2008, No.81 (05): 34-39
9. Smith, P. & Johnson, A. The Impact of Digital Economy on Urban Sustainability: A Comparative Analysis of European Cities [J]. Sustainable Cities and Society, 2021, 74: 102837.
10. Lee, J. & Kim, Y. Exploring the Role of Digital Transformation in Enhancing Manufacturing Competitiveness: Evidence from South Korea [J]. Technological Forecasting and Social Change, 2020, 153: 119909.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (http://creativecommons.org/licenses/by-nc/4.0/), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.