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Article

Practical Path for Developing "New Quality Productive Forces" Driven by the Digital Economy in China

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Abstract: In China, "new quality productive forces" have become an important focus for high-quality development; accelerating this development is an important task for the Chinese government in 2024. Such development relies on the traction of the digital economy. In view of this, developing "new quality productive forces" driven by the Chinese digital economy requires focusing on blocking points, such as the insufficient vitality of data, inadequate algorithmic regulation, the uneven distribution of computing power resources and the immature market environment. In order to dredge these blocking points, it is necessary to establish basic rules on data, strengthening algorithm supervision, building a national integrated computing power network, and optimizing the market environment.

Keywords: "new quality productive forces"; data; algorithmic; computing power; national unified large market

1. Introduction

On September 7,2023, the General Secretary of the Communist Party of China (CPC), Xi Jinping, presided over a symposium on promoting the all-round revitalization of Northeast China in the new Era. At the symposium, the General Secretary proposed the "new quality productive forces" for the first time. He stressed the need to actively cultivate strategic emerging industries such as new energy, new materials, advanced manufacturing and electronic information, actively cultivate future industries, accelerate the formation of new quality productive forces, and enhance new drivers of development. During the collective study session of the Political Bureau of the CPC Central Committee in January 2024, the General Secretary provided a systematic and comprehensive explanation of these "new quality productive forces". This original concept, which has become an important focus for high-quality development, is significant both in China and abroad.

"Productive force" refers to the ability of human beings to transform and influence nature in production practices. The term "new quality productive forces" refers to contemporary advanced productive forces that are generated by revolutionary technological breakthroughs, the innovative allocation of production factors, and the in-depth transformation and upgrading of industries. It takes qualitative changes in terms of laborers, labor materials, objects, and their optimal combination and improvements in total factor productivity as the core indicator [1].

Accelerating the development of "new quality productive forces" is one of the most important tasks for the Chinese government in 2024. The report on the Work of the Chinese Government (2024) points out that optimizing and upgrading the industrial and supply chains, cultivating emerging industries and future industries, and innovatively developing the digital economy are some of the concrete ways to achieve "new quality productive force" development.

The digital economy is a new economic form that takes digital knowledge and information as the key production factors, digital technology as the core driving force, and modern information networks as important carriers. Through the deep integration of digital technology and the real economy, the digital economy constantly improves the digitalization, networking, and intelligence

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of the economy and society, accelerating the reconstruction of the economic development and governance model [2]. According to the Digital China Development Report (2022), as early as 2022, the scale of China's digital economy reached CNY 50.2 trillion, ranking second in the world and accounting for 41.5% of the gross domestic product (GDP). As such, the digital economy has become an important engine for steady growth [3].

Driven by the digital economy, the development of "new quality productive forces" must continuously optimize factor allocation and eliminate and overcome various sticking points, such as obstructed data flow, inadequate algorithmic regulation, the uneven distribution of computing power resources, and immature market environments for fair competition. This requires improving the data infrastructure system, strengthening algorithm supervision, building a national integrated computing power system, and maintaining fair competition.

2. Blocking Points in Developing "New Quality Productive Forces"

The digital economy is an important driving force behind modernization in China. The development of "new quality productive forces" is also inseparable from the traction of the digital economy. However, the sustainable and healthy development of China's digital economy has encountered some practical bottlenecks, such as the insufficient vitality of data, inadequate algorithmic regulation, the uneven distribution of computing power resources and the immature market environment. To drive new quality productivity through the development of the digital economy, it is necessary to locate and remove these obstacles.

2.1. The Insufficient Vitality of Data

For the first time, the Fourth Plenary Session of the 19th Central Committee of the Communist Party of China(2019) regarded data as a factor of production alongside labor, capital, land, knowledge, technology, management, etc. The committee proposed improving the mechanism whereby the seven major factors of production, including data, are evaluated by the market and paid according to their contributions [4]. From the perspective of the factors of production, "new quality productive forces" are new forms of productive forces evolved by a new round of science, technology, and industrial reform. At its core, this phenomenon relies on the integration of data, a new production factor, and digital technologies such as artificial intelligence.

To develop "new quality of productive forces", it is necessary to dispense with the traditional economic growth mode and productive force development path, breaking away from dependence on economic growth driven by the massive input of traditional factors such as capital, labor force, and land. Data play a role through their function and integration with other production factors, penetrating production, circulation, consumption, distribution, and other social production processes, giving birth to new quality labor means, objects, and forces, and thus promoting the development of "new quality productive forces". It can be said that data constitute one of the key factors in promoting the development of "new quality productive forces". In order to use the data multiplier effect to empower economic and social development, 17 departments, led by the National Bureau of Data of China, jointly launched the Three-year Action Plan for "Data X" (2024–2026) in December 2023 [5]. This plan clearly emphasized the significance of data in the development of "new quality productive forces" and the promotion of high-quality development.

However, there are still many obstacles preventing the full use of data. Firstly, data ownership is unclear, and, secondly, there are obstacles in data circulation and use. Thirdly, data development and openness are insufficient.

2.1.1. Unclear Data Ownership

Market transactions need clear property rights and a perfect ownership registration system as their basis. Different from traditional physical goods, data are a kind of virtual good, with multiple data subjects, uncertain data derivation flow, changeable ownership generation processes, and a multi-dimensional perspective on confirming rights. In order to clearly define data ownership, the

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traditional civil rights system theory needs to be expanded and improved [6]. The actual configuration of data property rights is not clear, making it difficult to define the core rights, such as data use and income, affecting the market-oriented allocation efficiency of data resources, and leading to data resource waste.

2.1.2. Obstructed Data Flow

Data circulation and use are the key to activating their value. However, at present, due to the problems of inconsistent technical standards, incompatible data formats, insufficient data sharing, and openness in on-exchange trading, the data security protection mechanism of off-exchange trading is imperfect, and the risk of personal information collection and leakage has greatly hindered the efficiency of data circulation. This limits the sharing and use of data, reducing the application efficiency of data in the production process. This is reflected in the lack of smooth data flow between regions, departments, and industries. At present, the scale and quantity of data market construction in both East and South China are significantly ahead of those of the northeastern and western regions, and the development of the national data trading market is unbalanced and inadequate. The local data trading platforms established by different regions and departments adopt different data standards and trading rules in the trading process, and there are obstacles in the circulation and trading of data in different regions or platforms. At the same time, many data resources are scattered in different industries, and the difference in digitization level between industries leads to the generation of data barriers, hindering the defining of data values. The above problems will affect the formation of new production relations commensurate with digital productivity.

2.1.3. Insufficient Data Development and Openness

At present, open data-sharing mechanisms are imperfect. Although the government holds a large amount of valuable data, due to the fact that these data may contain sensitive personal information, confidential government data, and other information that should not be disclosed, as well as the fact that there is no sound data-sharing mechanism at present, most of the potentially valuable government data that can be economically anonymized and desensitized are in an "idle" state. Unable to effectively supply the market, in practice, this leads to a low degree of government data openness. The data that are open and available present the characteristics of low quality, untimely updates, low data values, poor readability, etc., which is insufficient in meeting the basic needs of "new quality productive force" development.

In the case of unclear data property rights systems, if one wishes to promote the open sharing of data, there will inevitably be an uneven distribution of costs, benefits, rights, and responsibilities. For enterprises that make substantial technological and capital investments for data collection and processing, the lack of a property rights system to provide incentives based on data value creation and realization would lead to enterprises with large amounts of high-quality data being reluctant to grant access.

2.2. Inadequate Algorithmic Regulation

In recent years, the continuous iteration of artificial intelligence algorithms has led to increasingly complex hidden layers of technology; the cognitive results generated have exceeded the scope of the general public's understanding. As a result, the phenomenon of an "algorithm black box" becomes increasingly prominent; information asymmetry deepens the opacity and incomprehensibility of algorithms, causing a series of uncertain challenges such as privacy disclosure, algorithm discrimination, and ethical risks [7].

China has focused on the core elements of artificial intelligence, such as data, algorithms, and the overall application of artificial intelligence, promulgating legislation such as the "Network Security Law", "Personal Information Protection Law", and "Data Security Law", and disseminating new administrative norms, such as the "Provisions on the Administration of the Use of Deep

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Synthesis Technology to Provide Internet Information Services" and "Measures for the Management of Generative artificial intelligence Services".

However, regulations and policies regarding artificial intelligence algorithms are scattered across multiple fields and industries. The existing institutional rules, which are relatively fragmented and have low levels of legality, are not conducive to effective law enforcement by regulatory authorities, nor are they conducive to corporate self-compliance. At the same time, the problem of the systematic and insufficient coordination of relevant laws and regulations on artificial intelligence algorithm governance has also risen to prominence.

From the perspective of industrial form, the development of "new quality productive forces" has profoundly shaped the modern industries, especially in the field of artificial intelligence. The core feature of "new quality productive forces" is that they rely on scientific and technological innovation, especially the application of digital and intelligent technology, in promoting industry transformation from the traditional mode of low efficiency and high consumption to the efficient, new, green industrial form. Artificial intelligence is a strategic technology leading future advancements. As the core driving force for the latest round of industrial change, artificial intelligence will further release the huge energy accumulated by previous scientific and technological revolutions and industrial changes, creating a powerful new engine to help restructure production, distribution, exchange, consumption, and other economic activities. Artificial intelligence has certainly become an important factor for the development of the digital economy and "new quality productive forces". However, the imperfect legal regulatory system of artificial intelligence algorithms may lead to uncertainty in—and the stalling of—their development.

2.3. The Uneven Distribution of Computing Power Resources

There is no doubt regarding the strategic position of computing power in the digital economic field. As the core productivity of the digital era, computing power is accelerating the deep integration of the digital economy within the real economy. The rise in new applications and demands, such as the artificial intelligence model represented by AIGC (Artificial Intelligence Generated Content), has promoted the rapid growth of computing power, diversified computing technology innovations, and accelerated the restructuring of industrial patterns. According to the White Paper on China's Computing Power Development Index (2023), the scale of the country's computing power has been steadily expanding, with intelligent computing power maintaining strong growth. From the perspective of infrastructure (such as general data and intelligent computing centers), in 2022 the infrastructure computing power scale reached 180ExaFLOPS, ranking second in the world [8].

However, in China, computing power resources are distributed unevenly. At present, the eastern region has a strong demand for computing power but is not conducive to the construction of low-carbon and green data centers in terms of climate, resources, and the environment. With improvements in artificial intelligence technology, especially the emergence of general large models, the requirements for high-quality computing power supply have increased. The uneven distribution of computing power resources makes it difficult for many industries to obtain sufficient computing resources to support their application and development.

2.4. The Immature Market Environment

The development of "new quality productive forces" requires a fair and free market environment. However, in order to protect local economic interests, some local governments will restrict the circulation of goods or services between regions and prevent enterprises in other regions from participating in local market competition, resulting in market separation and affecting the efficiency of resource allocation. Reductions in resource allocation efficiency will inhibit innovation, hindering the effective combination of advanced technology, talent, and capital and thus limiting the formation and release of "new quality productive forces". Local protectionism can also hinder the formation of a large, unified national market, resulting in different regulatory environments for companies operating across regions, and thus a lack of clear market expectations for cross-regional investment and technology transfer. Particularly for enterprises that rely on "new quality productive

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forces" (such as enterprises in high-tech industries and the digital economy), different regulatory requirements and legal environments will, to a certain extent, inhibit the optimal combination of production factors on a larger scale, which is not conducive to the formation of a good ecology for innovation-driven "new quality productive forces" growth. As such, this will ultimately hinder the effective allocation and large-scale application of "new quality productive forces" in the national market.

According to the "Notice on Collecting Clues on Problems Hindering the Construction of a National Unified Large Market" issued by the "Internet + Supervision" platform of The State Council of China on 25 September 2023, the outstanding problems that hinder the construction of a national, unified, large market can be summarized into the following five aspects [9].

First, relevant localities or units introduce, or actually implement, policies that impede a unified market and fair competition, including local protection, market separation, and designated transactions.

Second, relevant localities or units use data, algorithms, and technical means to eliminate and restrict competition.

Third, relevant localities and units illegally set up local protection and regional barriers. For example, the illegal setting of regional barriers to prevent enterprises registered in other regions from undertaking engineering projects, the implementation of subsidies and other preferential policies to restrict the participation of enterprises registered in other regions, or letting state-owned enterprises monopolize market resources to prevent other business entities from participating in fair market competition.

Fourth, in accordance with the law, relevant localities and units hinder the equal access and exit of business entities. For example, they set unreasonable or discriminatory conditions to raise the threshold for enterprise access, take measures such as listing enterprises in the abnormal list of operations, suspend the handling process, cause deliberate delays, and pursue other means of setting obstacles for enterprises to operate or migrate across regions.

The fifth aspect is the obstruction of fair and just bidding and government procurement. For example, the bidding conditions are not conducive for enterprises registered in other regions, limiting or specifying specific patents, trademarks, brands, parts, origin, suppliers, etc.

3. Targeted Solutions for Developing "New Quality Productive Forces"

Focusing on the blocking points that restrict the development of the digital economy and new quality productivity, the following four aspects can be considered. First, there is a need to establish basic rules regarding data property rights, circulation transactions, income distribution, and security governance. Second, there is an additional need to strengthen algorithm supervision. Third, there is a need to build a national integrated computing power network and, finally, to optimize the market environment.

3.1. Establishing Basic Data Rules

Released in December 2022, the "Opinions of the CPC Central Committee and The State Council on Building a Data Basic System to Better Play the Role of Data Elements" (hereafter referred to as "Opinions on Data") heralded a new stage of market-based data element allocation in China. "Opinions on Data" actively responds to the hot issue of data ownership in academic circles, creatively proposes the operation mechanism of "three rights (the right to hold data resources, the right to use data processing, the right to operate data products) separation" of data ownership, and suggests type distinction and targeted right confirmation authorization for government, enterprise, and personal data. The content is wide in scope, covering many aspects such as data circulation, rights distribution, and security protection and providing practical guidance for solving the problem of data element market allocation. It can be seen that the market-oriented allocation of data is an effective way to promote the high-quality development of the digital economy, which can activate data potential, promote the deep integration of data resources within technologies and scenarios,

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empower the transformation and upgrading of traditional industries, and give birth to new industries, forms of business, and models.

In March 2023, the CPC Central Committee and The State Council issued the Reform Plan for Party and State Institutions and decided to establish a National Data Bureau to coordinate and promote the construction of data infrastructure systems, coordinate the integration, sharing, development, and utilization of data resources, and coordinate the planning and construction of a digital China, economy, and society. From the overall perspective of China's digital development, the establishment of a National Data Bureau is significant and is a key move in accelerating market-oriented data allocation reform. Improving regulations and policies regarding the market-oriented allocation of data, optimizing institutional supply, ensuring unified and open markets, and ensuring the smooth production, distribution, circulation, and consumption of data are the bases for accelerating the construction of a digital China. At the same time, the State Council Information Office issued a white paper entitled "Internet Legal Construction in China in the New Era", which focuses on improving laws regarding the digital economy, building basic data rules and security management systems, clarifying the digital market operation system, standardizing new digital economy forms and models, improving the level of data development and utilization, and promoting the development of the digital economy with data as the key element. Among these aspects, data marketization is of great significance.

Therefore, at present, for the market-oriented allocation of data, basic systems and standards such as data resource property rights, transaction circulation, and security protection must be established and improved, and a unified, fair, mature, and complete data market system with orderly competition must be built. From a technical point of view, when relying on the emerging federated learning, secure multi-party computation, smart contract, homomorphic encryption, and differential privacy technologies, data ownership and use rights can be separated. Data elements can be classified and registered to confirm rights, such as data resource ownership registration, transfer registration, data product management right transfer registration, data circulation registration, etc. [10]. From the perspective of regulations, it is necessary to establish and improve the national unified data circulation and trading norms to provide a legal basis for the construction and development of national data-trading platforms. In formulating relevant regulations, there is a need to focus on the current practical needs of data trading, to clarify data classification and grading standards, and to stipulate transaction legislation and rules such as data trading platform access, data evaluation and pricing, rights confirmation, rights distribution, transaction delivery methods, and transaction rights protection relief. There is also a need to establish a multi-level national data trading market system in order to improve the data trading ecology under the national unified big market, provide unified data interfaces and secure transmission channels, and promote the orderly circulation and sharing of transaction data.

In order to promote the opening of government data in an orderly manner, it is necessary to start from two aspects: the opening and sharing of government data. On the one hand, in order to promote the opening of government data, an open platform can be built in coordination with national and local governments and based on the principle of data classification and hierarchical management. Working out the government data classification and hierarchical authorization protocol applicable to China has the purpose of clearly exempting the types， modes, and rights of subjects of data opening and utilization [11]. In this way, on the basis of ensuring the standard and safe use of government data, the difficulty of obtaining said data can be appropriately reduced and the efficiency of authorized use can be improved. On the other hand, at the level of government data sharing, it is necessary to build an interconnected data-sharing mechanism, clarify the rights and responsibilities of all relevant parties in the provision, use, and management of government data, promote data sharing and business collaboration, and form an efficient working mechanism.

3.2. Strengthening Algorithm Supervision

In recent years, while the application of algorithms has injected new momentum into political, economic, and social development, the problems caused by the irrational application of algorithms

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such as algorithm discrimination and inducing addiction have also profoundly affected the normal order of communication, market, and social order, bringing new challenges to the maintenance of social fairness and justice, as well as the legitimate rights and interests of netizens. The establishment of a user-centered algorithm governance system is the fundamental meaning behind the sustainable and healthy development of the digital economy.

At the legislative level, the introduction of targeted algorithm recommendation rules and regulations is not only useful in preventing and resolving security risks but is also useful in promoting the healthy development of algorithm recommendation services and improving the level of supervision. In view of this, in China, the Cyberspace Administration, the Ministry of Industry and Information Technology, the Ministry of Public Security, and the State Administration for Market Regulation jointly issued the "Regulations on the Management of Algorithm Recommendation for Internet Information Services" (hereafter referred to as "Regulations on the Algorithm Recommendation"), which came into effect on 1 March 2022.

The "Regulations on the Algorithm Recommendation" clearly specify the requirements for the protection of users' rights and interests, including protecting the right to know; the requirement to inform users of the situation when providing algorithm recommendation services; and the publicity of the basic principle, purpose, and main operation mechanism of the service. To ensure the correct algorithmic choice, users should be provided with options that are not specific to their personal characteristics or with the option to conveniently turn off algorithmic recommendation services. In addition, for the provision of algorithm recommendation services to minors and the elderly, the "Regulations on the Algorithm Recommendation" has clarified specific requirements, such as not using algorithm recommendation services to encourage minors to indulge in the internet and facilitating the safe use of algorithm recommendation services for the elderly. For the provision of algorithm recommendation services to laborers, relevant algorithms will be established and improved for order allocation, remuneration composition and payment, working hours, rewards, and punishments on the platform. For the provision of algorithm recommendation services to consumers, algorithms to implement unreasonable differential treatment on trading conditions will not be used, such as trading prices according to consumer preferences, trading habits, and other characteristics.

At the law enforcement level, it is necessary to explore diversified regulatory tools, such as regulatory sandboxes, and to further implement ex ante and ex post supervision measures, such as algorithm filing and certification systems, to ensure that innovations in artificial intelligence algorithm technology can develop in an orderly manner. In addition, there is a need to further clarify the liability of algorithm developers and users. In order to reasonably delineate the scope of responsibility of algorithm developers and users, it is necessary to clarify the considerations necessary in algorithm responsibility identification.

To determine algorithm developer liability, it is necessary to find out whether there are subjective faults in the design process, namely, whether the algorithm developers knew or should have known that their technical design risked harming the rights and interests of users and nevertheless allowed this situation to occur. For example, in the process of designing video recommendation algorithms, the necessary considerations include whether the algorithm developers improperly add technical factors that lead consumers to be addicted to videos and whether they excessively chase economic benefits at the cost of damaging the physical and mental health of consumers. The existence of these facts can be taken into consideration when deciding whether developers should take responsibility for the algorithms they design [12].

When determining algorithm user liability, it is necessary to find out whether there is fault in the process of using algorithm technology. The algorithm user can control the algorithm's operation and directly benefit from it. If the algorithm user knows that the design risks infringing on the rights and interests of consumers or other operators, but still does not take measures to avoid damage and insists on using the algorithm, then the user may also become the subject of responsibility [13]. Therefore, the distribution of liability between algorithm developers and users should be divided proportionally according to the degree of fault.

 doi:10.20944/preprints202406.1201.v1

3.3. Building a National Integrated Computing Power Network

In December 2023, China released an implementation plan for further carrying out the "east data, west computing power" project and speeding up the construction of a national computing power network. The plan, jointly released by five authorities, i.e., the National Development and Reform Commission, the National Data Bureau, the Cyberspace Administration of the CPC Central Committee, the Ministry of Industry and Information Technology, and the National Energy Administration, aims to energize high-standard economic development with high-quality computing power and contribute to building the country's cyberspace strength towards a digital China. The report on the Work of the Chinese Government (2024) also clearly states the following: "Appropriately advance the construction of digital infrastructure, accelerate the formation of a national integrated computing power system, and cultivate a computing power industry ecology". In order to improve the overall efficiency of national computing power, promote green sustainable development and regional coordinated development, give full play to the computing resource and data "multiplier effect" , and improve the level of national data sharing, it is necessary to fully acknowledge the boost provided by the "east data, west computing power" project [14].

Regarding improving the collaborative mechanism of artificial intelligence computing power, it is necessary to provide institutional and policy support for further improving and optimizing the distribution layout of computing power and the operation of the nationwide data and computing resource system. China has the institutional advantage of deploying an integrated computing system and is thus able to integrate computing power, network transportation, data storage, and other resources nationwide to form an efficient, intelligent, and secure computing service system to support the country's scientific and technological innovation, industrial upgrading, and social governance needs.

3.4. Optimizing the Market Environment

The development of a digital economy and "new quality productive forces" requires the efficient and fair allocation of factors and resources. The efficient distribution of production factors depends on having a fair and free competitive market environment. Therefore, the continuous promotion of market-oriented business environment upgrading, in accordance with laws, is particularly important for the development of "new quality productive forces". In China, improving the business environment at the domestic level requires giving full play to the decisive role of the market in allocating resources, correcting the behavior of administrative entities that interfere with competition, and regulating that of enterprises that restrict competition. Improving the business environment at the international level requires improving the foreign-related legal system, promoting mutual benefit and win–win results. On a technical level, improving the business environment requires increasing the level of digitization of administrative services.

3.4.1. Formulating "National Unified Large Market Construction Standard Guidelines"

On 25 March 2022, the "Opinions of the Central Committee of the Communist Party of China and The State Council on Accelerating the construction of a National unified large market" in the "incentive mechanism" proposed "explor[ing] ways to formulate standards and guidelines for building a national unified large market, and reward regions that actively promote the implementation of the construction of a national unified large market and achieve outstanding results in accordance with relevant state regulations" [16]. This shows that the country urgently needs to formulate "national unified large market construction standard guidelines" [17].

The construction of a national unified large market is simply "5 unified" and "1 break"; that is, through unified basic system rules, unified connected market facilities, unified factor resource market, unified commodity and service market, unified market supervision, and breaking local protection, an efficient, standardized, fair, and fully open super-large-scale market can be built [18]. Among them, the first task is to establish various rules conducive to the construction of a national unified large market. For setting up the relevant system of rules, it is necessary to study and formulate

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national unified guidelines for the construction of large markets, promoting the unification of institutions and rules regarding property rights protection, market access, fair competition, and social credit.

3.4.2. Improving the “Fair Competition Review System”

In view of the need to clean up the existing policy documents of various local government departments contrary to fair competition, it is necessary to further establish and improve the “fair competition review system” so that fairness is guaranteed throughout the country. China’s “fair competition review system” was introduced and implemented in 2016. The Opinions of The State Council of China on Establishing a Fair Competition Review System in the Construction of a Market System (2016) clearly point out that, in order to regulate relevant government actions, prevent the introduction of policies and measures that exclude or restrict competition, and gradually clean up and abolish regulations and practices that impede the national unified market and fair competition, a fair competition review system should be established.

The fair competition review system is an anti-monopoly compliance mechanism within the government; it adopts the review mechanism of self-review by policy-making organizations. Although the special chapter on China’s anti-monopoly law clearly prohibits the “abuse of administrative power to exclude and restrict competition”, after completing the investigation and forming a conclusion, the anti-monopoly law enforcement agency can only make recommendations to the superiors in the department that committed the act, and the specific treatment can only be completed by these parties. Based on this, the fair competition review system can supplement the shortcomings of the anti-monopoly law in correcting administrative monopolies. In order to ensure system implementation, the Chinese government equipped it with a joint meeting system, detailed rules, and a third-party evaluation mechanism.

The joint meeting is a deliberative and coordinating body composed of subordinate government departments, including more than 20 departments relating to industrial policy, finance, education, science and technology, commerce, agriculture, culture, industry and commerce, and finance at all levels of government. Although the joint meeting is not a statutory body, it still helps to promote competition advocacy within the government by bringing together departments on a regular basis to discuss fair competition issues.

The Detailed Rules for the Implementation of the Fair Competition Review System refine the 18 types of behaviors prohibited by the system into 55 situations, providing clearer self-examination guidance for various localities and departments.

According to the "Guidelines for the Implementation of Third-party Evaluation for Fair Competition Review" issued by the State Administration for Market Regulation of China, third-party evaluation institutions refer to consulting and research institutions that have no interest in policy-making organizations and evaluation matters. They have corresponding evaluation capabilities, including government decision-making consulting and evaluation institutions, universities, research institutes, professional consulting companies, law firms, and other social organizations. Although third-party assessment reports are not decisive, they can provide an important reference for policy-making organizations. In addition, if the conclusion of the policy-making organization’s review is inconsistent with the third-party assessment report, this needs to be specified in writing, thus ensuring professionalism and standardization.

Promoting the fair competition review system is conducive to providing a law-based business environment for “new quality productive forces” [19]. The further optimization of the fair competition review mechanism could join forces with the "national unified large market construction standard guidelines", effectively reducing unnecessary administrative interventions and breaking local protectionism. Promoting the free flow of market resources and fair competition is helpful in improving factor allocation efficiency, reducing transaction costs, and promoting technological innovation and coordinated industrial development. Through the implementation of the fair competition review system and the formulation of “national unified large market construction

 doi:10.20944/preprints202406.1201.v1

standard guidelines", it is possible to improve the investment confidence of enterprises and thus encourage investments of social capital into the development of "new quality productive forces".

3.4.3. Regulating Monopolizing and Unfair Competition

In addition to supervising and reviewing administrative actions, it is also necessary to regulate the monopolizing and unfair competition of enterprises in order to build a fair competition market. When the top enterprises of the digital economy accumulate massive data, they often consciously or unconsciously form a data monopoly; this has a negative impact on the fair and orderly competition of the whole data factor market and risks endangering its safe operation. If large platforms block the free flow of data, this may seriously damage innovation and competition in the digital market, thus hindering the function of data as a basic factor of production [20]. The Anti-Monopoly Law of the People's Republic of China, revised in 2022, also focused on the monopolization risks in the digital economy, adding a special provision stipulating that "enterprises shall not use data and algorithms, technology, capital advantages and platform rules to engage in monopolistic activities prohibited by this law".

To maintain a fair competition order, not only should monopolistic behavior be prohibited, but so should unfair competition behavior. Especially in the field of the digital economy, anti-unfair competition behaviors are equally as important as anti-monopoly behaviors; these are related to the basic level and quality of the market economy. On the one hand, with the rapid development of China's digital economy and the iteration of information technology innovation, traditional acts of unfair competition, such as counterfeiting and confusion, false propaganda, and business slander, are being renewed by means of internet technology. New acts of unfair competition on the internet, such as fabricating bad reviews and illegal data acquisition, are more hidden, hindering the improvement in economic operation efficiency, restricting the free flow of goods and factors, hindering fair competition, and restricting the formation of a national unified large market. In this regard, there is an urgent need to strengthen unfair competition governance and constantly improve the efficient, complete, transparent, and predictable normal supervision mechanism. On the other hand, adjustments of the global competition pattern are accelerating, a new generation of economic and trade rules are taking shape, and institutional competition has become an important part of international competition. In this context, on 6 May 2024, the State Administration for Market Regulation announced the Interim Provisions on Internet Anti-Unfair Competition.

According to the complex and changeable characteristics of online competition behaviors, the Interim Provisions on Internet Anti-Unfair Competition classified and refined unfair competition behaviors and clarified their identification criteria. First, it clarified the new manifestations of traditional unfair competition behaviors, such as false propaganda in the online environment, and regulated hot issues such as fictitious user evaluations and praise rebates to eliminate supervision blind spots. Second, unfair competition behaviors unique to the internet, such as traffic hijacking and malicious interference and incompatibility, are detailed. Third, new unfair competition behaviors, such as illegal data acquisition and discriminatory treatment, which are implemented via technical means, are listed.

3.4.4. Attracting Foreign Investment

In China, state-owned, private, and foreign-funded enterprises are all important forces in the drive towards modernization. To ensure the sustainable and healthy development of the digital economy and develop "new quality productive forces", it is necessary to stimulate the vitality of various business entities. The report on the Work of the Chinese Government (2024) calls for greater efforts to attract and utilize foreign investment. To this end, efforts are needed in the following aspects: (1) expanding market access and strengthening the opening up of the modern service industry; (2) ensuring national treatment for foreign-funded enterprises; (3) actively promoting access to high-standard economic and trade agreements such as the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), actively comparing relevant rules, regulations, management, and standards, and steadily expanding institutional openness; (4) optimizing the

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regional opening layout, implementing the strategy of upgrading pilot free trade zones, and giving full play to the pioneering role of open platforms such as Hainan Free Trade Port and various development zones; and (5) succeeding in providing services to foreign-funded enterprises and promoting the implementation of foreign-funded landmark projects.

Foreign-related legal construction is crucial to China's opening up. The construction and improvement of the foreign-related legal system will help attract foreign investment, introduce advanced technical talents, and create a more open, transparent, and fair international business environment for the development of "new quality productive forces". In particular, the scientific application of laws and regulations in data security and circulation is particularly important for the development of "new quality productive forces". At an international level, it is necessary to attach importance to international cooperation, actively participate in the formulation of international economic and trade rules, promote the building of an open-world economy, and let win–win cooperation benefit people across all countries. At a domestic level, it is necessary to use the rule of law approach to safeguard domestic development and promote opening up, ensuring that domestic laws are interconnected, coordinated, and systematically integrated.

3.4.5. Increasing the Level of Digitization of Administrative Services

In order to accelerate the promotion of smart supervision, as well as improve the cross-provincial general office and sharing cooperation in market supervision and administrative services, online transaction supervision, consumer rights and interests protection, and key product traceability, the "Opinions of the Central Committee of the Communist Party of China and The State Council on Accelerating the Construction of a National Unified Large Market" stated that it is necessary to make full use of big data and other technical means.

On the one hand, improving the digital level of administrative services can promote the interconnectedness of government services and improve their efficiency. To this end, there is an urgent need to speed up the construction of digital and intelligent administrative service models, formulate and improve policies to promote the digitalization of administrative services, improve online government service capabilities, and expand the scope of big data application.

On the other hand, improving the digitization level of administrative services is helpful in improving the connectivity of the national property rights trading market, promoting the interoperability and sharing of market public information in various fields, facilitating information interconnectedness among market entities, and promoting the flow and efficient use of market information. For this purpose, it is necessary to unify the information release mechanism of property rights transactions through the application of digital technology; to optimize important information release channels, such as industry announcements and the ways in which market entities disclose information; to promote the unified interface construction of information authentication platforms of the same type and purpose; and to improve interface standards.

4. Conclusions

Data, algorithms, and computing power are the main driving forces behind the vigorous development of the digital economy. Therefore, in order to develop "new quality productive forces" driven by the Chinese digital economy, it is necessary to take scientific and technological innovation as the core, empower means of production and objects of production through data, and lead both society and the economy into a new stage of development. This requires solving bottlenecks such as data development, opening up and circulation, adapting to the industrial form transformations driven by "new quality productive forces", accelerating the transformation and upgrading of industrial structures, and providing a suitable legal environment for new technology industries such as artificial intelligence. This also requires efforts in optimizing a market-oriented, law-based, and international business environment, building a national unified large market, and ensuring the orderly circulation and efficient allocation of high-quality production factors across the country.

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