

Pathways and Policy Recommendations for Cultivating New Productive Forces Under the Background of the Digital Economy

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Abstract: The digital economy technology improves by leaps and bounds, which has profoundly reshaped the landscape of productive forces and spawned new forms of productivity. This paper first analyzes the internal mechanisms through which the digital economy empowers new Productive Forces. It further proposes cultivation pathways from four dimensions: strengthening digital infrastructure, nurturing an innovative ecosystem, promoting industrial integration, and reinforcing talent support. Corresponding policy recommendations are also provided, aiming to offer valuable insights for the effective cultivation of emerging productive forces in the context of the digital economy.

Keywords: Digital economy; New productive forces; Cultivation pathways; Policy recommendations

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1. Introduction

The rapid advancements in technology and information growth have enabled the digital economy, leveraging its advantages such as big data, cloud computing, and artificial intelligence, to break through the obstacles and limitations of traditional production systems and facilitate the development of emerging productive forces. This, in turn, has had a profound impact on the development of enterprises themselves. By exploring effective cultivation pathways for new Productive Forces through practical implementation and formulating macro-level policies for response and promotion, we can facilitate the rapid activation and optimization of these forces. This will help enterprises address diverse and complex issues in the global economic context and advance towards a stage of high-quality development.

2. Internal Mechanisms of the Digital Economy Empowering new Productive Forces

(1) Digital reconstruction in production factors

In the context of the digital economy, traditional production factors have undergone new changes and been
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endowed with fresher connotations. Data has emerged as a crucial production factor. Through collection, integration, and in-depth analysis of massive data, enterprises use their intelligent systems to gain precise insights into market demands and guide optimal resource allocation. E-commerce platforms can optimize their product recommendation algorithms based on user browsing and purchase data, significantly enhancing the efficiency of supply-demand matching. Meanwhile, the quality of labor force has also undergone a transformation. Workers now possess digital skills, are proficient in operating intelligent equipment, and can perform data analysis tasks, developing new spaces for value creation and playing a vital role in the progress of productive forces.

(2) Intelligent revolution in production modes

Currently, intelligent manufacturing technologies have significantly altered production models, shifting enterprises from being experience-driven to data-driven. The industrial internet serves as a bridge for interconnected communication between production equipment and systems, enabling real-time monitoring of equipment, meeting the requirements of fault early warning, and facilitating the achievement of intelligent operation and maintenance goals. Factories can arrange production plans reasonably based on data related to order inventory and equipment operating status, breaking the traditional limitations of large-scale rigid production. This not only reduces production costs and improves production efficiency but also significantly improves product customization levels. In the agricultural sector, intelligent irrigation technology and unmanned aerial vehicle (UAV) plant protection technology can perform precise data processing based on actual conditions, revolutionizing and upgrading traditional extensive production methods and cultivating better crop varieties.

(3) Collaborative expansion in innovation models

Digital platforms have altered the boundaries of enterprises, forming an innovation network integrating industry, academia, and research. Universities and research institutions can interact with enterprises through these platforms to share cutting-edge research results and align them with industrial needs. Enterprises can use the platforms to publish technical challenges and innovation tasks, attracting more entities to participate in the development process. Communities can gather developers worldwide to help each other, yield high-quality software products, shorten the innovation cycle, and consolidate innovative capabilities.

3. Cultivation Pathways for new Productive Forces in the Context of the Digital Economy

(1) Strengthening the foundation of digital infrastructure

Against the backdrop of the digital economy, the cultivation of new Productive Forces necessitates first and foremost the reinforcement of the foundational digital infrastructure. This involves intensifying the construction of basic network communication facilities, with a particular emphasis on facilitating extensive 5G network coverage. Such coverage should be strategically positioned in key areas such as industrial agglomeration zones and transportation hubs, where base stations can be deployed. Additionally, the expansion of network bandwidth is crucial to ensure network stability, thereby meeting the unique demands of the development of intelligent manufacturing. Simultaneously, it is imperative to consolidate computing facilities such as data centers. Based on the industrial development characteristics of various regions, plans should be formulated for the construction of supercomputing centers and edge data centers. This will alleviate issues related to data processing latency, accelerate the pace of digital transformation within enterprises, and provide data storage infrastructure that is compatible with the development of the digital economy. Furthermore, heightened attention should be given to safeguarding data asset security, laying a solid foundation for the steady development of new Productive Forces.

(2) Cultivating an open and innovative ecosystem

The cultivation of digital innovation entities necessitates providing necessary support to corresponding

digital technology enterprises, such as tax incentives, research and development subsidies, and site support policies, which can serve as significant assistance for these enterprises to navigate the challenging initial stages of their startups. They can encourage industry leaders to provide innovation platforms and open up shared resources, including technology and channels, can enhance collaborative progress across the entire industry. This collaboration can help address technical challenges and enhance innovation capabilities. For instance, Huawei's HarmonyOS ecosystem has attracted numerous developers to co-create intelligent application scenarios for the Internet of Everything, thereby activating the vitality of the innovation ecosystem. Furthermore, by improving intellectual property protection and technology transaction mechanisms, more effective enforcement of digital copyright and patent protection can be achieved. Clarifying the rules of data ownership and improving endogenous driving forces are crucial components of cultivating new forms of productivity. These efforts collectively contribute to fostering an open and innovative ecosystem conducive to the growth and development of digital innovation entities.

(3) Advancing the integrated development of digitalization in industries

The digital transformation of the manufacturing industry is a pivotal aspect of industrial upgrading. It involves promoting digital design, virtual simulation, and intelligent production techniques, guiding enterprises to strengthen their digital construction, achieve digital transformation, strengthen digital management and control, and cultivate industrial internet platforms. These efforts aim to break down data barriers between industrial chains and supply chains, enabling innovative models such as collaborative manufacturing and capacity sharing. Consequently, the collaborative efficiency and flexible responsiveness of the manufacturing industry can be significantly improved. The digital upgrade of the service industry robustly empowers the cultivation of new intelligent productivity. In the financial sector, blockchain technology can be leveraged to optimize cross-border payments and streamline supply chain finance processes, enhancing business transparency. In the logistics industry, big data technology and internet technology can be used to optimize warehousing and distribution routes, improving logistics timeliness. In this way, the effects of industrial integration contribute to the quality and efficiency enhancement of new Productive Forces.

(4) Strengthening digital talent support

By optimizing the academic discipline settings in universities and adding frontier technology courses such as big data technology and artificial intelligence technology, and incorporating real-world projects as case studies in teaching, we can cultivate high-quality, composite digital talents. By enhancing digital skills training in vocational education and offering practical courses in e-commerce operations and smart device operation for working professionals and migrant workers, we can expand their ranks. Additionally, special policies for talent recruitment can be formulated to attract more high-quality overseas talents to return and gather, providing them with generous salaries, research startup funds, and educational support services for their children. Thus, a positive talent environment could be formed to achieve the goal of intellectual support for the development of new Productive Forces.

4. Policy Suggestions for Cultivating New Productive Forces in the Context of the Digital Economy

(1) Targeted support from fiscal and tax policy

Fiscal departments can provide special funds for the development of the digital economy, focusing on various areas such as digital infrastructure construction, research and development of key technologies, and digital transformation of enterprises. This can promote the participation of more social capital in the process of digital economy development, thereby providing necessary subsidies and financial support for key enterprises

engaged in the cultivation of new Productive Forces. From the perspective of tax policy, preferential measures such as tax credits can be offered for the purchase of digital equipment and research and development software by enterprises. Furthermore, tax reductions and exemptions can be granted to digital startups, laying a solid foundation for their robust growth.

(2) Innovative empowering from financial policies

Financial institutions should be encouraged to innovate digital financial products and introduce diversified services such as intellectual property securitization and data asset-backed loans, thereby revitalizing enterprises' digital assets and continuously broadening their financing channels. A risk investment fund for the digital economy industry can be established to focus on early-stage investments and development of high-potential digital projects, allowing for sharing in the growth dividends of these enterprises. In addition, the process for digital enterprises to be listed and raise funds can be optimized, providing them with a green channel for development that better aligns with the orientation and goals of new Productive Forces development.

(3) Inclusive and prudent regulatory policies

A dynamically adaptable regulatory framework can be constructed for the development of new Productive Forces, adhering to the principle of inclusiveness and establishing reasonable observation periods for new technologies, models, and applications to prevent premature and stringent regulations from limiting the growth of innovative initiatives. Big data technology, credit regulation, and other measures can be employed to enhance regulatory efficiency. Strengthened regulatory enforcement in key areas such as data and privacy, as well as network security, is necessary. Norms for cross-border data flows and rules for personal information protection should be formulated to help enterprises fulfill their primary responsibilities and achieve the goal of healthy development in the digital economy.

5. Conclusion

The digital economy era has driven transformative changes in productivity, particularly fostering new Productive Forces, which holds vast development prospects and significant opportunities. By continually optimizing digital infrastructure, nurturing an innovative ecosystem, advancing industrial integration, and complementing these efforts with comprehensive policy support and talent cultivation, new Productive Forces can achieve more sustainable and steady progress in the current era.

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