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Digital Intelligence Empowerment and New Quality Productivity of Listed Enterprises in Fujian Province

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Abstract: This paper examines the impact of digital intelligence transformation on new quality productivity in enterprises in Fujian Province. It highlights the challenges these enterprises face, such as limited talent and infrastructure, in adopting technologies like cloud computing, big data, and artificial intelligence. The research finds that digital intelligence can enhance innovation, efficiency, and market adaptability, driving significant improvements in productivity. The study emphasizes the need for organizational changes and government support to overcome barriers and accelerate transformation, offering valuable insights for both academia and industry.

Keywords: Digital intelligence; New quality productivity

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1. Introduction

The private economy is a significant force in achieving the goal of building a socialist modern strong country and realizing the second centenary goal. As a major province for private enterprises, Fujian's private economy contributed nearly 70% of the provincial GDP and 94% of the number of enterprises in 2023. However, challenges remain, including the large proportion of traditional industries and the excessive number of small and medium-sized enterprises. To promote the transformation from a major private economy province to a strong private economy province, the Fujian Provincial Government issued the "Opinions on Implementing the New Era Private Economy Strong Province Strategy to Promote High-Quality Development" in August 2023. This document clearly states the support for the specialized, refined, distinctive, and innovative development of small and medium-sized enterprises, as well as the expansion of private enterprises. Developing new quality productivity is an intrinsic requirement and important focus for the high-quality development of specialized and innovative enterprises. Therefore, improving the new quality productivity of these enterprises is a key guarantee for Fujian's deeper implementation of the new era strategy for a strong private economy province.

2. Current research status and review

2.1. Research progress of new quality productivity

In the context of rapid changes in the global economic landscape and continuous technological innovations, the study of new quality productivity has become a focal point for both academia and industry. In recent years, many scholars have conducted in-depth discussions on the connotation, characteristics, formation mechanisms, and enabling effects of new quality productivity.

In terms of connotation, existing literature suggests that new quality productivity emphasizes the core role of technological innovation in driving productivity development [1]. It is not merely the digitization or informatization of traditional productivity, but rather the reorganization and optimization of production factors based on the application of new technologies and the development of new business models, achieving a qualitative leap in productivity.

On the formation mechanism, existing research suggests that the cultivation and development of new quality productivity require multi-faceted support and conditions [2]. Technological innovation is the cornerstone of new quality productivity development, while a sound institutional environment, policy support, talent training, a well-developed education system, and the collaborative innovation drive between enterprises and society all contribute to the comprehensive formation and continuous progress of new quality productivity.

Regarding its enabling effects, existing literature suggests that high-quality development ultimately comes down to the development of productivity [3]. The intrinsic logic of new quality productivity enabling high-quality development is that new technologies accelerate the transformation of production methods, new driving forces enhance economic growth rates, and new qualities improve the quality of economic development.

Regrettably, current research on new quality productivity mostly remains at the theoretical level, lacking sufficient empirical support. However, recent studies have begun to address this gap.

2.2. Research progress of digital intelligence

The term “digital intelligence” is a new concept emerging in the field of digital economy research. As the digital economy rapidly develops, it has progressed from the informatization phase driven by IT methods to the digital phase based on big data and cloud computing technologies, and finally to the digital intelligence phase, where data serves as a factor of production, supported by artificial intelligence technologies. Currently, research on digital intelligence is still relatively limited, with the literature mainly focusing on two areas: the driving forces of digital intelligence transformation and the economic effects of digital intelligence.

In the research on the driving forces of digital intelligence transformation, scholars believe that the realization of digital intelligence transformation requires both external and internal driving factors. On one hand, the key external driving force lies in the application of new technologies, such as cloud computing, blockchain, and artificial intelligence technologies [4–6]. On the other hand, internal driving factors within enterprises are linked to organizational and management changes. Some studies argues that organizational and management changes within enterprises, by optimizing processes, encouraging innovation, and improving efficiency, provide the impetus for digital intelligence transformation [7]. Therefore, these changes are an important step and key guarantee for achieving digital intelligence transformation [8].

In terms of the economic effects of digital intelligence, previous literature has mainly explored the macroeconomic and microeconomic effects from two perspectives. For example, from a macro-consumption perspective, they found that the degree of regional digital intelligence can promote the integration of upstream

and downstream value chain products and factor markets, reducing transaction costs and improving total factor productivity, thus facilitating the smooth operation of both domestic and international dual circulation.

At the micro level, scholars have conducted rich discussions based on the enabling effects of digital intelligence in different application scenarios, such as enterprise supply chains, business credit, corporate social responsibility, and multinational trade [3, 9]. For example, a study found that digital intelligence transformation can improve information asymmetry, promote innovation performance, enhance financial stability, and further empower corporate performance [3].

2.3. Research review

In summary, the enabling effects of digital intelligence have been widely discussed in academia. Meanwhile, research on new quality productivity has also gradually become a hot topic. However, there are at least two areas that require further expansion.

From the perspective of enterprise new quality productivity, there is a need for further empirical exploration of its formation mechanism. Although a considerable amount of literature has delved into the connotation, characteristics, formation mechanisms, and enabling effects of new quality productivity, these studies are mainly theoretical and lack empirical evidence [1–3]. Therefore, this project will empirically explore the formation mechanism of enterprise new quality productivity from the perspective of digital intelligence transformation to fill the gap in empirical research.

From the perspective of research progress on digital intelligence, there is a need to further expand the application scenarios of its enabling effects. Current literature mainly focuses on discussions of digital intelligence in enterprise supply chains, business credit, corporate social responsibility, and multinational trade [9, 10]. However, the impact of digital intelligence on enterprise new quality productivity, a crucial force for enterprise survival and development, has been rarely explored. Therefore, it is necessary to further expand the application scenarios of digital intelligence enabling from the perspective of enterprise new quality productivity.

3. Conclusions and policy implications

3.1. Conclusions

This study explores the impact of digital intelligence transformation on enterprise new quality productivity. It is found that the digital intelligence transformation may enhance a company's innovation capability, production efficiency, and market adaptability, thereby improving the level of new quality productivity. By driving technological innovation and facilitating personalized customization, enterprises, after introducing digital technologies such as cloud computing, big data, and artificial intelligence, are able to more efficiently integrate and utilize resources, achieving a qualitative leap in productivity. This process allows enterprises to make significant progress in technological innovation and market competitiveness.

However, the success of digital intelligence transformation relies not only on external technological drivers but also on internal organizational changes within enterprises. To achieve improvements in new quality productivity, companies must focus on fostering an innovation culture, gaining support from management, and effectively integrating digital tools. Only by creating a positive innovation atmosphere internally can enterprises fully unleash their productivity potential and maintain a competitive edge during the transformation process.

At the same time, private enterprises in Fujian Province, especially small and medium-sized enterprises, face

numerous challenges in digital intelligence transformation. For example, a shortage of technical talent, insufficient funding, and weak digital infrastructure have hindered the speed and effectiveness of transformation. These issues have affected the smooth progress of enterprises in digital intelligence transformation and limited the improvement of new quality productivity. Therefore, government policy support is crucial in this process. By providing tax incentives, innovation rewards, and digital technology training, the government can effectively help enterprises overcome these obstacles and accelerate their transformation pace.

3.2. Policy implications

To accelerate the digital intelligence transformation and enhance the new quality productivity of private small and medium-sized enterprises in Fujian Province, several key policy initiatives should be considered. First, the government should invest in educational and technical training programs to address the talent gap. These programs should focus on emerging technologies such as artificial intelligence, big data, cloud computing, and digital management. By improving the digital skills of the workforce, small and medium-sized enterprises will be better equipped to adopt these technologies and integrate them into their operations, ultimately boosting their innovation capacity and productivity.

In addition to talent development, improving digital infrastructure is a crucial step for facilitating digital transformation. Firms in Fujian often face challenges due to insufficient technological resources, which limits their ability to adopt and utilize digital tools effectively. The government should provide subsidies, tax incentives, and low-interest loans to help these enterprises invest in digital technologies, equipment, and platforms. This financial support will enable enterprises to upgrade their systems, improve operational efficiency, and remain competitive in a technology-driven economy.

Moreover, fostering collaboration between small and medium-sized enterprises, universities, research institutions, and technology providers is essential to accelerating the adoption of digital innovations. The government should create platforms for public-private partnerships to facilitate knowledge exchange, enabling enterprises to gain access to advanced technologies and new business models. Industry-specific collaboration initiatives will also help small and medium-sized enterprises tailor their digital transformation strategies to meet the specific needs of their sectors, leading to more efficient and targeted technological adoption.

The government should also focus on creating a supportive policy and regulatory framework to promote digital transformation. Simplifying the regulatory processes related to technology adoption and ensuring robust data security measures will reduce barriers for enterprises in embracing digital solutions. Additionally, providing clear guidelines and offering incentives for adopting digital intelligence technologies will encourage businesses to take the necessary steps toward modernization. A flexible, innovation-friendly regulatory environment will allow small and medium-sized enterprises to integrate advanced technologies while remaining competitive.

Finally, the government should implement policies that encourage innovation and foster sustainable growth. This can include providing financial rewards for innovation, supporting research and development activities within enterprises, and establishing digital innovation hubs. By encouraging enterprises to adopt personalized customization and technological innovations, they will be able to better adapt to market demands, increase efficiency, and differentiate themselves in the market. These policies will not only support enterprises in Fujian Province but also lay a strong foundation for the province's overall economic growth through enhanced new quality productivity.

In summary, a comprehensive approach involving talent development, infrastructure improvement, financial

support, collaboration, regulatory facilitation, and innovation-driven policies is essential to promoting the digital transformation of small and medium-sized enterprises in Fujian Province. By implementing these strategies, the government can help businesses overcome the challenges associated with digital transformation, increase their productivity, and strengthen their competitiveness in the global market.

Disclosure statement

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