RESEARCH ON REGIONAL ECONOMIC THEORY AND REALISTIC TRANSFORMATION UNDER THE DIGITAL ECONOMY

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Abstract*: Starting from the paradigm of digital technology economy and taking time as the dimension, this paper analyzes the imbalance and incomplete mobility of economic factors statically and qualitatively. Sort out the changes of regional economy in such aspects as factor endowment, division of labor network, industrial upgrading, spatial pattern, etc. under the "advanced cycle". The study found that the digital economy has brought significant changes to regional economic theory and actual operations.*

Key words: *digital economy, regional economic , digital transformation*

I. Introduction

The digital economy has become the most important industrial foundation, business model and economic form in the world. It has profoundly changed and led the production and lifestyle of human beings. It has had a profound impact on the economic and social development of various countries and the global governance system. An important means of fierce international competition and seizing strategic commanding heights.

Starting from the paradigm of digital technology economy, this paper analyzes the changes brought by digital economy to regional economic theory, and combs out the role of digital technology in regional economic field. The study found that there are obvious differences in the stage positioning and transformation patterns of the digital transformation of regional economy in the future, which will open a new pattern of regional economic development under the continuous promotion of the digital economy. Under the new wave of scientific and technological revolution and industrial transformation, countries should attach great importance to the development of digital economy. Using digital economy to promote industrial transformation and upgrading is the only way for high-quality development of economy and industry.

II. Research Part

1. Research methods and theoretical basis

Under the background of digital economy, according to Schumpeter's innovation theory, innovation is to "establish a new production function" and realize the "new combination" of production factors or conditions. Some studies believe that digital infrastructure has improved the efficiency of resource allocation, and the digital economy has become the focus of industrial transformation. It can promote the digital transformation and upgrading of manufacturing industry by breaking through key technologies and key equipment, strengthening the construction of industrial information security system, and strengthening the support of talent team.There are also studies that put forward a new idea of digital economy transforming manufacturing industry from value remodeling to value creation, and a new path of data-driven, innovation-driven, demand-driven and supply-driven.There is also research on the mechanism of digital economy driving the transformation and upgrading of manufacturing industry based on the perspective of industrial chain; Study the integrated development and transformation of industries under the strategic pattern of digital economy from both supply and demand.

This paper takes time as the dimension, analyzes the imbalance and incomplete mobility of economic factors statically and qualitatively, and combs the digital transformation under the advanced cycle of regional economy.

2. The economic paradigm of digital technology and the new cornerstone of regional economy

The integration of intelligent technology groups such as cloud computing, big data, artificial intelligence, blockchain, Internet of Things, 5G, VR/AR, etc., formed by the new technological revolution and the economy continues to deepen. Corresponding changes occur, economic operation mode and structural changes trigger chain changes in other fields of society, and finally realize the technological and economic paradigm shift in the entire economic field. The capabilities of the digital economy in terms of resource allocation, penetration and integration, and extensive collaboration have improved unprecedentedly, manifested in obvious cost-saving and efficiency-enhancing effects.In this process, the "three cornerstones" of the theory of regional economics put forward by Edgar M. Hoover (1937) were profoundly reshaped.As in Table 1:

Table 1 Digital economy reshaping the three cornerstones of regional economics

three cornerstones	factual basis	theoretical basis	cost saving effect	Efficiency-enhancing effect	new cornerstone
Uneven factor distribution	Differences in natural	factor endowment	Zero marginal cost of data	Flow efficiency,	The cross-regional flow

and incomplete mobility	conditions and scarcity of resources	theory	elements; substantially lower cost of information	configuration efficiency, and matching efficiency are improved	of elements is reduced, and the flow cycle is enhanced, forming a new comparative advantage
Incomplete Separability of Economic Activities	Saving and Profit-seeking of Economic Subjects	agglomeration economic theory	Decreasing Marginal Cost Reduced Transaction Costs	Externalities strengthen economies of scope	The separation of physical space and the integrity of the network coexist, forming a new agglomeration pattern
The indelibility of spatial distance	Economic activities are inseparable from physical geographic space	iceberg cost theory	Shipping costs down	Zero space cost effect; distance decay mitigation	A new round of transportation cost changes brings a new round of spatial pattern adjustments

The imbalance and incomplete mobility of factors

The differences in natural resource endowments and geographical characteristics, and the resulting imbalance and incomplete mobility of economic factors are the most important logical premise and objective basis of regional economics. On the one hand, the digital economy greatly enhances the mobility of economic elements themselves. "Big data" can be distributed in almost all spaces. The traditional elements, products and services that are constantly being digitized break through the inherent dependence on physical space. In the virtual space of the network, even Realize instantaneous movement and transformation, and form a balanced distribution among regions. On the other hand, 5G, the Internet, and the Internet of Things have greatly expanded the flow channels and scope of elements through network effects, and the flow efficiency of resources has been greatly improved. Accurate analysis and forecasting guide the direction of resource

allocation through technical means such as algorithms and sorting, and the quality of resource allocation is significantly improved.

3. Digital transformation under the advanced cycle of regional economy

At the level of the regional economy, every "creative destruction" of general-purpose technology will bring about a new round of advanced cycle, that is, new dominant factors and factor endowment conditions will lead to new division of labor and specialization, under the further promotion of agglomeration power , the regional industrial form and spatial form are constantly evolving on the new logic and path, and the regional growth mode and development model have achieved a comprehensive transformation. The digital transformation of the regional economy is neither just using new digital technology to re-industrialize under the laws of industrial economy, nor is it breaking away from the original resource base and industrial system to start anew, but continuing to tap comparative advantages based on brand-new endowment conditions , through incremental creation, technological restructuring, business upgrading and agglomeration evolution, build a new element endowment foundation, division of labor network, transformation path and integration pattern for the advanced cycle under digital technology, and finally form a new value creation model and rebuild the regional economy The endogenous driving force of development fully opens up the development space.The new value creation operation mode is shown in Figure 1:

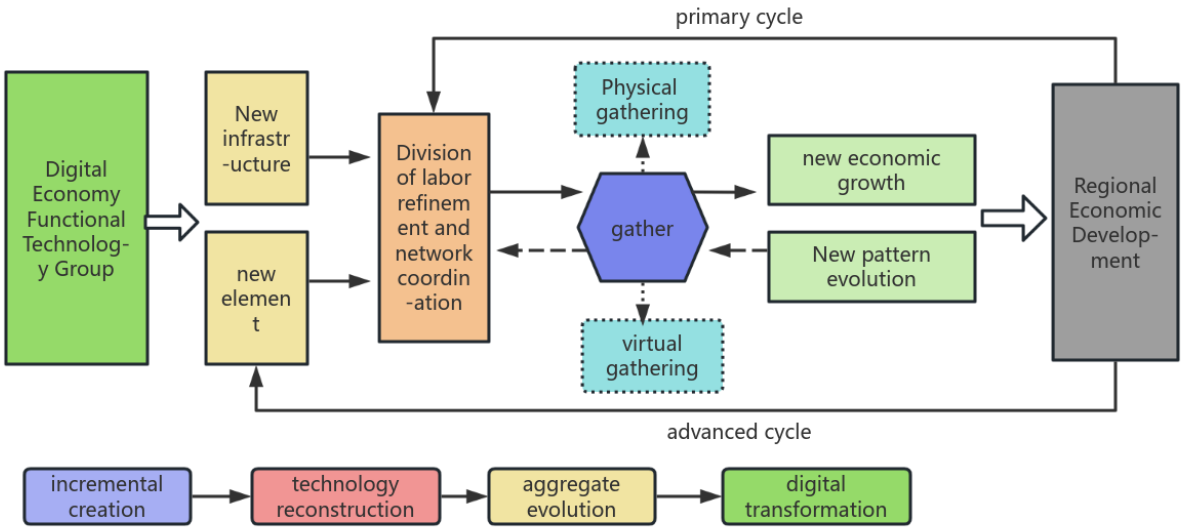

Figure 1 Regional Economic Advanced Cycle and Digital Transformation

(1) Incremental creation: brand-new factor endowments

The incremental creation effect first manifests itself in the emergence of innovative factors such as big data, which expands the content and scope of the endowment of production factors. Compared with natural resources such as land,

coal, and water that support traditional economic development, the characteristics of big data elements such as high efficiency, low cost, mass acquisition, and unlimited reproduction overcome the problems of diminishing marginal returns in the industrial economy era, and traditional economic elements are constantly being used. Digitization has entered into economic activities with exponential growth. Through further analysis, mining, processing and application, it will be used more and more, and the more it is used, the more valuable it will be, expanding the boundaries and scales on which regional economic development depends.

The adjustment of the content, structure, and order of factor endowments will eventually bring about changes in comparative advantages. Human capital and scenarios, which are closely related to the development of the digital economy, are becoming the commanding heights of regional competition.

(2) Business upgrade: a new transformation path

The adjustment of industrial structure has undergone boundary-breaking, cross-border and unboundary changes, and the trend of integration of primary, secondary and tertiary industries is obvious. The cross-border cost of the digital industry is low and highly permeable. Through the effects of industrial association, technology diffusion, functional complementarity and extension, more industries that do not have the basis for integration will be better integrated. Different industries or within the same industry The integration and development of new industries or new formats will gradually form among different industries, and a new industrial system will be built.

The flattening of the value chain and the flattening effect of the smile curve appear in the industrial chain. Digital technology has changed the vertical linkage of the industrial chain, making the decision-making of various participants more transparent, information more symmetrical, and opportunities more equal. Technological innovation is no longer limited to the upstream and downstream, and there is a demand for innovation in the entire industrial chain. No matter which link in the industrial chain, each region can find corresponding high-value areas: upstream software development, chip design, and architecture construction The production equipment and technology of high-end chips and sensors in the midstream processing and manufacturing link are highly monopolized by the chain owners in a few regions; downstream application innovations such as e-commerce, sharing economy and other back-end scene innovations are based on my country's population size has also triggered the explosive growth of the digital economy.

(3) Agglomeration evolution: a new integrated pattern

Digital support has brought new impetus to the evolution of the spatial structure, and the flattening of the spatial structure and the highlight of regional

integration. At the element level, the traditional spatial organization model of economic elements has been broken, and the digitized resource elements have surpassed the constraints of topography, transportation, infrastructure, historical foundation and other factors, and their flow and allocation among regions tend to be integrated. At the industrial level, scale effects and platform effects promote regional central cities to continuously radiate to peripheral areas through technology and knowledge, strengthen the leading role of surrounding cities, and enhance inter-regional cooperation, exchanges and resource sharing. At the level of spatial network, the physical agglomeration of economic activities has gradually turned to virtual agglomeration. This kind of agglomeration has unlimited scalability, and its scale is far beyond the "agglomeration scale" in traditional economy. It can promote the industrial agglomeration in the digital space dimension and the industrial overflow in the physical space dimension at the same time. Due to the de-centralization of digital technology, the inter-regional scale hierarchy has been gradually broken, and the open economy, sharing economy and inclusive economy have become new paradigms, accelerating the formation of a more integrated spatial network structure.

III. **Conclusion and recommendation**

Digital economy is the result of technological progress acting on social economy. The driving force with digital technology as the core has caused unprecedented changes at all levels of social economy, bringing unprecedented impact to the operation of regional economic theory. This paper analyzes the changes brought by digital economy to the "three cornerstones" of regional economic theory proposed by Edgar M. Hoover (1937). The research shows that the big data elements expand the boundary and scale on which regional economic development depends with the characteristics of high efficiency, low cost, massive access and unlimited reproduction; Digital technology leads to technological restructuring, and then produces a new division of labor network, which makes different value chain links have competitive advantages; At the same time, digital technology promotes industrial upgrading, industrial structure adjustment has broken boundaries, cross-border and unbounded changes, and the development trend of integration of the first, second and third industries is obvious; Digital technology promotes industrial agglomeration and development, breaks the original hierarchical development among regions, and presents a new form of open, shared and inclusive economy.