Enhancing the Resilience of China's Industrial Chain in the Context of Major-Power Rivalry: Intrinsic Logic and Implementation Pathways

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Abstract: *The report to the 20th National Congress of the Communist Party of China (CPC) proposes to "focus on enhancing the resilience and security level of industrial and supply chains". At present, the intensification of major-power rivalry, compounded by geopolitical factors, is an accelerator of the restructuring of global industrial chains, posing a severe threat to the security and stability of China's industrial chains. This paper analyzes the historical and present logic underpinning China's industrial security and development, providing recommendations for enhancing the resilience of China's industrial chain. By combining the characteristics of major-power rivalry and phased development goals, we discuss the four stages in the construction of the industrial system over the Party's centennial journey, revealing the historical logic of independence and self-reliance in relation to industrial chain resilience. Focusing on the current rivalry in industrial chains, particularly in key intermediate products, core technologies, long-term scientific and technological competitiveness, partnership relations, and governance, we clarify the practical logic of enhancing industrial chain resilience to meet the needs of a modernized industrial system, explain short-term risks, and interpret long-term governance dialogue. Finally, we propose ways to enhance the resilience of China's industrial chain by strengthening industrial chain risk management and early warning, achieving breakthroughs in key core technologies through scientific and technological innovation, expanding the "circle of friends" in industrial chain cooperation, and participating in global industrial chain governance.*

Keywords: *Major-power rivalry, industrial chain resilience, independence and self-reliance, modernized industrial system*

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1. Introduction

The Central Committee of the CPC, in its report to the 20th National Congress, proposed to "focus on enhancing the resilience and security level of industrial and supply chains". During the second collective study session of the Political Bureau of the 20th CPC Central Committee, General Secretary Xi Jinping emphasized that it is important to "create an autonomous, controllable, secure, reliable, and competitively strong modernized industrial system". Currently, technological revolution,

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governance deficit, and sluggish growth, risks to the global division of labor are escalating. Major powers are engaging in multi-dimensional games centered around choosing cooperation partners, securing technological leadership, garnering political support, and shaping international rules, in an attempt to get more leverage in the reshuffling. Political factors increasingly act as an accelerator of contraction and restructuring, even the stagnation or reversal of globalization, presenting serious threats to the security and stability of global industrial chains (Huang, 2021). The ongoing "fermentation" of major-power games not only increases the likelihood of intentional disruptions in industrial chains but also severely impacts the existing logic of cooperation and division in global production networks, subjecting China's industrial chains to new risks such as forced transfers, passive substitutions, chain relocations, entrapment at the low-end, multi-party encirclement, and isolation within circles (Pang and He, 2021). The combination of economic dependency structures in global production networks and political interventions has become a key means by which some countries contain and suppress China's technological rise. This includes political measures like US export controls and technology sanctions against China, and the establishment of the QUAD security dialogue and alliance mechanism by the US, Japan, India, and Australia. Due to mandated changes in the development of China's industrial chains, enhancing their resilience and promoting their modernization have become significant issues that need to be addressed.

The concept of industrial chain resilience is not new. In the face of major risks and challenges in economic construction, the CPC has led China's industrial system to leapfrog development from non-existence to strength, carving out a path of endogenous industrial chain security based on independence and self-reliance. However, under the current circumstances, industrial chain resilience is being imbued with new connotations and requirements. Faced with new risks and incidents amid intensifying major-power rivalry, industrial chain resilience needs to be able to resist, adapt, and recover from external threats. Under the requirements of modernized industrial system construction, industrial chain resilience should show a steady and orderly progression towards industrial structure adjustment, transformation and upgrading, and competitiveness enhancement based on industrial chain safety. Against this backdrop, exploring the logic of enhancing industrial chain resilience and finding pathways for its improvement are important for advancing the construction of China's modernized industrial system and achieving high-quality economic development.

In view of this, this paper, grounded in the new characteristics of major-power rivalry under the new situation and the new requirements for constructing China's modernized industrial system, examines the historical and practical logic behind the drive to enhance China's industrial chain resilience and explores potential pathways for its enhancement.

2. The Historical Logic of Adherence to Independence and Self-Reliance While Enhancing China's Industrial Chain Resilience

Independence and self-reliance, fundamental principles of Marxism regarding the leadership of proletarian parties in their respective national revolutions, form the soul of the Chinese national spirit and are important principles for the founding and governance of the nation. Looking back at the century-long journey of the CPC, the principles of independence and self-reliance have been threads running through the entire history of China's industrial construction, and are keys to the Party's and the nation's achievements. Historically, major-power rivalry has always been the norm in international relations. With the global evolution of modernization, the international order of dominance changed, and different countries, with varying interests and demands, rose to prominence. For this reason, the characteristics and impacts of major-power rivalries have differed from country to country and across different development stages. Over the past century, faced with an unpredictable international situation, China has encountered many challenges but it has always managed to turn dangers into safety, thanks to the

CPC's unwavering commitment to the principles of independence and self-reliance. By applying Marxist principles, viewpoints, and methods tailored to China's specific realities, the Party has identified China's historical position in social development, grasped the contradictions in industrial development, and managed the dialectical relationship between openness and autonomy, carving out an independent path in industrial construction and achieving industrial security and development amidst openness.

2.1 The Period of the New Democratic Revolution: 1919-1949

At the end of the 19th century, with the expansion of imperialism by countries such as Britain and France, a global contest began for colonies and spheres of influence. In the summer of 1900, the invasion of China by the Eight-Nation Alliance, comprising Britain, Russia, Japan, France, Germany, the United States, Italy, and Austria, turned China into a semi-colonial and semi-feudal society. The competition among the major powers for China's resources, markets, and spheres of influence was fierce. At this time, China was exploited and oppressed and struggled to maintain its survival as a nation. Ensuring the national character and independence of industry and building national strength became the core tasks during this historical period.

The invasion by imperialist powers led to the loss of China's political sovereignty, with fragmentation in administration and judicial functions. The introduction of massive amounts of foreign capital weakened economic autonomy. The collusion of feudal land relations with usurious and bureaucrat-comprador capital greatly hindered social progress. At this time, China's productive forces were transitioning from traditional agriculture to modern industries, with low levels of productivity. Modern industries, dominated by foreign and bureaucrat-comprador capital, struggling to become established, urgently needed liberation and development.

The semi-colonial and semi-feudal nature of society meant that the government could not coordinate the productive forces and production relations. The old, reactionary production relations that shackled the development of productive forces could only be broken through violent revolution. During this period, the CPC, uniting and leading the Chinese people, achieved national independence through armed revolution. To propel the revolutionary cause, the CPC, taking into consideration the international situation and China's national conditions, promoted the development of agriculture, industry, and commerce. These efforts provided the material foundation for seizing power. The three major economic programs of the New Democratic Revolution, proposed by Mao Zedong, became the basis for the independent economic development of New China. These programs included confiscation of land from the feudal landlord class, the confiscation of the big banks, major industries, and large commercial enterprises owned by bureaucrat capital, and the national protection of industry and commerce. These actions provided direction and support for post-war reconstruction and economic development, considerably advancing rural reforms, the construction of railways and roads, and urban industrial development. They established the dominant position of the state-owned economy in China's economic construction, ensuring national sovereignty and economic independence through state control of resources and key industries.

2.2 The Period of New China's Construction: 1949-1978

During the period of the construction of New China, Cold War confrontation and bloc division characterized major-power rivalry. The United States and the Soviet Union engaged in a struggle for global dominance, marking the onset of the Cold War. The world split into two camps: The Western bloc, led by the United States, and the socialist bloc, led by the Soviet Union. China had shed the shackles of its semi-colonial and semi-feudal past, but it still had to navigate between the two blocs, balancing its relationships within the complex US-USSR-China "big triangle" to maintain sovereignty, national security, and international status (Wang, 2021). Initially allied with the Soviet Union, China later sought to improve relations with Western countries, including the United States, as Sino-Soviet relations

deteriorated. The core task of this period was to build a modern industrial system, utilizing strategies such as improving international relations, accepting assistance, and seeking trade protection.

During this period, China endeavored to maintain a diplomatic and strategic balance between the United States and the Soviet Union, heightening the uncertainty in industrial construction, which was marked by external risks such as limited international engagement and rising geopolitical threats, and by internal challenges such as the beginning stage of industrialization, the scarcity of industrial enterprises, the incomplete industrial structure, and the distorted industrial landscape, making national economic development very difficult. This situation meant that China had to develop an inward-looking economy in a semi-closed state under the conditions of post-founding productive forces. The transformation of production relations prioritized ensuring the success of industries vital for people's livelihood, with a focus on developing heavy industry to achieve catch-up and leapfrog industrial development and maintain domestic economic stability.

With the establishment of the basic socialist system in 1956, the production relations had to be transformed to meet the conditions of productive forces under the socialist system. This involved nationally protecting industry and commerce, confiscating the capital of bureaucrats, and implementing land reform. At the same time industrialization was advanced, capitalist industry and commerce, agriculture, and the handicraft industry underwent socialist transformation ("One Transformation, Three Reforms"), liberating productive forces and reflecting the unity of developing productive forces and transforming production relations. These industrial field transformations adapted to the requirements of socialized mass production, marking the beginning of China's independent and self-reliant industrial construction within the socialist society.

Taking into account the opportunities and risks of industrial development under the condition of international rivalry, China accepted international aid, particularly from the Soviet Union and Eastern Europe. During the First Five-Year Plan, with aid from the socialist bloc and while adhering to the principles of independence and self-reliance, China undertook industrialization centered around 156 projects, establishing a relatively complete modern industrial system, with a focus on heavy industry and national defense. This included the establishment of new industrial chains such as automobile and heavy machinery and formed a coordinated division of labor across various industrial sectors. The industrial layout primarily focused inland, with several important industrial bases being built. Accepting international financial and technical assistance did not mean a loss of independence in industrial construction. In fact, the guiding principles of national industrialization remained "independence and self-reliance, self-reliance". Aiming for self-sufficiency in production and research, China's approach to building its industrial system required "digestion and absorption" rather than mere introduction of advanced technology (Li, 2021). Control over industrial construction remained firmly in Chinese hands. For national security, key industries crucial to the national economy were managed by state-owned enterprises, ensuring basic industrial security. The Chinese people's confidence in independently building their industries was bolstered after the deterioration of Sino-Soviet relations in the late 1950s. Around the time of the Third Five-Year Plan, due to the intense international situation and a shift in ideology from solving basic livelihood issues to focusing on war preparedness, the "Third Front" movement was initiated. This involved relocating existing industries to, or building new industries in, the inland areas (the "Third Line") for better strategic balance and war preparedness, laying the foundation for an independent and relatively complete industrial system.

2.3 The Initial Period of Reform and Opening-up and Socialist Modernization: 1978-2001

During this period, the NATO and Warsaw Pact alliances, led by the United States and the Soviet Union, respectively, regarded each other with an aggressive attitude. At the breakup of the Soviet Union in 1991 and the end of the Cold War, the United States emerged as the sole superpower. After a prudent analysis of the international situation, Deng Xiaoping put forward a critical judgement that "peace

and development are the themes of the era". Based on this judgment, China maintained a strategy of balanced diplomacy between the United States and the Soviet Union, avoided involvement in Cold War confrontations and protected its independence and national interests by actively participating in international organizations and practicing multilateral diplomacy, strengthening ties with major developed countries and promoting cooperation over competition, creating a favorable external environment for implementing reform and opening-up. Focusing on economic construction through reform and opening-up to release increased productive forces, promoting the marketization of domestic and international elements and commodities, constructing a modern enterprise system, and enhancing industrial efficiency were the core tasks of this period.

In the early stages of reform and opening-up and socialist modernization, China's industrial production was extensive but unsubstantial, with a weak foundation and a large gap compared to the world's advanced productive forces. Based on a clear understanding of China's basic national conditions and stage of development, the Sixth Plenary Session of the 11th CPC Central Committee put forward that: "The primary contradiction in Chinese society shifted to 'the ever-growing material and cultural needs of the people versus backward social production'". Maximizing the release of productive forces became the number one goal of industrial construction. The development of advanced productive forces required shifting from a domestic circulation to an international circulation in production relations. Not only was it necessary to consider domestic reforms, but also diplomatic and opening-up policies had to coordinate foreign relations. During this period, the CPC, led by Deng Xiaoping, proposed the socialist market economy system, promoting the integration of the state-owned economy and the market economy. Not only did this enhance the efficiency of state-owned enterprises, it also strengthened their role in key areas. The private economy grew rapidly, infusing market forces into the industrial chain, achieving a "historic transformation from closed and semi-closed to all-around openness". In terms of industrial openness, China introduced advanced Western technology (Cai, 2022), learning from foreign advanced technology in key sectors and advanced management experience in key departments. This approach, leveraging both domestic and international resources and markets, was important for the development of China's industrial chain at the time. The introduction of advanced technology and foreign capital helped alleviate the weakness in light industry caused by the prior emphasis on heavy industry, strengthening the industrial chain. Actively integrating into the global value chain and learning through participation accelerated China's industrial chain modernization and upgrading. Strategies like the "rise of central China and the western development" aimed to leverage regional advantages, forming a basic industrial regional division of labor in China.

2.4 Joining the WTO and Expanding Opening-up Period: 2001-2017

Following the end of the Cold War, capitalist countries experienced a surge in development, leading to the emergence of several world and regional powers. The international system transitioned towards multipolarity, intensifying major-power rivalry but also presenting China with opportunities to expand its opening-up. During this period, China adhered to a gradualist principle of opening-up, gradually integrating into the global economy, consolidating its industrial foundation and completing its industrial system through "exchange of market for technology" and "phased opening-up".

Entering a new stage of opening-up, China's admission to the WTO in 2001 marked its more extensive participation in economic globalization. WTO membership led to a major opening of the Chinese market, and the influx of foreign products and capital had a great impact on China's economic and industrial structures. Although industries without international competitive advantages faced severe challenges after market opening, a more open industrial environment provided new opportunities for industrial development and technological progress. Integrating more deeply into the global industrial chain and promoting the modernization of China's industrial chain became the focus of this stage.

After joining the WTO, domestic industrial and market access policies underwent reforms within the WTO framework. To harmonize the development of domestic productive forces with domestic and international production relations, China took a gradual opening-up approach to integrating into the global competition and division of labor system, balancing industrial chain development and security. Throughout the initial consultation phase, buffer phase, and expanded opening-up phase, China leveraged its principle of independent industrial construction by seizing opportunities and facing challenges, encouraging industries to leverage their strengths, learn advanced technology from abroad, and pursue international development. All this also supported technological innovation in industries with potential advantages by focusing on the protection of emerging industries, reforming state-owned enterprises, enhancing industrial competitiveness, and encouraging collaborative development among enterprises. After joining the WTO, China deepened its integration into the global industrial supply chain by leveraging its industrial system and the advantages of its industrial chain, actively participating in the global competition and division of labor. However, being embedded in the interdependent global industrial chain exposed China's industry to higher external risks, such as the severe negative impact of the global financial crisis triggered by the US subprime mortgage crisis in 2008. In response to this challenging external economic situation, the Central Committee of the CPC made a strategic decision and implemented a four-trillion-yuan stimulus plan. This plan not only stimulated domestic demand but also promoted regional industrial adjustments and increased the domestic proportion in the industrial chain, paving the way for a new round of economic growth and industrial security. Strategies such as the innovation-driven development strategy and supply-side structural reforms further drove the transformation of the industrial chain in a more content-rich direction of development.

3. Characteristics of Major-Power Rivalry under the New Situation and the Practical Logic of Enhancing China's Industrial Chain Resilience

3.1 Characteristics of Major-Power Rivalry under the New Situation

In the post-financial crisis era, the expansion of the world economy has slowed considerably, and the growth of global trade has weakened. With China emerging as the world's second largest economy, the international balance of power has started to undergo profound changes, presenting a trend of "the East rising and the West declining" and "the South rising and the North declining". This has increased the animosity of Western countries, led by the United States, towards emerging countries such as China (Qin et al., 2022). In 2014, China's GDP exceeded 60% of the United States' GDP for the first time, crossing what has been referred to as "the red line for American competitors". By 2017, under the Trump administration, a new round of the "China threat" theory emerged, positioning China as a "strategic competitor" and actively initiating trade frictions with China, marking a new phase in Sino-American relations. The escalation of the Sino-American trade war, along with the outbreak of the pandemic and the Russia-Ukraine conflict, has required major adjustments in the world order, beginning a new period of turbulence and change.

With the international situation becoming increasingly complex and serious, geopolitical competition among major powers has intensified. Vying for strategic resources and desiring to expand their geopolitical influence, countries are escalating their rivalry in multiple domains, including economy, politics, technology, resources, diplomacy, military, soft power, and international rules. The confrontational nature of the international system has reached its highest intensity since the end of the Cold War, posing serious obstacles to global governance. Trade wars and economic competition, key aspects of major-power rivalry, have seriously impacted economic globalization, promoting its stagnation and reversal. In the global industrial chain domain, to enhance the security, stability, and competitiveness of their industrial chains and ensure their positions and influence, major powers are competing in four dimensions: Key intermediate products, core technologies and long-term technological competitiveness,

partnership relationships, and governance rules and standards.

Regarding key intermediate products, Western countries, led by the United States, have imposed strict export controls on core components, critical manufacturing equipment and materials, and strategic mineral resources in the semiconductor and chip industrial chain, with the intention of suppressing the technological development of other countries. An increasing number of Chinese semiconductor companies have been added to the US export control list, with continuous escalation in scope and intensity, in an attempt to contain the rise of China's semiconductor industry. In terms of core technologies and long-term technological competitiveness, since high-tech and cutting-edge manufacturing have become the core drivers of major powers' strategic capacity building, the world's major countries are strengthening their deployment around core technologies, top talents, and standards and norms. They use technology control, patent hindrances, restrictions on talent mobility, and other measures to implement technological blockades, striving to take the initiative in the new round of international technological and industrial transformation. US President Joe Biden officially signed the "2022 Chips and Science Act", providing R&D and production subsidies in cutting-edge technological fields such as chips, artificial intelligence, robotics, and quantum computing. The Act also defines the range of allies with whom cooperation is permissible, aiming to achieve a "gradual decoupling" from China in the technological domain. Additionally, numerous clauses in the Act involve education and the cultivation of high-tech talent, preparing the United States to maintain its technological superiority in the future. In the dimension of partnership relationships, the mode of rivalry is shifting from bilateral confrontations to multi-party alliances and from WTO and FTA-based economic cooperation agreements to politically motivated agreements like the "Indo-Pacific" strategy. The Sino-American rivalry has evolved from large-scale trade frictions during the Trump era to joint containment under the Biden administration. This involves initiating the "Indo-Pacific Economic Framework" (IPEF) and using political alliances to strengthen competition, leading to the establishment of mechanisms like the Quadrilateral Security Dialogue (QUAD), the I2U2 (India, Israel, United Arab Emirates, United States) mechanism, and the AUKUS (Australia, UK, USA) alliance. These "mini-multilateral" mechanisms aim to strengthen industrial chain alliances based on "shared values" and attempt to reshape the industrial and supply chain system by "de-sinicizing" it. In terms of governance, with the intensification of major-power rivalry, some countries mainly use the influence of international institutional rules and the distortion of their own domestic norms to contain and suppress foreign enterprises. For instance, the European Union and India, in the name of "fair economics", have introduced new standards for domestic production and commercial practices, encompassing areas such as taxation, anti-corruption, labor, environment, and corporate responsibility. These standards, whether explicit or implicit, influence enterprises in key industries of other countries. Specific examples include the European Union initiating an anti-subsidy investigation against Chinese electric vehicles, which has greatly distorted the global automotive industry supply chain. Additionally, to counter the development of China's 5G communication technology and smartphone industry, the European Union banned services provided by Chinese companies Huawei and ZTE, citing security reasons. Similarly, India froze the assets of Xiaomi Corporation, alleging violations of foreign exchange laws.

3.2 The Practical Logic of Enhancing the Resilience of China's Industrial Chain

Faced with both domestic and international situational changes, *Report to the 20th National Co ngress of the Communist Party of China (CPC)* proposed that "focusing on enhancing the resilience and security level of industrial and supply chains". This is grounded in practical logic. Enhancing the resilience of China's industrial chain under the new situation is not only a basic requirement for building a modernized industrial system but also a strategy to deal with new short-term risks in the industrial chain and to overcome long-term difficulties in global industrial chain governance.

3.2.1 Basic requirement for building a modernized industrial system

In the construction of a modernized industrial system, the CPC Central Committee has identified "security" as one of the basic requirements. This is proposed against the backdrop of intensifying global industrial competition, increased external uncertainties, and the bottom line of domestic economic development. Under the condition of major-power rivalry, competition between nations based on industries has become increasingly ferocious. Although China has the world's most complete industrial system and leads in certain industries, it faces challenges such as critical technology and core linkages being "choked", and excessive reliance on foreign components and raw materials. These issues lead to multiple bottlenecks, vulnerabilities, and risks of supply chain disruptions. A modernized industrial system must be autonomous, controllable, resilient, and secure. Not only should it be able to maintain smooth operation and adapt and recover quickly under extreme conditions such as containment, blockade, and suppression by Western countries, but also it should emphasize strengthening long-term international competitiveness and governance influence. Enhancing the resilience of China's industrial chain aligns with the basic requirements of building a modernized industrial system and is essential for achieving high-quality economic development.

3.2.2 Strategy to address the surge in industrial chain risks

The uncertainties and instabilities facing the global industrial chain have dramatically increased with the ongoing fermentation of major-power rivalry. Major powers are adopting explicit and targeted confrontation methods, greatly increasing the likelihood of intentional disruptions in industrial chains. The uncertainty in the global political and economic order may lead to new shifts in international investment and trade behaviors, seriously affecting the division of labor in the global production network, distorting the interdependent and mutually beneficial structure of global production and supply chains, disrupting the global industrial and supply chain layouts. Affected by non-market interventionist actions of countries like the United States, China's industrial chain will face new risks such as decoupling, forced transfers, passive substitutions, industry backflow, entrapment at the low-end, multi-party encirclement, and isolation within circles. In this context, enhancing the resilience of China's industrial chain can lessen the negative impact of Western targeted industrial policies and solve the development limitations of China's industrial chain under "multi-party encirclement" through the improvement of its own competitiveness.

3.2.3 Overcoming global industrial chain governance challenges

Since joining the WTO, China's rising industrial development and increasing strength have enhanced its influence in the external environment. As the world's second largest economy and the largest developing country, China's experience in governance issues such as openness, development and poverty alleviation, along with its contributions to global governance reform since the 18th National Congress of the CPC, have marked its transition from being a receiver and participant to becoming a builder, contributor, and leader in global governance. Faced with the current challenges of global industrial chain governance under intensified major-power rivalry, it is necessary for China to become a responsible major country and use the enhancement of its industrial chain's resilience to resolve the deficit in global industrial chain governance.

Traditional global industrial chain governance emphasizes cooperation and mutual benefit. However, the complexity of major-power rivalry has caused the cooperation model, based on comparative advantage, to shift towards a global industrial division of labor dominated by power politics and structural power. Global industrial chain governance is leaning increasingly towards competition and confrontation. To enhance the competitiveness and security of their industrial chains, countries are formulating protectionist trade policies and systems. Actions like trade restrictions, investment scrutiny, technological blockades, and sanctions, especially from Western countries led by the United States, have

severely damaged the cooperative mechanisms of the global industrial and supply chains. The "value diplomacy" under major-power rivalry has ideologized some governance issues, posing challenges to international organizations and multilateral cooperation. The fragmentation and instability in global industrial chain governance, along with the impact of bullying policies in supply chains affected by major-power rivalry, constrain developing countries from vying for dominance in the global industrial chain. This might even trap China in a "captured" global industrial chain governance dilemma (Ling and Liu, 2021). China needs to shoulder greater responsibility in global industrial chain governance to enhance its leadership in the global industrial chain while resolving governance obstacles. The flexibility of industrial chain governance mechanisms can be increased by enhancing the resilience of the industrial chain through such means as optimizing its layout, improving its organizational form, and strengthening international cooperation, thus guiding the global industrial chain governance system towards a direction that is adapted to the new environment.

4. Pathways to Enhancing the Resilience of China's Industrial Chain under Major-Power Rivalry

The CPC, guided by the principles of independence, self-reliance, and self-strengthening, has forged a path of industrialization with Chinese characteristics, while enhancing the security of the industrial chain during the process of opening-up. Faced with intensifying major-power rivalry and complex international situations in the global landscape, it is important to continue the tradition of independence and self-reliance. Adhering to bottom-line thinking, enhancing awareness of potential difficulties, seizing the opportunities of the era, resolving risks and challenges, and gathering multi-faceted strengths are essential to improve the resilience of China's industrial chain and build an autonomous, controllable, secure, competitive and strong modernized industrial system. New breakthroughs are needed in the following four areas.

4.1 Strengthening Industrial Chain Risk Management and Early Warning, Establishing a Domestic Backup System for Key Industrial Chains

With the escalation of major-power rivalry, the risk of disruptions in the industrial chain has increased considerably. It is prudent to make scientific predictions and judgments about the international situation, tracking major countries' technology trade policies in critical areas like semiconductors, biomedicine, and high-end equipment, proactively strengthening industrial chain risk management and early warning systems. A comprehensive assessment and inventory of the industrial chain should be conducted to improve industrial chain risk databases and early warning mechanisms. Enhanced monitoring of key areas and core segments of industrial chains classifying various supply chain risks, such as foreign dependency, supply source structure, supplier vulnerability, market vulnerability, supplier market capacity constraints, shortages of raw materials in manufacturing, and insufficient local human resources or infrastructure is required. A risk monitoring database and early warning platform covering multiple industries, stages, and forms of risks should be established, leveraging technologies such as big data, knowledge graphs, and artificial intelligence, providing informational support for identifying bottlenecks, weak points, and vulnerabilities in the industrial chain.

Leveraging the new development pattern led by domestic demand, efforts should be made to promote the localization of key industrial chains, forming a domestic backup system for key industrial chains. Accelerating the flow and reconfiguration of factor resources based on the construction of a unified national market, improving cross-regional, cross-departmental collaboration mechanisms in industrial chain development, and forming an industrial chain layout that matches regional factor endowments with industrial chain division of labor are essential. Key city clusters, metropolitan areas, and national central cities should be developed as industrial and supply chain clusters, and they should

be turned into backup bases for industrial chains. Potential industrial chain backup bases should be guided to link the industrial chains of the eastern, central, and western regions, deepen industrial collaboration, and promote the development of upstream and downstream matching in the industrial chain. By supplementing, extending, and strengthening chains, the completeness and autonomy of key domestic industrial chains can be achieved, resolving risks of potential external supply disruption.

4.2 Breaking through Key Core Technologies with Scientific and Technological Innovation, Constructing a Reservoir of Scientific and Technological Talent

In the context of major-power rivalry, the United States, exploiting vulnerabilities such as China's dependency on foreign core technologies and its lack of robust foundational industries, has intensified export control and other measures to contain the development of China's semiconductor and chip industry. Only by concentrating on original, leading-edge scientific and technological breakthroughs can the battle for key core technologies be won and the dilemma of dependence on foreign technologies be overcome. The acceleration of scientific and technological innovation requires a deeper integration of government, industry, academia, research, finance and application. Government departments should perfect coordination mechanisms for scientific and technological innovation, creating an environment that is conducive to innovation. Enterprises, as the main innovators, need to identify technological bottlenecks in the industrial chain, increase investment in R&D for core technologies, and actively collaborate with universities and research institutions in research projects. They should also co-build science parks and incubation bases, actualizing the sharing of scientific and technological achievements. Financial departments should devise multi-level, multi-channel, and diversified innovation investment mechanisms, providing financing support for core technology breakthroughs. Additionally, guiding market entities to improve the level of application of big data and artificial intelligence technologies in production and manufacturing, and accelerate the industrialization of scientific and technological achievements is crucial. Government departments, enterprises of all sizes, higher education institutions, research institutions, and financial institutions should together form a powerful system for innovation, driving breakthroughs in the industrial chain through integrated and collaborative innovation.

By creating mechanisms for attracting and cultivating talent, China should build a reservoir of scientific and technological talent, fostering long-term competitive strength in technological fields. Ultimately, key core technologies rely on innovative talent. With the development of a new round of technological and industrial revolutions, global competition for talent is becoming increasingly fierce. Active participation in the competition for global talent calls for more open policies to attract high-end overseas talent. Reforming systems related to talent, establishing a globally competitive talent system, focusing on attracting and absorbing leading talents who can make breakthroughs in key core technologies, develop high-tech industries, and lead emerging disciplines is crucial. In terms of cultivating innovative talents, there is a need to focus on national strategic demands, solidifying the reserve of top-notch talents in foundational disciplines and the "Four Facings" (facing the forefront of science and technology in the world, facing the main battlefield of the economy, facing the major needs of the country, and facing people's lives and health). Encouraging universities to integrate academic resources, talent advantages, and scientific resources with corporate practice, building high-level talent cultivation mechanisms that integrate theory and practice, and closely aligning talent training with practical needs is essential.

4.3 Expanding the Industrial Chain Cooperation "Circle of Friends", Constructing a Tightly-Knit Industrial Chain Cooperation Network

The choice of partners for industrial chain cooperation is one of the main areas of competition and cooperation among major countries. The United States, based on "shared values", is strengthening its industrial and supply chain alliances and creating an "allied outsourcing" system. This is done partly

to ensure the security of its key industrial chain areas and partly to construct an industrial and supply chain system that excludes China. To guard against supply disruptions and chain breaks due to the politicization and restructuring of industrial chains, China must widen its external economic and trade relations, expanding its cooperation "circle of friends" to achieve diversified industrial and supply chain development through more extensive opening-up. In product areas where supply chains are highly concentrated, diversifying the sources of supply chains by establishing "allied supply" chains based on mutual political trust is vital to ensure the stability and reliability of supply. Leveraging its huge economic scale, unified market advantages, complete industrial system, infrastructure, and human capital advantages, China should actively integrate into the economic and trade system of the United States and its allies and strengthen cooperation with potential American allies.

Constructing a tightly-knit industrial chain cooperation network to intertwine interests and reduce the risk of decoupling is crucial. By utilizing regional economic and trade cooperation platforms and free trade agreements, a closely cooperative industrial chain network should be established, expanding multi-level and multi-dimensional integration of interests. This will increase the cost of intentional decoupling under the condition of major-power rivalry and reduce the risk of passive decoupling. Building on platforms such as the Belt and Road Initiative, the Regional Comprehensive Economic Partnership (RCEP), and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), bilateral trade cooperation potential can be unleashed, and regional industrial chain cooperation deepened, such as accelerating the progress of the China-ASEAN and China-Japan-South Korea industrial chain and supply chain cooperation relationships. Utilizing various external cooperation platforms to build industrial chain clusters, linking domestic and foreign industrial and supply chains, and deepening their integration and connection are essential. By connecting node cities along the Belt and Road and expanding the scope of opening to the West, and by docking with border ports and overseas cooperation parks, a stable Silk Road Economic Belt regional industrial and supply chain system can be constructed. Based on China's industrial scale, supporting and first-mover advantages, the attractiveness to foreign investment should be strengthened. In order to transition from being a major recipient of foreign investment to becoming a strong bi-directional investor, it is necessary to gradually increase the proportion of foreign investment in high-end manufacturing and high-tech services and support foreign investment projects that can have important technological spillover effects, as well as projects that help integrate external resources and enhance the modernization of China's industrial chain. Utilizing foreign investment to connect domestic and international markets can facilitate the circulation of regional industrial chain networks.

4.4 Actively Participating in Global Industrial Chain Governance, Promoting the Development of Rules and Standards for the Global Industrial Chain

Profound changes in the global situation and the turbulence and uncertainties triggered by geopolitical factors have increased the demand for global governance. However, with the declining willingness and capability of Western countries, led by the United States, to provide global governance, the deficit in global industrial chain governance is expanding. Faced with new challenges in global industrial chain governance, it is essential to protect the public good of the industrial and supply chains by assuming the responsibility for ensuring the safety, stability, and efficient development of global industrial and supply chains. Leveraging active participation in international organizations and multilateral platforms to gain more say, promoting the transformation of industrial chain governance from hegemonic and power politics-dominated to a model of multilateral governance and win-win cooperation is vital. Adhering to the concept of building a community with a shared future for humanity, actively participating in the construction of a global governance system, and enhancing influence in international and regional governance mechanisms such as the United Nations, World Trade Organization, G20, Asia-Pacific Economic Cooperation, and Shanghai Cooperation Organization

is crucial. Actively participating in solving hot issues in the industrial chain, proposing governance solutions with Chinese characteristics, and filling the governance gaps in emerging fields are necessary. Implementing WTO-promoted supply chain standards such as non-discrimination, transparency, and fair competition, promoting mutually beneficial cooperation in the global industrial chain, and addressing the deficit in global industrial chain governance are important steps.

Focusing on emerging topics such as digital governance and green development, efforts should be made to promote the development of rules and standards for global industrial chain governance, which will assist in enhancing the resilience of China's industrial chain. By establishing China's own digital governance framework and governance system, China can propose "Chinese solutions" for the rules of digital governance in industrial chains. Efforts to increase the ability to set standards, align with top-tier industrial standards, and cooperate with international standardization organizations can aim to enhance the international recognition of Chinese standards. By comprehensively and multi-dimensionally elevating China's role in the formulation and discussion of rules and standards of global industrial chain governance, steps can be taken to avoid being excluded from the rule-making or standard-setting circles dominated by Western countries. This approach can ensure that China maintains an influential and constructive role in shaping the future landscape of global industrial chain governance.

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