International Journal of Innovation Engineering and Science Research
(ISSN: 2581-4591)
www.ijiesr.com

Digital Economy and Real Economy Deep Fusion to Promote Yiyang's High Quality Development Path

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ABSTRACT

A literature review and theoretical review were conducted at the outset of this study to clarify the fundamental concepts, theoretical basis and cutting-edge dynamics of the deep integration of the digital economy and the real economy. On this basis, a questionnaire survey, field interviews and data mining, among other methods, were employed to gain a comprehensive understanding of the status, characteristics and challenges of the digital economy and real economy in Yiyang City. Moreover, through the combination of case studies and comparative analysis, an investigation is conducted into the path, model and mechanism of deep integration of the digital economy and the real economy. Ultimately, the paper presents targeted policy recommendations and developmental strategies to facilitate the robust and expedient advancement of Yiyang's digital economy, while concurrently bolstering the competitiveness and innovative capacity of the real economy.

Keywords: Digital Economy; Real Economy; Deep Fusion; High Quality Development; Path Selection

I. INTRODUCITION

The research on the deep integration mechanism of the digital economy and the real economy in Yiyang City has significant practical implications and theoretical value. The rapid development and extensive application of digital technology have resulted in the digital economy becoming a significant driver of global economic growth. Nevertheless, the question of how to achieve sustained and healthy economic development through the deep integration of the digital and real economies remains a significant challenge. As an important city in Hunan Province, Yiyang City's integrated development of the digital economy and the real economy has significant illustrative value for Hunan Province and, indeed, the entire country. It is therefore evident that research into the deep integration mechanism of the digital economy and the real economy in Yiyang City would prove beneficial in facilitating the

economic development of Yiyang City, while also providing a valuable point of reference for other regions.

From a theoretical perspective, this study contributes to the advancement of the theoretical framework and the understanding of the mechanisms through which the deep integration of the digital economy and the real economy is achieved. It also offers insights that can be used to refine and develop relevant theories. By examining the interrelations and interpenetration of the digital and real economies, we can discern the general laws and trends of digital economic development, which can then be extrapolated to other regions. The development of the digital economy provides theoretical support and practical guidance.

In practice, the research can provide the Yiyang City government and enterprises with decision-making support and policy suggestions. By undertaking an in-depth analysis of the current situation and issues pertaining to the digital economy and the real economy of Yiyang City, it is possible to propose targeted policy measures and development suggestions that would facilitate the healthy and rapid development of the digital economy of Yiyang City, while also enhancing the competitiveness and innovation capacity of the real economy. Furthermore, the study can serve as a valuable reference for other regions, facilitating the healthy development of the national digital economy.

II. CURRENT SITUATION OF DIGITAL ECONOMY

2.1 Digital Economy Size and Growth

In recent years, the digital economy in Yiyang City has undergone a period of rapid development, becoming an important driver of economic growth. While the precise figures may fluctuate over time, the overall trajectory is upward.

Yiyang City proactively fosters the advancement of the digital product manufacturing industry. This is evidenced by the sustained growth in the operating income of large-scale enterprises in this sector, which mirrors the increasing penetration and influence of the digital economy in the real economy.

2.2 Digital Transformation

Yiyang City leverages its robust computing infrastructure to drive the digital transformation of traditional industries. As a result of the digital transformation process, there has been a notable enhancement in the efficiency of enterprise production, accompanied by a corresponding strengthening of industrial competitiveness. To illustrate, the Hetian Electronics Company in Yiyang City has reduced labour costs and increased output value through digital transformation.

Similarly, traditional enterprises such as Taojiang South Cement employ digital technology to reduce costs and enhance efficiency. Intelligent engineers oversee production operations in real time via large screens, thereby improving production stability and efficiency.

2.3 Digital Economy Infrastructure

Yiyang City has made significant strides in the development of digital economy infrastructure, exemplified by the establishment of 5G base stations and the construction of big data centres. These infrastructures provide robust support for the accelerated development of the digital economy.

The municipal government has entered into strategic collaboration with Huawei, Kingdee Software and other enterprises with the objective of jointly establishing a national industrial Internet platform and facilitating the deep integration of the digital economy and traditional industries.

2.4 Digital Economy Policy Support

Yiyang City has implemented a series of awards and subsidies with the objective of encouraging enterprises to undertake digital transformation and to facilitate the growth of digital economy industries. These policies provide a robust foundation for the sustained and robust development of the digital economy[1-5].

III. CURRENT SITUATION OF REAL ECONOMY

3.1 Economic Growth and Structure

In recent years, the real economy of Yiyang City has demonstrated a consistent pattern of growth. From an industrial structure perspective, the secondary industry (especially industry) has made a significant contribution to economic growth, and the construction of new industrialisation has been consistently promoted.

The city's gross regional product, large-scale industrial added value, fixed asset investment and other major economic indicators have demonstrated a consistent growth trajectory, indicative of the overall stability and robust performance of the real economy.

3.2 Industrial Development

The implementation of the industrial development "thousand hundred ten" project in Yiyang City has led to the continued expansion and growth of a number of strategic industrial clusters, including those related to electronic information, food processing, equipment manufacturing, new materials, and new energy.

A number of new enterprises with an output value of more than 1 billion yuan and more than 100 million yuan, as well as specialised new "small giant" enterprises, have been established, thereby reinvigorating the development of the real economy.

3.3 Project Construction and Investment

Yiyang City has been a prominent proponent of infrastructural development, with numerous significant industrial and infrastructural projects either already operational or in the initial stages of construction. The implementation of these projects has constituted a significant contribution to the advancement of the real economy.

The continued growth in fixed asset investment is indicative of the high level of investment activity and the considerable potential for development in the real economy[4-9].

IV. THE INTEGRATION OF DIGITAL ECONOMY AND REAL ECONOMY

Yiyang City proactively fosters the profound integration of the digital and tangible economies, facilitating the transformation and advancement of the latter through digital innovation. To illustrate, digital

transformation technology is being promoted in industrial clusters with distinctive characteristics and advantages, such as those pertaining to capacitors, circuit boards, and new energy, with the objective of enhancing enterprise production efficiency and industrial competitiveness. The construction and application of industrial Internet platforms have served to further promote the deep integration of the digital economy and the real economy.

Despite the progress made by Yiyang City in integrating the digital and real economies, several challenges remain. These include a shortage of high-end talent and a lack of scientific and technological innovation capabilities. In the future, it is necessary to further strengthen the introduction and training of talent, enhance the ability of scientific and technological innovation, and promote the deep integration and development of the digital economy and the real economy to a higher level.

In conclusion, both the digital economy and the real economy of Yiyang City demonstrate a consistent trajectory of growth and exhibit a pattern of increasing integration. It is anticipated that, in the future, the digital economy and the real economy of Yiyang City would achieve higher-quality development as a result of the continuous increase in policy support and the continuous improvement in infrastructure[10-18].

V. CONSTRUCTION OF THEORETICAL FRAMEWORK COMBINING DIGITAL ECONOMY AND REAL ECONOMY

5.1 Combing the Relevant Theories of the Integration of Digital Economy and Real Economy

The process of integrating the digital economy and the real economy gives rise to a multitude of related theoretical perspectives. The initial theory is that of the technological economic paradigm, which posits that the advent of a new technological revolution would precipitate profound changes in economic form. The digital economy represents a novel technological economic paradigm, which is significantly transforming the operational mode and business model of the real economy. The second theory is that of industrial integration, which elucidates the manner in which disparate industries give rise to novel industrial forms and growth points through the penetration and crossover of technology, market, and other factors. The integration of the digital economy and the real economy represents a particular instance of this process of industrial integration. Moreover, there are theoretical frameworks, such as those of innovation-driven development and new economic geography, which provide a basis for understanding and explaining the integration of the digital economy and the real economy.

5.2 Build a Theoretical Framework for the Deep Integration of Digital Economy and Real Economy

In order to facilitate the deep integration of the digital and real economies, it is necessary to construct a systematic theoretical framework. The framework should encompass the following elements: Firstly, the deep integration of digital technology and the real economy, including the application and promotion of digital technology in production, management, marketing and other aspects. Secondly, the deep

integration of the digital industry and the real economy, through the development of the digital industry, to promote the transformation and upgrading of the real economy and innovative development. Thirdly, there is a need for the deep integration of digital infrastructure and the real economy. This should entail improvements in the construction and operation of digital infrastructure, thereby providing robust support for the digital transformation of the real economy. Fourthly, there is a need for the deep integration of digital governance and the real economy. This should entail improvements in the efficiency and level of government governance, thereby providing a conducive environment for the healthy development of the real economy. These four aspects are interrelated and mutually reinforcing, collectively forming the theoretical framework for the deep integration of the digital economy and the real economy.

5.3 Explore the Internal Mechanism and Driving Force of the Deep Integration of Digital Economy and Real Economy

The internal mechanism and driving force of the deep integration of the digital economy and the real economy can be broadly categorised into the following aspects: Firstly, the promotion of technological innovation and the continuous innovation and breakthrough of digital technology provides a robust technical foundation and impetus for the deep integration of the digital economy and the real economy. Secondly, market demand exerts a compelling influence. The increasing demand from consumers for digital products and services has also become an important driving force for the deep integration of the digital economy and the real economy. A third factor is the support provided by the policy environment. A series of policies and measures issued by the government to support the development of the digital economy and the real economy provide a favourable policy environment and institutional guarantee for the deep integration of the two. The deep integration between the digital economy and the real economy necessitates the coordination and collaboration of the industrial ecosystem, encompassing the cooperation of enterprises at the upstream and downstream levels of the industrial chain and the innovation of cross-border integration. These internal mechanisms and driving forces work in concert to facilitate the deep integration of the digital economy and the real economy, thereby promoting the development of both to a higher level and a wider field[19-23].

VI. RESEARCH ON THE PATH AND MODE OF DEEP INTEGRATION OF DIGITAL ECONOMY AND REAL ECONOMY

6.1 The Path and Mode of Deep Integration of Digital Economy and Real Economy

The manner in which the digital and real economies are integrated can be elucidated by considering the following aspects:

The integration of technology can be described as follows: By means of research and development and the application of digital technology, the digitalisation, networking and intelligent transformation of all links of the real economy can be promoted, while production efficiency and service quality can be

enhanced. To illustrate, cloud computing, big data, artificial intelligence and other technologies are employed to enhance production processes and augment the efficacy of supply chain management.

The industrial integration path entails the deep integration of the digital economy and the real economy at the industrial level, resulting in the emergence of a digital industry and a traditional industry undergoing transformation and upgrading. The objective is to facilitate the mutual penetration and common development of digital and traditional industries through cross-border cooperation and industrial chain extension.

The market integration path comprises the following elements: The integration of the digital economy and the real economy at the market level is facilitated by the use of digital platforms. The use of e-commerce, online payment, and the sharing economy, among other models, has the potential to disrupt traditional market structures by breaking down temporal and spatial constraints, expanding market reach, and enhancing market efficiency.

The path of governance integration is as follows: The profound interpenetration of the digital and tangible economies at the level of governance entails a convergence of the actions of the government, enterprises, society, and other entities. The implementation of digital governance would facilitate the optimisation of policy formulation, implementation and supervision, thereby fostering an environment conducive to the advancement of the real economy.

In terms of mode, the deep integration of the digital economy and the real economy can be manifested in a number of ways, including the digital production mode, the platform service mode, the intelligent management mode, and so forth. These models, which are centred on digital technology, facilitate innovation and transformation in the production, service and management of the real economy.

6.2 How Does the Digital Economy Promote Innovation and Development in the Real Economy

The digital economy fosters innovation and the advancement of the tangible economy through a number of mechanisms.

The provision of new impetus: As a novel instrument for enhancing productivity, digital technologies can markedly augment production efficiency and the velocity of innovation, thereby infusing the tangible economy with new sources of growth.

The expansion of new markets: The digital economy has effectively transcended the temporal and spatial limitations of the conventional market, thereby creating novel market opportunities and sales avenues for the tangible economy through e-commerce, online payment systems, and other digital means.

The promotion of novel business forms: The accelerated growth of the digital economy has given rise to a multitude of novel business forms, including the sharing economy and platform economy, among others. These have introduced innovative business models and profit opportunities for the real economy.

Enhancing competitiveness is a key objective. As a result of digital transformation and intelligent upgrading, real economy enterprises are able to enhance their market competitiveness by improving production efficiency, reducing costs and optimising user experience.

It is also possible to stimulate innovation vitality. The openness and inclusivity of the digital economy provide a greater number of opportunities for innovation and collaboration for enterprises operating in the real economy. This, in turn, stimulates the vitality of innovation and the potential for development of these enterprises.

6.3 How Can the Real Economy Use the Digital Economy to Achieve Transformation and Upgrading

The real economy can be transformed and upgraded by leveraging the digital economy in the following ways:

The process of digital transformation: The digital transformation of production processes, supply chain management, marketing and other links can enhance production efficiency and market response speed.

An intelligent upgrade entails the introduction of artificial intelligence, machine learning, and other advanced technologies with the objective of achieving intelligent and automated production processes, improving product quality, and enhancing the level of service provided.

It is recommended that digital business be expanded. The utilisation of digital technology facilitates the development of novel business domains and service paradigms, such as e-commerce and online services, thereby enhancing revenue generation.

The construction of a digital platform is a key objective. The construction or incorporation of a digital platform may facilitate resource sharing, collaborative innovation and market expansion, thereby enhancing the competitiveness and influence of enterprises.

The training of digital talent is a crucial aspect of this process. It is essential to reinforce the cultivation and introduction of digital talent, enhance the digital and innovative capabilities of enterprises, and guarantee the availability of talent for transformation and upgrading.

VII. CASE STUDY OF DEEP INTEGRATION OF DIGITAL ECONOMY AND REAL ECONOMY IN YIYANG CITY

7.1 Integration Practice of Digital Economy and Real Economy in Yiyang High-tech Zone

Yiyang High-tech Zone has played an instrumental role in the advancement of the digital economy in Yiyang City. In recent years, it has persisted in fostering innovation and achieving success, with a particular emphasis on the digital economy and the promotion of high-quality development within the park economy. By implementing a series of initiatives, the region has facilitated the profound integration of the digital and real economies, thereby establishing a distinctive Yiyang model.

The construction of a digital economy industrial park should be carried out in accordance with the highest standards. The Yiyang High-tech Zone has concentrated its efforts on the development of a number of emerging information technologies, including cloud computing, big data, the Internet of

Things and artificial intelligence. In order to facilitate the growth of these technologies, the Zone has constructed a series of facilities, collectively known as the "one park and one centre three bases". These include the Huawei Supporting Industrial Park, the Digital Economy Innovation Incubation Centre and the Digital Economy Industrial Base, the Furong Cloud Big Data Cloud Computing Base and the High-End Manufacturing Base of the Internet of Things Internet Terminal Industry.

The introduction and cultivation of a number of digital economy enterprises, including Overclocking 3, Lunfeng Yunchuang and Seixun Technology, has resulted in the formation of a relatively complete digital economy industry chain.

It is recommended that efforts be made to reinforce the digital industry's infrastructure. The construction of supporting facilities, including standardised factories and R&D centres, would be expedited. Furthermore, projects such as the 5G industrial park for Xinwei Communications, standardised factory buildings for digital economy industrial parks, and R&D service centres would be promoted.

It is of the utmost importance to prioritise the layout of new infrastructure, such as 5G networks, and to proceed with due diligence in order to facilitate the commercial use of 5G. Furthermore, it would be prudent to pursue strategic cooperation with Huawei in order to advance the application of 5G technology.

The objective is to facilitate the digital transformation of traditional industries. It is recommended that traditional enterprises be encouraged and supported in their use of digital technology for the purpose of transformation and upgrading. Examples of such enterprises include the Sany Group, which has implemented an intelligent manufacturing production workshop, and Yiyang rubber machine, which has adopted Industry 4.0 standards. These initiatives have resulted in notable improvements in production efficiency and product quality.

In order to encourage the digital transformation of enterprises in industrial clusters with distinctive capabilities, such as those specialising in capacitors, circuit boards, new energy, new materials and other sectors, the introduction of awards and subsidies policies has been implemented.

Deepen the integration of the digital economy and the real economy: It is recommended that 5G demonstration applications be strengthened in a number of fields, including smart cities, smart parks, smart transportation, and other areas. As an example of this, the Qingxi Cultural Tourism Group has completed and put into operation a "5G Smart Information Island."

It is recommended that the digital economy be integrated with the real economy, including agriculture and service industries. One example of this integration is the transformation of the smart workshop in the Nijiangkou Bamboo Science and Technology Industrial Park, which has enhanced the international competitiveness of the bamboo chopsticks industry.

The aforementioned methods have resulted in a notable increase in the number and output value of digital economy enterprises. It is estimated that the output value of digital economy enterprises above the size of the park would reach approximately 25.795 billion yuan in 2021, representing a 23.03% growth compared to the previous year.

The implementation of digital transformation has led to a notable enhancement in the efficiency and

competitiveness of traditional industries. For instance, an aluminium electrolytic capacitor enterprise in Yiyang witnessed a reduction in labour costs by 30%, accompanied by a 30% surge in output value on a year-on-year basis.

7.2 Summarize Successful Experiences and Refine Replicable Models

Successful experiences are as follows:

The government offers guidance and policy support. The Yiyang City government places significant emphasis on the integrated development of the digital and real economies. To this end, it has established a dedicated leading group and implemented a range of policies and measures to provide robust support for the integrated development.

The planning and construction are of the highest standard. Yiyang High-tech Zone adheres to rigorous standards of planning and construction for its digital economy industrial park, enhancing the supporting infrastructure and providing a conducive environment for the growth of digital economy enterprises.

The objective is to reinforce the development approach based on innovation. The introduction and cultivation of a number of digital economy leading enterprises and innovative enterprises would facilitate the formation of an industrial agglomeration effect, thereby promoting the rapid development of the digital economy.

It is necessary to further integrate the applications. The integration of the digital economy and the real economy in smart cities, smart parks, and smart transportation would be reinforced, while social governance and public services would be enhanced.

Replicable patterns are as follows:

The initiative is government-led and encourages the participation of multiple parties. It is recommended that the government assume a leading role, formulate transparent development plans and policy measures, and facilitate the participation of enterprises, universities, research institutions, and other relevant parties to foster collaboration and achieve optimal outcomes.

The implementation of rigorous planning and construction standards. In the construction of digital economy industrial parks, it is essential to prioritise high-standard planning and high-quality construction, enhance infrastructure supporting facilities, and attract high-quality enterprises to settle in.

The objective is to reinforce the concept of innovation-driven development. The introduction and cultivation of innovative enterprises would facilitate technological innovation and industrial upgrading, thereby establishing a continuous innovation-driven development mechanism.

It is necessary to further integrate the applications. In the process of promoting the integrated development of the digital economy and the real economy, it is essential to focus on the deepening of integration, the exploration of integration scenarios and business models of the digital economy in various fields, and the enhancement of the empowering role of the digital economy on the real economy.

VIII. POLICY SUGGESTION AND COUNTERMEASURE RESEARCH

8.1 Policy Suggestions on the Deep Integration of Digital Economy and Real Economy

8.8.1Strengthen Top-level Design and Strategic Planning

In order to facilitate the deep integration of the digital economy and the real economy, and to drive economic transformation and upgrading, the municipal government has decided to implement a series of positive actions. The initial phase of this process entails the establishment of a dedicated working group, spearheaded by municipal leaders, with the objective of fostering the integrated growth of the digital and real economies. This group's primary mandate is the formulation and implementation of a comprehensive city-wide medium- and long-term plan, along with an annual implementation plan. The objective of this initiative is to guarantee that the strategic orientation of integrated development is transparent and that policy measures are implemented in an efficacious manner. In order to clarify the desired outcomes of this integrated development, the municipal government has set specific and quantifiable targets to measure the effectiveness of this approach. In particular, the objective is to attain an average annual growth rate of over 15% by 2025, which directly reflects the significant contribution of the digital economy to economic expansion. Concurrently, the objective is to facilitate the digital and network transformation of 75% of manufacturing enterprises above a designated scale. This signifies that the real economy would extensively adopt digital technologies to enhance production efficiency and market competitiveness.

8.8.2Strengthen Digital Infrastructure

It is imperative to expedite the rollout of 5G and gigabit optical networks. This entails accelerating the construction and expansion of new infrastructure, including 5G, gigabit optical networks, and mobile Internet of Things (IoT), while also promoting the comprehensive integration of these networks into key industries and application scenarios.

Secondly, the construction of intelligent, comprehensive infrastructure must be pursued. The objective is to construct an intelligent and comprehensive infrastructure that is high-speed and ubiquitous, integrated with heaven and earth, integrated with cloud networks, intelligent and agile, green and low-carbon, safe and controllable, and to optimise the layout of information and communication infrastructure.

8.8.3Promote the Digital Transformation of Industries

The implementation of the Wisdom for Thousands of Enterprises action plan is designed to facilitate the digital transformation of small and medium-sized enterprises (SMEs). This initiative encourages the adoption of open-source software (OA), product lifecycle management (PLM), enterprise resource planning (ERP), manufacturing execution systems (MES), and other domestic standard software systems. The goal is to enhance the efficiency of SMEs in production, management, and operations.

The creation of benchmarking demonstration projects is recommended. The construction of a number of smart manufacturing demonstration factories, smart production lines and smart stations is to be supported, with the objective of leading the city's industrial digital transformation through the use of benchmarking demonstrations.

8.8.4Improve the Policy Environment and Market Mechanism

It is recommended that the government implement and enhance policies and measures to facilitate the growth of the digital economy. This may entail the establishment of guiding and investment funds dedicated to the advancement of the digital economy, as well as the encouragement of financial institutions to extend credit facilities to intelligent manufacturing enterprises. Concurrently, the administrative approval process would be streamlined, the business environment would be optimised, fair competition would be ensured among various market participants, and the free flow and efficient allocation of innovation factors would be promoted.

8.8.5Strengthen Personnel Training and Introduction

It would be beneficial for the government to facilitate collaboration between key enterprises and colleges and universities with the objective of training a cohort of practical "digital craftsmen" who can provide the necessary talent support for the development of the digital economy. Furthermore, policies and measures have been implemented to attract high-end digital talent, including housing subsidies and concessions for children's education, with the objective of attracting outstanding professionals from both domestic and international sources to develop in Yiyang.

8.8.6Deepen International Cooperation and Exchanges

It would be advantageous for the government to foster collaboration between prominent enterprises and academic institutions with the aim of training a cohort of practical "digital craftsmen" who can provide the requisite talent support for the advancement of the digital economy. Moreover, policies and measures have been implemented with the objective of attracting high-end digital talent, including housing subsidies and concessions for children's education. These policies are designed to attract outstanding professionals from both domestic and international sources to develop in Yiyang.

8.9Development Strategies and Suggestions of Enterprises under the Background of Digital Economy

8.9.1Accelerate Digital Transformation

Enterprises should take the initiative to implement digital transformation and upgrading, improve production efficiency and product quality, and reduce operating costs. Enterprises should actively adopt advanced technologies such as big data, cloud computing and artificial intelligence to optimize supply chain management, product design and manufacturing.

8.9.2Strengthen Innovation-driven Development

It is recommended that enterprises increase investment in research and development, strengthen research on key core technologies, enhance independent innovation capabilities, and build core competitiveness. Concurrently, we would cultivate a collaborative relationship with academic institutions, facilitate the comprehensive integration of industry, academia, and research, and expedite the transformation of scientific and technological outcomes.

8.9.3Expand Digital Application Scenarios

It is incumbent upon enterprises to proactively investigate novel business forms and models, including the industrial Internet, the Internet of vehicles, and the meta-universe. They must also endeavour to expand digital application scenarios and enhance service quality and user experience. Concurrently,

cross-border collaboration with enterprises in other industries would be pursued with a view to establishing a digital ecosystem and facilitating resource sharing and the exploitation of complementary advantages.

8.9.4Focus on Data Security and Privacy Protection

It is of the utmost importance to implement a robust data management system that encompasses the collection, storage, processing, transmission, and destruction of data. This system must be designed to ensure the security and control of data, thus guaranteeing the integrity and confidentiality of the information. Secondly, it is imperative to adhere to the relevant legislative and regulatory frameworks, reinforce user privacy protection, and cultivate user trust and satisfaction.

8.9.5Cultivate Digital Talent Team

It is recommended that regular internal training and learning exchange activities be organised with the objective of enhancing employees' digital skills and literacy. Secondly, by offering favourable terms ofemployment and development opportunities, as well as other measures designed to attract high-end digital talent, enterprises can inject new impetus into their development.

8.9.6Pay Attention to Policy Dynamics and Market Demand

It is of the utmost importance to closely monitor the policy developments of both national and local governments, and to make any necessary adjustments to the development strategies and directions of enterprises in a timely manner. Concurrently, it is imperative to reinforce market research and analysis, thereby acquiring a comprehensive grasp of market demand fluctuations and consumer preferences. This would serve as a foundation for enterprise product innovation and service enhancement.

IX. FUTURE DEVELOPMENT TRENDS AND CHALLENGES

9.10The Future Development Trend of Deep Integration of Digital Economy and Real Economy

9.10.1Technology Accelerates Convergence and Innovation

The advent of new technologies, including 5G, cloud computing, big data, artificial intelligence and blockchain, would serve to further accelerate cross-integration and iterative innovation, and promote the deep integration of the digital economy and the real economy in a greater number of fields. Concurrently, it is anticipated that quantum computing, quantum communication and other pioneering technologies would facilitate significant advancements, thereby providing additional sources of power for the integrated development of the digital economy and the real economy.

9.10.2Industrial Digital Transformation is Deepening

The pervasive influence of digital technologies would facilitate the extensive penetration and deep integration of a multitude of industries and fields, thereby propelling the digital transformation of the entire industrial chain, including manufacturing and service industries. The ongoing advancement of digital technologies would give rise to novel business forms and models, including the sharing economy, virtual economy, and intelligent manufacturing. These emerging concepts would infuse new vigor into economic growth.

9.10.3Highlight the Value of Data Elements

As data is rapidly integrated into production, distribution, circulation, consumption and other links, its value would become increasingly prominent, assuming the role of an important driving force for economic development. Concurrently, the velocity of data sharing, opening, circulation and application would be accelerated with the objective of promoting the optimal allocation and efficient utilisation of resources.

9.10.4Intensified International Competition

The world's major economies would reinforce their strategic positioning in intelligent manufacturing, the industrial Internet, digital supply chains and other domains, thereby intensifying competition for the leading role in the formulation of technical standards and economic and trade rules in the digital field. As international cooperation intensifies, the competitive landscape between countries is set to become increasingly intense, giving rise to a novel international competition pattern.

9.11The Challenges and Problems of Deep Integration of Digital Economy and Real Economy

9.11.1Technical Bottleneck and Dependence

The external dependence of key digital technologies, including high-end chips and core components, is considerable. This may impede the deep integration of the digital economy and the real economy. Furthermore, some enterprises exhibit inadequate investment in technological innovation, lack independent research and development capabilities, and demonstrate limited capacity to adapt to rapidly evolving market demands.

9.11.2Data Security and Privacy Protection

The exponential growth in data volumes and the acceleration of data sharing flows would inevitably result in an increased risk of data breaches, which could potentially lead to significant financial losses for businesses and individuals alike. The question of how to protect personal privacy while ensuring the circulation and utilisation of data has become an urgent problem that requires a solution.

9.11.3Cost and Input Pressure

The technologies and equipment involved in the deep integration of the digital economy and the real economy often require significant financial investment, which may not be affordable for small and medium-sized enterprises. Furthermore, some enterprises encounter difficulties in terms of financial resources and human capital during the process of digital transformation, which hinders the effective promotion of integration.

9.11.4Development Imbalance and Digital Divide

The uneven development of the digital economy and the real economy is a consequence of the disparities in economic advancement and technical infrastructure across regions. Furthermore, some regions and groups may be unable to fully benefit from the advantages offered by digital technologies, which could lead to a digital divide.

9.11.5Legal, Regulatory and Policy Environment

The existing legislative and regulatory framework may prove inadequate in addressing the novel challenges and issues emerging from the convergence of the digital and real economies. In order to facilitate the digital transformation of enterprises, it is essential to adapt the policy environment to

accommodate these changes. Meanwhile, the unpredictability of the policy environment may introduce risks that could potentially impact the investment decisions and development plans of enterprises.

X. CONCLUSION

The principal objective of this research is to examine the profound interpenetration of the digital and real economies. The following main findings and contributions have been obtained through an in-depth investigation and analysis of Yiyang City:

It elucidates the extant circumstances and challenges pertaining to integration. The research provides a comprehensive account of the current state of integration between the digital and real economies in Yiyang City. It examines the extent of integration across various sectors, the utilisation of technology, and the economic benefits generated. The study identifies the principal challenges inherent to the fusion process, including technical constraints, data security concerns and inadequate capital investment. These findings inform the direction of subsequent research and practice.

For Yiyang City government, the study put forward a series of policy suggestions to promote the deep integration of digital economy and real economy, including strengthening the top-level design, optimizing the policy environment, and strengthening the construction of digital infrastructure. It provides development strategies and suggestions for enterprises in the context of digital economy, such as accelerating digital transformation, strengthening innovation-driven, and focusing on data security.

The research presents a theoretical framework for the deep integration of the digital and real economies. This framework encompasses the integration mechanism, integration path and integration effect evaluation, among other elements. It offers a foundation for subsequent research in this field.

The empirical study of Yiyang City has contributed to the existing research on the integration of the digital and real economies, providing insights and lessons that can inform the experiences of other regions.

It is anticipated that in the future, as 5G, artificial intelligence, big data and other technologies continue to mature and be applied, the digital economy and the real economy of Yiyang City, and potentially the wider country, would become increasingly integrated. The advent of new technologies would facilitate the transformation and modernisation of traditional industries, engendering the emergence of novel business models and infusing economic development with renewed vigour.

The government would persist in implementing a series of policies and measures with the objective of fostering the integrated development of the digital economy and the real economy, optimising the business environment and stimulating market vitality. The market mechanism would be further refined in order to facilitate the optimal allocation and efficient utilisation of resources between the digital economy and the real economy.

As digital technology becomes increasingly prevalent and utilized, the digital divide in Yiyang City and across the country would likely diminish. This would result in a broader range of regions and groups benefiting from the enhanced convenience and economic benefits brought about by digital technology.

Enterprises in Yiyang City and even the whole country would intensify their collaboration with international partners in the digital economy, with the aim of advancing the innovation and

implementation of digital technology. By engaging in the development of international standards and economic and trade regulations, Yiyang City and even the entire nation can bolster their influence and contribute to the discourse on global digital economic policy.

XI. ACKNOWLEDGEMENTS

The authors gratefully acknowledge financial supports financial supports from the aid program for the Yiyang City philosophy social science project (Y0416976).

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