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RESEARCH ON THE INDUSTRIAL UPGRADING PATH OF RUSSIAN-CHINA INTELLIGENT ECONOMY UNDER THE CONSTRUCTION OF NEW QUALITY PRODUCTIVITY

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This article examines the industrial modernization of the Sino-Russian intelligent economy in the context of the concept of new quality productive forces. Against the backdrop of digital transformation, the development of artificial intelligence, and intelligent manufacturing, China and Russia are shifting from traditional resource-based cooperation toward a more integrated model based on technological interaction, joint platform development, and institutional coordination. The study analyzes the logic of bilateral modernization, including the transition to the “intelligence + energy” model, the development of intelligent platforms, and the formation of an integrated innovation system. A three-dimensional analytical framework is proposed, covering technological integration, resource coupling, and institutional compatibility. Using cooperation in the field of intelligent manufacturing as an example, the article shows that modernization is driven by joint technological development, policy support, and talent training. It also identifies constraints related to institutional coordination, data governance, and the shortage of interdisciplinary specialists. The article concludes that it is necessary to strengthen standards, data governance mechanisms, R&D, and talent development.

Keywords: Sino-Russian cooperation, intelligent economy, industrial upgrading, digital transformation, intelligent manufacturing.

Introduction. In the context of rapid advances in digital technologies, artificial intelligence, and intelligent manufacturing, the global economy is undergoing a new round of structural transformation. Against this background, the concept of new quality productivity, proposed in China in recent years, has become an important analytical framework for understanding high-quality economic growth driven by technological innovation, digitalization, green transformation, and institutional modernization [7]. This concept provides a useful perspective for examining how emerging technologies can reshape industrial structures and promote new models of international economic cooperation.

As two major neighboring economies with strong strategic interdependence, China and Russia have gradually expanded their bilateral cooperation from traditional energy and resource sectors to innovation-oriented fields such as digital infrastructure, smart manufacturing, platform economy, and cross-border technological collaboration. Under initiatives such as the Belt and Road framework, the Eurasian Economic Union linkage, and the Digital Silk Road, Sino-Russian cooperation is increasingly characterized by the

integration of technology, platforms, and institutional arrangements rather than by simple commodity exchange alone. At the same time, both countries face the common challenge of economic restructuring and industrial upgrading, which makes the study of a coordinated intelligent-economy development path especially relevant. This article aims to analyze the logic, mechanisms, and practical paths of industrial upgrading in the Sino-Russian intelligent economy under the framework of new quality productivity [3]. It examines the current foundation of bilateral cooperation, identifies the evolutionary stages of industrial transformation, and proposes a three-dimensional upgrading mechanism based on technology integration, resource coupling, and institutional matching. By combining theoretical analysis with the example of intelligent manufacturing cooperation, the study seeks to clarify how complementary advantages between China and Russia can be transformed into sustainable industrial synergies. The research contributes not only to the academic discussion on digital transformation and cross-border industrial cooperation, but also to the formulation of practical policy recommendations for deepening

Sino-Russian economic partnership in the new technological era.

The evolutionary logic of industrial upgrading in Russia and China.

The first stage. Transition from traditional resource-based cooperation to «intelligent + energy».

In the past twenty years, Russia-China economic cooperation has been dominated by energy and resources (such as oil and electricity exports). As the technical conditions mature, Russia and China have begun to introduce automation and intelligent technologies into smart grids, energy management systems, and cross-border power interconnection [2].

The second stage. Development from technology nesting to smart platform co-construction.

The focus of cooperation between Russia and China has gradually shifted from «"resource-based technology surcharge» to «platform-level collaborative innovation». For example, the «China-Russia Digital Economy Demonstration Zone»

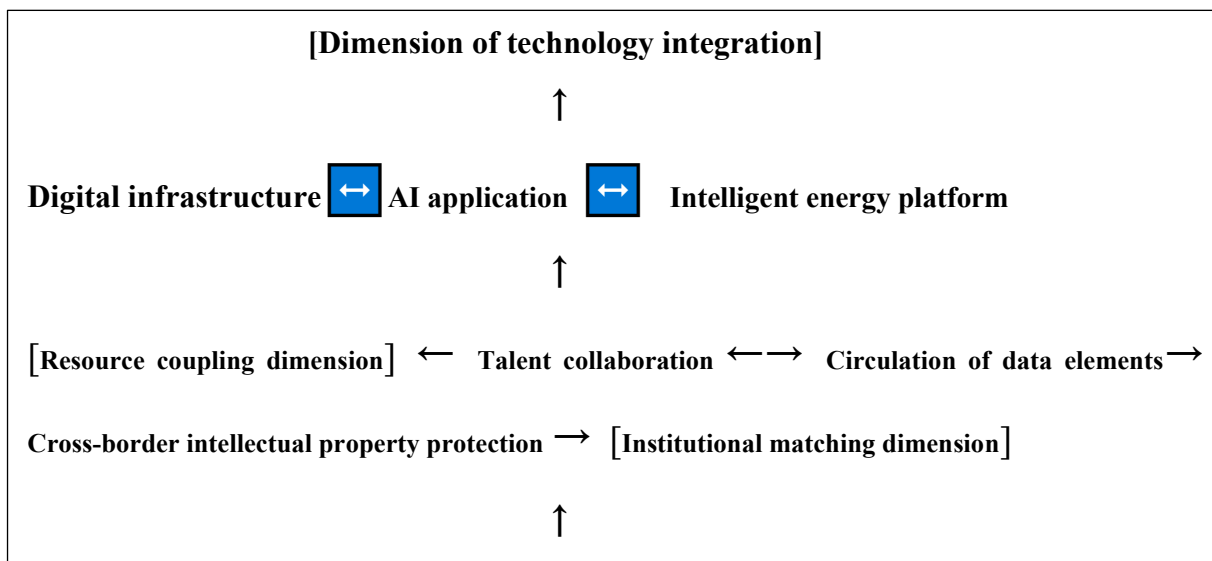
jointly built by China and Russia has carried out pilot projects in terms of data platforms, cloud computing, supply chain collaborative platforms, etc., marking China and Russia entering the stage of a platform economic community [4].

The third stage. Build an integrated innovation system based on new quality productivity.

At this stage, Russia and China not only need to coordinate in technology and platform, but also need to achieve the integration of all factors of productivity through institutional and strategic docking. For example, Russia opens the investment promotion mechanism for high-tech parks.

Three-dimensional integration industry upgrade mechanism model.

In order to systematically explain how new quality productivity can promote the coordinated upgrade of China-Russia intelligent economy, this paper constructs a three-dimensional integration mechanism model of «technology-system-resources» [6].



This model reveals that the upgrade of China-Russia intelligent economy must achieve multi-dimensional progress of «factor compatibility, system coordination, and platform co-construction», and new quality productivity plays a core driving role in this process.

Empirical analysis: The upgrade path of intelligent manufacturing cooperation. Taking the China-Russia Joint Intelligent Manufacturing Project (Harbin China-Russia High-tech Park) as an example, the actual evolution of the three-dimensional mechanism model is analyzed:

Mechanism dimension	Implementation content	Effect evaluation
Technology integration	Jointly develop industrial robot systems and intelligent assembly lines	Realize the localization of some equipment and reduce the cost of intermediate links
Institutional matching	Introduce facilitation policies for Chinese investment and the joint registration mechanism for intellectual property rights	The enterprise registration cycle has been shortened by 20%
Resource coupling	Jointly cultivate engineering AI talents and jointly build experimental platforms	A regional talent collaboration and R&D system has been initially formed

The «new quality productivity» mechanism can effectively promote the upgrading of cross-border intelligent industries, but it also needs to solve practical problems such as lagging institutional coordination and lack of bilingual talents.

Policy recommendations. In order to further promote the integration of China-Russia intelligent economy based on new quality productivity, it is recommended to improve the strategic design and execution mechanism from the following dimensions [1]:

Promote the connection between China and Russia data governance and standards

- Accelerate the formulation of a framework for cross-border data circulation agreements, especially in key areas such as energy, transportation, and manufacturing;

- Establish the «China-Russia Joint Committee on Digital Standards» to simultaneously promote the integration of standards in areas such as power carbon emission indicators, data security, and AI ethics;

- Promote Russia to participate in China-led international digital platform governance initiatives (such as the Digital Silk Road Cooperation Mechanism).

- *Innovate cross-border technical cooperation and R&D mechanisms*

- *Strengthen the training of multi-level talents and the construction of humanistic mutual trust*

- Encourage universities to add cooperative courses and joint degree programs in the direction of China-Russia intelligent industries [5];

- Strengthen exchanges between government, industry, academia and research, hold the «China-Russia New Quality Productivity Cooperation Forum» regularly, and establish a long-term communication mechanism.

Conclusion. The study shows that new quality productivity provides an effective analytical framework for understanding the industrial upgrading of the Sino-Russian intelligent economy. The transformation of bilateral cooperation is no longer limited to traditional resource exchange; instead, it is increasingly driven by the interaction of digital infrastructure, intelligent technologies, institutional coordination, and cross-border resource integration. In this process, the transition from energy-based cooperation to platform-based and innovation-oriented collaboration reflects a broader structural shift in the economic relations between the two countries.

The proposed three-dimensional mechanism of technology integration, institutional matching, and resource coupling demonstrates that successful industrial upgrading depends on multidimensional coordination. The empirical example of the China-Russia intelligent manufacturing project confirms that technological collaboration can reduce production costs and enhance localization, while institutional facilitation and joint talent development can strengthen the long-term sustainability of bilateral cooperation. At the same time, the analysis also indicates that several constraints remain significant, including insufficient institutional coordination, uneven data governance mechanisms, and a shortage of bilingual and interdisciplinary professionals. Therefore, further progress in Sino-Russian intelligent economic cooperation requires more systematic efforts in standard alignment, cross-border data governance, joint research and development, and talent cultivation. If these issues are addressed effectively, China and Russia will be able to build a more resilient and innovation-driven model of industrial cooperation, contributing not only to their own economic modern-

ization but also to broader discussions on regional digital integration and alternative pathways of international economic development. In this sense, the upgrading of the Sino-Russian in

telligent economy should be understood as both an economic process and a strategic experiment in building new forms of transnational productive cooperation in the digital age.

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ИССЛЕДОВАНИЕ ПУТИ ПРОМЫШЛЕННОЙ МОДЕРНИЗАЦИИ РОССИЙСКО-КИТАЙСКОЙ ИНТЕЛЛЕКТУАЛЬНОЙ ЭКОНОМИКИ В УСЛОВИЯХ ПОСТРОЕНИЯ НОВОЙ КАЧЕСТВЕННОЙ ПРОИЗВОДИТЕЛЬНОСТИ

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В статье рассматривается промышленная модернизация китайско-российской интеллектуальной экономики в контексте концепции производительных сил нового качества. На фоне цифровой трансформации, развития искусственного интеллекта и интеллектуального производства Китай и Россия переходят от традиционного ресурсного сотрудничества к более интегрированной модели, основанной на технологическом взаимодействии, совместном создании платформ и институциональной координации. Анализируется логика двусторонней модернизации, включая переход к модели «интеллект + энергетика», развитие интеллектуальных платформ и формирование интегрированной инновационной системы. Предлагается трехмерный аналитический механизм, охватывающий технологическую интеграцию, сопряжение ресурсов и институциональное соответствие. На примере сотрудничества в сфере интеллектуального производства показано, что модернизация стимулируется совместными разработками, политической поддержкой и подготовкой кадров. Отмечаются также ограничения, связанные с институциональной координацией, управлением данными и дефицитом междисциплинарных специалистов. Делается вывод о необходимости укрепления стандартов, механизмов управления данными, НИОКР и кадровой подготовки.

Ключевые слова: китайско-российское сотрудничество, интеллектуальная экономика, промышленная модернизация, цифровая трансформация, интеллектуальное производство.