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The Philosophical Connotation of the Interactive Development of New Quality Productive Forces and Design

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Abstract. This paper studies the interactive development of new quality productive forces and design, as well as its philosophical connotations. The new quality productivity is the quality of advanced productivity with the characteristics of high technology, high efficiency and high quality, and design is a comprehensive and interdisciplinary discipline. The interactive development of the two is reflected in the fact that design plays an important role in the formation of new quality productive forces, and design also realizes high-quality innovation and creation with the help of new quality productive forces. Its philosophical connotations include following the basic principles of Marxist philosophy, such as historical materialism, dialectics, and practical theory, emphasizing the interaction between productive forces and production relations, social existence and social consciousness, as well as philosophical viewpoints such as people-oriented and harmonious coexistence between man and nature. The interactive development of new quality productive forces and design will bring opportunities such as industrial optimization, enterprise transformation and upgrading, product digitalization and digital productization, which will promote the high-quality growth and development of the market economy and meet the needs of the people for a better life.

Keywords: new quality productive forces; design; the interactive development; philosophical connotations.

1. Introduction

The new quality of productive forces is the Sinicization and innovation development of Marxist theory, the critical inheritance and discarding of the traditional theory of productive forces, and the pioneering integration theory represented by the integration of production factors and the improvement of total factor productivity in the new era and under new conditions. This is illustrated in Fig. 1. Some experts and scholars, such as *Li* (2024), posit that the new qualitative productive forces align with the tenets of Marxist philosophy and represent the most advanced forms of productive forces in the ongoing process of qualitative improvement of the constituent elements of the productive forces[1]. *Cao* (2024) show that the new quality productive forces is the latest achievement of the Marxist theory of Sinicization and modernization, which conforms to the logic of the development of human productive forces, conforms to the general trend of contemporary scientific and technological revolution and industrial transformation, and highlights the great characteristics of socialism with Chinese characteristics in the new era[2]. *Fang* (2024) proposed that the formation of new quality productive forces requires the penetration and integration of new technologies into traditional sectors, and the upgrading and transformation of traditional sectors will be promoted, and the labor productivity and total factor productivity of the society as a whole will be significantly improved under the joint action of new and old industries[3].

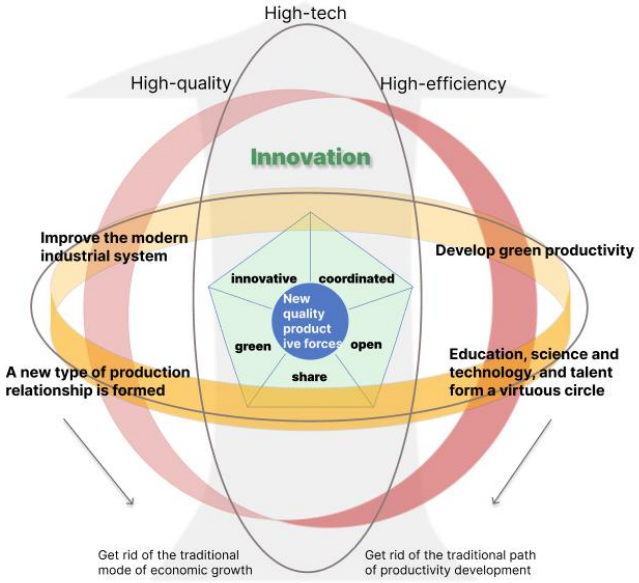

Fig. 1 The new quality of productive forces model

As a comprehensive and interdisciplinary discipline, the core concept of design is to promote social progress and development through innovative design. Zhu (2023) mentioned the concept of "big design", believing that all innovation, creative inventions, and planning belong to the category of design[4]. The interdisciplinary development of design conforms to the needs of the times, and constantly responds to cutting-edge ideas in the wave of technological revolution and innovation.

Design development is closely related to the high-quality growth of the socialist market economy with Chinese characteristics. Lou (2016) pointed out that innovative design can achieve "leapfrogging" economic and social development, so as to complete the transformation from "tracking" to "leading". Innovative design supports "meaning change" to promote the change of development model and induce "technological innovation", from linear and incremental innovation to "breakthrough innovation"[5]. The "paradigm shift" of China's society and economy is also the key to the development of innovative design. Academician Xie (2020) mentioned that design science means that design is a process of knowledge flow, integration, competition, and evolution. The Internet, cloud computing, and big data in the digital wave cover a lot of information, but without the information that has been tested in practice, it cannot really improve the competitiveness of countries and enterprises[6].

2. Advances in the Interactive Development of New Quality Productive Forces and Design

2.1 The Meaning of Interactive Development

The term "interactive" is derived from computer science and is mainly used to describe a series of problems that deal with the interaction and interaction between humans and computer equipment. In the fields of humanities and social sciences, the concept of interaction has been absorbed by different disciplines, giving it a new disciplinary connotation and academic vitality. Huang (2021) said that the cultural exchange and connection between the three places is a three-dimensional interactive development trend under the framework of regional cultural community, indicating that it covers two dimensions: hierarchical interactive development and industry interactive development[7]. Qi (2023) introduced the concept of interactive development in the field of law, especially in the study of administrative law, and conducted an in-depth analysis of the interactive development of administrative emergency legal system and digital technology, indicating that the exchange and interaction between administrative emergency legal system and digital technology

and deep integration have led to profound institutional changes, resulting in a new form of legal system[8].

The focus of this research is also to analyze the connection and interaction between new quality productivity and design, with the intention of explaining why and how to better promote each other's development in the new era of socialism with Chinese characteristics.

2.2 The State of Interactive Development

2.2.1 Trends in total factor production

Marxist theory holds that the production process in the market economy is not only the labor process, but also the value formation process and the value appreciation process, and capital is an indispensable factor of production in the labor process, but in the value formation process and value appreciation process, only value can be transferred, no new value can be created, and only labor power can create value. The neoclassical model of economic growth emphasizes capital, labor, and technology. Capital and labor factor inputs contribute part of economic growth, while the remaining contributing factors are collectively referred to as total factor productivity.

In the 30 years of reform and opening up, looking back at China's rapid economic growth, the average growth rate was 9.9%. During this period, the demographic dividend and industrialization process accelerated, bringing continuous labor supply and capital accumulation; Reform dividends and the acceleration of urbanization have improved the efficiency of resource allocation. In the next decade, China's labor force population has an inflection point, the value creation gap has emerged, the dividend has shrunk, the process of industrialization and urbanization has slowed down, and the trend of anti-globalization has gradually increased, showing a medium-to-high-speed growth of 7%-8% for a long period of time[9].

Improving total factor productivity has become the key to breaking the situation. The report of the 19th National Congress of the Communist Party of China proposed that "China's economy has shifted from a stage of rapid growth to a stage of high-quality development" and "improve total factor productivity"[10], and the 20th National Congress of the Communist Party of China pointed out that "adhere to the theme of promoting high-quality development" and "strive to improve total factor productivity"[11]. The improvement of total factor productivity mainly depends on technological progress, and the use of new technologies, the introduction of new factors of production, and the reallocation of resources are all important tasks.

In the course of the formation of new quality productive forces, design has risen to an important value in the "Made in China 2025", "13th Five-Year Plan for the Development of National Strategic Emerging Industries", "Special Action Guide for the Development of Service-oriented Manufacturing" and "Outline of the 14th Five-Year Plan and the Long-Range Objectives for 2035", and has become a powerful tool for building a modern and innovative country with Chinese characteristics. The three major drivers for the formation of new quality productive forces: technological revolutionary breakthroughs, innovative allocation of production factors, and in-depth industrial transformation and upgrading all have design participation. From the design of things to the design of relationships, from products to industries, from business society to core values, design is creating a new world through the means of improvement or creation. A new object, a new behavior, a new model and other innovative creations are inseparable from the value of design.

2.2.2 Innovation

Innovation has become an important driving force for high-quality growth. Since the slowdown in economic growth, after the supply-side reform, the adjustment of the industrial structure and the optimization of factor input, it has faced the problem of insufficient domestic aggregate demand caused by the disappearance of the demographic dividend and the unoptimistic international environment. In order to ensure sustainable development, developed countries that have crossed the middle-income trap in the world have taken Western Europe as an example to shift from the original traditional economic growth model to the innovation-led and driven development model.

When the economic growth rate of Western European countries such as the United Kingdom, France and Germany slowed down, they crossed the middle-income trap stage and took the consumption-driven growth model as the leading factor, and realized the transformation of the economic growth model with the help of steady expansion and deepening of domestic demand[12].

Innovation is not only the essential feature of design, but also the leading feature of design. From traditional handicrafts to digital manufacturing in the new era of intelligence, design provides the driving force for adjusting, improving, and creating new material relationships, relationships between things and people, and relationships between people. Traditional manufacturing enterprises use advanced technology productivity to open digital twins, carbon reduction-zero carbon footprint, and smart manufacturing transformation with the help of design. The goods used in daily life are constantly redefining new forms, new methods, and new carriers, and the technology far away in the cloud is also designed to allow people to experience "cloud life" on the cloud. Innovative enterprises represented by Huawei in China, Apple in United States, Samsung Group in Korea, and Siemens Manufacturing in Germany have all elevated design to the strategic highland of sustainable growth in the future. The design of new services, new experiences, and new consumption patterns has gradually become the backbone of ensuring that we can overcome the middle-income trap and enter a modern Chinese power in the context of expanding domestic demand and domestic and foreign dual circulation.

2.2.3 Green and sustainable development

Green and sustainable development is the guarantee of future growth. In September 2020, the General Secretary of the United Nations General Assembly stated for the first time at the 75th session of the United Nations General Assembly that China is committed to achieving carbon peak by 2030 and carbon neutrality by 2060. On March 5, 2023, when the general secretary participated in the deliberations of the Jiangsu delegation at the first session of the 14th National People's Congress, he said that he would "promote the high-end, intelligent and green development of the manufacturing industry". Energy conservation, carbon reduction and green transformation have become the only way for high-quality supply of modern industries.

Green is also the natural color of the design. Design is inherently accompanied by the development of the general contradiction between man and nature, and is a typical behavior of human beings and nature to coexist and coexist. From Changxin Palace lamps to new energy vehicles, the design continues to be guided by the concepts of green environmental protection, sustainable development, and ecological civilization construction, which has promoted the transformation of production and consumption patterns, and the design has also ushered in new guidelines and norms. With the assistance of design means, the production standards, organizational structure, and behavior patterns of industries, enterprises, and residents have been led to the process of Chinese-style modernization in which man and nature coexist in harmony.

3. Philosophical connotations

3.1 Philosophical Foundations

3.1.1 Historical materialism

In historical materialism, the productive forces and production relations constitute the core of the social and economic base, and the contradictory movement between the two promotes social development. Looking at Fig. 2, this means that design does not exist in isolation, but is deeply rooted in specific socio-economic conditions, reflecting and influencing the relations of production and social structure. This shows that the new quality productive forces puts forward high-quality and advanced requirements for design in the new era and new development concept, and further consolidates the development environment of "innovation, coordination, green, openness and sharing" for design. At the same time, under the call of high-quality growth of innovation and

entrepreneurship by the government, the market and enterprises, design has also ensured the frontier of innovation and pioneering.

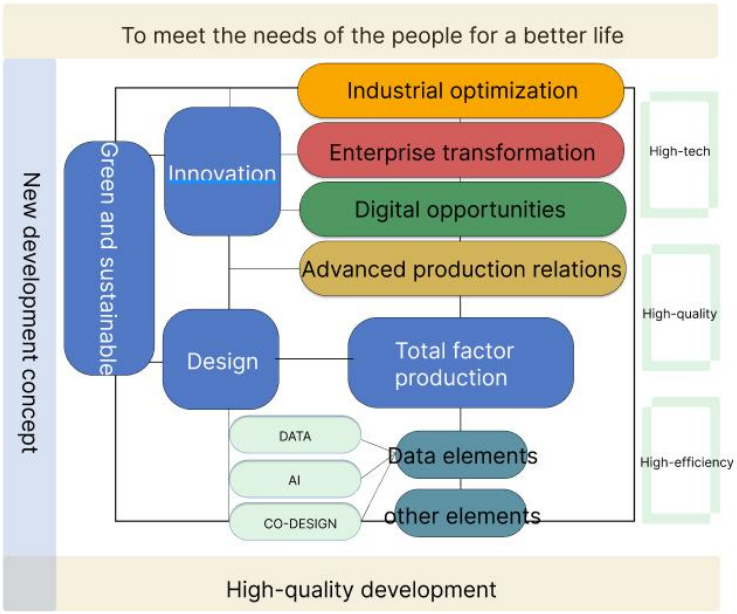

Fig. 2 The interactive development of new quality productive forces and design form

Marxism pays attention to the interests of the proletariat and the broad masses of working people and advocates serving the people. The development of the new quality productive forces is inseparable from the creative labor and intellectual contributions of the broad masses of the people. In this process, the masses of the people are the creators of history, and their practical activities are the fundamental driving force for promoting the development of productive forces. The design is also human-centered, user-centric, and focuses on people's actual needs and experiences. The development of productive forces, especially the progress of science and technology, is regarded as a key factor in promoting the qualitative leap in social productive forces. It not only improves production efficiency, but also profoundly changes people's mode of production, lifestyle and way of thinking, and further verifies the decisive role of productivity in the process of social history. Among them, design education, especially design thinking education, provides an important boost for the growth of the innovation literacy of the labor force of organizational members in enterprises with innovation-driven development. It is very obvious in the innovation community in developed countries, design participation in the systematic evolution of business models, intergenerational rotation of organizational internal architecture, and rapid iteration of product development, and the design sprint process developed by Google to achieve product iteration within five days is a typical example, which has high requirements for rapid response of team members, flexible organizational structure, efficient productivity and other aspects. In the end, the design is linked to advanced productivity, represented by high-tech and cutting-edge technology, to meet the people's well-being and people's expectations for a better life.

3.1.2 Materialist dialectics

The interactive development of new quality productive forces and design embodies the process from quantitative change to qualitative change, which is the result of the movement of contradictions within the productive forces, the unity of the part and the whole, and the adaptation of the elements to the elements. It is not a simple continuation of the traditional productive forces, but contains the transcendence of the old mode of production, is the embodiment of the negation of the negation in the process of the development of the productive forces, and contains the inevitability and progress of development.

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The interaction between the formation and development of the new quality productive forces and design also follows the philosophical law of materialist dialectics, which emphasizes the contradictory movement and the unity of opposites within things. Design is a part of labor, a philosophical category of producing value and creating value, and a subjective initiative activity to create new value by giving full play to various factors of production such as labor, land, capital, technology, and data. The development of new quality productive forces is to improve total factor productivity, in which the optimal combination and allocation of various factors is the object category of design labor. Therefore, as a part of the labor factor, design not only participates in the surplus factors other than capital to jointly promote the improvement of total factor productivity, but also coordinates, integrates, and allocates the remaining factors to help give full play to the value of each factor, thereby creating new value and driving economic innovation and growth.

3.1.3 Theory of practice

The practical theory of Marxist philosophy shows that the new quality productive forces are the products of human practical activities, especially the results of scientific and technological innovation and the interaction between social practice. It emphasizes the continuous exploration and use of the laws of nature through practical activities to improve production efficiency and quality of life. Design is a process of trial and error, iterative optimization, aiming to solve practical problems, improve labor productivity and people's quality of life. Academician Lu (2019) also said that design is the key link to transform knowledge information, technological innovation, and creative ideas into manufacturing service innovation leaders. The characteristics of new quality productivity are also the essential characteristics of design, the enterprise of design innovation leads the industry, the country of design innovation leads the world, and the design innovation leads and promotes the progress of human civilization and creates a better future[13].

3.1.4 Dialectics of nature

The Marxist philosophical dialectic of nature emphasizes the idea of harmonious coexistence between man and nature. It indicates that both parties should follow the objective law of man and nature in the process of interactive development of new quality productive forces and design, and should not sacrifice the long-term interests of the environment and human beings, so as to achieve the coordinated development of economy, society and environment. This perspective provides guidelines for the practical application of new quality productive forces and design. The advanced technologies and methods brought about by the new quality productive forces need to be applied to the design under the premise of conforming to the laws of nature to avoid negative impacts on the environment and human beings. In the same way, the new technologies and new production methods brought about by the development of new quality productive forces have also made the design more inclined to green and sustainable.

3.2 Theoretical elaboration

About the philosophical foundations in Fig. 3, discovering the direct purpose of the interactive development of new quality productive forces and design is to promote the high-quality growth and high-quality development of the market economy, which is the practical requirement for entering the array of developed countries, entering the modern socialist power with Chinese characteristics, and completing the great cause of national rejuvenation.

The essential purpose of the interactive development of new quality productive forces and design is to meet the people's growing needs for a better life, and is essentially a part of solving the problem of unbalanced and inadequate development.

In the interactive development, design provides a strong boost for the promotion of the three major drivers of new quality productive forces, mainly focusing on the process of innovative allocation of production factors, fully participating in the deep transformation and upgrading of the industry, ensuring the close connection between technological revolutionary breakthroughs and

people's needs for a better life, and also providing energy for the development of innovative talents and the improvement of innovation literacy for labor factors.

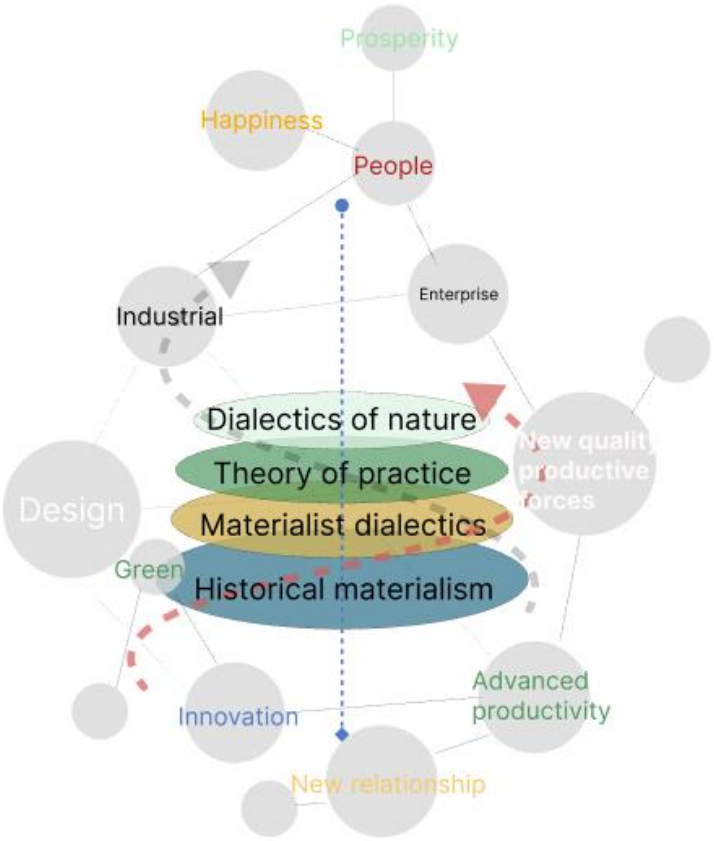

Fig. 3 The philosophical foundations illustration

The new quality productive forces provides a leap platform for enhancing the country's innovative design strength, guides the development of high-quality design concepts, unites various design infrastructures such as policies, mechanisms, resources, and environment to ensure the high-quality development of design, and also provides nutrients for the country to cultivate and improve advanced design culture from the trend of international competition and international development, so as to enhance comprehensive competitiveness.

Innovation is the a priori characteristic that leads the interactive development of new quality productive forces and design, quality is the key benchmark for interactive development, and the substantial improvement of total factor productivity is the core orientation of interactive development.

The underlying logic of the interactive development of new quality productive forces and design requires green and sustainable development, and the fundamental requirement is to continuously develop advanced productive forces, take the development path of productive forces in line with socialism with Chinese characteristics, and achieve a new way of high-quality economic growth.

4. Summary

Design drives value creation, synergizes total factor productivity to promote the vigorous development of emerging industries, promotes cross-industry deep integration, injects advanced productivity into primary, secondary and tertiary industries, enables different industries to share resources, technologies and markets more effectively, and achieves closer joint development and industrial optimization. On the one hand, the high-quality development direction of enterprises requires advanced productivity, embraces the trend of digitalization in a timely manner, and welcomes the arrival of the fourth technological revolution and the era of artificial intelligence, and

on the other hand, it also needs to be designed to ensure the mature and optimal combination of workers, labor materials, and labor objects within the organization, so as to improve the total factor productivity of enterprises. new quality productive forces and design are deeply affected by the process of digitalization, and at the same time, the power of advanced productivity and design is also needed to improve the development of the digital world and build a high-quality development system of the digital industry in this wave. First, digital forms are inseparable from advanced technical support, and they also need to be designed to implement their technologies, and secondly, digital productization requires emerging industries and enterprises to achieve user-centered and demand-oriented innovation and creation in specific application scenarios.

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