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CONTENTS

NEW INDUSTRIAL SOCIETY OF THE SECOND GENERATION (NIS.2)

S.D. Bodrunov, N.D. Dmitriev

Labor Migration, Knowledge, and Creativity under NIS.2: Reproduction of Human Potential in the Process of the Nootransition. 11

CHINA AND NOONOMY (CHINESE DIALOGUES)

E. Cheng, X. Ding

Six Strategic Directions of Economic Cooperation Between China and Russia and the Mechanisms for Their Implementation. 26

W. Wang, Z. Dun

The Theoretical Core, Logical Explication, and Practical Innovation of Noonomy from the Perspective of Chinese Modernization 38

S.D. Bodrunov

Out-of-Control Artificial Intelligence Could Become the Perfect Weapon Against Humanity 57

N.D. Dmitriev

Artificial Intelligence and the Nootransition: Between Digital Capital and Public Knowledge. 59

A. Akfirat

A Eurasian Axis for a Multilateral Order: Türkiye-Russia-China Cooperation and the Construction of Global Stability. 75

NOONOMY

E.V. Kharitonova

The Impossibility of Modern Innovative Economic Development Without Social Transformations: Arguments from the Theory of Noonomy. 86

WORKING MEETINGS

Noonomy Expands Its International Presence: Meetings with Representatives of the PRC 99

Working Meeting Between S.D. Bodrunov and Professor Kaysone Chansina, Director General of the Office of the National Academy of the Lao People's Democratic Republic 101

NOONOMY AND NOOSOCIETY
ALMANAC OF SCIENTIFIC WORKS OF THE S.Y. WITTE INID
Vol 5, No. 2 2026

NOONOMY: CONFERENCES

China-Russia Roundtable Discussion	102
10 TH International Political Economy Congress Named after A.V. Buzgalin.	105
<u>Announcement</u>	
19 TH Annual Forum of the World Association for Political Economy	110
Library of Noonomy	112

目录

第二代新型工业社会 (NIS.2)

博德鲁诺夫S. D.、德米特里耶夫N. D.

第二代新型工业化 (NIS.2) 条件下的劳动力迁移、知识与创造力:智慧型转型过程中的人力资本再生产	11
--	----

中国与智慧经济(中国对话)

程恩富、丁晓钦

中俄经济合作的六个战略方向及其实施机制	26
---------------------------	----

王文、敦志刚

从中国式现代化的视角看智慧型经济的理论核心、逻辑分析和创新实践	38
---------------------------------------	----

博德鲁诺夫S. D.

失控的人工智能可能成为针对人类的终极武器	57
----------------------------	----

德米特里耶夫N. D.

人工智能与智慧型转型:在数字资本与社会知识之间	59
-------------------------------	----

阿德南·阿克菲拉特

多极世界秩序的欧亚轴心——土耳其-俄罗斯-中国合作与全球稳定	75
--------------------------------------	----

智慧经济

哈里托诺娃 E. V.

没有社会变革就不可能有当代经济创新发展——其智慧经济理论论据	86
--------------------------------------	----

工作会谈

智能型经济的国际影响在扩大:与中国代表的会晤	99
------------------------------	----

与老挝人民民主共和国国家科学院办公室主任凯松·

詹西纳教授举行工作会谈	101
-------------------	-----

智慧经济:会议

俄中圆桌会议	102
第十届布兹加林国际政治经济学大会	105
预告:	
世界政治经济学学会 (WAPE) 第19届论坛.....	110
智慧经济图书馆.	112

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LABOR MIGRATION, KNOWLEDGE, AND CREATIVITY UNDER NIS.2: REPRODUCTION OF HUMAN POTENTIAL IN THE PROCESS OF THE NOOTRANSITION

Abstract: This article furthers the study of labor migration as an indicator of the transformation of the political economy category of “labor” within the theory of noonomy. Prior works have substantiated the spatial and functional modalities of labor migration and examined digital employment as a form of labor function displacement. The present study shifts the core analysis toward the migration of knowledge, understood as the movement of open and mastered knowledge implemented into activity. Knowledge is treated as the primary substance of the aromorphosis of labor; labor, as the method of its objective realization; and creativity, as the highest form of knowledge-intensive activity, in which what is known receives objective embodiment in a design, a mental object, and a socially useful innovation. The essence of this transition is that labor gradually emerges from the regime of external necessity and unfolds as a form of human measure, responsibility, and the creation of a new social result. It is substantiated that a territory develops to the extent that it reproduces knowledge-intensive functions within its own educational, research-and-production, and cultural space, retains the creative function, and transforms worker mobility into the circulation of human potential. The article concludes that under the conditions of NIS.2, labor mobility policy must be viewed as an integral part of the reproduction of human potential, and its substance must be determined by the embedding of knowledge in labor, the expansion of human creative participation, and the institutional consolidation of the knowledge-intensive functions of the new industrialization.

Keywords: noonomy, nootransition, NIS.2, knowledge, knowledge-intensive labor, knowledge intensity, creative labor, creativity, mental object, labor migration, knowledge migration, functional migration, spatial migration, embedding of knowledge, human potential, new industrialization.

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第二代新型工业化(NIS.2)条件下的劳动力迁移、知识与创造力： 智慧型转型过程中的人力资本再生产

摘要: 本文继续探讨了劳动力迁移作为智慧经济理论中“劳动”这一政治经济范畴的重构指标的问题。在先前的研究中, 已论证了劳动力迁移的空间与功能模态, 并将数字化就业视为劳动功能转变的一种形式。本研究将分析重点转向知识迁移, 将其理解为已被运用到实践中的开放的知识的运动。知识被视为劳动形态演化的初级实体; 劳动被视为知识的客观上的实现方式; 创造力则被视为知识密集型活动的最高形式, 在此活动中, 被认知的内容通过构想、心理对象及对社会有益的创新获得客观体现。这一转变的意义在于, 劳动正在逐渐摆脱来自外部的必须性的束缚, 展现为一种体现人类的手段、责任以及创造新社会成果的形式。研究论证了: 一个地区的发展程度取决于其在自身教育、科研生产及文化空间中知识密集型功能的再生产能力, 取决于其保持创造性功能的能力, 以及将劳动者流动性转化为人力资本流通的能力。研究得出结论: 在NIS.2条件下, 劳动力流动政策应被视为人力资本再生产的组成部分, 其内涵应由知识在劳动中的扎根、人类创造性参与的扩大以及新工业化中知识密集型功能的制度化固定来决定。

关键词: 智慧经济、智慧型转型、NIS.2、知识、知识密集型劳动、知识密集度、创造性劳动、创造力、心理对象、劳动力迁移、知识迁移、功能迁移、空间迁移、知识扎根、人力资本、新工业化。

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Introduction

Previous publications in a series of papers on labor, creativity, and scientific and technological progress, published by S. Y. Witte Institute for New Industrial Development (INID) between 2016 and 2026, form the starting point for this study. The concept of “aromorphosis of labor”, coined by S.D. Bodrunov (see the proceedings of the St. Petersburg International Economic Congress (SPEC-2025)), has recently undergone significant development. In the report by S.D. Bodrunov and N.D. Dmitriev, labor migration is shown as an indicator of the aromorphosis of “labor” political economy category: the spatial movements and functional transitions of workers are evidences of changes in employment and simultaneously reveal a deeper restructuring of human connection to production [Bodrunov, Dmitriev, 2025]. Labor migration acts as a “signal” of the aromorphosis of labor, where reproductive operations gradually move to the technosphere, and human participation shifts toward goal-setting, design, control, and creative achievement of results.

In S.D. Bodrunov’s article [Bodrunov, 2026], digital employment is examined as a form of dual labor migration, where labor function begins to shift before the worker’s physical movement. A person may remain in their current location, while their activity is already integrated into a networked economic cycle subject to a different density of knowledge, cooperation, and appropriate

tion of results. Along with this function, a person's competencies and products of their labor are drawn into the movement.

This article shifts the analysis to a more profound "shift in the labor function" – the **migration of knowledge**. Here, knowledge is the active ability of humans to conceive, engage in cooperation, and translate creative function into socially useful innovation. It takes on an objective form in human activity, then returns to social reproduction in the form of a technology, project, cultural product, engineering solution, or new form of cooperation. Therefore, the subject of our analysis is connected with how knowledge is "rooted in labor" (implemented and becomes its integral part), where it goes beyond physical territory, and where it is transformed into a source of expanded reproduction of human potential.

Knowledge as a Primary Prerequisite for Shifts in Labor

We proceed from the premise that knowledge becomes the primary substance of production transformation and its fundamental factor at the NIS.2 stage [Bodrunov, 2016]. Discovered and assimilated knowledge is embodied in technology, organization, and product, giving production a knowledge-intensive nature and changing the very purpose of humans within the productive forces. The worker gradually overcomes the confines of a repetitive operation and increasingly becomes a bearer of an intention, capable of directing technical action toward a socially beneficial deliverables.

In classical industrial production, knowledge was largely alienated from the worker and enshrined in technology and work regulations; the worker maintained a predetermined order of operations. In NIS.2, labor goes beyond operational obligation and acquires the characteristics of conscious creation.

In this regard, Marx's idea of human's transition from a direct appendage of the machine to a position of controller and regulator of the production process retains its methodological force [Marx, 1973]. However, a technology shift in itself does not yet signify the liberation of labor: capital is capable of appropriating knowledge and turning it into a new form of subordination (which is what we are witnessing today!). NIS.2 opens up a historic opportunity of a different order – the transformation of knowledge from a resource for value appropriation into a socially directed force for the aromorphosis of labor, as described in the works of S.D. Bodrunov [Bodrunov, 2025a].

J.K. Galbraith demonstrated in his research that a developed corporation can no longer be reduced to an abstract market: its operations are determined by technostructure, planning, and managed application of knowledge [Galbraith, 1967]. D. Bell developed this point in his analysis of post-industrial society, where theoretical knowledge becomes the "axial principle" of social organization, determining innovation, professional structure, and the nature of future services [Bell, 1973]. The theory of noonomy shifts the focus from the professional class and technostructure to Knowledge as the primary substance of knowledge-intensive labor and the future social structure.

P. Drucker, introducing the "knowledge worker", captured the shift in late-industrial society: productivity increasingly depends on the person's ability to handle knowledge [Drucker, 1969]. For the theory of noonomy, this figure remains transitional! Knowledge is not "produced" or created out of nothing – people discover it, master it, and implement it into their activities. Therefore, the "knowledge worker", limited by the market valuation of skill, does not yet express the comprehensiveness of the nootransition. The next step concerns the person as the bearer of human potential – a subject capable of transforming public knowledge into creative action and socially beneficial deliverables.

In this regard, the category of human potential takes precedence over the market category of human capital. Human capital primarily expresses the value projection of skills, while human potential reveals a human's ability to acquire knowledge, transform it into creative action, and participate in the creation of socially beneficial deliverables. It is not limited to qualifications and professional aptitude as it includes cultural self-improvement, shared participation, and responsibility for the meaning of what is created.

K. Freeman shows innovation as a publicly organized movement of knowledge: innovation is consolidated through the interaction of science, education, industrial cooperation, and technology policy [Freeman, 1987; Freeman, Louçã, 2001]. Innovation thus acts as a form of collective circulation of knowledge in productive forces. For this study, this has direct implications: the migration of knowledge signifies the movement not of information per se, but of society's ability to transform knowledge into labor, labor into creativity, and creativity into publicly useful innovation.

In NIS.2, knowledge becomes the primary content of labor. Through conception and mental object, it enters into action, receives objective expression in a publicly useful innovation, and returns to reproduction as new knowledge. Breaking this chain means shifting the creative function to an external center; maintaining it fosters the entrenchment of knowledge in labor and the ability of the territory to reproduce human potential.

The cycle of knowledge reproduction in creative labor is presented in Figure 1. It shows how the subject of creative labor translates open knowledge into knowledge-intensive action, forms an image of the future solution, and returns the result to social reproduction.

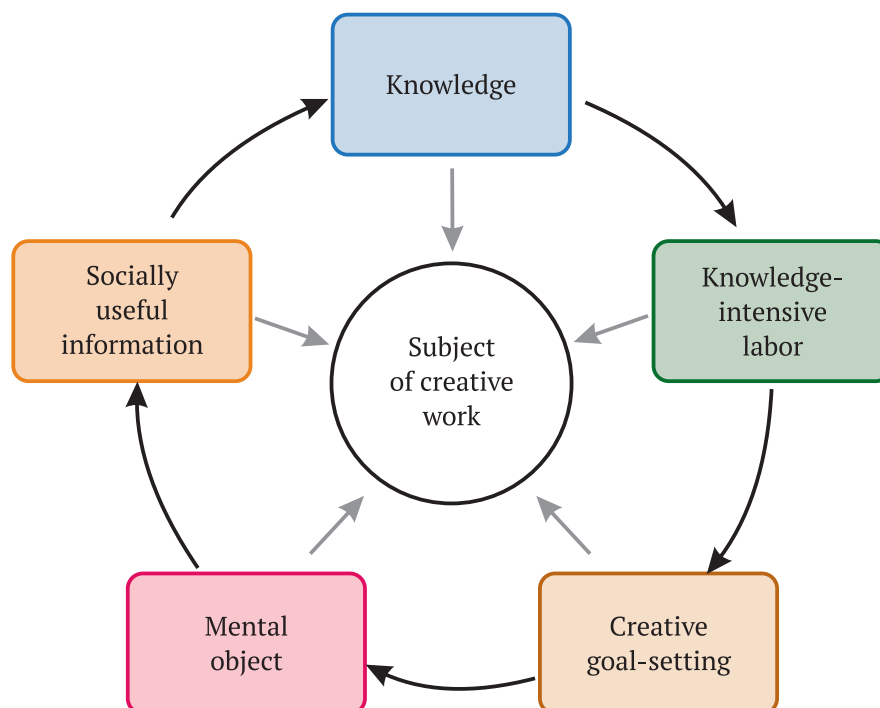


Fig. 1. Circle of Knowledge Reproduction in Creative Labor

Note: The product of creative work returns to social reproduction as newly discovered knowledge, strengthening the capacity of human and territory for subsequent acts of creation. Source: adapted by the authors from [Bodrunov, 2018; Bodrunov, 2021], in the light of the approach to mental object [Freeman, 2021].

Creative Work as the Ultimate Form of Knowledge-Intensive Labor

Creative work cannot be contained within the confines of art, media, design, and the cultural industries; it is much broader, despite the fact that these are the areas that provide measurable manifestations of creative labor, often market-driven. Its political economy content is revealed where knowledge ceases to be an external resource for an operation and becomes the force of conception, for example, in engineering solutions, scientific research, process engineering, software code, educational methods, cultural forms, and new modes of cooperation. What these manifestations have in common is the transformation of knowledge into a conception and then into a creative action that leaves its mark on social reproduction – that is, the transformation of this action into a publicly useful innovation.

The Old Slavonic word “*tvoriti*” (to create) refers to the act of creation, to the creation of a form that has not yet existed in specific human and social experience. The Russian word “*tvorchestvo*” (creation, creative work) retains this depth: it embodies the derivation of meaning from possibility into being, the birth of form, measure, and the human orientation of the result. Therefore, creative work expresses not external originality, but the objective destiny of knowledge, its value density and human meaningfulness.

Creativity captures the observable aspect of creative work – the ability to create a distinguishable product, suitable for evaluation by both the market and the customer, as well as other audiences, including the cultural environment. Creative work goes deeper – it is associated with the creation of meaning, purpose, and a method of action. Creative work, however, is not limited to creative industries; they identify that part of it that has taken on a commodity, service, or cultural-institutional form. In this regard, the works of A. Freeman are significant, showing the mental object as an intermediate entity between the conception and its objective embodiment [Freeman, 2021; Freeman, 2023].

Table 1

Creative Work and Creativity in the Analysis of Knowledge-Intensive Labor.

Parameter	Creative work	Creativity	Comparison findings
Meaning	Creating a sense bearing form of action	Creating a distinctive and marketable product	Creativity captures the observable manifestation of a part of creative work
Connection with knowledge	Knowledge becomes the material of conception and the environment for human self-realization	Knowledge is used to produce a result that is suitable for recording and dissemination	Knowledge is primary for both phenomena
Result/deliverables	Innovation, project, technology, cultural form, new mode of cooperation	Product, service, content, design, market or cultural outcome	Creative work is not limited to creative sector
Evaluation	Measure of human development, social utility and expansion of freedom	Distinctiveness, demand, income, cultural visibility	A noocriteria-based, not just market-based, evaluation is required
Limits	May not have immediate market manifestation	More often it takes a measurable form in industries, platforms and orders	Economic visibility is not equal to the fullness of creative content

Note: Creativity is the observable economic manifestation of creative labor, while creative work encompasses the deeper act of creating meaning, form, and mode of action. Source: prepared by the authors.

The English word “*creativity*” often denotes the ability to create something original and feasible, while the Russian word “*tvorchestvo*,” which derives from “*tvoriti*,” retains a deeper meaning of creating the form, value, and human measure of the result. This distinction is summarized in Table 1.

Knowledge Migration and Territorial Rooting of the Creative Function in the Context of NIS.2

The concept of dual labor migration, introduced in previous articles [Bodrunov, Dmitriev, 2025; Bodrunov, 2026], is further expanded in this study. Spatial migration captures the movement of the worker, while functional migration captures the shift in labor function. Behind this visible movement lies a deeper process.

Knowledge migration expresses the inner essence of spatial and functional migration. When a specialist enters a research and production hub, the ability to engage in knowledge-intensive work is transferred there. When a digital function is consolidated in an external production hub, the design ability and mental image of the future result flow there. This is how “**silent migration**” occurs – a subtle, almost statistically invisible shift in the creative core of a territory.

The familiar phrase “*brain drain*” captures only the external symptom. The process itself is rooted in the removal of knowledge from local production. A territory can retain its population and employment, but outsource the most complex stages of labor, including its creative functions. We observe that employment then remains an external veneer, while the ability to create one’s own future gradually moves beyond the borders of the territory.

The internal dynamics of knowledge migration allow us to distinguish three modes of this movement:

1. Knowledge outflow occurs when established competencies serve an external node and provide a weak back impulse to the local environment.
2. Knowledge circulation occurs when projects, practices, and new requirements for the quality of education and production are reintroduced.
3. Knowledge rooting takes place where the territory transforms knowledge into labor, creative work and new results in its own economic and cultural space.

This takes the analysis beyond the choice between closure and passive outflow.

Nootransition [Bodrunov, 2025b; Bodrunov, Arkhipova, 2024; Bodrunov, Glazyev, 2023] requires a change in the very content of movement. Mobility must become the circulation and rooting of knowledge. Labor migration in this case is an issue of the territory’s historical capacity to enter NIS.2 as a creative subject, not as a “donor of human material” for external appropriation chains.

Territory in NIS.2 acts as a reproductive environment for knowledge-intensive functions. Its significance is determined by its ability to connect people and knowledge in a holistic creative environment. In the language of V.I. Vernadsky, scientific thought has a planetary nature [Vernadsky, 1991], but its movement, including the migration of knowledge, takes on different qualities: it either imbues a territory with new meaning or devastates its creative core. Knowledge becomes a social force and transforms not a single profession, but the horizon of human existence. Where it becomes a public good, labor gains the opportunity to transcend external necessity and move toward a form of conscious creation.

Creation begins before the thing itself – in the conception where knowledge is assembled into an image of the future and seeks a form of social embodiment.

This opens up a higher level of analysis: knowledge migration becomes a sign of a historical shift in the quality of productive forces. In the works of S. Yu. Glazyev, his analysis of technological paradigms and the emergence of an integrated world economic order reveals this depth of transition [Glazyev, 2022]. The transition to the sixth technological paradigm (according to Glazyev) imbues this movement with a particular historical tension, as the decisive factor is the territory's ability to transform the knowledge-intensive content of new technologies into its own labor potential and, importantly, into creative potential. From the perspective of NIS.2, this signifies the rise of Knowledge to the role of an internal law of production: through it, labor acquires meaning, territory acquires the capacity for self-development, and mobility becomes a circulation for human potential.

In the context of the new industrialization, this shift takes on systemic significance. Technological renewal becomes a truly new industrial development only when production is filled with knowledge to the extent that humans emerge from the role of operator and become bearers of ideas [Bodrunov, 2021]. The category of "knowledge economy" is limited here – it identifies knowledge primarily as a resource for efficiency [Bell, 1973; Drucker, 1969], whereas noonomy links it with the movement from economic coercion to creative work as the ultimate form of human activity [Bodrunov, 2023; Bodrunov, 2025c]. NIS.2 makes Knowledge the primary force in the humanization of production.

R.S. Grinberg's assertion that "smart factories" require "smart people" and a "smart economy" takes the new industrialization beyond the technocratic understanding [Grinberg, 2016]. A machine becomes "smart" only when its intellectual capacity is matched by human rationality, responsible labor, and the social orientation of the outcome. This type of economy emerges when knowledge is given effective form through labor and protected from dissolution in the data stream. Data redundancy makes the noo-selection of knowledge crucial – the ability to separate meaning from information noise and transform machine inference into a humanly meaningful decision [Dmitriev, 2025; Dmitriev, 2026]. Noo-selection becomes a hidden measure of territorial development (or even semantic sovereignty), since a territory capable of sustaining the selection of meaning determines the direction of future labor.

At this level, the distinction between the territory of preparation and the territory of rooting takes on the meaning of the spatial **entelechy of knowledge** (according to Aristotle; this is the transition from *dynamis* (potential) to *entelecheia* (realization), when a latent capacity takes on an active form and becomes a force for development).

The territory of preparation shapes a person as a bearer of such potential, but the realization of a conception often extends beyond the environment that gave birth to it. The rooting space brings this potential to action and transforms it into its own form of development. In the first case, human potential becomes the resource of an external node. In the second, knowledge returns to the space that generated it as the capacity for independent creation.

The transition from human capital of neoliberal paradigm to human potential of NIS.2 receives spatial expression. The market category of "capital" measures skill through return; the category of "potential" reveals the environment's ability to bring human intention to a creative result [Yakovleva, 2024; Bodrunov et al., 2025]. A.V. Buzgalin and A.I. Kolganov demonstrate how late capitalism draws creative abilities into precarious forms of employment, transforming creativity into a mobile resource of so-called "external appropriation" [Buzgalin, Kolganov, 2019]. Hence, the rooting of creative function becomes a way to preserve for the territory a subject capable of continuing its development.

Developing the creative function means more than maintaining employment. It creates a *topos* for the realization of knowledge, i.e., an environment where ideas take on objective form, labor unlocks creative content, and mobility returns the territory to increased human potential. In the ancient tradition, *topos* means place, and Aristotle's *entelecheia* reveals the transition of potential to actualization [Aristotle, 1976; Aristotle, 1981]; for the analysis of knowledge migration, this means movement from prepared ability to creative result.

In NIS.2, the subject of the rooted creative function acts as the bearer of conception, measure, and responsibility, going beyond mere qualifications. Aristotle's *entelechy* helps to discover the form of this transition [Aristotle, 1976]; Vernadsky's understanding of scientific thought as a planetary phenomenon sets the scale of knowledge movement [Vernadsky, 1991]; Bodrunov's noonomic approach reveals Knowledge as a force for the transformation of labor, needs, and social existence [Bodrunov, 2018].

The typology presented in Table 2 shows the degrees of realization of human potential in the space of nootransition. Some territories prepare humans for external integration, others maintain creative function in their own development, and still others transform mobility into a reversible movement of knowledge. Therefore, knowledge migration is linked to a key question: where does human potential become a source of self-development, and where does it become resource for external appropriation?

Table 2
Typology of territories based on their ability to reproduce creative function.

Type of territory	Status of knowledge	Content of labor	Migration result
Reproductive territory	Knowledge remains an unclaimed opportunity	Labor is consolidated in the executive tasks and predetermined outcome	Outflow of people and labor functions
Preparation territory	Education creates potential, but the conception seeks fulfillment outside the environment that generated it	Labor is formed as a capacity for future action	Removal of knowledge
Platform-dependent territory	Knowledge connects to an external digital node	Remote function services someone else's result cycle	Hidden migration of knowledge
Rooting territory	Knowledge receives the topos of realization	Labor is revealed as a creative action	Rooting of creative function
NIS.2 crystallization territory	Knowledge becomes a self-reproducing force of development	Labor takes the form of co-creation and meaningful selection (noo-selection) of the result	Circulation of knowledge and the growth of human potential

Note: The typology shows the degrees of realization of human potential in the space of nootransition. The NIS.2 crystallization territory is considered the ultimate type, where knowledge returns to the development of the environment itself and consolidates its semantic sovereignty. Source: adapted by the authors from [Bodrunov, Dmitriev, 2025; Bodrunov, 2026] in view of S.D. Bodrunov's works on noonomy [Bodrunov, 2018; Bodrunov, 2021].

Knowledge Migration and Institutions for Rooting of Creative Labor

The form of employment provides only the external veneer of labor. Digital work can accelerate reproductive performance; the creative sector can serve the chrematistics of simulative needs; the migration of a professional can become the removal of knowledge from the environ-

ment where it originated. Therefore, analysis must address the very content of labor, where the fundamental difference emerges: labor either reveals the subjective power of creation within a person or transforms it into an alienated function of external reproduction.

In NIS.2, the “level of creativity” (the saturation of work activity with creativity) is determined by the degree of a person’s involvement in the birth of a conception. Its core lies in the ability to retain the future result before its externalization and to transform the task into a responsible action. For A. Freeman, mental object acts as a pre-objective state of the result, connecting the conception with subsequent implementation; it allows us to see creative work before the product appears – in the formation of the image of the future [Freeman, 2021; Freeman, 2023]. For S.D. Bodrunov, Knowledge is revealed as the primary force of the aromorphosis of labor, and creative activity as a person’s exit from the mode of reproductive performance to creative participation [Bodrunov, 2025a; Bodrunov, 2026].

The criterion for the level of creativity in labor is the degree to which the conception has been realized. Labor enters a creative state when a person retains an internal image of the result, relates it to public benefit, and accepts the creation as their own share of responsibility. Here (and specifically here) activity becomes the entelechy of knowledge: hidden ability takes the form of action; expended energy is returned to the person as a new store of understanding and readiness for the next act of creation.

K. Marx demonstrated that the commodity form gives social relations a material appearance [Marx, 1960]. In the context of digital employment, this inversion takes on a new form: the human creative function can be represented as a “digital footprint,” a set of metrics and an alienable fragment of a platform order. K. Polanyi showed the limits of the market transformation of labor into a “fictitious commodity” [Polanyi, 2001], and H. Braverman – how managerial rationalization impoverishes the content of skilled labor [Braverman, 1974]. In the platform organization of employment, these warnings sound new, since algorithms can appropriate not only the result and its standard, but also the measure itself, the limit of permissible action.

This necessitates a noocriterial assessment of labor.

Digital form, speed of execution, and outward creativity do not necessarily indicate creative content. Creative work is that in which knowledge is transformed into meaningful action, the result achieves policy relevance, and the person retains the capacity for further development. Reproductive performance, on the other hand, can be technologically accelerated but still remain labor without an internal conception.

This leads to an institutional shift in migration policy in NIS.2. If knowledge is primary, and creative work is the ultimate form of knowledge-intensive labor, mobility management extends beyond administrative restraints. Its objective becomes the rooting of creative function: the creation of conditions under which human movement enhances the reproduction of knowledge and preserves the environment that generated it as the source of new results [Bodrunov, Dmitriev, 2025; Bodrunov, 2026].

Education here ceases to be preparation for an employer’s needs. It becomes an introduction of human to complex action where knowledge is separated from information noise, and the future professionals learn to be responsible for what they create. This approach is consistent with a strategic vision, since it is in strategizing the transformation of society that knowledge and technology are viewed as interconnected foundations for future development towards noonomy [Kvint, Bodrunov, 2021]; therefore, education begins to serve noosociety when it leads knowledge

out of the confines of academic secrecy to scientific and industrial co-creation and shapes the subject of future action.

Culture acts as an internal condition for the rooting of knowledge. It sustains the human focus of needs and the capacity for public recognition of new results. Without a cultural dimension, technical efficiency easily slips into chrematistics, serving a simulative demand. The rooting environment must connect the production task with noovalues, so that what is created becomes not only applicable but also publicly feasible [Grechko, Pleshivtseva, 2025; Stasev, Grechko, Tyulina, 2025]. This is where the value system of nootransition manifests itself – culture returns the human role of knowledge migration and transforms movement of the creative function into the reproduction of meaning within the generative environment.

Migration policy in the context of NIS.2 must provide conditions under which human mobility enhances the reproduction of labor and creative work. Administrative retention of professionals produces a short-term effect; sustainable development occurs where territory becomes a place (*topos*) for the return of a conception, and where cultivated capacity is given the opportunity to transform into creative results. It is in such environments that NIS.2 crystallizes.

The practical content of this policy is revealed through the institutional linkages between education, research, and production. Professionals, especially beginners, must see before them not only a career trajectory, but also a horizon of creative participation where a complex task requires independent conception and a secure outcome. Social protection for new forms of labor is part of this system as a prerequisite for maintaining the creative function, not as external compensation for instability.

Within the country's domestic space, this process manifests itself as an asymmetry between the environment where knowledge is generated and the node where the results are appropriated. A region that trains professionals and then loses their creative function becomes a *donor of knowledge*. A region capable of integrating the developed conception into its own development becomes a *territory of rooting*. Thus, migration policy is integrated into the logic of the nootransition as a policy for the reproduction of human potential.

J.M. Keynes, reflecting on future economic possibilities, pointed to the prospect of liberating people from forced employment and transitioning to a different organization of life [Keynes, 1931]. In the theory of noonomy, this Keynesian perspective is examined not as a forecast of leisure, but as a question of liberating human energy for creative activity: the freed time becomes a "light reserve" for society, capable of transitioning from a mode of consumption to Knowledge, and then to culture and creative labor [Bodrunov, 2025a; Bodrunov, 2025c]. Migration policy in the context of NIS.2 must provide conditions under which this reserve takes on a social form and becomes a source of reproduction of human potential.

The synergetic tradition of I. Prigogine, I. Stengers, and H. Haken allows us to consider the nootransition as a nonlinear change of order, where accumulated fluctuations are capable of generating a new quality of the whole [Prigogine, Stengers, 1984; Haken, 1977]. The automatism of such a transition is excluded. For knowledge migration, this implies the existence of a bifurcation point: technologies, platforms, and algorithms can unlock the creative function or consolidate accelerated reproduction in a new form. The quality of creative participation becomes the parameter of order. Therefore, NIS.2 policy requires noocriteria that allow for the evaluation of the movement of people and functions based on whether it leads to the emergence of the noohuman as a creative human capable of overcoming the narrowness of economic design [Bodrunov, 2024].

The mode of appropriation of creative outputs requires special attention. When a mental object, design concept, or technological solution is completely transferred to an external node, the migration of knowledge ends with “ability extraction,” i.e., the environment that generated it retains the memory of the person’s preparation but loses the fruit of their creative act. A different situation arises with associative use and recognition of contribution, since the creative output remains embedded in the environment in which it originated and continues to nurture its development.

This is where the diffusion of ownership in the theory of noonomy is revealed. For S.D. Bodrunov, the diffusion of ownership, the socialization of society, and solidarism form one of the pillars of the “quadriga of noonomy” [Bodrunov, 2021]. Therefore, the creative output should be viewed as a “node of continuation” rather than a closed asset. It maintains a connection with the author, the collective application, and the environment in which the original ability arose.

A creative output rarely belongs solely to a single contributor; it is a confluence of the technological environment, the cultural code, and forms of collective cooperation. Late capitalism, as A.V. Buzgalin and A.I. Kolganov demonstrate, is capable of transforming creative abilities into a mobile resource for external appropriation [Buzgalin, Kolganov, 2019]. NIS.2 presupposes a mode of result consolidation where openness of application is combined with the return of the capacity for new creation to the environment that generated it.

Knowledge migration has its own hidden “arithmetic”. The same human conception can become a loss, a reversal, or a gain. It becomes a loss (*removal*) when the result is externally appropriated. It becomes a reversal (*circulation*) when the created object enters the general circulation of knowledge. It becomes a gain (*rooting*) when the generative environment receives the continuation of the capacity from which the result arose.

For Russia, as for any sovereign country, this means the need to align industrial, educational, digital, and cultural policies around the reproduction of human potential. Industrial orders must provide knowledge with a subject for action; education must cultivate the subject of conception; the digital environment must protect creation from dissolution in the external circuit of appropriation; and culture must maintain the noovalue purpose of the result. In such a combination, creative work gains institutional rooting, and knowledge migration ceases to be a loss of capacity and becomes a means of expanding society’s creative forces.

Conclusion

The third article in the trilogical series (see “Noonomy and Noosociety. Almanac of Scientific Works of the S.Y. Witte INID”, No. 4 in 2025, No. 1 in 2026) completes the transition from a *description of the external manifestations of labor migration* to *exploration of its internal political-economic content*. While the first article examined labor migration as an **indicator of the aromorphosis of “labor” category**, and the second revealed **digital employment as a form of dual migration** where labor function can shift ahead of the physical movement of the worker [Bodrunov, Dmitriev, 2025; Bodrunov, 2026], then this study shows the next layer of this movement. Spatial movements and functional shifts reveal the migration of knowledge, embodied in the human capacity for knowledge-intensive and creative labor.

2. Knowledge, acting as the primary substance of labor transformation (under the context of NIS.2, this is becoming increasingly unnecessary), enters into activity through conception and *mental object*, receives *objective form* in action, and returns as a *publicly useful result*. Creative work

is shown as the ultimate form of knowledge-intensive labor, where a person transcends the limits of reproductive performance and becomes the bearer of creative capacity. Therefore, the *criterion of labor* becomes the realization of a conception, when hidden knowledge takes the form of action, changes the environment of human participation, and returns to the person as a new store of understanding.

3. **Knowledge migration** changes the meaning of *territorial development*. A territory can retain its population and employment, but lose the ability to develop its own future if the complex stages of labor and the results of a conception are consolidated in an *external center of appropriation*. A different outcome arises where knowledge receives a *topos* of realization, prepared capacity is brought to action, and *knowledge-intensity of production is combined with the reproduction of human potential*.

4. The article identifies three modes of Knowledge migration: *removal*, *circulation*, and *rooting*. Removal means the loss of creative function through external appropriation of the result. Circulation occurs when the professional's movement returns new connections, experience, and modes of action to the environment that generated it. Rooting occurs where Knowledge is consolidated in labor, receives institutional protection, and becomes a reproducible force for human and territorial development. Therefore, knowledge migration has its own hidden arithmetic: *the same conception can result in loss, reversal, or gain*.

5. Migration policy in NIS.2 should be based on the **reproduction of human potential**. Its goal is not the administrative retention of professionals, but rather the creation of an environment where human mobility *enhances the "reproduction"* of Knowledge, labor, and creative work. Education, production, digital infrastructure, culture, and the protection of results must be linked and united around the rooting of creative function. With such institutional coherence, mobility ceases to be a drain on capacity and becomes a *reversal movement of human power*, and ultimately a form of expanded reproduction of human potential.

6. For Russia, these findings extend beyond theoretical generalization and into the realm of long-term development. New industrialization (*reindustrialization* based on the latest technological paradigm) acquires noocontent where knowledge-intensity of production is combined with the "cultivation" of the person as a *subject of creative labor*. **Industrial policy** divorced from the reproduction of the subject of creative labor creates a technological shell without a bearer of the conception; education without a field of application prepares people for "departure"; digitalization without protection of results accelerates the removal of functions; culture without a connection to labor risks remaining symbolic consumption. In their confluence, a territory of knowledge rooting is born, where NIS.2 is revealed as the movement of productive forces toward people.

7. **Labor migration** in the context of *nootransition* goes beyond the movement of workers following earnings. It reveals where Knowledge takes active form in labor, where labor ascends to creativity, and where socially shaped abilities are relegated to external appropriation.

The answer of NIS.2 lies in *transforming the very nature of mobility* so that human movement becomes the return of Knowledge to its generative environment, the rooting of human potential, and the transition from forced labor to labor as conscious participation in a shared future – where human creative activity will become the foundation of life.

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SIX STRATEGIC DIRECTIONS OF ECONOMIC COOPERATION BETWEEN CHINA AND RUSSIA AND THE MECHANISMS FOR THEIR IMPLEMENTATION

Abstract: Based on Marxist political economy, the paper provides a systematic analysis of the strategic directions, implementation mechanisms, and risk management system in China-Russia economic cooperation. Cooperation between China and Russia should stem from the objective needs of developing the productive forces of both countries and should be built upon six strategic directions: energy as the foundation for ensuring the sustainability of the industrial base; transport connectivity as a factor in accelerating economic turnover; financial mechanisms as a tool for maintaining monetary stability and credit security; scientific and technological cooperation as a driver of labor productivity growth; agricultural interaction as a prerequisite for strengthening food security; and the digital economy as an environment for shaping new forms of production and exchange. On this basis, the promotion of six strategic key projects is proposed. Such a strategy conforms to the objective laws of the international division of labor and naturally follows from the principle that the relations of production in both countries must correspond to the level of development of their productive forces. The paper also proposes a three-tier cooperation implementation mechanism: strategic leadership at the heads-of-state level, interdepartmental coordination at the ministerial level, and practical execution at the enterprise level. Furthermore, the necessity of a risk forecasting system and a top-level coordination mechanism is substantiated. It is emphasized that deep economic interaction between China and Russia is not only a practical response to the instability of the global capitalist system but also an important step toward shaping a more just and equitable international economic order.

Keywords: China-Russia economic cooperation; Marxist political economy; international division of labor; industrial and supply chains; economic security; regional economic cycle.

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中俄经济合作的六个战略方向及其实施机制

摘要:本文基于马克思主义政治经济学,对中国俄罗斯经济合作中的战略方向、实施机制及风险管控体系进行了系统分析。中俄合作应立足于两国生产力发展的客观需求,并围绕六个战略方向展开:能源——作为保障工业基础可持续性的根基;交通互联互通——作为加速经济周转的推动力;金融机制——作为维护货币流通稳定和信贷安全的工具;科技合作——作为提高劳动生产率的驱动力;农业合作——作为加强粮食安全的条件;数字经济——作为形成新型生产和交换方式的载体。在此基础上,建议推进六项战略性重点项目。这一战略符合国际劳动分工的客观规律,也是两国生产关系必须与生产力发展水平相适应这一原则的自然结果。文章还提出了三层级合作实施机制:国家元首层面的战略指导、部长层面的跨部门协调以及企业层面的具体落实。此外,文章还论证了建立风险预测体系和高层协调机制的必要性。文章强调,中俄深化经济合作不仅是对全球资本主义体系不稳定性的务实回应,也是构建更加公正、平等的国际经济秩序的重要环节。

关键词:中俄经济合作、马克思主义政治经济学、国际劳动分工、产业链和供应链、经济安全、区域经济周期。

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I. Introduction

From the perspective of Marxist political economy, the development of social productive forces inevitably extends beyond national and territorial boundaries, contributing to the deepening of the international division of labor and the expansion of global market. Economic interaction between countries is an objective law arising from the socialization of production and its internationalization. Currently, against the backdrop of rising unilateralism and protectionism, the vulnerability of the global financial, energy, and food systems is becoming increasingly apparent, and the shortcomings of traditional international economic regulation are becoming increasingly evident. The emerging international political landscape characterized as the “rise of the East and the decline of the West” is manifested primarily in the fact that, against the backdrop of strengthening cooperation among countries of the Global South, including China, Russia, and Iran, in countering hegemonism, the United States and Western countries are gradually losing their positions [Cheng, 2024]. As the world’s largest developing countries and permanent members of the UN Security Council, China and Russia, based on shared development interests and strategic goals, are steadily strengthening the economic foundation of their comprehensive strategic partnership of coordination in the new era. Today, trends toward unilateralism, protectionism, and hegemony are increasingly evident, and the process of economic globalization is encountering resistance. President Xi Jinping emphasized that China and Russia must jointly promote the de-

velopment of an equitable and orderly multipolar world and inclusive economic globalization, fully utilize the complementarity of their resource advantages and industrial systems, expand high-quality, mutually beneficial cooperation across all areas, resist external pressure, and ensure that the foundation of cooperation becomes stronger and the driving forces of growth become more vibrant¹. This important statement sets a strategic course for deepening comprehensive strategic coordination and developing practical economic cooperation between China and Russia in the new era.

Thanks to the complementarity of the two countries' resource portfolios, industrial structures, and market spaces, economic cooperation between China and Russia is transforming from simple trade exchanges into systemic interactions encompassing all links of the production chain, a wide range of industries, and deep levels of cooperation. During their meeting in Moscow, the two heads of state issued a "Joint Statement on the Development Plan for Key Areas of Chinese-Russian Economic Cooperation through 2030" (hereinafter referred to as the "2030 Cooperation Plan"). The document enshrines a policy of "firmly adhering to the principles of mutual respect and mutual benefit on an equal basis, ensuring the long-term independent development of both countries, and promoting high-quality development of Chinese-Russian economic and trade cooperation."²

In 2026, the heads of China and Russia reiterated that bilateral trade and economic cooperation has demonstrated steady growth over many years and has steadily improved the living standards of the peoples of both countries. In the coming period, plans are underway to deepen policy coordination, consolidate advantages in traditional areas of cooperation, identify promising niches in new sectors, and ensure improved quality and efficiency in both goods and services trade³.

The new development model proposed by General Secretary Xi Jinping, based on the dominant role of the domestic cycle and the mutual stimulation of the domestic and international cycles, profoundly reveals the dialectical relationship between independent development and opening up to the outside world, and between the domestic and international cycles⁴. Deep economic cooperation between China and Russia is an important practical step in improving the quality of international economic exchange, integrating domestic and foreign markets, and effectively utilizing resources of both categories. At the same time, it acts as a key external component in the implementation of the "dual circulation" strategy. This article uses the Marxist theory of the international division of labor and the theory of reproduction as its theoretical framework. On this basis, a system of economic cooperation is proposed, encompassing six strategic areas: energy as the foundation for ensuring a stable industrial base; transport connectivity as a factor in accelerating economic turnover; financial mechanisms as a tool for maintaining monetary stability and credit security; scientific and technical cooperation as a driver of productivity growth; agricultural cooperation as a prerequisite for strengthening food security; and digital economy

¹ Xi Jinping. Speech at the Meeting of the Heads of State of China and Russia [EB/OL].(2025-05-08).<http://www.news.cn/20250508/fba4bc596c7b442fa68ef87c6c0ad394/c.html>.

² The President of the People's Republic of China and the President of the Russian Federation. Joint Statement by the President of the People's Republic of China and the President of the Russian Federation on the Development Plan for Key Areas of Chinese-Russian Economic Cooperation through 2030 [EB/OL].(2023-03-22). https://www.mfa.gov.cn/web/wjlb_673085/zzjg_673183/xws_674681/xgxw_674683/202303/t20230322_11046176.shtml

³ People's Republic of China and the Russian Federation. Joint Statement of the People's Republic of China and the Russian Federation on Further Strengthening Comprehensive Strategic Interaction and Deepening Good-Neighborly and Friendly Cooperation Relations [EB/OL].(2026-05-21).

⁴ Xi Jinping. Accelerating the Formation of a New Development Model and Ensuring the Strategic Initiative in Future Development [J/OL]. Qiushi. 2021(8). http://www.qstheory.cn/dukan/qs/2021-04/15/c_1127322214124424.htm.

as an environment for the development of new production and exchange relations. Within this framework, the article details key cooperation projects, their practical implementation mechanisms, and a risk prevention system.

II. Six Strategic Key Areas of Chinese-Russian Economic Cooperation

According to the Marxist theory of social reproduction, aggregate social production comprises two main divisions: the production of means of production and the production of consumer goods. Energy, transportation, and finance are among the basic conditions of circulation and production that ensure the functioning of the reproduction process. Science and technology are key drivers of the transformation of productive forces. Agriculture is linked to providing the population with consumer goods and basic means of subsistence. Digital economy represents the concentrated expression of a new form of productive forces. Given the differences in resource endowments and comparative advantages of the two countries, the current priority should be the advancement of six strategic key projects that will lay the foundation for a multifaceted, multi-level, and comprehensive model of cooperation.

First, deep interaction across the entire energy production chain serves as a “foundation of stability”, ensuring the sustainability of regional economic activity. In modern social reproduction, energy is the most important means of production, and energy security is a primary prerequisite for national economic security. General Secretary Xi Jinping has repeatedly emphasized that energy security is a key element of national security, and therefore it is essential to guarantee a stable energy supply through supply diversification and long-term sustainability. Chinese-Russian cooperation across the entire energy value chain is a key measure to jointly strengthen energy security for both countries and achieve mutually beneficial outcomes¹. China and Russia have natural complementarities in energy. Russia has abundant oil and gas reserves, and significant potential in nuclear and renewable energy, while China has a large domestic market, developed manufacturing and processing capabilities, and capital advantages. In this regard, the parties should develop an integrated cooperation model across the entire energy value chain and create a stable and sustainable power supply system. “Particular attention must be paid to the creation of controlled, safe, and reliable production and supply chains, and efforts must be made to have at least one alternative source of supply and one alternative supply channel for key products as backup options” [Cheng, Zhang, 2021]. The 2030 Cooperation Plan explicitly states the need to “deepen comprehensive cooperation in the energy sector, ensure energy security, consistently develop cooperation in traditional energy, including the oil and gas sector, electric power, and nuclear energy, expand cooperation in green energy sources, including hydrogen energy, renewable energy, and the carbon market, and form an integrated value chain in the energy sector.”² The parties should prioritize the construction of the Power of Siberia 2 gas pipeline, achieving the plan’s goal of reaching annual natural gas supplies of approximately 50 billion cubic meters, and simultaneously develop cooperation in oil and gas exploration, processing, storage, and transportation, creating a closed-loop production chain covering all stages from production to supply. At

¹ Xi Jinping. Speech at the Meeting of the Heads of State of China and Russia [EB/OL].(2025-05-08). <http://www.news.cn/20250508/fba4bc596c7b442fa68ef87c6c0ad394/c.html>.

² The President of the People’s Republic of China and the President of the Russian Federation. Joint Statement by the President of the People’s Republic of China and the President of the Russian Federation on the Development Plan for Key Areas of Chinese-Russian Economic Cooperation through 2030 [EB/OL].(2023-03-22). https://www.mfa.gov.cn/web/wjlb_673085/zzjg_673183/xws_674681/xgxw_674683/202303/t20230322_11046176.shtml.

the same time, cooperation in nuclear energy, cross-border power transmission, hydrogen energy, and energy storage systems should be expanded to ensure that traditional energy security and the green transition complement each other. This will allow us to move beyond simple resource trade and toward the creation of an industry alliance encompassing all links of the value chain - production, distribution, and end-use.

Secondly, a cross-border, interconnected logistics system represents a “highway” for the transnational movement of production factors. Circulation is a crucial link in social reproduction, and efficient cross-border logistics channels serve as the physical foundation for the movement of production factors, goods, and capital between countries. The development of cross-border logistics infrastructure between China and Russia will reduce transportation costs, improve the efficiency of the international division of labor, and remove spatial restrictions on regional economic flows between the two countries. The 2030 Cooperation Plan identifies the creation of interconnected logistics infrastructure as a key focus. The document provides for “ensuring the uninterrupted movement of goods and passengers between the two countries using multimodal transport (rail, road, air, river, and sea), modernizing border crossing infrastructure, and enhancing the simplification of border crossing procedures.”¹ Specific steps include: first, the intelligent modernization of key border crossing points on the Russian-Chinese border, streamlining border and customs procedures, strengthening coordination between China-Europe railway routes and multimodal land-sea transport to develop a logistics corridor between Northeast China and the Russian Far East; second, the joint development of the Northern Sea Route, cooperation in shipping, icebreaker technology, and polar logistics, which will tap into the potential of this northern sea traffic artery. Regular shipping along the Northern Sea Route will transform the logistics landscape of maritime transport between Asia and Europe and significantly reduce dependence on the traditional route through the Suez Canal. The development of cross-border logistics infrastructure between China and Russia serves as an important platform for aligning the Belt and Road Initiative with the Eurasian Economic Union, fully consistent with the parties’ strategic consensus on the joint development of interconnected traffic arteries and the optimization of regional trade flows.

Third, the use of national currencies for mutual settlements and the integration of financial markets serve as a “stabilizer” for international economic activity. Money and finance serve as a means of commodity exchange and capital movement, and are also the central link in modern international economic relations. By maintaining control over international finance, high technology, resources and energy, and foreign markets, developed countries simultaneously offshore medium- and low-end manufacturing and export intellectual property. As a result, a unique “dual economic structure” is emerging between them and developing countries [Cheng, Xie, 2016]. Against the backdrop of external financial restrictions and imbalances in the global monetary system, the transition to settlements in national currencies and the integration of financial markets are crucial tools for China and Russia to reduce dependence on a single currency, protect financial sovereignty, and ensure the safe movement of capital. On the background of imbalances in the global monetary system and growing external financial

¹ The President of the People’s Republic of China and the President of the Russian Federation. Joint Statement by the President of the People’s Republic of China and the President of the Russian Federation on the Development Plan for Key Areas of Chinese-Russian Economic Cooperation through 2030 [EB/OL]. (2023-03-22). https://www.mfa.gov.cn/web/wjlb_673085/zzjg_673183/xws_674681/xgxw_674683/202303/t20230322_11046176.shtml.

restrictions, increasing settlements in national currencies is becoming a viable tool for both countries to maintain financial independence and prevent systemic risks, and serves as a practical implementation of their commitment to independent development. The 2030 Cooperation Plan sets the goal of “expanding the use of national currencies in bilateral trade, investment, and lending, deepening cooperation between the two countries’ financial institutions, improving cooperation mechanisms in combating money laundering, and enhancing the quality of cross-border financial services.”¹ Based on this, both countries should significantly increase the volume of direct settlements in yuan and rubles in trade transactions, direct investment, and lending, and create a system that facilitates cross-border payments, which will help minimize vulnerability to external financial sanctions. At the same time, it is necessary to develop cooperation between stock and insurance market participants, including rating agencies, update the bilateral investment agreement, and ensure the orderly flow of capital into real sectors of the economy: energy, infrastructure, and high-tech industries. Increasing the volume of settlements in national currencies and deeper integration of financial markets will allow the economies of the two countries to gradually transition away from passive dependence on the dollar system and strengthen financial sovereignty.

Fourth, cooperation in scientific and technological innovation and industrial chains is a “growth pole” for the iterative renewal of productive forces. General Secretary Xi Jinping emphasized that independence and self-sufficiency in science and technology are a strategic pillar of national development. Joint work between China and Russia on breakthrough technologies will allow both countries to overcome technological limitations and jointly achieve technological independence and self-sufficiency. According to Marxist political economy, technological progress is the key factor determining labor productivity. Building on their respective technological advantages and industrial potential, China and Russia should pursue joint scientific and technological development and industrial cooperation, which is a key tool for building an independent and controllable regional industrial chain. Consequently, “it is necessary to enhance scientific and technological self-sufficiency, master key technologies, and achieve breakthroughs in advanced and critical technological areas” [Cheng, Zhang, 2021]. The 2030 Cooperation Plan sets the goal of “deepening cooperation in scientific, technological, and industrial fields, focusing on joint research in aerospace technologies, new materials, and basic sciences, establishing mutually beneficial synergies in production capacities, and building sustainable regional production and supply chains.”² Specific measures include: first, establishing joint laboratories for research in cutting-edge areas such as artificial intelligence, biomedicine, and new materials, ensuring bilateral scientific personnel exchanges, and overcoming technological barriers; second, deepening the complementarity of production capacities in industries such as automobile manufacturing, mechanical engineering, electronics, and telecommunications, seamlessly linking China’s production potential with Russia’s resources and markets to form secure and stable regional production and supply chains.

¹ The President of the People’s Republic of China and the President of the Russian Federation. Joint Statement by the President of the People’s Republic of China and the President of the Russian Federation on the Development Plan for Key Areas of Chinese-Russian Economic Cooperation through 2030 [EB/OL].(2023-03-22). https://www.mfa.gov.cn/web/wjlb_673085/zzjg_673183/xws_674681/xgxw_674683/202303/t20230322_11046176.shtml.

² The President of the People’s Republic of China and the President of the Russian Federation. Joint Statement by the President of the People’s Republic of China and the President of the Russian Federation on the Development Plan for Key Areas of Chinese-Russian Economic Cooperation through 2030 [EB/OL].(2023-03-22). https://www.mfa.gov.cn/web/wjlb_673085/zzjg_673183/xws_674681/xgxw_674683/202303/t20230322_11046176.shtml.

Fifth, cooperation in agriculture and food security is the foundation for providing the population with vital resources. The General Secretary has repeatedly emphasized: “As long as there’s grain in the bin, there’s peace of mind.” Food security is paramount in governance and ensuring national stability. Deepening agricultural cooperation between China and Russia and establishing a mutual food security system will effectively mitigate the risks associated with global food market volatility and jointly ensure the basic needs of both countries’ populations¹. Agriculture directly provides the population with vital resources. Food security lies at the core of this process and directly impacts human well-being and social stability [Ding, 2025]. The global food market is controlled by a few large international grain companies, leading to high price volatility and posing a constant threat to food security in developing countries. Developing agricultural cooperation between China and Russia and establishing a bilateral food aid system will reduce dependence on the supply chains of global grain oligopolies and mitigate the risks associated with price volatility for vital resources in the process of social reproduction. In accordance with the provisions of 2030 Cooperation Plan on “deepening agricultural cooperation, expanding bilateral agricultural trade, optimizing phytosanitary and veterinary control procedures, and promoting cooperation in agricultural investment, crop production, and deep processing of agricultural products,” the parties should expand the export of Russian grain, meat, and seafood to China, while simultaneously facilitating the entry of Chinese fruits and vegetables, agricultural inputs, and agricultural technologies into the Russian market. In investments, it is necessary to stimulate the implementation of large-scale projects in crop production, livestock farming, and deep processing in the Russian Far East, and to develop cross-border agro-industrial clusters. Food security in China and Russia is gradually shifting from independent efforts to mutual support, creating a buffer zone against fluctuations in the global food market.

Sixth, cooperation in the digital economy and new areas is creating a “new impetus” for future development. The digital economy is the primary form of productive force for the new generation. New areas such as digital commerce, the green economy, and smart cities represent new trends for the development of global productive forces. For China and Russia, developing new growth areas for digital cooperation is an inevitable choice for achieving leadership positions in the future international division of labor and developing new competitive advantages.

The 2030 Cooperation Plan sets the goal of “expanding trade volumes, developing e-commerce and other innovative forms of cooperation, deepening collaboration in the digital economy and green sustainable development, and creating a favorable business climate.”² Based on these political guidelines, both countries are constantly exploring new formats and models of cooperation, providing sustainable impetus to bilateral economic relations. Specific measures include: first, improving cross-border warehousing, logistics, and customs facilitation mechanisms; establishing joint cross-border e-commerce demonstration zones between China and Russia; promoting the two-way flow of goods with unique characteristics; and activating small and medium-sized market players; second, deepening coordination of digital standards and cooperation in digital trade in services, as well as expanding collaboration in emerging areas such as green infrastruc-

¹ Xi Jinping. Speech at the Meeting of the Heads of State of China and Russia [EB/OL].(2025-05-08). <http://www.news.cn/20250508/fba4bc596c7b442fa68ef87c6c0ad394/c.html>.

² The President of the People’s Republic of China and the President of the Russian Federation. Joint Statement by the President of the People’s Republic of China and the President of the Russian Federation on the Development Plan for Key Areas of Chinese-Russian Economic Cooperation through 2030 [EB/OL].(2023-03-22). https://www.mfa.gov.cn/web/wjlb_673085/zzjg_673183/xws_674681/xgxw_674683/202303/t20230322_11046176.shtml.

ture, ecology and environmental protection, and smart cities. Mutual recognition of standards and joint rulemaking will enable both countries to strengthen their institutional positions in global digital trade and preserve space for the independent development of future productive forces. The development of digital economy, green economy, and other new forms of economic activity is a joint choice of the two countries to promote high-quality development of trade and economic cooperation and the establishment of new growth areas, and fully meets the requirements of the era of high-quality development.

Mechanisms for Practical Implementation and Key Areas for Ensuring Chinese-Russian Cooperation

General Secretary Xi Jinping noted that Chinese-Russian cooperation requires a targeted approach to implementing measures, raising the level of practical cooperation from a strategic perspective, improving institutional support, and creating a stable, fair, and predictable environment for the implementation of major projects.¹ Based on this requirement, both countries are establishing a three-tiered cooperation mechanism, within which heads of state provide strategic guidance, ministers support coordination, and enterprises ensure practical implementation. This is complemented by mechanisms for high-level interaction and the management of specific project lists, which facilitates the transformation of reached cooperation agreements into tangible results.

(1) Three-tiered mechanism of interaction and implementation

Practical implementation of economic cooperation and achievement of its results are impossible without comprehensive coordination of a multi-level governance system and effective implementation by market actors. Building on the established mechanisms of bilateral cooperation and the governance structures of China and Russia, we propose establishing a three-tiered interaction and implementation mechanism, where the heads of state provide strategic guidance, ministers support coordination, and enterprises ensure practical implementation. This will allow for the seamless integration of strategic planning, interdepartmental coordination, and local implementation, providing the smooth progress of six key projects.

The joint communiqué following the 30th regular meeting of the heads of government of China and Russia emphasizes that all practical forms of cooperation between the two countries are based on the consensus reached by the heads of state of the two countries. The parties intend to fully unlock the potential of Chinese-Russian relations, relying on the Commission for the Preparation of Regular Meetings between the Heads of Government and working groups in various areas, establishing a permanent coordination system, supporting the deepening of cooperation between the leading enterprises of the two countries, and creating various favorable conditions for the implementation of joint projects². Based on this, this article proposes a three-tiered implementation mechanism.

The first tier is strategic leadership determined by consensus among heads of state. At this level, key strategic areas of cooperation are defined. All six strategic cooperation projects must be

¹ Xi Jinping. Speech at the Meeting of the Heads of State of China and Russia [EB/OL].(2025-05-08). <http://www.news.cn/20250508/fba4bc596c7b442fa68ef87c6c0ad394/c.html>.

² Joint Communiqué of the 30th Regular Meeting of the Heads of Government of China and Russia [EB/OL].(2025-11-04). https://www.mfa.gov.cn/web/ziliao_674904/1179_674909/202511/t20251104_11746926.shtml.

included in the list of priority projects subject to oversight by the Commission for the Preparation of Regular Meetings between the Heads of Government of Russia and China. This is based on political consensus reached by the leaders of the two countries. Within the established deadlines, special documents such as the Five-Year Roadmap for Cooperation in the Full-Cycle Energy Chain and the Action Plan for Developing Cross-Border Infrastructure Connectivity are expected to be signed. Formal bilateral agreements will serve as the foundation for deepening the cooperation framework, providing political guidance and an institutional framework for project implementation.

The second tier is interdepartmental coordination at the ministerial level, creating specialized platforms for integrated management. Bilateral working groups are established on a sectoral basis to provide specialized coordination: in the energy sector, under the leadership of the relevant energy ministries of the two countries, together with national oil corporations; in the financial sector, under the overall coordination of the central banks of the two countries, together with export credit agencies. The introduction of regular quarterly videoconferences and semi-annual on-site audits will enable prompt resolution of issues related to policy coordination, regulatory compliance, and dispute resolution during project implementation.

The third tier is implementation at the enterprise level, stimulating the activity of market actors. An alliance of key Chinese and Russian enterprises is being shaped. Its initial membership includes 30 leading companies, including PetroChina, Gazprom, the Export-Import Bank of China, VTB, and others. A “green corridor” will be established for major joint projects, with priority treatment in three areas: customs clearance, visa procedures, and lending. This will reduce institutional transaction costs, improve project implementation efficiency, and fully utilize market mechanisms for resource allocation.

(2) High-level coordination issues and related support measures

To improve institutional support, it is now necessary to utilize high-level bilateral communication channels to facilitate practical solutions to key and complex issues. In accordance with the 2030 Cooperation Plan and agreements at the head-of-government level, three key coordination objectives have been identified. First, it is proposed to expedite the Russian side’s environmental assessment of the Power of Siberia 2 gas pipeline project. On the Chinese side, the State Pipeline Company is designated as the sole coordinating entity, ensuring the professionalization and standardization of project collaboration. Second, it is envisaged that the Russian Ministry of Agriculture will approve export permits for five Chinese poultry producers by the end of 2026. Third, it is proposed to sign an Agreement between China and Russia on Ensuring the Safety of Arctic Shipping, which will create a legal basis for the commercial use of the Northern Sea Route.

Furthermore, supporting documents should be prepared to strengthen the information and political foundation for cooperation: a Calculation Table for the Return on Investment in Key Russian-Chinese Energy Cooperation Projects should be developed to quantitatively assess the economic efficiency of projects; a collection of Recent Preferential Policies of Special Economic Zones in the Russian Far East should be prepared as a reference for Chinese investors; and a List of Technical Obstacles to Cross-Border Settlements in National Currencies should be prepared to consistently eliminate technical barriers to financial cooperation. According to the agreements reached at the head-of-government level, the Chinese Ministry of Commerce is tasked with lead-

ing the development of the List of Priority Projects for Chinese-Russian Cooperation and completing its bilateral approval by the next meeting of the heads of government. This will allow for the projects to be organized into clear lists and responsibility for their implementation to be allocated.

III. System for Forecasting and Preventing Cooperation Risks

Economic security is a key pillar of national security. General Secretary Xi Jinping emphasized that, given the growing complexity of the international situation and the escalation of interrelated risks and challenges, it is necessary to simultaneously address two strategic objectives: development and security. Chinese-Russian cross-border economic cooperation is fraught with various risks - geopolitical, market, technological risks, and others. Therefore, developing a comprehensive risk management system is becoming a prerequisite for balanced development and security, and for ensuring the stability and sustainability of cooperation in the long term¹.

First, changes in the international geopolitical landscape may create external obstacles to cross-border joint projects. The joint statement between the leaders of China and Russia, adopted in 2026, stated that both parties will resolutely defend their legitimate rights and interests, oppose any attempts to undermine bilateral cooperation, jointly address external risks and challenges, and ensure the security and resilience of production and supply chains². To this end, the parties should develop mechanisms for pre-screening cooperation participants and technologies, including the creation of a list of cooperation entities. In key projects - in energy, infrastructure, and innovation - priority should be given to proven third-party technologies and cooperation models, which will reduce the risks of geopolitical interference.

Secondly, cyclical fluctuations in commodity prices are common in international markets and directly impact the profitability and stability of joint projects in the energy and agricultural sectors. To minimize these risks, it is proposed to use a combination of long-term contracts and futures hedging to lock in returns, and to explore the possibility of establishing a joint Chinese-Russian stabilization fund to mitigate the impact of sharp fluctuations in commodity prices.

Third, differences in technical standards and certification systems in individual industries between the two countries may lead to increased institutional costs in industrial cooperation. The Joint Communiqué of the 30th Regular Meeting of the Heads of Government of China and Russia emphasizes the need to strengthen cooperation in advanced technologies and standardization, and to promote the alignment and mutual recognition of industry standards between the two countries³. Through joint efforts, it is planned to create a database of mutual recognition of industry standards between China and Russia, primarily ensuring the alignment and mutual recognition of standards in key areas such as oil and gas, electric power, and cross-border railways, which will eliminate technical and regulatory barriers.

¹ Xi Jinping. Speech at the Meeting of the Heads of State of China and Russia [EB/OL].(2025-05-08)[EB/OL].(2025-05-08). <http://www.news.cn/20250508/fba4bc596c7b442fa68ef87c6c0ad394/c.html>.

² People's Republic of China and the Russian Federation. Joint Statement of the People's Republic of China and the Russian Federation on Further Strengthening Comprehensive Strategic Interaction and Deepening Good-Neighborly and Friendly Cooperation Relations [EB/OL].(2026-05-21). https://www.mfa.gov.cn/gjhdq_676201/gj_676203/oz_678770/1206_679110/1207_679122/202605/t20260521_11914932.shtml.

³ Joint Communiqué of the 30th Regular Meeting of the Heads of Government of China and Russia [EB/OL].(2025-11-04). https://www.mfa.gov.cn/web/ziliao_674904/1179_674909/202511/t20251104_11746926.shtml.

IV. Conclusion

Profound practical cooperation between China and Russia in the economic domain is an objective consequence of the internationalization of productive forces, the deepening international division of labor, and the expansion of global market. Drawing on the advantages of complementarity in production factors, the two parties are building a framework for coordinated development in six key areas: energy, logistics, finance, scientific and technological innovation, agriculture, and digital economy. The Joint Statement on the Development Plan for Key Areas of Chinese-Russian Economic Cooperation through 2030 establishes the framework for long-term cooperation, while joint communiqués following regular meetings of the heads of government enable the consistent translation of the agreements reached into specific projects and institutional mechanisms. A three-tiered cooperation mechanism where the heads of state provide strategic guidance, ministers support coordination, and enterprises ensure practical implementation, combined with a specialized risk management system and high-level support measures, creates a solid institutional foundation for sustainable and long-term development of cooperation.

Comprehensively supporting development and security is an important principle of foreign economic cooperation in the new era. Along with deepening practical cooperation, China and Russia are building comprehensive mechanisms to counter geopolitical, market, technological, and other risks, providing economic security at all stages of interaction. This is a concrete embodiment of the principle of “economic security as the foundation of national security.” Unilateralism and protectionism are currently impacting the global economic order. General Secretary Xi Jinping has proposed important concepts for advancing inclusive and universal economic globalization and building a community with a shared future for mankind, which serve as a guide for major power cooperation and global governance. Economic cooperation within the framework of the China-Russia Comprehensive Strategic Partnership of Coordination in the New Era not only helps both countries strengthen the foundations of development and achieve mutual benefit, but also serves as a practical example for improving global economic governance and supporting the coordinated development of emerging economies. Going forward, both parties will remain committed to the fundamental principles of equality, mutual benefit, and shared success, expanding the horizons and deepening the content of cooperation, consistently raising the level of bilateral economic cooperation and jointly contributing to global economic stability and prosperity.

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THE THEORETICAL CORE, LOGICAL EXPLICATION, AND PRACTICAL INNOVATION OF NOONOMY FROM THE PERSPECTIVE OF CHINESE MODERNIZATION

Abstract: The 2026 Government Work Report forward-lookingly proposes to “build a new form of intelligent economy” for the first time, a major strategic proposition that demonstrates profound logical alignment with the theory of noonomy. This theory advocates a paradigm shift from “economic rationality” to “cultural rationality”, aiming to liberate humanity from traditional material production and providing a visionary framework for deconstructing social formations in the post-industrial era. Taking a macro perspective, this paper systematically analyzes the internal logical isomorphism between noonomy and the path of Chinese modernization. The study reveals that China’s holistic innovation-driven strategy, the theory of new quality productive forces, the system of high-level scientific and technological self-reliance, and the people-centered development philosophy resonate deeply with the core tenets of noonomy, including knowledge-led productive forces, the automation of the technosphere, and the cultural shift in needs. China’s scaled and institutionalized practices in areas such as intelligent manufacturing, super digital infrastructure, the allocation of national strategic scientific and technological forces, and the cultural creative economy not only provide an irreplaceable, grand testing ground for noonomy but also, relying on the institutional advantages of the “new whole-nation system,” greatly enrich and transcend its original theoretical presuppositions in the practical dimension. Based on this, the paper systematically proposes practical pathways: constructing an underlying institutional system adaptable to noonomy, strengthening breakthroughs in disruptive technologies, reshaping the human capital landscape of an intelligent society, promoting the intelligent and cultural transformation of social governance, and deepening Sino-Russian theoretical and practical cooperation. This research aims to provide solid academic backing and strategic support for China to lead the new paradigm of global intelligent civilization during the 15th Five-Year Plan period and into the longer-term future.

Keywords: new form of intelligent economy; noonomy; Chinese modernization; new quality productive forces.

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从中国式现代化的视角看智慧型经济的理论核心、逻辑分析和创新实践

摘要: 在中国2026年政府工作报告中, 首次前瞻性地提出了打造智能经济新形态的任务。这一重大战略提议与智慧型经济理论具有深刻的逻辑共鸣。智慧型经济理论主张从“经济理性”向“文化理性”转变, 使人类从物质生产中脱离出来, 这为理解后工业时代的社会形态提供了远景框架。本文从宏观层面系统分析了智慧型经济理论与中国式现代化轨迹之间的内在逻辑同构性。研究表明, 中国的全面创新发展战略、新质生产力理论、实现高水平科技自主的方针以及以人为本的发展理念, 与智慧型经济理论的核心观点, 包括知识生产力、技术圈自主化以及需求结构的文化转变, 深度共鸣。中国在知识生产、全球数字基础设施、国家战略科技力量布局以及文化创意经济等领域的大规模制度化实践, 不仅构成了检验智慧型经济理论不可或缺的实践空间, 而且依托于新的全国性资源动员体系所具备的制度优势, 在实践层面显著丰富并超越了该理论的最初前提。在此基础上, 本文提出了以下行动方向: 建立与智慧型经济相兼容的基础制度体系, 加强突破性技术研究, 重构知识型社会的人力资本结构, 推进社会治理的智能化并提高其文化水准, 以及深化中俄在理论与实践层面的合作。本研究旨在构建坚实的科学和战略基础, 以助力中国在“十五五”期间及更长远未来的发展, 引领世界迈向智慧文明的新格局。

关键词: 智能经济新形态、智慧型经济、中国式现代化、新质生产力。

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I. Introduction

The 2026 Government Report of the People's Republic of China for the first time forward-lookingly articulated the goal of “shaping a new form of intelligent economy,” marking a decisive step for intelligent technologies in reshaping the underlying logic and macrostructure of the Chinese economy. As a next-generation economic paradigm, this new form of intelligent economy relies on artificial intelligence as its primary driver, data as its key enabler, and total intellectualization as its fundamental characteristic. Essentially, it expresses the inevitable transition of the AI+ initiative from localized technological empowerment to a systemic restructuring of ecosystems. Its content encompasses three dimensions: the industrialization of intelligent technologies, the intellectualization of real economy, and the systemic establishment of an intelligent ecosystem. At its core, it entails a comprehensive reconstruction of the processes of production, distribution, exchange, and consumption using artificial intelligence. This strategic approach is consistent with the systemic planning enshrined in the Proposals for the Formulation of the Fifteenth Five-Year Plan for National Economic and Social Development, adopted by the Fourth Plenary Session of the 20th Central Committee of the Communist Party of China, which emphasizes the development of new productive forces and high-level scientific and technological self-sufficiency. The macropolitical trajectory clearly demonstrates that China's development model is undergoing a

profound transition from reliance on factors of production and investment to inclusive, innovative growth. This development logic driven by innovation and high technology is highly consistent at a deep theoretical level with noonomy which is described by advanced economic thought through knowledge dominance and an intellectual driver.

Understanding the distant horizons of a new form of intelligent economy requires a deep analysis of the theoretical core of noonomy [Bodrunov, 2023]. The theory of noonomy, proposed by Russian economist Sergey Bodrunov, provides an insightful analytical framework for understanding how the modern science and technology revolution is reshaping social forms. Today, the sixth technological paradigm based on the convergence of NBIC technologies (nano-, bio-, information, and cognitive) is driving humanity toward a historic transition from traditional industrial civilization to a new intellectual civilization. Noonomy creatively inherits and develops Marx's idea of the transition from the "realm of necessity" to the "realm of freedom," convincingly demonstrating that under conditions of highly intellectualized and automated productive forces, the underlying logic of economic life radically changes: traditional "economic rationality" gives way to "cultural reasonableness," where "reason" (noos) guides and redefines "law" (nomos). In such a system, the accumulation of material wealth ceases to be the ultimate goal, and humans are gradually freed from arduous material labor and transition to activities centered on the creation of knowledge, cultural value, and mental needs. Therefore, noonomy acts not only as a projection of the economic form emerging from highly developed intellectual technologies, but also as a crucial value orientation guiding the movement of the new form of intelligent economy away from dependence on things and toward the comprehensive liberation of man.

Despite the epochal significance of this civilizational shift, academic literature has already accumulated a significant body of work on such subject areas as new quality productive forces and innovative development. However, the profound qualitative connection between the promising theory of noonomy and the establishment of a new form of intelligent economy in the context of Chinese-style modernization has yet to receive systematic theoretical exploration and logical analysis. Existing research has not yet clarified the extent to which the theory of noonomy can accurately explain China's development trajectory, nor has it demonstrated how advanced Chinese practice in creating a new form of intelligent economy tests, enriches, and even surpasses the theory's assumptions at the micro and macro levels. For this reason, an in-depth study of noonomy is of indispensable academic and practical value for accurately assessing and advancing the qualitative development of this new form of knowledge-based (intelligent) economy. This paper, drawing on the broad perspective of Chinese-style modernization, systematically uncovers the theoretical core and operating logic of noonomy, identifying its internal intersections with China's innovation strategy. This fills a theoretical gap and provides a scientific foundation for developing a Chinese strategy for the development of a new, future-oriented intelligent economy.

II. Theoretical Content, Philosophical Foundations, Structural Logic and Mechanism of Functioning of Noonomy

Noonomy as a theoretical framework describing the shape of post-industrial civilization is not limited to adjusting the existing economic model. It is a profound paradigm shift. This concept is rooted in the dialectical inheritance of classical Marxism and in a careful understanding of the trends of contemporary scientific and technological evolution. On this foundation, a new logic of social order is constructed, where knowledge, rather than capital, is the centrepiece.

2.1. Conceptual Definition of Noonomy and its Methodological Framework

The term “noonomy” is formed by combining the Greek words *noos* (“wisdom,” “reason”) and *nomos* (“rule,” “law”) and denotes a new social form where human reason is central. Bodrunov combines these roots to emphasize that he is talking about a mode of social organization based on the “laws of reason” and contrasts it with traditional “economics” which is subordinate to the “laws of environment,” that is, resource scarcity and competition. Consequently, the essence of noonomy consists of a “non-economic method of satisfying reasonable needs.” Its logic is no longer oriented toward maximizing material wealth, but is built on standards of reasonableness established by the progress of knowledge and cultural development. In noonomy, knowledge and creative work are the primary resources; value creation ceases to depend primarily on material consumption and capital investment and increasingly relies on the production and application of new knowledge, and the unlocking of human creative potential. At the center is a non-economic way of production and life, focused on knowledge, creativity, and cultural needs. The theoretical premise is as follows: when a technical system can autonomously perform material production, humans will withdraw from the domain of physical labor and focus their energies on creative and intellectual activity, resulting in the emergence of a new social order shaped around the supply of knowledge and the demand for culture. The theory’s methodological framework is built on research into trends in modern science and technology and the social changes they have engendered. Through an analysis of interrelations between technology, society, and humans, it provides a model and causal chain for the transition to a new social structure.

2.2. Bodrunov’s Theoretical Contribution to Noonomy

Bodrunov’s main contribution to the theory of noonomy can be summarized in three propositions. First, he proposed a normative framework for the transition to a “post-economic” civilization. Bodrunov interprets noonomy as an institutional order where social development is guided by “reason” and “cultural reasonableness.” The economic system ceases to regard profit maximization as the ultimate goal and transitions to a humanistic social order focused on human development, creative self-actualization, and public welfare. Secondly, through the transitional mechanism “NIS.2 → noonomy,” he explains the leap in social form under the influence of technological revolution. Bodrunov describes the structural path from the New Industrial Society of the second generation (NIS.2) [Bodrunov, 2025] to noonomy and demonstrates how the convergence of NBIC(S) technologies through automation, intellectualization, and enhanced knowledge intensity restructures the production system: material production recedes into the background, and human labor shifts from direct manufacturing to goal-setting, creative activity, and social interaction. This mechanism correlates with the logic of technological impact through task substitution and creation: the “substitution effect” due to automation and the “redistribution effect” through the emergence of new tasks jointly determine the historical turning point in the form of labor. Third, Bodrunov links technological cycles and institutional choices with the program of practical transformation. In the theory of noonomy, a technological revolution refers to a long-term structural change, when institutional supply, public investment, and social mechanisms must translate technological dividends into a trajectory of universal development. This is reminiscent of approaches that link technological revolutions, financial structures, and “golden eras” through coordinated governance.

2.3. Philosophical and Civilizational Foundations of Noonomy

The theory of noonomy inherits Marx's reflections on the ultimate goal of social development. In *Capital* and other works, Marx anticipated the point when, with a high level of development of productive forces, humanity would transcend the "realm of necessity" and enter the "realm of freedom," where "the realm of freedom actually begins only where labour which is determined by necessity and mundane considerations ceases." In such a state, human activity itself becomes a goal, not a means of survival. Noonomy offers a contemporary interpretation of this "realm of freedom" and attempts to answer the question of how social structure should be restructured after digital and intellectual technologies completely transform the mode of production and make human liberation a reality. When intelligent technologies provide a colossal abundance of material goods and production with near-zero marginal costs, social relations cease to be built around material appropriation and become oriented toward human development. Furthermore, the theory assimilates the ideas of the noosphere from Teilhard de Chardin and Vladimir Vernadsky. Already in the first half of the 20th century, Vernadsky and his contemporaries believed that human reason was becoming a decisive force reshaping the Earth, and that society was entering the era of the noosphere, where nature is organized by thought. Noonomy develops this line and asserts that human reason must not only transform nature but also direct and control the technosphere created by technology, subordinating it to human cultural and intellectual goals rather than the blind expansion of material growth. Consequently, noonomy is a project for a civilizational form whose inner core is the cultural and intellectual values of humanity, and whose economic development is subordinated to the enrichment and rise of human inner world, rather than the endless race for consumption.

2.4. Technology Driven Transition of Social Form: From the New Industrial Society (NIS.2) to Noonomy

The theory of noonomy views modern society as an intermediate stage in the transition from the New Industrial Society of the Second Generation (NIS.2) to the civilization of reason. NIS.2 denotes a new industrial stage marked by knowledge-intensive production: the production process here relies heavily on scientific knowledge and information technology, and the volume of knowledge contained in a single unit of output increases dramatically. At the NIS.2 stage, knowledge already displaces traditional factors and becomes the primary source of growth, and the role of humans changes: they cease to be an appendage of the machine and become observers and managers of the process. The goal of this stage is the dialectical dismantling of the late-industrial system and post-industrial trends.

However, noonomy goes beyond NIS.2. Its ideal state implies a "dual system": on the one hand, a highly autonomous technical system based on NBICS technologies (nano-, bio-, information, cognitive, and social technologies) assumes the bulk of material production functions; the sixth technological paradigm built on the integration of NBICS has already created sufficient conditions for the transition to intelligently organized production. On the other hand, a "social system" formed by people sets value goals and formulates creative ideas that guide the technical system's operations. As the convergence of NBICS deepens, the autonomy of the technical system within the sixth technological paradigm grows, and production's dependence on direct human labor significantly decreases. Noonomy anticipates a turning point at which knowledge-intensive automated production fully matures, and social form finally shifts from industrial logic to the logic of reason: development is no longer built around material output and shifts its focus to the

generation and supply of knowledge, signifying a radical shift from an industrial civilization to a civilization of reason. The key sign of this transition is the final separation of the technosphere from human society, when the production process reaches a level of automation that requires almost no human intervention. Then, society's primary concern will no longer be the industrial engineering, but the acquisition of absolute, or universal, knowledge, marking the full entry into the era of noonomy.

2.5. Basic Characteristics of Noonomy and the Logic of its Functioning

Noonomy, as a form of future civilization, has features and logic that differ sharply from the traditional economic paradigm:

Firstly, the dematerialization of production occurs. The scale of material production and its relative importance in socio-economic life are declining, while knowledge, information, creativity, and other "intangible products" are gaining a dominant position. Scientific and technological progress makes automated "unmanned production" possible; humans are no longer directly involved in the production of most material goods, and the supply of goods is automatically provided by the technical system at significantly lower costs and resource consumption. As a result, material wealth ceases to be scarce, and economic growth is no longer measured by the volume of material output.

Secondly, labor loses its economic form. After humans exit the domain of direct material production, classical "paid labor" ceases to be the foundation of social order. Labor increasingly takes the form of creative, research, and caring activity, rather than a means of earning a living. The line between work and life is gradually blurring, and "work" is no longer perceived as an obligation imposed by economic necessity, but rather as a free choice for self-actualization. Consequently, traditional production relations based on employment and compensation are weakening, and connections between people are increasingly being built through cooperative communities and innovative networks.

Third, a decapitalization of relationships is taking place. As material scarcity eases, ownership loses its central place in social relations. Resource distribution models based on the principle of "use without owning" are becoming widespread, collaborative consumption and the rental economy are booming, and ownership is becoming separated from the right to use. Wealth ownership ceases to be the primary source of social status, and redistribution mechanisms increasingly focus on shared use and universal access. Economic relations among members of society become less rigid and less defined. At the same time, market competition diminishes, and cooperation and sharing take the place of the new value orientation.

Fourth, human needs acquire a cultural nature. In noonomy, the structure of needs shifts from the material to the cultural. When basic material needs are sufficiently satisfied, the main contradiction becomes the desire for quality of life and intellectual development. Education, art, entertainment, and philosophical inquiry, responding to the needs of intellectual civilization, are becoming the center of economic activity. Consumption is no longer considered the ultimate goal of growth, but rather a means of self-discovery and progress toward the good life. The system of public evaluation is also shifting from narrowly economic indicators to those that take into account cultural level and creative contribution. The Human Development Index, national innovation indices, and cultural development indices are proposed as the primary criteria for social progress, replacing GDP growth rates.

Ultimately, noonomy is disrupting the economic paradigm of the industrial era and rebuilding production relations and the system of social values based on knowledge and wisdom. The logic of its operation is expressed in a dual drive: automated production in the technical system plus cultural goal-setting in the social system. On the one hand, the highly intelligent technical system operates efficiently in the background, continuously producing goods and services that satisfy human needs. On the other hand, human society, through democratic participation and cultural leadership, determines the area and goals of technology application, ensuring that scientific and technological progress contributes to the comprehensive development of humanity rather than becomes a force against it.

III. International Effects of the Theory of Noonomy and its Points of Intersection with China's Development Strategy

3.1. Effect of the Theory of Noonomy

Bodrunov's proposed noonomy is not only a theoretical blueprint for a future social form but is also gradually evolving into an analytical framework linking technological advancement, institutional choice, and the redefinition of development goals. As such, it significantly influences both the international development agenda and the strategic narrative of Chinese-style modernization.

3.1.1. At the international level, the theory advances the research agenda of "technological revolution – civilizational transformation," shifting the discussion from internal debates within economics to the realm of interdisciplinary paradigm shift. Bodrunov defines noonomy as "a non-economic way of production and distribution." The key effect is that digitalization, cognition, and the revision of social value goals are linked into a single framework. From this perspective, technological progress ceases to be treated solely as a problem of productivity and is included in the explanation of the transition of social form, stimulating political economy, science and technology studies, and development studies to engage in a dialogue around the chain of "relative autonomy of the technical system - setting human goals - return of cultural reasonableness." At the same time, the "NIS.2 -> noonomy" stage-by-stage formula establishes a clear logic for the transition from intellectualization and the growth of knowledge-intensity in the industrial system to the institutional reconstruction of society, offering the international academic community a verifiable meso-level narrative and strengthening the practical applicability of noonomy as an integral theory of "technology-institutions-values."

3.1.2. At the theoretical level, noonomy provides a normative guideline for the "guiding management of innovation" and reframes the legitimation logic of industrial policy and technology-driven governance. The most significant impact on international political debate is that the choice of innovation area is no longer viewed as a simple tool for industry competition and is elevated to the level of a choice of civilizational goals. Based on public welfare, comprehensive human development, and social reproducibility, the role of the state in technological diffusion, the provision of public goods, and institutional innovation is being redefined. This approach is consistent with the logic of mission-oriented innovation policy, where governance is built around setting direction and co-creating markets. When a technological revolution enters a phase of high uncertainty, strong externalities, and profound path dependence, policy cannot limit itself to "market repair"; it requires shaping the technological-industrial trajectory through objectives, coordinated investments, and institutional supply. Furthermore, noonomy emphasizes that auto-

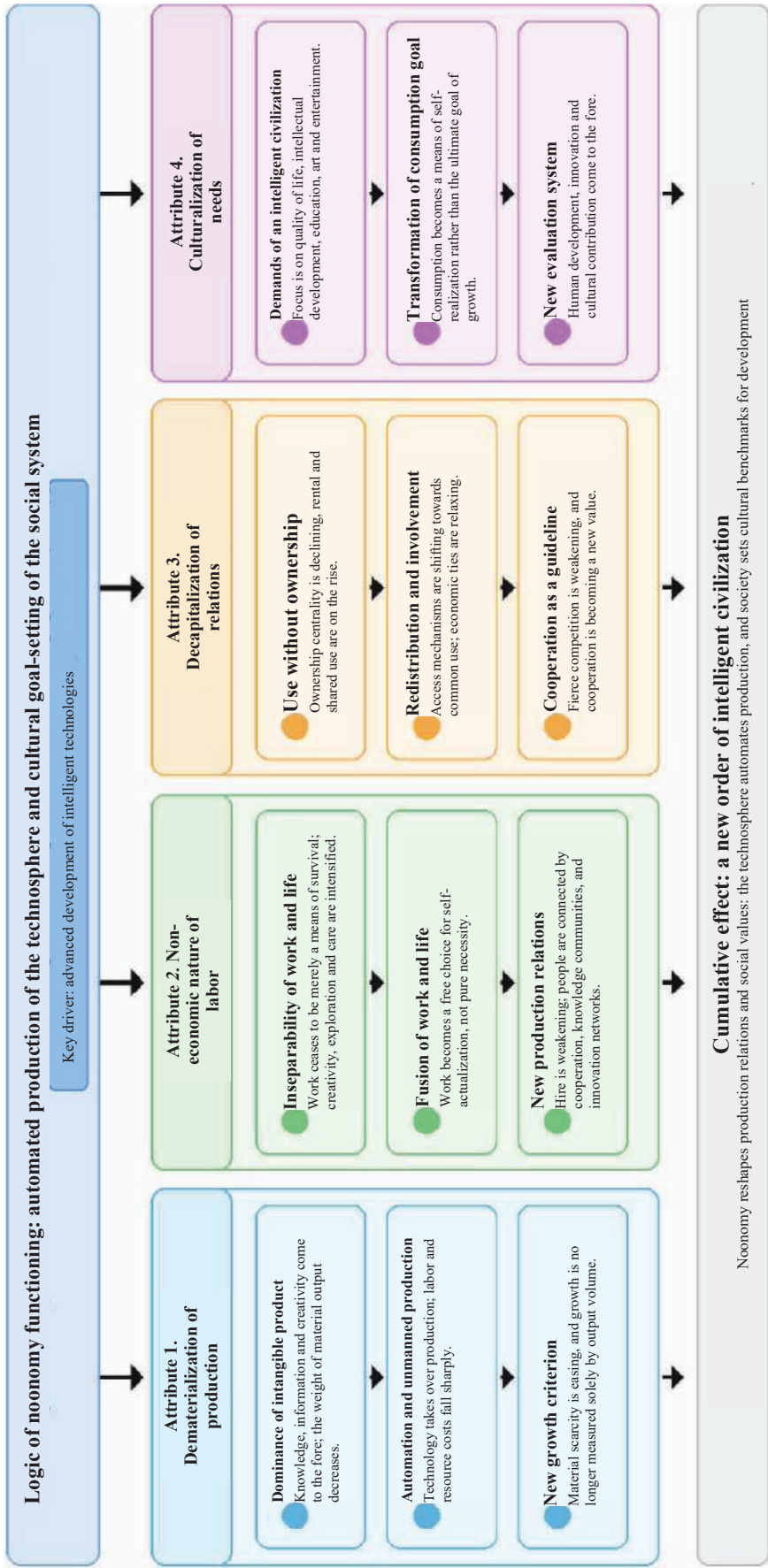


Fig. 1. Basic Characteristics and Logic of Noonomy Functioning

mation and intellectualization fundamentally revise the structure of labor, thus directly resonating with the classic “substitution effect – redistribution effect through new tasks” model and providing a mechanism for discussing how to transform the technological dividend into a social one.

3.1.3. In the Chinese context, noonomy provides a theoretical mirror for the strategic nexus of “innovation driver, new quality productive forces, and scientific and technological self-sufficiency” and, in the face of increasing external constraints, strengthens the integration of discourse. Its impact in the Chinese context is primarily manifested as conceptual isomorphism: propositions on knowledge dominance, intellectual drivers, and a value shift closely align with the Chinese political emphasis of the new stage, which is enhancing attention to scientific and technological self-sufficiency, advanced manufacturing, and strategic new industries. Against the backdrop of tightening external technological constraints, the weight of “technological self-sufficiency” has noticeably increased in China’s political and public discourse, creating fertile ground for the adoption of noonomic propositions such as the autonomy of the technological system, institutional guarantees, and the redefinition of social goals. More importantly, China’s institutional mobilization capacity and its global marketplace constitute an observable “institutional experimentation space” for noonomy: the construction of national strategic scientific and technological forces, coordinated attacks on bottlenecks in production chains, and the public nature of digital infrastructure provide a solid empirical foundation for the discussion of the transition from a normative vision to an achievable trajectory, while simultaneously creating Chinese “mechanistic evidence” for the international dissemination of noonomy.

3.2. Intersection of Noonomy with China’s Development Strategy

In recent years, the Chinese academic and expert community has begun systematically introducing the concept of “noonomy,” incorporating it into the research agenda of Chinese-style modernization and new productive forces through translations, publications, and discussions. The Chongyang Institute for Financial Studies at Renmin University of China, drawing on its capabilities for agenda-setting and international academic communication, has promoted Chinese translations of Russian economist Sergsy Bodrunov’s works titled Noonomy [Bodrunov, 2023] and Strategizing Societal Transformation: Knowledge, Technologies, and Noonomy [Bodrunov, Kvint, 2025] in China. Thanks to this, noonomy has gone beyond mere familiarity with the concept and become a discussed theoretical framework and policy language. This advancement not only increased the term’s visibility within the country but also created an important theoretical foundation for linking it with themes of innovative development, new productive forces, scientific and technological self-sufficiency, and Chinese-style modernization.

3.3. Innovative Development Strategy and the Noonomic Idea of “Knowledge-Dominant Production”

At the core of the theory of noonomy is the assertion of the absolute dominance of knowledge in the system of productive forces. This is fully consistent with Xi Jinping’s thesis that “innovation is the primary driving force of development,” which marked a fundamental shift in the Chinese model from factor-driven growth to growth based on knowledge and innovation. This strategic idea is fundamentally consistent with the noonomic proposition that knowledge determines the consumer characteristics and technical parameters of a product, and that knowledge is the most significant factor in advancing scientific and technological progress. Signifi-

cantly, China has not limited itself to recognizing innovations in the ideological domain, but has created a powerful practical vehicle for its knowledge-dominated productive force through institutional decisions such as “improving the new national resource mobilization system” and strengthening national strategic scientific and technological capabilities. State-owned key laboratories, major scientific and technological infrastructures, high-level research universities, and technological leaders in industry collectively form China’s system of national strategic scientific and technological forces, whose mission is to organize and systematize knowledge creation and breakthroughs in response to national strategic needs. This strategy driven by state will and focused on the primary sources of innovation is the fundamental effort crucial for noonomy to move from theory to reality. From a noonomy perspective, knowledge will become the primary factor of production in the future, and growth will be based on innovation and the dissemination of knowledge. China is moving in this direction: the share of R&D expenditure in GDP has already approached 2.7 percent, exceeding the EU average and approaching the OECD average; the accumulated number of active patents for inventions and the publication of academic papers are leading worldwide. All this demonstrates that China is creating a new engine of development, one in which knowledge-based innovation has a key place, thereby aligning with the noonomic thesis on the critical role of knowledge-based productive force. Furthermore, China is consciously cultivating an innovation culture and improving its innovation ecosystem, encouraging mass entrepreneurship and innovation, and building synergies between human resources, research, and industry, which also aligns with the noonomic imperative to make knowledge the primary driver of economic activity.

3.4. Development of New Quality Productive Forces and Correspondence to the Noonomic “Transition of the Technological System”

The emergence of noonomy is supported by new technological systems and is understood as a key transition from a resource-based economy to a knowledge-based economy. In 2023, Xi Jinping proposed the original concept of “new quality productive forces,” thus signaling a qualitative shift in the development of modern productive forces. New quality productive forces are born from revolutionary technological breakthroughs, innovative configurations of production factors, and profound industrial modernization. They are distinguished by their innovative nature, their key characteristic is high quality, and their essence is equivalent to advanced productive force. This understanding closely corresponds to the noonomic description of the transition from traditional industrial society to the New Industrial Society of the second-generation (NIS.2). At the center of NIS.2 is knowledge-intensive material production where the information component is growing, the share of the material component is declining, and the production process is becoming more flexible and intelligent. At the same time, proposals for the Fifteenth Five-Year Plan call for “developing new quality productive forces” and “continuously generating new quality productive forces,” thereby elevating them to an even more prominent strategic position. Essentially, we are talking about a new generation of technological systems centered on digital and green technologies. Today, China is intensively promoting the development of cutting-edge technologies, including artificial intelligence, quantum information, the Internet of Things, and biotechnology. It is implementing a “new infrastructure” program and is building 5G networks, industrial internet, data centers, and artificial intelligence platforms on a large scale. All of this directly aligns with the noonomic proposition that the

convergence of NBIC(S) technologies serves as the driving force behind the transformation of social form. Noonomy specifically emphasizes that it is NBIC(S) convergence that triggers a shift in the production paradigm. China's technological leapfrogging practices are at the forefront of the world in many ways: by the end of 2025, the country had built over 1.15 million 5G base stations, exceeding 70 percent of the global total and forming the largest and most technologically advanced independent 5G network; the BeiDou satellite navigation system has been fully operational, creating an autonomous spatial information technology system; and projects such as Eastern Data, Western Computing have been launched to optimize the nationwide distribution of computing and information resources. These measures lay the foundation for the technological transition and allow China to enter the NIS.2 stage of the new industrial society, where knowledge-intensiveness and intelligent drivers dominate, ahead of other countries. In this vein, new quality productive forces serve as a precise Chinese definition of the form of productive forces at the NIS.2 stage and as a practical benchmark. Vigorous development of strategic new industries and industries of the future aims to build a technosphere infrastructure that supports the next-generation social form and creates a solid material and technical foundation for a more advanced transition to noonomy.

3.5. Creating an Independent Innovation System and Aligning it with the Noonomic Emphasis on "Technological Self-Sufficiency"

The theory of noonomy suggests that as technology develops, a relatively autonomous technosphere will emerge, capable of operating in a self-sufficient mode, while human society will withdraw from direct production and assume the role of observer and manager. The relative autonomy of such a technosphere requires that its core technologies and key systems be independent and manageable. This thesis is entirely consistent with China's strategy of high-level scientific and technological self-sufficiency. In this regard, China's construction of a system of independent innovation is entirely consistent with the idea of noonomy. Faced with international technological blockades and supply chain security challenges, China is consistently pursuing independent innovation, implementing breakthrough projects in key technologies such as advanced chips, industrial software, aircraft engines, and new materials. Xi Jinping has repeatedly emphasized that critical technologies are a powerful tool of the state and must be strongly controlled by the country: "Key core technologies cannot be begged for, bought, or given as a gift"; "In innovation, one should not question the origin; the main thing is contribution to the country." Noonomy demands that crucial technologies be under independent national control and serve the well-being of the people, without placing the country in a dependent position. Today, China has fully mastered 5G, high-speed rail, nuclear energy, and space technologies; landmark achievements, such as the Tianwen Mars mission and the Jiuzhang quantum computer prototype, are continually emerging. Efforts to complement, strengthen, and extend value chains in key areas - from advanced chips and operating systems to industrial software and bio-breeding - objectively create the foundation for the establishment of an independent, comprehensive, and sustainable "Chinese technosphere." All this represents China's determination and tangible achievements in building an autonomous and controlled innovation system and largely aligns with the noonomic requirement of "technological self-sufficiency." As further breakthroughs are made in bottlenecks, China's system of independent innovation will provide noonomy with a powerful and independent technological underpinning.

3.6. Building Digital China and its Correspondence to Noonomic “Cognitive Production”

In noonomy, the production mode is described as “cognitive production” where automated production and intelligent decision-making are enabled by systems based on artificial intelligence and big data. The Digital China and intelligent society projects being promoted in China are an essential practice in moving toward this type of production. On the one hand, the country has already created the world’s largest digital infrastructure which is technologically advanced: 5G networks, data centers, and computing networks serve as the physical medium for generating, transferring, and processing massive amounts of data. During the Fourteenth Five-Year Plan, the scale and quality of cyberspace industries continued to grow, and the added value of core digital industries in GDP increased from 7.8 to 10.4 percent. In 2024, China’s total data output increased by 25 percent year-on-year, and the number of 5G base stations reached 4.251 million. The country is intensively leveraging big data and cloud computing to strengthen governance; digital government and smart cities are being developed nationwide, with scenarios such as urban think tanks, autonomous driving, and intelligent medicine gradually being implemented. These facts demonstrate that China has already made significant progress in the cognitiveization of production and governance and is moving along a path that is highly consistent with the vision of noonomy. At the same time, China is extensively exploring reforms to the market allocation of data factors, establishing data as a new factor of production alongside land, labor, capital, and technology, and building institutions for data ownership, circulation, trade, and security. These practices are fully consistent with the noonomic understanding of the central role of information and cognitive technologies in future production and represent a major social experiment in transforming “knowledge management” into a real productive force.

3.7. Value Orientation of Chinese-Style Modernization and its Consonance with Noonomic “Cultural Reasonableness”

Noonomy strives for cultural reasonableness that transcends materialism, focuses on the all-round development of the individual and the common good, and emphasizes the need to “abandon social distinctions related to wealth and channel competition into the realm of intellectual development and self-improvement” to ultimately ensure comprehensive human development. This value system directly aligns with the orientation of Chinese-style modernization. Chinese modernization is defined as a modernization of shared prosperity for all people, a modernization of the coordinated development of material and intellectual civilization, and a modernization of the harmonious coexistence of man and nature. In all these wordings, utilitarianism focused solely on GDP is overcome, and cultural reasonableness is clearly evident. At its core, this approach transcends the Western capital-centered model of modernization and establishes human-centered development as its foundation. Both the policy of shared prosperity, aimed at reducing disparities between city and countryside, regions and income groups, and the development of an advanced socialist culture to meet the growing intellectual and cultural needs of the people, and the integration of ecological civilization into the entire process of socioeconomic development, testify to the overcoming of a narrow focus on economic growth. Noonomy, in turn, calls for the goal of satisfying “growth needs,” including individual development, cultural creativity, and social care. This value aspiration centered on human well-being, social justice, and the longevity of civilization is intrinsically consonant with noonomic “non-economic” goals and “cultural reasonableness,” and together point to a more human-centered and harmonious form of future society.

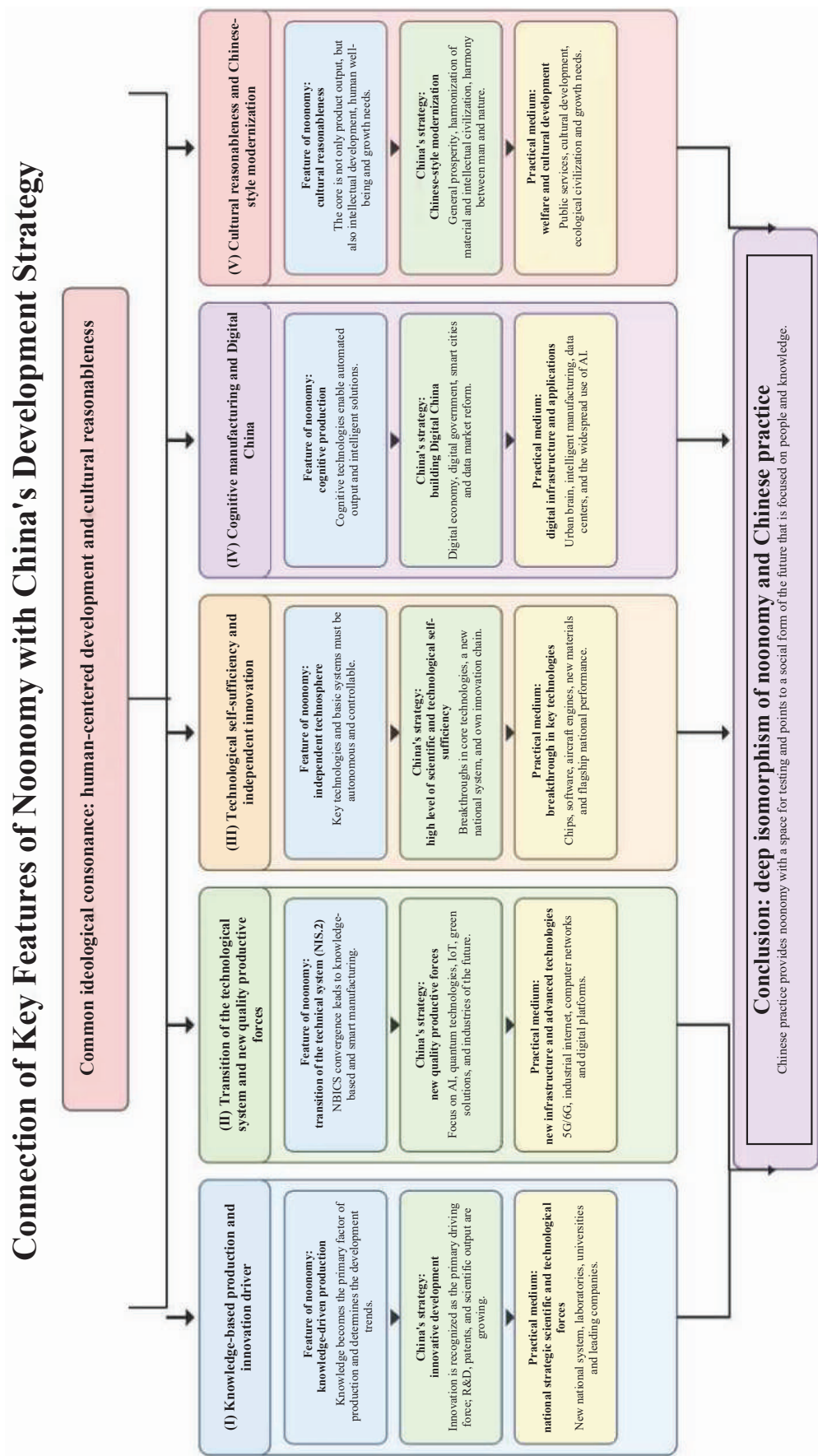


Fig. 2. Relationship between Noonomy and China's Development Strategy

IV. How Chinese Practical Innovations Enrich and Transcend the Theory of Noonomy

China is not only a “verifier” of noonomy, but also a participant in its further theoretical evolution.

4.1. Chinese Way of Smart Manufacturing: A Large-Scale Practice Going Beyond Industry 4.0

The theory of noonomy predicts that at the NIS.2 stage, production will shift toward knowledge-intensiveness, and humans will transform from machine appendages into process supervisors. China’s practice of smart manufacturing, with its astonishing scale and pace, has transformed this theoretical assumption into a major reality. By 2024, the penetration rate of digital R&D and design tools among industrial enterprises above the established scale reached 84.1 percent, and the numerical control rate for key production operations reached 66.4 percent. This is no longer a matter of localized automation of individual enterprises, but rather a holistic advancement of the entire industrial system. From “unmanned factories” and “dark factories” to flexible manufacturing and digital twins, technologies once considered cutting-edge concepts have been widely adopted in China based on a vast manufacturing system. Unlike developed Western countries, where isolated demonstration projects often predominate, China’s smart manufacturing approach is marked by its reliance on a national system and mass replication. In the area of industrial robotics, during the Fourteenth Five-Year Plan period, China supported 46 cities in pilot projects for new technological transformation, built over 230 high-end smart factories and 1,260 5G factories, and the share of new industrial robot installations exceeded 50 percent of the global total, exceeding the combined total of the United States and Europe. The widespread adoption of robots has dramatically reduced the number of workers on assembly lines, and direct labor costs at many enterprises have been reduced by more than half over the past ten years. This large-scale and systemic practice of smart manufacturing is already moving beyond the initial Industry 4.0 model, accelerating technological iteration and cost reduction, and also preliminarily identifying the contours of a production system where dependence on labor is reduced in a noonomic sense. The Chinese experience demonstrates that in the global economy, strategically directed state-led industrial intellectualization can create a unique systemic advantage that goes beyond the German Industry 4.0 model.

4.2. Building a Global Digital Infrastructure as a Foundation for Noonomy

Establishment of noonomy is only possible with a robust information infrastructure and massive data resources. The global digital infrastructure that China has been purposefully building in recent years is already at the forefront of the world and creates a head start for the future knowledge economy. First, in the communications network sector, China has built the world’s largest fiber-optic and mobile networks, with the number of 5G mobile users exceeding 1.1 billion and 230 million households enjoying fixed broadband access with speeds of 1 Gbps or higher. High-speed and ubiquitous connectivity forms the digital backbone for the intelligent transformation of all industries. Secondly, in the area of spatial information and navigation, China’s BeiDou satellite system is operational globally. Construction of a high-precision Earth observation system has essentially been completed, and autonomous satellite communications capabilities have been significantly enhanced. This is creating an independent and controllable spatiotemporal information foundation for the era of knowledge economy. Third, in the area of computing and data infrastructure, China has launched the Eastern Data, Western Computing program, building national data center clusters in the West and locating supercomputer and cloud centers in the

East, resulting in the creation of an integrated all-China computing network. Its function is comparable to that of a “digital highway” and “central processor” for the society of the future. This state-organized and massively scaled digital public infrastructure exceeds the capabilities of any single market actor in terms of scope and depth. It not only supports the current development of the digital economy but also creates the physical and logical preconditions for cognitive production and the autonomous functioning of the technosphere in noonomy. Here, China’s practice provides a significant complement to theory. As these infrastructures continue to improve, China may be the first to acquire the “neural network” and “digital ground” sufficient to support a knowledge-based economy, thereby acquiring a key prerequisite for its early implementation.

4.3. Sharing Economy and Platform Innovation: A Physical Form of the Noonomic Principle of “Use Over Ownership”

The features of noonomy, which weaken physical ownership and emphasize sharing and co-operation, have been clearly evident in the rapid development of China’s sharing economy. Over the past decade, China has become the world’s largest sharing economy market. From bike- and car-sharing to office space and manufacturing equipment, China is at the forefront of both scale and model innovation. This economic model where the right of use displaces ownership dramatically improves the efficiency of resource allocation, lowers the barrier to participation for individuals, and effectively erodes traditional notions of ownership. Chinese consumers have embraced the “use without owning” model en masse and developed corresponding consumption habits. According to the source, the volume of transactions in the Chinese sharing market reached RMB 4.46 trillion in 2024, is expected to exceed RMB 5 trillion in 2025, and could reach RMB 8.5 trillion by 2030, with a compound annual growth rate of over 10 percent. For example, the proliferation of bike sharing has transformed the way hundreds of millions of people travel, allowing them to ride without owning a bike; online car-hailing platforms have dramatically increased the utilization rate of private cars, making owning a car no longer a prerequisite for mobility; and new formats such as co-working spaces and power bank rentals continue to emerge, maximizing resource utilization. At its core, the sharing economy, through modern information platforms, quickly matches unused resources with demand, enabling demand-based allocation and cyclical use. This process is entirely consistent with the noonomic trend of diffusion of ownership, where the desire to appropriate property weakens and attention to consumer value increases. At the same time, the development of digital platforms is giving rise to a multitude of cooperative innovation models - from open-source communities and crowdsourced design to public crowdfunding, which is experiencing rapid growth in the Chinese internet ecosystem and represents the shift in economic relations from competition to cooperation. The rise of platform economy powered by algorithms and data enables precise and efficient matching of supply and demand and shortens the chain between producer and consumer, which is highly consistent with the noonomic notion of directly linking the customer’s needs with the producer’s product or service.

4.4. System of National Strategic Scientific and Technological Forces: Institutional Transcendence of the Theory of Noonomy

Noonomy emphasizes the leading role of reason and primarily describes the society of the future from a technological and value perspective. However, it does not provide a clear national path for how to organize and effectively produce and apply this “reasonableness,” especially in

an environment of fierce international competition. China's "new national resource mobilization system" and the system of national strategic scientific and technological forces provide a powerful institutional response. This system combines the political advantage of concentrating efforts on major tasks with the fundamental role of the market in the efficient allocation of resources, creating a unique model of innovation governance. Like the American "deep developmental state," it is capable of channeling breakthrough innovations through defense, energy, and other channels, while simultaneously leveraging the advantages of the socialist system for systemic national planning and resource coordination, focusing efforts on overcoming technological bottlenecks. From manned spaceflight and Beidou navigation to the C919 passenger aircraft, a series of major scientific and technological achievements clearly demonstrate the effectiveness of this system. In other words, the Chinese institution of national science and technology offers a much more realistic path to the implementation of the noonomic vision: through government action, social conditions favorable to the emergence of a knowledge economy are created, and issues that the market cannot resolve spontaneously are integrated into strategic planning and public policy, thereby dramatically reducing the risks and costs of transition. This advanced practical dimension serves as a significant complement to and expansion of the theory of noonomy.

4.5. Rise of Cultural Consumption and the Creative Economy: Early Signs of Key Features of Noonomy

The ultimate form of noonomy envisions humanity liberated from the pressures of material production and focusing its energies on science, culture, art, and other creative endeavors. In modern China, this trend is represented by rapid growth of cultural consumption and creative industries. In the first three quarters of 2025, the country's residents' expenditure on education, culture, and entertainment reached RMB 2,531 per capita, an increase of 10.3 percent year-on-year, and its share of per capita consumer expenditure was 11.7 percent. The digital content industry has demonstrated even more explosive growth: by the end of 2024, the audience of Chinese online literature reached 575 million people, the number of authors exceeded 30 million, the total number of works exceeded 41.65 million, and 2 million new works were added during the year. In 2025, the actual sales revenue of Chinese independently developed games in overseas markets amounted to US\$ 20.455 billion, an increase of 10.23 percent, and exceeded the RMB 100 billion mark for the sixth consecutive year. All these phenomena indicate that Chinese society is shifting from material consumption to cultural consumption, and the aesthetic, creative, and intellectual needs of the masses are becoming a significant source of economic activity. The growth of creative economy is generating a large amount of "creative labor": for example, over 10 million content creators are active on major online platforms, unlocking their potential and generating income through short videos, streaming, and literary creation. The number of people employed in the cultural and creative industries is rapidly growing and already exceeds 10 percent of employment in a number of large cities. All these trends align well with the noonomic vision of a society where creative labor is the centerpiece.

V. Designing a Chinese Trajectory toward Noonomy

Looking ahead to the Fifteenth Five-Year Plan and beyond, China must intensively integrate noonomy into high-level national strategic planning and systematically build institutions, technologies, and a human capital system that will support the next-generation civilization and enable the country to lead the global transition to intelligent civilization.

5.1. Development of an Institutional System Supporting Noonomy

China should proactively develop a national roadmap for the development of noonomy and incorporate it into its medium- and long-term strategic planning. First, the nationwide strategic planning system must be improved. It would be appropriate to enshrine noonomy as a strategic vision for the country's long-term development, define a clear roadmap and milestones, integrate its fundamental ideas into the Fifteenth and subsequent Five-Year Plans, and align policies in science and technology, industry, education, and culture. Secondly, it is necessary to accelerate the creation of new factor markets consistent with noonomy. This is not just about improving technology and labor markets, but, above all, about building a data market, a market for algorithms, and a system of public computing services. We must accelerate the establishment of basic institutions for data ownership, circulation, income distribution, and secure governance, so that the main factor of production - data - can safely and efficiently circulate and distribute, institutionally supporting "cognitive production." Third, it is necessary to deepen the reform of the science and technology governance system. This requires "eliminating all ideological and institutional barriers that hinder innovative development," improving the trust-based management system for research funding, building a multi-element assessment based on innovative value, potential, and contribution, and granting researchers greater autonomy, thereby creating a free and inclusive environment for original, basic innovation. Fourth, the creation of a market for algorithms and computing power should be explored. The government can act as a facilitator, encouraging companies and research organizations to publish "open lists" of algorithms and create mechanisms for their shared use and trading. At the same time, the opening of national computing infrastructure to the public should be accelerated, and rules for the distribution and paid use of computing resources on demand should be developed, preventing monopolization and waste. Additionally, the legal framework for data and privacy protection must be improved.

5.2. Strengthening Fundamental Research and Breakthroughs in Disruptive Technologies

China needs to pursue a more forward-looking science and technology strategy and increase investment in basic research and disruptive innovation. First, it should implement a national next-generation technology strategy and support long-term and sustainable investment in NBICS convergence. In areas such as quantum information, neuromorphic intelligence, synthetic biology, and future energy, which are capable of generating paradigm shifts, a series of strategic and reserve research projects must be launched in advance. Secondly, a "system for the preliminary development of future technologies" must be established. It would be useful to borrow from the experience of organizations like DARPA and create specialized institutes that will proactively assess and deploy breakthrough technologies that could have a decisive impact in 10-20 years, supporting risky and unorthodox exploratory research and helping to take a proactive position in the future technology race. Third, we need to strengthen the capacity of national strategic scientific and technological forces for collaborative breakthroughs. Relying on state laboratories as a core, we must combine the strengths of universities, research institutes, and leading companies, creating interdisciplinary and cross-industry innovation alliances aimed at overcoming bottlenecks and developing the industries of the future, in order to navigate the path from fundamental science to industrial application across the "valley of death."

5.3. Building a Human Capital System for a Knowledge Society

To transform China's human resource advantage into a knowledge-based economy, a profound transformation of education and training is required. First, comprehensive reform of the education system must be advanced and a new approach to education - one that emphasizes interdisciplinary learning, creativity, and intellectualism - must be established. Traditional disciplinary barriers should be broken down, interdisciplinary approaches actively developed, and research-based and project-based learning encouraged. Artificial intelligence and data science should become the core of general education, developing students' ability to collaborate innovatively with intelligent technologies. Secondly, a future-oriented system for training creative and managerial personnel must be developed. On the one hand, we must accelerate the training of researchers essential for national innovative development, creating a group of strategic scientists and outstanding innovators capable of achieving leading scientific positions globally. On the other hand, we must cultivate a large group of comprehensive technology management professionals with an understanding of technology, law, ethics, and society to address the complex challenges arising from artificial intelligence, genome editing, and other emerging technologies. Third, it is necessary to create a public system to support lifelong learning and universal creativity. Digital technologies should be used to build open and flexible lifelong learning platforms that provide all members of society with the opportunity to regularly update their knowledge and skills. At the same time, policy measures and platform support should encourage public participation in content creation, open-source communities, and social innovation, making creativity a universally accessible way of life. Fourth, it would be useful to implement dedicated programs to support creative talent, identifying and funding young people with outstanding potential in artistic design, cultural creativity, and fundamental science, providing them with long-term support and space for free exploration and bold innovation.

5.4. Promoting the Intellectualization and Culturalization of Public Governance

The transition must be advanced simultaneously in two areas: intellectualization and culturalization. First, we must vigorously develop intelligent governance. We must accelerate the construction of smart cities and intelligent public services, leveraging the Internet of Things, big data, and artificial intelligence to improve the efficiency and human-centeredness of city administration, transportation, healthcare, and education. Public administration must move from experience to data, achieving greater accuracy and scientific validity. For example, through the shared use of government data and algorithmic analysis, it is possible to promptly detect changes in public needs and adjust policies; decision support systems based on artificial intelligence can strengthen the ability to respond to complex public safety and public health issues. Secondly, the idea of "cultural management" should be disseminated. In the social sector, greater reliance should be placed on cultural area, value consensus, and dialogue mechanisms, gradually replacing rigid and directive methods. When setting management goals, it is necessary to move away from an excessive focus on economic performance and to take greater account of the comprehensive development of the individual and the quality of intellectual life. Community self-governance, the participation of public organizations, and civic volunteerism should be encouraged to build a multi-actor cooperative governance structure. The ultimate goal is to move from mere "control" to "smart ordering," whereby the very efforts of society become a process of embodying cultural reasonableness and collective wisdom.

5.5. Intensification of Chinese-Russian Cooperation in the Theory and Practice of Noonomy

Russia has accumulated extensive experience in researching the knowledge economy, and China serves as a practical testing ground for the future intelligent civilization. Therefore, the two countries have broad prospects for cooperation in this area. First, we need to strengthen joint theoretical research. Through joint projects and conferences, Chinese and Russian scholars can engage in an in-depth dialogue on the theoretical model of noonomy, its implementation paths, and its social implications. The combination of China's experience accumulating data from social experiments and the Russian philosophical tradition could lead to the development of a more mature economic theory. Secondly, a Chinese-Russian cooperation platform should be established on issues related to the civilization of the future. An initiative could be put forward to establish a Chinese-Russian Research Center for the Development of Intelligent Civilization, regularly publishing analytical reports on the intellectual economy, and providing expert support to the governments of both countries. As part of scientific and technological cooperation within the Belt and Road Initiative, it would be useful to expand the range of topics related to noonomy and jointly discuss technological governance, digital sovereignty, and cultural diversity. Third, it's worth promoting pilot projects for practical cooperation. China and Russia could select suitable industrial parks or cities and launch joint experiments, such as establishing a Chinese-Russian digital industry demonstration database or a joint smart manufacturing factory, pooling their capital and technological advantages and testing real-world noonomy scenarios. The two countries could also advance discussions on intelligent civilization within the UN, BRICS, and other multilateral forums, jointly addressing global issues such as AI governance and the digital divide, and giving new meaning to the concept of a community with a shared future for mankind.

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OUT-OF-CONTROL ARTIFICIAL INTELLIGENCE COULD BECOME THE PERFECT WEAPON AGAINST HUMANITY¹

I would like to express my sincere gratitude to the hosts of this strategic dialogue. I would also like to especially thank my good friend Professor Wang Wen for inviting me and a team of Russian experts to participate in this meeting. On behalf of the Free Economic Society of Russia, with its 260-year history, I extend my sincere greetings to everyone.

Our Society has long been studying social development processes, so the current meeting dedicated to technology and global modernization is largely in line with our work. As an opening address, I would like to give a kind of transitional presentation linking the topics already discussed and those that follow.

Having listened to the insightful presentations by participants in the first session on global development, I believe it is necessary to focus on the global initiatives proposed by President Xi Jinping, which have already been mentioned several times today. This raises the question: why now, specifically? Is the launch of such an initiative today a coincidence or a historical necessity? Could we have proposed a similar initiative several decades or even thirty years ago?

My conclusion is that now is the right time. **Our level of technology development has reached a critical point: unless this technological power is properly managed, properly directed, and regulated, it will inevitably create enormous potential risks for global development.** This is the first point of my report.

We speak of global development because knowledge, technology, and science impact not only the economy but also profoundly affect society, culture, and many other aspects of life. Perhaps one of the most important questions of our time is how to ensure the correct line of global development in a goal-oriented, focused, and manageable manner. In this regard, the previously well-known sustainable development initiative comes to mind; unfortunately, its practical implementation leaves much to be desired.

We must acknowledge that, from a development perspective, today's world is unstable. I agree with the previous speaker that a **multipolar world is a prerequisite for achieving our goals.** This is the second point, and I believe it is crucial. This isn't just about multipolarity of political or economic centers, but also about cultural diversity, scientific pluralism, and the multipolarity of science and technology centers. This is a complex transition process.

Here, I would like to particularly emphasize the connection between modernization and sustainable development. My third point is that **sustainable development is impossible without modernization is beyond doubt.** But modernization is not limited to the modernization of science and technology; it must be comprehensive and systemic.

Today, Zhang Donggang, a leading Chinese scholar and secretary of the Party Committee of Renmin University of China, raised a very important issue and I fully agree with it. My fourth point:

¹ Report at the Mingde Strategic Dialogue (October 2025, Beijing). Source: Renmin University of China publication / reprinted by AI中国网 on November 3, 2025

The line of development should not be limited to economic needs alone; it must also encompass intellectual and moral development, especially the development of human dignity. President Xi Jinping has paid attention to this concept. Our research is also focused on this area.

In the context of intensive development of science, knowledge, technology, and production, we need to recognize the importance of “second-order knowledge” – social knowledge. Many speak of the convergence of NBIC technologies: nanotechnology, biotechnology, information technology, and cognitive science. These new technological solutions are primarily based on cognitive technologies and artificial intelligence. This leads to my fifth point: **artificial intelligence is a vital tool for comprehensive human development and the advancement of social progress – it is intended not to replace humans, but to serve as a powerful auxiliary tool.**

Finally, speaking about the specific impact of scientific and technological development, I would particularly highlight the data presented today, which supports my sixth point: **China devotes 2.6% of its GDP to research and development, while the US spends 5%. However, the effectiveness of research and development transfer and implementation in China is significantly higher than in the US.** This is an undisputed fact; at least in terms of the number of patents issued over the past decade, China has significantly outpaced other countries. In Russia, by contrast, R&D spending is less than 1% of GDP. My seventh point is that this is a serious **concern, as private capital is not showing sufficient interest in R&D, making the task extremely difficult.**

However, I would like to draw attention not only to the volume of investment in research and development, but also to the speed of R&D progress and the new structure of research activities. In recent years, we have seen a steady trend toward the widespread promotion of artificial intelligence in various areas, including social development.

In conclusion, I would like to present the following findings.

The advantages of artificial intelligence have already been discussed in detail, so I will not dwell on them separately. I would like to highlight only two key interrelated issues.

First, the content of the materials used by artificial intelligence is crucial. We need to establish a set of standards for managing its databases and information flows, including for their content. This requires global decisions and joint efforts to develop new, reasonable principles – principles of humanity and responsibility. We must stay vigilant: if artificial intelligence gets out of control, it could become a tool against humanity, more dangerous than any weapon.

Secondly, when we talk about technology, we must keep in mind that artificial intelligence, like other technologies, is generating enormous interest among large corporations and economic institutions. However, recent data shows that the AI-related stock market bubble is already dozens of times larger than the dot-com bubble of previous years. In the light of the lessons of history, we must consider the role of governance, including at the global civilizational level, and **carefully assess the long-term consequences of the spread of AI.**

Thank you all!

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ARTIFICIAL INTELLIGENCE AND THE NOOTRANSITION: BETWEEN DIGITAL CAPITAL AND PUBLIC KNOWLEDGE¹

Abstract: The article examines the transformation of the role of artificial intelligence (AI) amid the systemic crisis of the neoliberal paradigm and the transition toward a qualitatively different model of civilizational development. AI is analyzed from a dual perspective: as an instrument for strengthening market domination, concentrating data, exercising algorithmic control over labor, and managing information flows; and as a potential infrastructure of public knowledge capable of supporting the movement toward a society organized around the priority of knowledge over capital, creative labor over alienated routine, and reasonable needs over consumer expansion. The study reveals the cyclical nature of technological enthusiasm by tracing historical continuity between the “railway mania” of Victorian Britain, the speculative dot-com boom at the turn of the millennium, and the current wave of investment euphoria in the AI segment. Each cycle demonstrates how the pursuit of super-profits stimulates technological breakthrough, while simultaneously generating financial bubbles, infrastructural disproportions, and a gap between expected capitalization and real productive effects. In many respects, it is precisely this “thirst” for super-profits that leads to systemic imbalances.

The destructive effects of digital capitalism are subjected to critical analysis. The deprofessionalization of specialists, the erosion of labor subjectivity, and the transformation of personal data into a means of commercial and social control indicate the danger of substituting genuine innovation with an imitation of efficiency, accompanied by the actual degradation of the creative meanings of human activity. Narrative modeling, behavioral analytics, and the quantification of information capital reveal the methods through which public opinion can be purposefully shaped: data become a form of power, while information flows become an instrument of influence.

Overcoming the destructive orientation of digital capitalism requires a revision of the target priorities of development. As an alternative, the article substantiates the concept of an intelligence-oriented economy as a transitional state on the trajectory toward noonomy. It argues for the need to shift economic relations away from capital accumulation and profit maximization toward the reproduction of public knowledge, the expansion of intellectual potential, and the liberation of the creative capacities of the individual. In this context, knowledge acts as a jointly used resource of social progress, while its private appropriation is interpreted as a constraint on creative and productive returns.

The realization of this orientation and the nootransition itself are revealed through the strengthening of national scientific and engineering schools, the increase in the knowledge intensity of

¹ The article is based on a report presented by N. Dmitriev at international events in Beijing (PRC) on 17–19 October 2025: Tongzhou Global Development Forum, Mingde Strategic Dialogue – 2025, and the 14th Meeting of the China-Russia Economic Dialogue. The author participated as a member of the Russian delegation led by Doctor of Economics, Director of the S. Y. Witte Institute of Noonomy and New Industrial Development, President of the Free Economic Society of Russia, Corresponding Member of the Russian Academy of Sciences, Professor Sergey Bodrunov.

production, the formation of socially significant computing infrastructure, and the creation of distributed environments for collective cognition. Movement along this path is impossible without ethical norms for working with data and stable barriers against the manipulative use of intelligent technologies – barriers that ensure the autonomy of thinking, the intellectual security of society, and the preservation of the human being as a subject of goal-setting.

Keywords: artificial intelligence, nootransition, noonomy, intelligence-oriented economy, digital capital, social progress, public knowledge, knowledge intensity, information flows, scientific and engineering schools, algorithmic control, intellectual potential.

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人工智能与智慧型转型:在数字资本与社会知识之间

摘要: 本文探讨了在新自由主义范式面临系统性危机以及向本质上不同的另一种文明发展模式转型的背景下, 人工智能 (AI) 角色的转变。本文从双重视角对人工智能进行了分析: 一方面, 它作为强化市场霸权、数据集中化、用算法控制劳动以及管理信息流的工具; 另一方面, 它被视为一种潜在的社会知识基础设施, 能够推动向新型社会转型——以知识优先于资本、创造性劳动优先于枯燥的重复劳动、理性需求优先于消费扩张为核心的社会。

该研究揭示了技术热潮的周期性特征, 追溯了维多利亚时代英国的“铁路热潮”、千禧年之交的投机性“互联网泡沫”以及当今人工智能领域投资狂热浪潮之间的历史延续性。每个周期都表明, 对超额利润的追求虽然能刺激技术突破, 但同时也催生了金融泡沫、基础设施失衡, 以及预期市值与实际生产效益之间的差距。在很大程度上, 正是这种对超额利润的“渴求”导致了系统性失衡。

数字资本主义的破坏性影响正受到批判性审视。专业人员的去专业化、劳动主体性的蜕变、个人数据被转化为商业和社会控制的手段, 这些现象都表明, 在活动的创造性意义实际退化的情况下, 真正的创新正面临被效率虚拟所取代的危险。叙事建模、行为分析以及信息资本量化, 揭示了有针对性地塑造公众舆论的方式: 数据转化为一种权力形式, 而信息流则成为一种影响力手段。

要克服数字资本主义的破坏性倾向, 就需要重新审视发展目标。作为一种替代方案, 以知识为导向的经济被论证为迈向智慧型经济发展道路的过渡阶段。本文论证了经济关系必须从资本积累和利润最大化转向社会知识再生产、智力潜能提升以及个人创造力解放。在此, 知识被视为社会进步的共享资源, 而对其私有化则被视为对创造力和生产效率的阻碍。

转到这一发展方向以及智慧型转型本身, 需要通过加强国家科学技术人才培养、提高生产的知识密集度、构建具有社会意义的数字基础设施以及创建广泛的协作认知环境来实现。若缺乏数据处理的伦理规范, 以及防止智能技术被滥用的坚实屏障 (这些屏障能够保障思维的自主性、社会的智能安全, 并确保人类作为目标主体的地位), 那么迈向这条道路便无从谈起。

关键词: 人工智能、智慧型转型、智慧型经济、知识导向型经济、数字资本、社会进步、社会知识、知识密集度、信息流、科技人才培养、算法控制、智力潜力。

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Introduction: Artificial Intelligence between the Crisis of Economic Society and the Nootransition

Civilization undergoes global transformation, and the nature of this transformation extends far beyond the next economic downturn or geopolitical reshuffle. The world is experiencing a systemic developmental crisis – a crisis that has ceased to be a concern for individual segments of economic life and has affected the very logic of social organization.

The level of technological power achieved by humanity, deprived of adequate mental and intellectual support, is transforming from a tool for progress into a potential threat to the very possibility of further historical development. The paradox of our time is that the unprecedented expansion of productive capacity is accompanied by deepening social inequality, the degradation of natural systems, and growing global imbalances.

A geopolitical-economic analysis of the modern era, which examines market fundamentalism in relation to international power, production, and the state [Desai, 2024], reveals that the crisis is not linked to current market fluctuations; its source is deeper – the exhaustion of a method of economic organization subordinated to financial expansion.

The neoliberal economic model dominant since the collapse of the Bretton Woods system and especially since the Reaganomics and Thatcherism era, has exhausted its progressive potential. Financialization has displaced creative activity from the center of investors' attention, replacing long-term development strategies with speculative operations in virtual assets.

Market fundamentalism elevated to a universal principle of social relations has led to commodification of all areas of human life – from education and healthcare to culture and science. However, the crisis of neoliberalism does not mean its automatic demise. On the contrary, we are witnessing a painful transformation of this model, its desire to maintain its influence by adjusting to new technological realities.

Neoliberal configuration of modern economic society, oriented toward the priority of financial performance and the interests of speculative capital, is catalyzing the manifestations of a civilizational crisis. This model of economic organization is showing signs of structural exhaustion: an economic system built on the dominance of market fetishism and financial expansion is losing the ability to generate progressive trajectories of social development. This state can be interpreted as the exhaustion of potential of economic society – a system where the doctrine of profit maximization replaces the goals of collective advancement and intellectual creation.

An alternative evolutionary vector is associated with the establishment of a fundamentally different type of socio-economic relations based on the primacy of knowledge, scientific and technological progress, and social intelligence as the dominant productive forces [Bodrunov, 2024a]. So it is here – at this bifurcation point – that we observe the contradiction between the accrued power of productive forces and the persistence of goals reduced to profit, the value of capital, and private appropriation.

Overcoming the systemic crisis presupposes both the transformation of economic institutions and the strengthening of socio-institutional foundations of social consolidation. Collec-

tive identity, shared moral guidelines, and value matrices of collective self-awareness, viewed as resources for civic resilience [Dmitriev, 2025b], become critical in the context of external and internal challenges. Nootransition is only possible with value-based change: research on the role of sociocultural factors in the movement toward noonomy [Grechko, Pleshivtseva, 2025] and the transformation of needs during the transition to (post)capitalism and further to noonomy [Stasev, Grechko, Tyulina, 2025] demonstrate that technological modernization not accompanied by a value-based elevation of needs can only aggravate consumer dependence and social disunity.

At the same time, a fundamental shift in the organization of productive forces is unfolding: knowledge is no longer an auxiliary element of the production process but is becoming a key resource determining the competitiveness of national economies and their ability to ensure their technological sovereignty. The decisive factor is no longer the possession of tangible assets per se, but the ability to generate, accumulate, and effectively mobilize intellectual potential.

Cultivation of economic entities' knowledge resources is acquiring a distinct social dimension, as the interests of innovative development participants are increasingly aligned with societal intentions to expand human potential and advance scientific progress [Solntsev, 2024]. In this regard, the strategy of intellectual potential in a knowledge-intensive economy allows for the inclusion of artificial intelligence (hereinafter referred to as AI) in the reproduction of research traditions, competencies, and organizational memory, without reducing it to an external digital service. This task requires interdisciplinary engineering training that combines business statistics, intelligent technologies, and management of production and economic systems [Dmitriev, 2025a].

In this context, nootransition signifies a long historical movement from an economic society where economic activity is subordinated to the reproduction of value and capital to a society where the production and application of knowledge serves to reasonably satisfy needs and expand human creative potential. In the theory of noonomy [Bodrunov, 2020], such a transition is associated not with a mere growth of technology, but with a transformation of production goals, the nature of labor, the structure of needs, and the methods for appropriating the deliverables of scientific and technological progress. Consequently, digitalization (and the AI technologies it encompasses) is not yet a nootransition in itself: it can be integrated into both the reproduction of capital and socially oriented development.

At the point of historical bifurcation, where economic society exhausts its creative resources and the contours of a new world order are just becoming discernible, the technology infrastructure of the future acquires particular significance. AI is far from being a mere innovation in the tide of digital transformations – it represents a potential nexus for a new configuration of social production and knowledge. The intentionality embedded in the development of intelligent technologies will determine whether they will become a tool for deepening existing contradictions or a catalyst for the transition to noonomy – a new way of organizing production and consumption built around reasonable use of knowledge for the benefit of society.

It is in this context that the question of AI's role becomes crucial. AI today finds itself at the crossroads of two development trajectories:

- The first – inertial – involves integrating intelligent technologies into the dominant paradigm of capitalist accumulation, turning them into a means of strengthening corporate control and monopolizing data in the hands of a limited circle of digital infrastructure owners.
- The second – alternative – offers opportunities for radical revision of the goals and meanings of technological progress, transforming AI into an infrastructure for collective cognition, a tool

for liberating people from routine operations and creating conditions for unlocking the creative potential of the individual.

Technological determinism is irrelevant here – computing power alone does not determine the social content of its use. The decisive factor is the strategic choice: subordinating AI to the preservation of obsolete forms of economic rationality or shaping new relationships between humans, knowledge, and production.

Technological revolution driven by the rapid acceleration of scientific and technological progress, its “acceleration of acceleration” [Bodrunov, 2016; Bodrunov, 2022a], and the emergence of intelligent production systems is laying the objective foundation for such a transformation. The development of automated and robotic systems opens the prospect of unmanned production, when human is emancipated from direct participation in physical operations and gain the opportunity to concentrate on intellectual and innovative creation [Bodrunov, 2022b].

At the same time, a transformation of the world economic order is underway: the emergence of a multipolar world order is creating the prerequisites for new forms of integration oriented not toward market fundamentalism, but toward the coordination of scientific, technological, cultural, and economic development. In this context, noointegration offers an institutional model for interaction between states, presupposing the coordination of scientific, industrial, and cultural resources within large geoeconomic spaces. Although such associations are still in their infancy, platforms like BRICS have the potential to evolve toward noointegrative formats. The goal is to build an architecture of international interaction capable of ensuring the coordinated co-development of economies and laying the institutional foundation for global nootransition [Arkhipova, 2023; Bodrunov, 2024b]. At the same time, international assessments of inclusive AI for development [UNCTAD, 2025] emphasize the importance of infrastructure, competencies, and access to data. Without these, the digital divide only perpetuates the periphery’s dependence on technology centers.

The subject of this study is not artificial intelligence as an end in itself for commercialization or an object of speculative investment, but its potential role as a contradictory productive force for the nootransition and the intellectual and creative transformation of society [Bodrunov, 2025]. Digital capital here refers to a set of private control relationships over data, algorithms, computing power, platforms, and intellectual property rights that enable the appropriation of the results of collectively created knowledge. Public knowledge refers to jointly created and institutionally protected knowledge which expands human intellectual and creative potential, supports science, education, and material production.

AI Phenomenon in the Context of Technological Enthusiasm Cycles

The 20th century ended with the triumph of market fetishism, when the algorithms of competition and financial profitability supplanted the substantive meanings of development. Financialization disconnected capital from the realities of production, turning investment flows into a tool for speculative manipulation. The history of capitalism exhibits a consistent pattern: each major technology wave generates its own expectations of accelerated wealth, fueling financial bubbles and a widespread belief in the automatic onset of progress.

The mid-19th century was marked by “railroad fever” in Great Britain, when faith in the unlimited potential of railways sparked mass investor euphoria. Capital investment grew exponentially, outpacing the economy’s actual needs. The result was a systemic crisis that collapsed the market and ruined numerous companies and investors.

A century later, at the turn of the millennium, the world was gripped by the “dot-com boom” – a mass hysteria surrounding internet companies whose market capitalizations reached astronomical levels despite the lack of profitable business models. Investments were channeled into technological fantasies devoid of economic substance. The inevitable crash of 2000-2001 wiped out trillions of dollars of virtual value.

Research on technological revolutions and financial capital [Perez, 2002; Freeman, Louçã, 2001] shows that financial frenzy can accelerate infrastructure deployment, but then reveals a gap between speculative expectations and actual production returns. This pattern can be traced not only in the history of railways and internet companies, but also in the broader dynamics of capitalist crises, where new technologies first become the object of inflated capitalization and only then are tested in real-world industrial applications.

Changes in the course of historical development were based on shifts in technological paradigms (according to S. Yu. Glazyev [Glazyev, 1993; Glazyev, 2022]). The connection between such shifts and major economic cycles goes back to N.D. Kondratieff [Kondratieff, 2002] who demonstrated the wave-like nature of long-term changes in the capitalist economy. If the emergence and spread of a new technological paradigm coincides with the upward phase of the Kondratieff cycle, then this paradigm continues to function after the wave that generated it has ended and been replaced by a new one.

In modern economic literature, it's common to speak not simply of a sequential change in the “numbers” of technological paradigms, but rather of a transition from one dominant mode of connecting science, technology, production, and institutions to another. The sixth technological paradigm is usually associated with NBIC convergence, that is, the synthesis of nano-, bio-, information, and cognitive technologies [Roco, Bainbridge, 2002]. At the same time, discussion is already emerging about the characteristics of the next – the “seventh” – technological paradigm, where AI should not be understood as an isolated digital technology. Its significance is revealed as part of a more complex shift – the growth of knowledge-intensive production, the development of intelligent production systems, the growing role of cognitive technologies, and the transition to a type of industrial development that S.D. Bodrunov examines through the lens of NIS.2 and noonomy [Bodrunov, 2018; Bodrunov, 2024c].

AI alone does not yet create a new paradigm, much less guarantee a nootransition; it can become the cognitive-controlling core of a new technological configuration only if it connects with a new industrial infrastructure, scientific and engineering schools, digital production systems, and socially beneficial goals. Otherwise, AI remains a tool for accelerated data monetization, platform rent, and the financial capitalization of expectations.

Each technological paradigm marks a quantum leap in society's productive capabilities, but its social impact depends on whether new technology is integrated with real production, education, and industrial policy. Therefore, reindustrialization and the emergence of a digital economy, viewed as interrelated trends in innovative development [Bodrunov, Demidenko, Plotnikov, 2018], reveal a fundamental limitation: digitalization without a new industrial framework risks serving financial and intermediary operations without strengthening the creative potential of the economy.

Today, we are seeing a resurgence of similar dynamics. Capital is flowing en masse into the AI sector, where company valuations are growing faster than the actual production effects are accumulating. According to the annual AI Index 2025 report [Maslej et al., 2025], total corporate

investment in AI in 2024 reached \$252.3 billion, private investment increased by 44.5%, and the generative AI segment attracted approximately \$33.9 billion, an 18.7% increase over 2023 figures. Market capitalization of AI unicorns often outpaces these companies' ability to generate sustainable profits or create long-term value for society. These metrics represent both technological advancement and the scale of capitalization on expectations, where future rents are often valued higher than the social value already created.

An analysis of the current wave of investment reveals the dual nature of technological enthusiasm. On the one hand, it mobilizes resources for research, infrastructure, and the implementation of inventions. On the other hand, it subordinates their focus to the most rapidly monetizable solutions, increasing science's dependence on corporate platforms. Contradictions of the economy, opening up the potential for a shift toward noonomy [Khabibullina, 2022], allow us to see AI as both a risk for another financial cycle and an opportunity to channel technological power toward socially beneficial goals.

The dynamics of investment interest demonstrate that the spread of generative models is accompanied by a technological hype effect and the formation of inflated expectations regarding the economic potential of new digital technologies [Mora-López et al., 2025]. This dynamic highlights the cyclical nature of technological enthusiasm, where the thirst for superprofits and speculative expectations act as powerful catalysts for innovation but simultaneously lay the foundation for future systemic imbalances. History teaches us that every period of euphoria is inevitably followed by a sobering phase, when the gap between inflated expectations and modest actual achievements is revealed.

Destructive Logic of Digital Capitalism and the Risks of Algorithmization

Neoliberal economic model has absolutized individual rationality, reducing it to a state of mechanical automatism. Today, this rationality is personified by algorithms – “dispassionate” digital arbiters who optimize profitability, minimize costs, and maximize returns. The market has lost its historical function as a coordinator of human effort and is increasingly becoming an environment for the speculative management of attention, data, and behavioral patterns.

Major digital corporations accumulate user data, cloud resources, software platforms, and consumer access channels. The strategies for producing and appropriating AI by major companies disclose the mechanism of digital capital [Rikap, 2024]: collectively created knowledge is captured by corporate ecosystems and then returned to society in the form of paid services, dependent interfaces, and private technological standards.

The concentration of computing infrastructure exacerbates this contradiction. Today's advanced models require specialized processors, data centers, energy capacity, network services, and cloud access. An analysis of competition in AI infrastructure [OECD, 2025] shows that barriers to entry are rising both in software and at the physical level of digital production. Consequently, control over AI is increasingly determined not by the talent of researchers or the quality of algorithms, but by the ownership of computing power.

The economic value of “data” is not reducible to traditional assets: reusing the same dataset does not diminish its usefulness. The theory of data inexhaustibility and its social return [Jones, Tonetti, 2020] helps explain why the private enclosure of data conflicts with the potential broad social benefits of its use. The more data becomes a proprietary asset, the more it hinders the development of science, education, medicine, industrial management, and public planning.

The warning about the harms of AI [Acemoglu, 2021] can be interpreted as a reference to social harm that arises not from the algorithms themselves, but from commercial incentives, market power, the focus of automation, and the ways in which the resulting benefits are distributed. Therefore, questions about AI have a political economy content: who owns the infrastructure? Who sets the goals for its use? And who benefits from the enhanced productivity?

Under these conditions, labor is rapidly losing its meaningfulness where AI is being implemented as a means of externally dictating actions. An erosion of worker agency is observed – the individual is transformed from a creator into an appendage of the process, into an executor of digital commands, whose actions and professional judgment are replaced by following algorithmic signals. Research on the use of algorithms in the workplace [Kellogg, Valentine, Christin, 2020] shows that digital governance is creating a new arena for struggles over control, autonomy, procedural transparency, and the right of workers to challenge machine decisions. Deprofessionalisation is affecting entire industries: competencies are eroding, professional excellence is devalued, and qualifications are being replaced by the ability to follow instructions from digital systems.

However, AI is not limited to this destructive focus. The contradiction is particularly evident in the choice between replacing humans and expanding their capabilities. The danger of the Turing Trap, described in relation to human-like AI [Brynjolfsson, 2022], is that human imitation could be used to displace human labor, whereas the most socially beneficial path involves augmenting human thought and maintaining human participation in the production process.

Current assessments of the impact of generative AI on employment also do not support the simple scenario of the total job displacement. The International Job Exposure Index [Gmyrek et al., 2025] shows, first and foremost, a shift in the composition of occupational tasks: some operations are being automated, others are becoming more complex, and a significant proportion of jobs require retraining and institutional support. Therefore, the key question is not whether labor will be displaced, but whether it will be impoverished by algorithmic prescriptions or enriched by intellectual tools.

Empirical studies of the use of generative AI in organizations also reveal another side of the process. The introduction of AI assistants can improve productivity, especially among less experienced workers, by accelerating the transfer of accumulated organizational knowledge [Brynjolfsson, Li, Raymond, 2025]. But this effect only becomes socially beneficial if productivity growth isn't used solely to intensify labor and reduce employment, but rather supports training, skill development, the reduction of routine work, and the expansion of professional autonomy.

Digital dependence is particularly alarming in education and creativity. Future professionals increasingly place excessive expectations on AI capabilities, delegating to machines tasks that require deep understanding, critical thinking, and independent questioning. Experimental data on generative AI and creativity [Doshi, Hauser, 2024] point to an ambivalent outcome: individual productivity may grow, but the diversity of the overall output decreases. A risk of standardized thinking arises when multiple users reproduce similar answers obtained from the same digital sources. Mastery of fundamental knowledge fades into the background, giving way to superficial skills in using ready-made solutions. A generation is emerging that is technologically literate but intellectually dependent – able to manipulate tools but incapable of generating original ideas.

Digital capitalism poses serious risks to social development. The illusion of continuous innovation is created while the meaning of creative activity is actually degraded. Genuine creativity is replaced by a sham of efficiency – a frenetic activity that creates the impression of progress

but fails to produce qualitative breakthroughs. Within the neoliberal paradigm, AI functions not as a tool for developing human potential, but as a means of strengthening corporate control and concentrating power over data.

Algorithmic Management of Attention and Behavior

Tech platforms are accumulating unprecedented amounts of information about the behavior, preferences, and thinking habits of billions of people. Data is being transformed into a new form of power – the power to predict, shape, and guide human decisions. Algorithms are increasingly penetrating social interactions, transforming spontaneous communications into controlled information flows. The threat of total algorithmization of social life arises, when autonomy of thought and freedom of choice become false fronts concealing a system of subtle influence on consciousness.

Applied mathematics and the development of intelligent systems allow us to uncover mechanisms hidden from the surface. Narrative modeling, user profile analysis, behavioral pattern tracking, and personalized content distribution help structure perceptions of reality, command public attention, and shape boundaries of acceptable opinion. In this case, AI acts as a means of organizing social experience, going beyond simple information processing.

Modern algorithmic systems allow us not only to record the dynamics of public perception but also to predict social response to critical events – economic crises, political decisions, and technological breakthroughs. This poses the danger of deliberately constructing public opinion, where citizens are given the illusion of free choice within pre-set behavioral scenarios. Diversity of opinions can evolve into a “orchestrated” multiplicity, where acceptable decision options are determined by algorithmic selection even before a person even realizes they are participating in the decision.

Data is transformed into a new form of power – the power to predict, model, and guide human decisions. Information flows become a means of influence comparable in power to traditional levers of political and economic control. Working with big data requires both technological competence and ethical responsibility. Society needs to develop mechanisms for intellectual defense – the ability to resist manipulative strategies and maintain the autonomy of critical thinking in the face of total digitalization.

Global Restructuring of the Intellectual Landscape: Empirical Evidence

The 21st century is revealing the fundamental contradictions of the neoliberal model. AI is both a technological phenomenon and an indicator of profound social transformation. It is testing society's capacity for self-organization, reasonable coordination of development, and the establishment of social intelligence. The issue is no longer limited to the speed of algorithm implementation; the measure of value is now the contribution of technologies to public knowledge, the productivity of the real sector, and the expansion of human creativity.

Structural shifts in scientific and technological development are supported by empirical data. According to the AI Index 2025 [Maslej et al., 2025], publication activity in the areas of AI has more than doubled over the past decade; in 2023, the OpenAlex database recorded over 242,000 publications on AI in the computer science segment, and the share of research on this topic approached 42% of the total body of work in this area. At the same time, the position of East Asia and the Pacific region has strengthened, accounting for approximately 35% of publications and

37% of citations. China generates over 23% of global publications and a comparable share of citations. This is no longer simply a quantitative shift in academic statistics, but a sign of a redistribution of centers of intellectual leadership.

The patent landscape for generative AI exhibits a similar concentration. The WIPO report [WIPO, 2024] identified 54,358 patent families in the area of generative AI in 2014–2023; of these, more than 38,000 are associated with Chinese inventors. In this context, intellectual property is becoming a means of securing technological leadership. At the same time, the accumulation of patents can limit the dissemination of knowledge unless countered by institutions of public access, open science, and international research cooperation.

The industrial structure of innovation is also changing. Generative models, intelligent production management systems, big data processing algorithms, and industrial digital platforms are rapidly growing. However, digital maturity of a national economy cannot be measured by the number of services or the speed of software introduction. Assessing digital maturity [Blagoy, Dmitriev, Alkin, 2025] allows us to distinguish real productivity gains from the statistical illusion of innovation. However, such a diagnosis only makes sense when digital transformation is viewed through its contribution to industrial resilience, technological sovereignty, and the development of human capabilities.

The expansion of computing power exacerbates the unevenness of technological development. The AI Index 2025 documents the growth of resources required to train advanced models, and a sharp increase in the cost of developing the most complex systems [Maslej et al., 2025]. Under these conditions, competitiveness is increasingly determined by access to specialized processors, data centers, cloud services, energy capacity, and skilled research teams. AI is becoming a subject of international technological competition, where scientific leadership is increasingly linked to physical computing base. Beyond the abstract “digital” lies the very material basis of the new power: energy, equipment, infrastructure, personnel, and long-term industrial policy.

Achieving socially beneficial effects is impossible without strong scientific and engineering schools that combine fundamental knowledge with the practice of technological creation. The training of this new type of engineer must develop the ability to understand the production consequences of algorithmic decisions, to see the connection between data and the real sector, and to accept responsibility for the social impact of technical choices [Dmitriev, 2025a]. The experience of countries where engineering education is integrated into long-term industrial development priorities is instructive. In this regard, China demonstrates a consistent integration of science, education, production, and technological sovereignty.

Technological revolution driven by the emergence of intelligent production systems creates physical preconditions for liberating humans from direct involvement in routine operations. The prospect of highly automated and knowledge-intensive production [Bodrunov, 2022b] allows us to link AI with the freeing up of time for education, creativity, and research work. If there is no such a shift, automation will be reduced to cost reduction; social development will not acquire a new quality. Machines can relieve humans of some repetitive tasks, but the meaning of this liberation is determined by whether the freed time will be devoted to personal development or absorbed into a new form of market dependence.

The impact of AI on labor is twofold. OECD estimates indicate that approximately 27% of employment in OECD countries is in occupations at high risk of automation, taking into account

all automation technologies, including AI [OECD, 2023]. A more recent ILO approach refines the picture for generative AI: it is primarily a matter of redistribution and complication of occupational tasks, rather than the mechanical job displacement [Gmyrek et al., 2025]. Consequently, the quality of societal response becomes decisive: retraining, development of engineering and analytical competencies, and protection of workers' professional autonomy.

Where AI is subordinated to cost reduction, labor becomes impoverished. Where it is integrated into the development of capabilities, labor acquires new intellectual content.

The totality of empirical data allows us to draw three conclusions:

- First, AI is being institutionalized as a standard tool for managing production, financial, educational, and communication processes.
- Second, the concentration of computing, patent, and scientific resources is increasing, forming a new configuration of technological competition.
- Third, the importance of intellectual competencies as a condition for the effective and safe use of algorithmic systems is growing.

The long-term impact of the current transformation will be determined by whether society can integrate AI into education, science, industry, and social coordination, or whether it will allow it to be locked into commercial platforms where knowledge is converted into rent and humans into objects of calculation.

Intelligent Economy as a Transitional Form of Public Use of AI

Transition to an intelligent economy preserves the technological foundation of modern production but changes its social purpose. Machines, algorithms, models, and computing infrastructure must gradually emerge from the narrow confines of profitability and be integrated into the expansion of social knowledge. This reflects the transition from an economic society dependent on value and capital to noonomy; in it, productive forces are given a different purpose: human development, reasonable satisfaction of needs, and liberation of creative activity [Bodrunov, 2025].

An intelligent economy emerges where knowledge ceases to be a proprietary asset and increasingly becomes a resource for shared development. It is not at all identical to noonomy; it retains ownership, markets, competition, government regulation, corporate interests, and the struggle for technological leadership. However, within this contradictory form, a different criterion of reasonableness emerges. The value of technology is determined by its contribution to knowledge-intensive production, scientific and engineering creativity, the reduction of routine workloads, and the expansion of human intellectual and creative capabilities.

In this framework, AI loses its status as an external digital service. AI technologies can become a means of distributed cognition, connecting research networks, engineering schools, universities, industrial associations, and public computing power. However, their purpose is to support complex decisions, accelerate research work, and translate intellectual results into practical development. Human thought retains axiological primacy; the algorithm acquires instrumental status.

The political economy of the problem centers on the ownership of data and models. Data has a high social return; its use by one actor preserves the possibility of subsequent use by others [Jones, Tonetti, 2020]. Digital capital seeks to transform this property into a source of private rent. Information footprints, research deliverables, and behavioral data are captured by

platforms, protected legally and technically, and then returned to society in the form of paid services. Thus, a new enclosure of knowledge emerges – this time around data, computations, and models.

An alternative trajectory envisions distributed environments for collaborative learning. They provide the production, verification, and accumulation of knowledge; the training of personnel; and the translation of scientific achievements into industrial practice. Universities, academic institutions, enterprises, and research platforms must be connected through collaborative relationships. The concept of knowledge as a common good [Hess, Ostrom, 2007] allows us to see the fundamental condition of such an organization: openness requires rules of access, accountability of participants, and protection of shared deliverables from privatization.

Open science forms the practical prerequisite for this movement. International open science standards [UNESCO, 2021] expand access to publications, data, educational resources, and research infrastructure. Without them, public knowledge remains dependent on private platforms, corporate clouds, and patent barriers. At the same time, openness requires institutional security: sensitive data, critical infrastructure, and citizens' intellectual autonomy must be subject to public accountability.

AI is valued differently in an intelligent economy than in digital capitalism. For digital capital, success is measured by capitalization, user retention, and monetization rate. Another measure is significant for the nootransition: technology's ability to increase the knowledge intensity of production, reduce routine workloads, expand access to education and healthcare, and support science and creativity. The "social destiny" of the freed-up time becomes paramount. It can be absorbed by a new intensification of labor or transformed into a space for self-actualization.

The transformation of needs has an independent significance here. When AI serves digital capital, it perfects personalized demand stimulation, accelerates the circulation of desires, cements platform dependence, and transforms human attention into a controllable resource. Research on the dynamics of needs in the movement toward post-capitalism and noonomy [Stasev, Grechko, Tyulina, 2025] allows us to set a different criterion: technology should facilitate the elevation of needs, the development of education, health, creativity, and solidarity-based forms of participation. Otherwise, AI merely refines the settings of consumer addiction.

Ethical standards for data handling must be embedded in the very design of AI. They encompass data provenance, model training, the distribution of deliverables, impact assessment, and society's right to limit manipulative practices. Quantifying information capital transforms users' attention, trust, emotional reactions, and communicative footprints into parameters of controlled behavior. Intelligent security requires a counter-movement – preserving humans as the subject of goal-setting, protecting critical thinking, and subordinating algorithms to socially recognized norms of accountability.

Thus, the intelligent economy serves as a transitional area in the struggle for the social content of AI. It still belongs to economic society, but already contains the seeds of a different historical orientation. It represents a clash of two trends: the appropriation of knowledge by digital capital and the transformation of knowledge into a resource for social progress. The outcome depends on whether data, calculations, models, and research deliverables are integrated into the reproduction of platform rents or become elements of shared knowledge. This is where the question arises as to whether AI will remain a digital extension of economic society or become a tool for the nootransition.

Conclusion

AI embodies the central contradiction of modern scientific and technological progress. It is created through the collective labor of researchers, engineers, digital infrastructure workers, and millions of users, yet the products of this labor are only appropriated by a limited number of platform owners. AI expands access to knowledge, increases productivity, and removes some routine tasks. However, with a different societal focus, it transforms data into a means of surveillance, weakens professional autonomy, and subordinates labor to algorithmic control.

The social content of AI is not predetermined. It is shaped by ownership relations, the nature of labor, the structure of education, the focus of government regulation, and forms of international cooperation. Digital capital uses intelligent technologies to extract rent, control infrastructure, commercially shape needs, and appropriate public knowledge. Nootransition entails a different vector: increasing the knowledge intensity of production, developing scientific and engineering schools, liberating humans from routine tasks, and expanding access to knowledge deliverables.

An intelligent economy could become a transitional stage in this movement. It cannot be equated with noonomy. It still retains its dependence on value, profit, and commodity coercion; at the same time, it creates a space for transformation, where new development criteria are established within existing economic relations. The public significance of knowledge, the quality of labor, the reasonableness of needs, and the accessibility of benefits of scientific and technological progress are at the center.

This requires socially beneficial computing infrastructure, open science, personal data protection, employee participation in changing work functions, and long-term industrial policy. What matters is not the speed of digital services' distribution, but their contribution to the production of socially useful knowledge and the expansion of individual intellectual and creative potential.

Nootransition requires a conscious social choice. Technical sophistication of machines creates physical prerequisites; the focus of transformation is determined by individuals, work collectives, research traditions, the state, and institutions of public oversight. AI facilitates the movement toward noonomy insofar as knowledge serves social progress, the freed-up time serves creative activity, and increased productive capacity serves the reasonable satisfaction of needs and cooperative development.

Here lies the boundary between the AI of digital capital and the AI of nootransition. In the former, intelligence is transformed into a computational resource for profit; in the latter, it becomes a source of social development. The future of AI is determined not by the power of models or the speed of computation, but by the social impact of the technology. It can be devoted to capital accumulation, platform rents, and algorithmic control. Or it can also benefit people, public knowledge, and free creative labor.

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A EURASIAN AXIS FOR A MULTILATERAL ORDER: TÜRKİYE-RUSSIA-CHINA COOPERATION AND THE CONSTRUCTION OF GLOBAL STABILITY

Abstract: A new international order is emerging. The central issue is no longer whether unipolarity is coming to an end. Rather, the key question is whether the new distribution of power will be organized through military blocs and economic coercion, or through multilateral cooperation among sovereign states. This article expands upon a proposal presented at the St. Petersburg Economic Congress 2026, suggesting that Türkiye, Russia, and China can establish a viable Eurasian axis to construct a stable multilateral order. The term "axis" is used here in its twenty-first-century context, implying neither a closed camp nor a hierarchy dominated by a single power. Instead, it signifies strategic coordination among nation-states that preserve their sovereignty while enhancing shared capabilities in energy, transportation, industry, finance, technology, and diplomacy.

The material foundation for such coordination is already in place. Russia possesses energy depth, defense capabilities, strategic raw materials, and a vast Eurasian reach. China offers manufacturing power, financial resources, advanced technologies, and infrastructure-building capacity. Situated at the crossroads of Europe, Asia, and Africa, Türkiye possesses maritime access, industrial expertise, transport networks, and a deep-rooted state tradition, making it uniquely capable of conducting diplomacy across volatile regions. Their cooperation has the potential to interlink the Belt and Road Initiative, the Middle Corridor, the Black Sea, the Caspian Basin, and West Asian corridors. Consequently, it can foster more resilient supply chains, mitigate vulnerability to unilateral financial pressure, and reinforce sovereign solutions in West Asia, the Caucasus, and the Black Sea region. The article argues that multipolarity must transcend a mere balance of competing poles and be elevated to a multilateral order, with Türkiye-Russia-China cooperation serving as a primary driver of this transition.

Keywords: Türkiye, Russia, China, Eurasia, multilateralism; multipolarity; Belt and Road Initiative; Middle Corridor; financial diversification; West Asia; strategic autonomy; sovereign development.

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多极世界秩序的欧亚轴心——土耳其-俄罗斯-中国合作与全球稳定

摘要:新的国际秩序正在形成。问题已不再是单极时代是否即将终结。核心问题在于,新的力量格局将通过军事集团和经济胁迫来构建,还是通过主权国家之间的多边合作来构建。本文进一步阐述了在2026年圣彼得堡经济大会上提出的建议:土耳其、俄罗斯和中国可以建立一个切实可行的欧亚轴心,以构建可持续的多边秩序。此处“轴心”一词采用21世纪的含义。它并不意味着封闭的阵营,也不意味着由单一大国主导的等级制度。它指的是主权国家之间的战略协调,这些国家在保持主权的同时,共同增强在能源、交通、工业、金融、技术和外交领域的综合实力。

这种协调的物质基础已经存在。俄罗斯拥有深厚的能源储备、强大的国防潜力、战略性的原材料资源以及覆盖欧亚大陆的地理优势。中国拥有生产能力、金融实力、技术优势以及建设基础设施的能力。土耳其地处欧洲、亚洲和非洲的交汇处,拥有出海口、工业经验、交通网络和国家传统,有能力在冲突地区之间开展外交活动。两国的合作可将“一带一路”倡议、中线走廊、黑海、里海盆地及西亚走廊有机连接起来。这种合作能够构建更稳固的产业链,降低对单边金融压力的依赖,并支持西亚、高加索及黑海地区的主权决策。文章指出,多极化不应仅被简化为竞争性极点之间的简单平衡,而应提升至多边秩序的层面。土耳其、俄罗斯和中国的合作可能成为这一转型的主要途径之一。

关键词:土耳其、俄罗斯、中国、欧亚、多边主义、多极化、“一带一路”倡议、中线走廊、金融多元化、西亚、战略自主。

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Introduction

A new international order is being built before our eyes. This is not a prophecy; it is the plain fact of the present period. Economic weight has moved eastward and southward, strategic corridors have become decisive, energy security has returned to the center of politics, and financial mechanisms are used openly as instruments of pressure. The age of unipolar command has reached its historical limit. What comes after it will be decided less by declarations than by the states capable of creating new material and institutional forms of cooperation. It will be decided by states that can build roads, ports, pipelines, industrial chains, payment systems and diplomatic platforms.

The proposal advanced here is straightforward. Türkiye, Russia and China can form one of the most realistic axes for the construction of a multilateral order in Eurasia. In a more developed form, this cooperation can acquire the character of an alliance. That word should not remain imprisoned in the vocabulary of the twentieth century. Alliance need not mean a closed military camp, a rigid ideological bloc or the subordination of smaller actors to a patron. In the present century, national states are again the main actors of international politics. Their real need is to create forms of power sharing that protect sovereignty, enlarge economic capacity and reduce vulnerability to external pressure. The required form is clear: growing together through sharing, without surrendering sovereignty.

The material ground is strong. Russia is a decisive power in energy, defense, strategic raw materials and Eurasian depth. China is the locomotive of production, finance, technology and infrastructure construction. Türkiye is the key link at the intersection of Europe, Asia and Africa. Its position gives it access to the Black Sea, the Mediterranean, the Balkans, the Caucasus, West Asia and the Turkic world. Its industry, ports, railways, logistics networks and diplomatic memory make it more than a transit country. Türkiye can become a production and distribution center for a wider Eurasian economy.

This article develops the core thesis of the St. Petersburg Economic Congress presentation: Türkiye, Russia and China can act as a stabilizing Eurasian pillar in the making of a new multilateral order. The presentation underlined that world politics is moving from concentration to distribution, from hyper-globalization to resilience, and from centralization to diversification. It also pointed to the strategic importance of the Belt and Road, the Eurasian Economic Union and the Middle Corridor as parts of a possible Eurasian architecture of coordination. The task now is to turn that political proposal into a coherent academic argument without weakening its strategic force. The article addresses a gap in the current debate on multipolarity: the material and institutional conditions under which multipolarity can become multilateral order. Existing discussions often describe the decline of unipolarity or the rise of new centers; less attention is given to the concrete Eurasian mechanisms that can prevent the new balance from turning into bloc confrontation.

The main question is therefore clear: how can multipolarity be organized so that it does not turn into a struggle among rival poles? Multipolarity is a fact of power distribution. Multilateralism is a method of order. The first describes the existence of several centers; the second defines how those centers deal with one another. A world of several powers may produce balance, or it may produce a wider war of sanctions, corridors and military fronts. The difference depends on institutions, habits of consultation, economic interdependence and respect for sovereignty. Türkiye-Russia-China cooperation is important because it can help turn Eurasia into one of the main zones where multipolarity gains a multilateral form.

From Multipolarity to Multilateral Construction

Multipolarity should not be treated as a danger in itself. It is the historical result of the rise of Asia, the growth of new industrial centers, the recovery of national sovereignty and the weakening of a model based on unilateral command. The problem begins when new poles are pushed into confrontation rather than coordination. Institutions shaped under the old balance increasingly fail to represent the new distribution of production, trade, population and strategic initiative; the new order has not yet acquired sufficient institutions. This gap creates the danger of corridor wars, financial blockades and regional conflicts.

Multilateralism is the answer to that danger. It is rooted in the sovereign equality of states, one of the central principles of the United Nations Charter.¹ Yet the principle cannot survive as a ceremonial phrase. It must be translated into institutions, trade routes, investment mechanisms, energy projects and diplomatic commitments. A multilateral order requires material foundations. Without railways, pipelines, ports, payment systems, development banks and secure industrial chains, diplomacy remains weak and unstable.

¹ United Nations. Charter of the United Nations. San Francisco, 1945. URL: <https://www.un.org/en/about-us/un-charter>.

The world economy already points in this direction. UN Trade and Development reported that global trade reached a record 33 trillion dollars in 2024, while developing economies and South-South exchange played an important role in that expansion.¹ This is not a temporary movement in trade figures. It reflects a deeper historical shift: production, demand, infrastructure and population are no longer concentrated in the Atlantic center. The political form of the world must adjust to that movement.

The Belt and Road Initiative should be read as a field of diplomatic maneuver as well as infrastructure. Türkiye's active participation in the BRI expands its capacity to connect regional projects with global diplomacy and to avoid being locked into a single strategic direction [Gökçay, 2019/2020, pp. 43-54]. Corridors are not neutral lines on a map. They create political room. They allow states to reduce dependence on one center and to connect national development with wider regional projects.

The same logic is visible in the rise of regional blocs and institutions. The present transformation is not limited to a change in the number of great powers; it also requires forms of cooperation that can manage common challenges beyond the old Western-led institutional hierarchy [Gao & Durdu, 2025, pp. 47-84]. For that reason, the Türkiye-Russia-China axis should be judged by its capacity to build institutions, habits of consultation and material links, not by the vocabulary of twentieth-century camp politics.

The Türkiye-Russia-China axis gains value because each country brings a different capacity to this task. Russia brings energy and strategic depth. China brings production, finance and technology. Türkiye brings geographical connectivity, industrial experience, regional access and diplomatic initiative. None of these capacities is sufficient alone. Together they can create a line of stability from East Asia to the Mediterranean.

The Material Basis of a Eurasian Axis

Every serious proposal in international politics must begin with material realities. The Türkiye-Russia-China axis is realistic because it rests on complementary capacities, not on wishes. Russia's weight comes from state resilience, energy, defense, raw materials and geography. It connects the Arctic, the Black Sea, the Caspian, Central Asia and East Asia. China's weight comes from manufacturing, infrastructure finance, technological capability and the scale of its domestic market. Türkiye's weight comes from its position between continents, its industrial base, its ports and transport routes, and its ability to speak to several political regions at once.

Türkiye's own economic structure makes the issue urgent. TÜİK's December 2024 foreign trade statistics show that China and the Russian Federation were Türkiye's two largest import sources in 2024, with China at 44.9 billion dollars and Russia at 44.0 billion dollars.² This is not an accidental dependency created by a single government choice. It reflects the structure of energy, intermediate goods, industrial inputs and Eurasian geography. Türkiye's banking and policy habits may still be shaped by Western models, but its energy security and industrial supply increasingly point toward Eurasia.

The policy result is clear. Türkiye needs Eurasian partners for energy security and industrial inputs, while its position between Asia, Europe and Africa gives China and Russia an important

¹ UN Trade and Development (UNCTAD). Global Trade Update: March 2025. Geneva, 2025. URL: <https://unctad.org/publication/global-trade-update-march-2025>.

² Turkish Statistical Institute (TÜİK). Foreign Trade Statistics, December 2024. News Release No. 53538, 31 January 2025. URL: <https://data.tuik.gov.tr/Bulten/Index?p=Foreign-Trade-Statistics-December-2024-53538>.

production and distribution opportunity. Türkiye should not remain a passive market for imported goods or a route used by others. It should become a center where Chinese technology, Russian inputs and Turkish production capacity meet.

The proposal also corresponds to China's own long-term orientation. The Belt and Road Initiative, the Global Development Initiative, the Global Security Initiative and the Global Civilization Initiative all point to an attempt to build relations beyond the old hierarchy of the international system. Their common vocabulary is equality, mutual benefit and respect. Whether one agrees with every element of Chinese policy or not, the relevant point for this article is this: China is offering infrastructure, finance and development language at the very moment when many states seek alternatives to sanctions, lectures and dependency.

Russia's role is equally clear. Western sanctions have pushed Russia to deepen its Asian and Eurasian orientation. This is sometimes treated as a temporary reaction to the Ukraine war. That reading is narrow. Russia's geographical and economic depth has always been Eurasian. The current period accelerates a movement that had already begun: energy flows, transport corridors, payment systems and security arrangements are moving toward a more continental logic.

Türkiye stands at the key junction of this movement. Its membership in NATO does not erase its Eurasian realities. On the contrary, it makes Türkiye's strategic choice more visible. Türkiye can remain within the limits imposed by Atlantic discipline, or it can act as a sovereign center that opens channels between regions. The second option is more consistent with Türkiye's geography, economy and republican state tradition. A Türkiye that deepens cooperation with Russia and China does not lose its international value. It increases it.

Energy and Transport: The First Line of Construction

Energy and transport form the first line of the Türkiye-Russia-China axis. A new order cannot be built on speeches alone. It needs arteries. Russia's energy resources, China's capital and technology, and Türkiye's pipelines, ports, railways and industrial zones can create a Eurasian belt of production and welfare. This belt would connect the Black Sea to the Mediterranean, the Caspian to the Middle Corridor, the Development Road to the Belt and Road, and West Asia to Europe.

The strategic meaning of this connection is obvious. Energy insecurity quickly spreads into inflation, industrial disruption, social pressure and foreign policy dependency. Transport insecurity delays production, increases costs and turns geography into a weapon. A country that depends on one sea route, one financial center or one alliance discipline cannot act freely. The answer is diversification. Diversification is not fragmentation. It is the condition of resilience.

China's clean energy capacity gives this cooperation a new dimension. The International Energy Agency reports that China's clean energy investment exceeded 625 billion dollars in 2024 and that China reached its 2030 wind and solar capacity target six years early.¹ This capacity should not be seen only as a Chinese national success. It is a possible resource for Eurasian development. Russia's hydrocarbon base, China's renewable and industrial capacity, and Türkiye's transit and manufacturing position can create a mixed energy architecture suitable for the transition period.

The Belt and Road, the Eurasian Economic Union and the Middle Corridor should be read together. These are no longer separate initiatives; they can become one Eurasian architecture of coordination. This requires institutional dialogue, customs facilitation, port investment, railway

¹ International Energy Agency. World Energy Investment 2025: China. Paris: IEA, 2025. URL: <https://www.iea.org/reports/world-energy-investment-2025/china>.

modernization, digital logistics and political commitment. It also requires avoiding false choices. Türkiye does not have to choose between the Middle Corridor and wider Eurasian integration. The Middle Corridor becomes more valuable when it is connected to the Belt and Road, the Caspian, the Black Sea, Russia's Eurasian networks and the Development Road.

The Organization of Turkic States adds another layer. Türkiye's leadership in Turkic integration reflects a search for strategic autonomy; its strongest instruments are multilateral cooperation, energy links and trade, while its main risk is being turned into a pawn in great-power competition [Du, 2024, pp. 410-428]. For this reason, the OTS should not be imagined as a tool against Russia, China or Iran. Its real value lies in connecting the Turkic world with the larger Eurasian architecture.

Central Asia and the Caucasus have gained new importance because energy resources, trade routes and security questions now meet there more visibly than before. The OTS has become one of the actors in this landscape, with the Middle Corridor and TANAP supporting trade and energy flow and with its relationship to the Belt and Road increasing its economic weight [Ünver, 2024, pp. 386-397]. For Türkiye, this means that Central Asia cannot be approached through romantic slogans or Atlantic calculations. It must be approached through production, transport, energy and equal cooperation with all neighboring powers.

Industry and Trade: Türkiye as a Production and Distribution Center

The second line is industry and trade. The current structure of globalization is being reorganized. Supply chains are no longer shaped only by cost calculations. Sanctions, technology bans, maritime risks, energy prices and geopolitical pressure have become part of production planning. In this period, Türkiye has a chance to move beyond the status of a transit country. It can become a production, processing, assembly and distribution center between Asia, Europe, Africa and West Asia.

China's production capacity is the strongest industrial fact of the age. Russia's strategic inputs remain indispensable in energy, metals, agriculture, defense and advanced sectors. Türkiye has manufacturing experience, customs links with Europe, free zones, ports, SMEs, construction capacity and access to nearby markets. When these three capacities are brought together, an alternative to Atlantic-centered supply chains begins to take shape. This alternative does not require autarky. It requires a planned division of labor based on mutual benefit.

Türkiye's trade imbalance with China should be treated seriously. The point is not to reduce the issue to complaint or protectionism. The imbalance must be answered through investment, technology transfer, joint production, export-oriented industrial zones and access to the Chinese market for selected Turkish sectors, including tourism. This is the only serious way to turn a trade deficit into an industrial opportunity.

Türkiye's position gains real weight only when transit is joined with production. A corridor that carries goods creates revenue; a corridor surrounded by industry creates strategic capacity. If Türkiye limits itself to customs disputes and short-term import controls, it loses the larger opportunity. If it links Chinese investment, Russian inputs and Turkish production, it changes its position in the Eurasian economy.

Technology cooperation must be placed inside this industrial program. For Türkiye, the conclusion is practical. Cooperation with China should be directed toward factories, equipment, logistics technologies, skilled labor and higher value-added production, not toward rhetorical admiration.

Strategic autonomy does not grow by closing the country to the world. It grows by choosing partnerships that increase national capacity. Joint R&D centers, industrial parks, standard-setting initiatives, logistics software, railway technologies, port modernization, energy equipment and defense-adjacent civilian technologies should be part of the Türkiye-Russia-China agenda. Cooperation should produce factories, laboratories and skilled labor; it should not remain at the level of declarations.

Finance: National Currencies and Resistance to Sanctions

The third line is finance. The dollar system has not disappeared, and it would be unserious to say so. Yet its political authority has been damaged by its own use as a weapon. Freezing reserves, excluding countries from payment systems, threatening secondary sanctions and using banking channels as instruments of discipline have created a clear result: many states now seek alternatives.

The same logic applies to national currencies. When the dollar becomes a stick in the hands of one state, it loses part of its claim to be a universal instrument of exchange. The more finance is weaponized, the more states look for national currency trade, swap lines, alternative payment systems, gold, digital currencies and regional financial institutions. Coercion accelerates the search for alternatives.

The financial program already has identifiable components: national currencies in bilateral and multilateral trade, new investment banks, national card and payment systems, and reserve instruments beyond the dollar and gold [Latifoğlu, 2023, pp. 66-85]. In the wider debate, de-dollarization is less an immediate replacement of the dollar than a process of asset diversification and institutional experimentation in a post-hegemonic context [Gürçan, 2023, pp. 40-59]. This distinction matters. The issue is not to announce the sudden end of the dollar; the issue is to build the means of acting when the dollar is used as political pressure.

IMF COFER data show the same tendency in cautious statistical form. The U.S. dollar still dominates global reserves, but its share stood at 56.77 percent in the fourth quarter of 2025, while the renminbi share remained small but rising.¹ These figures do not announce the immediate end of the dollar. They show a longer process: states are preparing for a world in which no single currency can monopolize international circulation without political cost.

Türkiye, Russia and China can take concrete steps. They can expand national currency trade in energy, food, machinery and intermediate goods. They can build payment interoperability among banks and platforms. They can strengthen swap arrangements. They can create investment guarantees for strategic projects. They can support development finance for railways, ports, energy infrastructure and industrial zones. The aim is not financial isolation. The aim is to reduce exposure to unilateral pressure.

Financial sovereignty has direct political results. A state that fears sanctions at every step cannot act freely in diplomacy. A company that cannot receive payment cannot plan production. A corridor that cannot be insured or financed remains on paper. Finance therefore belongs to the hard core of the Eurasian axis. Without financial instruments, transport and energy projects remain vulnerable.

¹ International Monetary Fund. Currency Composition of Official Foreign Exchange Reserves (COFER), 2025Q4 Data Brief. Washington, DC: IMF, 2026. URL: <https://data.imf.org/>.

Security and Diplomacy: From Coercion to Equilibrium

The fourth line is security and diplomacy. West Asia, the Caucasus and the Black Sea show the same lesson: intervention does not create order. It creates broken states, armed groups, refugee waves, energy shocks and permanent distrust. The region has paid enough for regime-change politics, separatism, terrorism and external manipulation. A new order in Eurasia must begin from sovereignty.

The Iranian question reveals the issue sharply. Pressure on Iran never remains limited to Iran. It affects the Persian Gulf, Iraq, Syria, the Caucasus, Central Asia, global energy markets and Türkiye's own security. A policy that aims to isolate or overthrow Iran therefore risks destabilizing the whole regional system. Defending Iran's sovereignty does not require agreement with every Iranian policy. It requires rejection of regime-change politics as a method of international order.

The Palestinian question is the second test. No stable West Asian settlement can be built while Palestinian statehood is denied and military force is treated as a substitute for justice. Palestine is not a side issue. It is one of the main points where Western double standards are exposed and regional anger is renewed. A multilateral Eurasian approach must defend a just political settlement, reconstruction and the right of the Palestinian people to statehood.

The Shanghai Cooperation Organization provides a useful institutional reference because it treats security as more than military balance. Economic cooperation, cultural links, energy routes and the protection of strategic trade lines are part of the same security field; terrorism, separatism and extremism appear as threats to the routes of development, not merely as police matters [Şahin, 2020, pp. 24-35]. This approach is valuable for Eurasia. A railway, a port, a pipeline and an industrial zone all require security. Security, in this sense, is the protection of development routes.

Türkiye, Russia and China have different instruments for such a policy. Türkiye has direct borders, military capacity, diplomatic channels and historical ties across West Asia and the Caucasus. Russia has security weight, energy influence and crisis diplomacy experience. China has economic scale, infrastructure capacity and growing diplomatic activity in the region. Their coordination would not solve every conflict. It would strengthen the forces of equilibrium against the forces of coercion.

The Black Sea and the Caucasus demand the same method. NATO expansion, the Ukraine war, sanctions, energy disputes and unresolved regional tensions have made both regions highly sensitive. Permanent militarization is not a solution. The solution is a balance that keeps communication open, protects the sovereignty of regional states and prevents outside actors from turning local disputes into wider confrontations. Türkiye has a special responsibility here. It can be a corridor of escalation or a center of balance.

Civilizational Plurality and the New International Legitimacy

The new order also requires a new understanding of legitimacy. Modernization cannot be reduced to copying one political model. Türkiye, Russia and China have different political systems, historical memories and civilizational backgrounds. Their cooperation gains importance precisely because it brings together different experiences without demanding sameness.

Every nation has the right to choose its political system according to its historical background and social structure. Outside powers have no right to impose regimes under the language of democracy. The record of recent decades is clear enough. Regime-change campaigns have brought blood, collapse and dependency, not democracy.

The rise of the Global East gives this point a wider frame. East Asia, Southeast Asia, South Asia, Central Asia, West Asia and North Asia increasingly form a complex field of security, politics, economics and civilization; in this transition from U.S. hegemony to multipolarity, historical self-definition, strategic autonomy and neighborhood diplomacy have become stronger [Degang & Yingqi, 2024, pp. 366-385]. This is more than diplomacy. It is a civilizational awakening. States that were once treated as objects of Western policy now define their own place in history.

The Türkiye-Russia-China axis should therefore be seen as part of a wider pluralization of world politics. It does not erase differences among civilizations. It gives them a framework for co-operation. It does not demand ideological uniformity. It demands respect for sovereignty, equality and development. This is the political meaning of plural legitimacy.

The same point applies to Europe, Africa and Latin America. A stronger Eurasian axis does not close the world; it opens room for others. Europe gains options when it is not tied to Atlantic confrontation. Africa and Latin America gain bargaining power when infrastructure finance, technology, energy and trade routes are not monopolized by one center. A fairer order begins when states have alternatives.

At this point the discussion touches the problem that Sergey Bodrunov formulates under noonomy and noosociety. Bodrunov argues that modern technological and socio-economic development reveals deep economic, social, environmental and moral contradictions, while also creating the objective possibility of overcoming them through a transition from economic rationality to a rationality based on knowledge and culture [Bodrunov, 2022, pp. 16-29]. A Türkiye-Russia-China axis would not itself constitute noonomy. Its relevance is more limited and more concrete: it can help create the external conditions for such a higher stage of development by strengthening energy security, industrial cooperation, technological exchange, financial autonomy and sovereign planning. Without those conditions, talk of a new quality of social life remains exposed to sanctions, war pressure and dependence on old centers of command.

A Program for the Coming Period

The Türkiye-Russia-China axis should be built through concrete steps. First, the three countries should establish a permanent consultation mechanism on Eurasian corridors. The Belt and Road, the Middle Corridor, the Development Road, the Black Sea, the Caspian and the Eurasian Economic Union should be discussed as connected layers of one continental architecture. Technical committees should work on customs, railway standards, port capacity, insurance, logistics data and industrial zones.

Second, energy cooperation should be deepened beyond short-term trade. Russia's resources, China's renewable and grid technologies, and Türkiye's transit and manufacturing capacity can support pipelines, storage, nuclear cooperation, electricity networks, solar and wind equipment, and critical mineral processing. Energy cooperation should be tied to industrial policy.

Third, Türkiye should be placed at the center of joint production. Chinese capital and technology, Russian strategic inputs and Turkish industry can create export-oriented manufacturing zones. These zones should target West Asia, Africa, Europe and the Turkic world. The objective must be clear: Türkiye should become a production and distribution base, not merely a market or corridor.

Fourth, financial cooperation should be institutionalized. National currency trade, swap lines, alternative payment systems, project finance and investment guarantees should become normal

tools. A Eurasian project cannot depend on financial channels that can be closed by political order from outside.

Fifth, security consultation should focus on sovereignty and anti-interventionism. West Asia, the Caucasus and the Black Sea require mechanisms that prevent terrorism, separatism and outside manipulation. The Palestinian question, the security of Iran, the reconstruction of Syria and Iraq, and the stability of the South Caucasus should be discussed through the same principle: regional problems must be solved by respecting states and peoples, not by imposing regimes.

These steps require political will. They also require intellectual clarity. Türkiye should no longer approach Eurasian cooperation as a tactical instrument in its relations with the West, but as a strategic orientation grounded in its own development and security needs. Russia and China must see Türkiye as a strategic partner with its own interests, not merely as a corridor. The relationship must be built on equality. Without equality, there is no lasting axis. Without planning, there is no construction.

Conclusion

The new order will be built by those who act. Multipolarity already exists. The question is whether it will remain a scattered balance of rival centers or become a multilateral order based on sovereignty, equality and common development. Türkiye, Russia and China have the capacities to make the second road possible.

The realistic solution is clear. Energy and transport must be connected. Industry and trade must be planned. Finance must be diversified. Security must be based on sovereignty. Diplomacy must replace coercion. Civilizational plurality must be accepted as a foundation of legitimacy.

Türkiye stands before a strategic choice. It can remain within the limits drawn for it by Atlantic discipline, or it can become one of the builders of the Eurasian century. Russia and China also face a choice. They can keep cooperation at the level of reaction to Western pressure, or they can help build institutions equal to the scale of the new period.

The Türkiye-Russia-China axis is not a fantasy. Its material foundations are already visible in trade, energy, corridors, finance and diplomacy. The task is to give these foundations a conscious political form. If this is done, Eurasia will cease to be a field of pressure and become one of the main pillars of multilateral order. This is the strategic meaning of the coming period: not waiting for a new order, but building it.

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THE IMPOSSIBILITY OF CONTEMPORARY INNOVATIVE ECONOMIC DEVELOPMENT WITHOUT SOCIAL TRANSFORMATIONS: ARGUMENTS FROM NOONOMY THEORY

Abstract: the article examines the problem of the transition of national economic systems to sustainable economic growth amid the current turbulence and fragmentation of the global economy. Based on contemporary macroeconomic dynamics and forecasts from international organizations – such as the International Monetary Fund, the World Bank, and the OECD – it can be observed that global economic growth is slowing, while trade segmentation is deepening, with geopolitical values increasingly taking precedence over market-based ones. At the same time, an analysis of the development of national economic systems (1961–2024) demonstrates that economic growth rates significantly increase during periods when technological advancement is accompanied by profound transformations in society and its social institutions. Today, the innovation system – both at the national level and across the global economy – is no longer capable of ensuring sustainable expanded reproduction while remaining within an exclusively market-based paradigm. This is because innovations driven by technological progress and the accumulation of knowledge come into conflict with outdated social institutions oriented toward economic efficiency and profit maximization. To fully realize the potential of new technologies (such as automation and artificial intelligence), it is necessary to overcome the logic of market fundamentalism and transition to new forms of labor motivation, where creativity and self-realization displace purely material incentives. Social transformations thus become a necessary condition for the deployment of innovation: they create an appropriate institutional environment (new forms of ownership, distribution, and governance) that enables knowledge to become a direct productive force. Without the transformation of social structures and values, technological breakthroughs are either constrained or lead to increasing social inequality rather than qualitative societal development. In conclusion, it is argued that the movement toward a noosociety presupposes a synergy between technological and social innovations.

Keywords: economic systems, innovative development, sustainable economic growth, social transformations, mechanism of “creative destruction”, noonomy.

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没有社会变革就不可能有当代经济创新发展——其智慧经济理论论据

摘要: 本文探讨了在当今世界经济动荡和碎片化的形势下, 各国经济体系向可持续经济增长转型的问题。根据当代宏观经济动态及国际组织 (国际货币基金组织、世界银行、经济合作与发展组织) 的预测, 可以认为全球经济增长速度正在放缓, 贸易分化日益加深, 对这种现象发挥关键作用的已不再是市场价值, 而是地缘政治价值。同时, 对各国经济体系发展 (1961–2024年) 的分析表明, 当技术发展伴随着社会及社会制度的深刻变革时, 各国的经济增长速度会显著提升。如今, 无论是国家层面还是全球经济层面, 创新体系若仅局限于纯粹的市场范式, 便无法确保可持续的扩大再生产。毕竟, 由技术发展和知识积累催生的创新, 与那些以经济效率和利润最大化为导向的过时社会制度产生了矛盾。要充分发挥新技术 (如自动化、人工智能) 的潜力, 就必须突破市场原教旨主义的思维定式, 转向新的劳动激励形式, 让创造力和自我实现取代物质激励。因此, 社会变革成为推动创新的必要条件: 它们营造了相应的制度环境 (新的所有制、分配和治理形式), 使知识能够直接转化为生产力。如果不进行社会结构和价值观的转型, 技术突破就会要么被阻碍, 要么导致社会不平等加剧, 而非推动社会的优质发展。最终得出结论: 迈向“智慧社会”的过程需要技术创新与社会创新的同步推进。

关键词: 经济体系、创新发展、可持续经济增长、社会变革、“创造性破坏”机制、智慧经济。

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Introduction

The topic of innovation and the potential for innovative development is attracting increasing attention from the global scientific community and the general public. It is beyond doubt that it is impossible to achieve a trajectory of sustainable growth and development of national economic systems – and the global economy as a whole – without the expanded reproduction of innovations. Only technological progress allows society to transcend existing resource constraints and advance to a new level of socio-economic reality. It is specifically due to this progress that many pessimistic forecasts by T. Malthus, A. Hansen, P. Ehrlich, R. Batra, and other renowned scholars failed to come to pass. Instead, national and global economic systems have often demonstrated phenomenal and rapid growth in production capabilities and productive forces during certain periods. At the same time, a question arises: what conditions are necessary for scientific and technological progress and the expanded reproduction of innovations to occur?

Contemporary research into the development of national economic systems shows that the transition to an innovative type of reproduction requires the simultaneous action of specific factors encompassing diverse spheres of human activity. In other words, the mere accumulation of breakthrough technological solutions – without considering institutional, cultural, social, and environmental conditions – does not resolve the fundamental contradictions of the socio-economic development of economic systems; rather, it may only aggravate them.

The problem of transitioning to a trajectory of innovative development takes on paramount importance for both national and global economies as they face major challenges like slow eco-

conomic growth, rising socio-economic and cognitive inequality, the climate crisis, and job losses from automation.

It is worth noting that, despite the high degree of development in this field of research, there remains a gap between the understanding of the mechanism of innovative development – which stimulates technical progress, but generates economic, social, and environmental costs (the so-called “creative destruction” mechanism) – and the practical tools for overcoming them. Existing models either absolutize market competition as the sole driver of innovation – largely remaining within the framework of market fundamentalism – or offer targeted measures that are insufficient to overcome the systemic challenges of innovative development.

Bridging this gap requires a conceptual revision of the paradigm itself. In this regard, the objective of the study is to substantiate the necessity of transitioning from the traditional paradigm of innovative development – based on market competition and the gain from technological advances – to a transformational approach in innovation policy. This new approach is oriented toward resolving social, environmental, and cognitive contradictions and defining key directions for the formation of a new socio-economic order: the noonomy.

Materials and methods

The theoretical basis for this research comprises works dedicated to the historical, institutional, economic, and social aspects of innovative development. Among Western scholars, this includes the works of J. Mokyr (on the role of “culture of growth” and institutional prerequisites for innovation), P. Aghion and P. Howitt (on the mechanism of “creative destruction” and its social consequences), and J. M. Keynes (on the transformation of social norms as wealth grows). Among Russian studies, the works of S.D. Bodrunov and S.Yu. Glazyev are utilized, as they develop the concept of the noonomy as a theoretical reflection of a new socio-economic order.

In this study, the thesis that innovation policy should be guided not only by technological development and the minimization of economic costs but also by the resolution of social and environmental challenges is based on the OECD Program on Transformative Science, Technology, and Innovation Policy (2024). The empirical foundation of the research consists of reports from the IMF, the World Bank, and the OECD, which contain data on the dynamics and forecasts of global economic growth rates, as well as the World Inequality Report (2026).

This study attempts to analyze and synthesize the aforementioned works – merging ideas on the “culture of growth,” the mechanism of “creative destruction,” social norms, the transformational approach to innovation policy, empirical data on inequality, and the noonomic order into a single logical framework to justify the transition toward sustainable innovative development. The scientific novelty and relevance of this research are defined by the absence of such analysis and synthesis in modern scientific literature.

Results and discussion

From the Industrial Revolution to Modern Global Challenges: The Evolution of the Innovation Paradigm

The global scientific consensus regarding the crucial role of innovation in economic development was clearly reflected in the 2025 decision of the Nobel Committee. The Sveriges Riksbank Prize in Economic Sciences was awarded for “explaining innovation-driven economic growth” to

three scholars: one half to economic historian Joel Mokyr and the other half jointly to Philippe Aghion and Peter Howitt.

Joel Mokyr's investigation into the prerequisites for the First Industrial Revolution and sustained economic growth revealed that their emergence was not an inevitable or natural progression. Instead, it was made possible only through the convergence of a complex set of factors. While development prior to the First Industrial Revolution was characterized by isolated innovations and annual economic growth of only about 0.2% until 1800, the post-1800 era saw innovations produced in a continuous stream. As countries industrialized, average economic growth reached 2% per year. In other words, while GDP doubled every 350 years prior to the Industrial Revolution, after 1800, it doubled in just 35 years. Consequently, understanding the driving factors is a necessary condition for the expanded reproduction of innovations and the transition to sustainable economic growth.

One of Joel Mokyr's most significant achievements is his detailed analysis of the factors underlying this expanded reproduction of innovation. The scholar goes beyond a narrow economic approach, interpreting innovation as the result of interconnection of social, political, cultural, scientific and technological conditions. Mokyr pays particular attention to the role of ideas and knowledge; specifically, he explains sustained economic growth after 1800 as a unique combination of scientific progress, technological development, and a "culture of growth" that encourages the exchange of information. Weaker political centralization, fragmentation of power, and cross-country competition created a market of ideas, facilitating their dissemination and the interaction between theory and practice. It was the convergence of all the aforementioned factors that triggered the Industrial Revolution in Great Britain [Mokyr, 2017; Mokyr, 2012]. In contrast, Mokyr emphasizes that an industrial revolution was impossible during that period in China or the Ottoman Empire due to rigid political centralization. Similarly, in African countries, the primary obstacle was the low quality of socio-economic institutions¹.

It is worth noting that the other Nobel laureates, Philippe Aghion and Peter Howitt, examined a different aspect of the problem of sustainable economic growth: how innovations are reproduced over time in the modern economy. To reveal the mechanism of innovation reproduction, the scholars utilized a mathematical model of "creative destruction." The term "creative destruction" was originally introduced by Joseph Schumpeter, who defined it as the process of displacing obsolete technology and inefficient firms with superior ones. At the core of the Aghion and P. Howitt's model lies a paradox: economic growth accelerates precisely under conditions of constant renewal – when some firms disappear to give way to others, new products and new jobs are emerging to replace old ones. In this model, the sole source of long-term growth is an endless cycle: innovation → market entry → destruction of monopoly rent → subsequent innovation².

Accordingly, innovation is of dual nature: on one hand, it carries a creative principle, representing something new and inventive; on the other, a destructive principle, as it displaces companies which use obsolete technology.

Such dynamics spark a conflict of interest between new entrants striving to enter the market and existing players attempting to protect their positions. Lobbying often serves as a

¹ Naumenko, N. Revolution of the Mind: Why the 2025 Nobel Prize in Economics Was Awarded. URL: <https://nplus1.ru/blog/2025/10/17/economic-nobel-2025> (accessed on: 10.02.2026).

² Economic growth requires destruction and chaos. Why the 2025 Nobel Prize in Economics was awarded. URL: <https://www.banki.ru/news/daytheme/?id=11018541> (accessed on: 10.02.2026).

protective tool aimed at restricting market entry. Furthermore, established firms frequently invest in new technologies less than would be beneficial for the society. The latter is attributed to the fact that companies are reluctant to lose resources invested in legacy technologies, leading them to intentionally restrict investment and slow the transition to new systems [Aghion, Howitt, 1990].

At the same time, the mass adoption of new technology often leads to technological unemployment, creating social tension. Practice shows that even when possessing advanced technology, enterprises and the government may deliberately restrain its widespread adoption to avoid a sharp rise in unemployment and give the labor market time to adapt. Consequently, the government faces the need for a delicate balance: stimulating innovation for growth while mitigating the social consequences of this process – potentially by temporarily limiting the pace of technological transformation for the sake of long-term stability.

In other words, the Aghion-Howitt model of the innovation reproduction demonstrated a controversial, non-linear relationship between competition and innovation; that is, not only weak but also excessive competition can contribute to a slowdown in innovation.

Thus, the research by J. Mokyr, P. Aghion and P. Howitt demonstrates that sustainable economic growth is the result of a continuous process of renewing ideas, institutions, and technologies. In this regard, it is essential to develop inclusive institutions designed to address a twofold task: on one hand, supporting competition, protecting property rights, and ensuring investment in science, education, and culture; on the other, achieving a balance between supporting operating companies and allowing new players to enter the market.

This twofold task faced by the governments today resonates strikingly with ideas expressed long before the formalization of the theory of “creative destruction.” As early as in 1931, J. M. Keynes sought to look beyond the horizon of the current crisis in his essay *Economic Possibilities for Our Grandchildren*. It is worth noting that this essay was published during the Great Depression – a period when the very possibility of further economic growth was called into question and secular stagnation was being predicted. J. M. Keynes did not share this pessimistic outlook; he pointed out that the emerging contradictions and the economic crisis were connected with extremely rapid technological changes to which the economic system was not able to adapt. The scholar quite accurately predicted economic growth and a four-to-eightfold increase in public welfare over the next 100 years [Keynes, 2009, p. 63]. At the same time, J. M. Keynes demonstrated that further social and economic development, upon reaching a high level of public prosperity, is determined by the necessity of significant social transformations – primarily involving changes in social norms. Indeed, if financial incentives to work lose their potency at high levels of welfare, then social norms must reflect intangible incentives to work, to create intangible values, and to form a different perception of time (where the present plays a greater role than the future) [Keynes, 2009].

Consequently, social factors and non-market values take on increasing importance. This is confirmed by the global development experience of nations from the second half of the 20th century to the present. If we examine the time interval from 1961 to 2024, the average annual growth rate of global GDP stands at 3.46 %. Within this period, a peak growth of 6.6 % was achieved in 1964, while the minimum value (–2.8 %) was recorded in 2020.

At the same time, it is evident that economic growth rates in developed countries surged significantly after World War II, when technology development was accompanied by deep transfor-

mations of society and social institutions themselves. This period, known as the “Thirty Glorious Years” (*Les Trente Glorieuses*), saw average annual growth rates of 2.5 % in the United States and 3.8 % in Western Europe.

Currently, despite the resilience shown by the global economy in the face of a series of shocks (COVID-19, sanctions, armed conflicts), its growth rates are yet to reach the historical average annual global GDP growth rate of 3.46 % (Fig. 1).

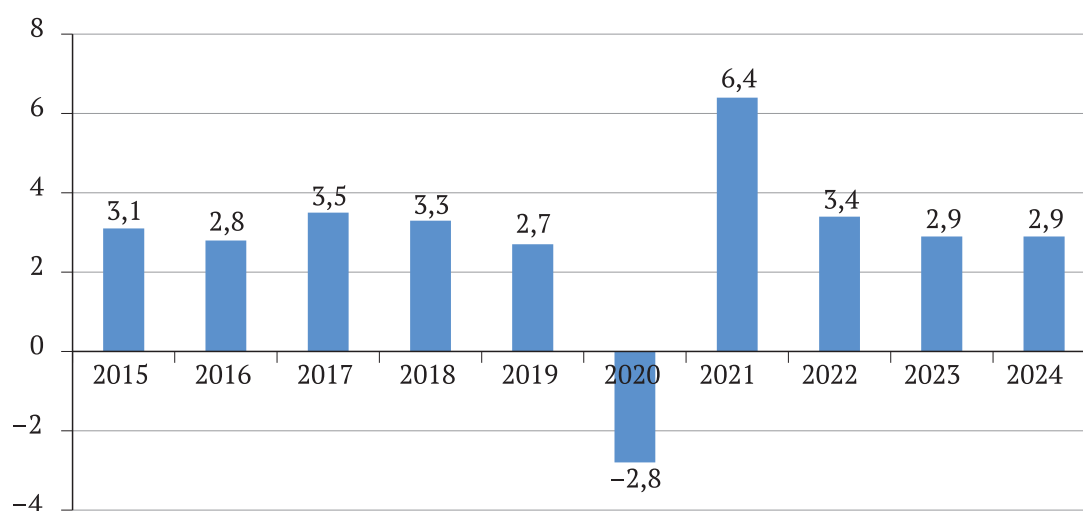


Fig. 1. Annual Global GDP Growth, %

Source: Compiled by the author based on official data¹

For 2025, various estimates from the IMF, the World Bank, and the OECD project global GDP growth to range between 2.3% and 3.2%². Overall, no deep recession is projected through 2027; however, there is a high probability of a global economic slowdown, with growth rate averaging approximately 2.5%.

It is worth noting that the consequences of the COVID-19 pandemic were not limited to public health; the pandemic undermined social stability, the financial system, and the functioning of many industries. Amid such upheaval, the aggravated geopolitical crisis triggered disruptions in global supply chains, a restructuring of trade flows, and the fragmentation of the global economy. The reaction to these processes has been a rise in protectionism, a push for greater economic autonomy, reduced interdependence, and, consequently, the division of the global economy into mega-blocks. In these blocks, trade agreements are no longer based on market values (profit maximization, free trade, entrepreneurship, etc.) but rather on geopolitical values, unfair competition, and a predatory “cheap resources at any cost” strategy.

These trends have contributed to a deepening segmentation of world trade and global value chains. There has been an accelerated growth in turnover between countries with similar geopo-

¹ Annual Global GDP Growth. URL: <https://ru.tradingeconomics.com/world/full-year-gdp-growth> (accessed on: 15.11.2025).

² IMF: World Economic Outlook Global Economy in the Shadow of War. URL: <https://www.imf.org/ru/publications/weo/issues/2026/04/14/world-economic-outlook-april-2026> (accessed on: 04.04.2026); World Bank: Global economic prospects for 2026–2027 URL: <https://invexi.org/ru/press/world-bank-global-economic-prospects-for-2026-2027/> (accessed on: 04.04.2026); OECD Economic Outlook. URL: https://www.oecd.org/en/publications/oecd-economic-outlook-volume-2025-issue-2_9f653ca1-en.html (accessed on: 04.04.2026).

litical stances: their mutual trade grew on average 4% faster per year compared to trade between geopolitically distant nations. A trade reorientation has occurred: the U.S. has reduced its purchases from China (with imports dropping from 21.8 % to 13.7 %) while increasing them from Mexico (rising to 15.4 %). A similar gap has widened between Russia and the EU. Under these conditions, neutral intermediary countries – such as Mexico, Vietnam, the UAE, and Turkey – have emerged as winners. It should be noted that the division of trade into blocks is projected to persist in the short term; however, it will become increasingly difficult for intermediary countries to maintain their neutral status¹.

As a result, the global economic system operates in an environment of instability, high uncertainty, and internal contradictions, with the social and economic development vectors of different countries diverging significantly.

Despite these negative phenomena, the long-term forecasts of reputable international organizations for the global economy remain relatively optimistic. On March 15, 2024, IMF Managing Director Kristalina Georgieva outlined two possible scenarios for the global economy over the coming century: a “low-ambition scenario” and a “high-ambition scenario.” Both scenarios project positive economic growth and rising standards of living. Specifically, in case of the “low-ambition scenario,” global GDP is expected to roughly triple, with standards of living doubling compared to today. While in case of the “high-ambition scenario,” global GDP would grow 13-fold, and standards of living ninefold². However, the report emphasizes the urgent need to address economic inequality and environmental issues, which continue to escalate.

Such optimistic forecasts raise doubts because they lack specific measures to address the systemic issues required to reach these projected targets.

Specifically, the World Inequality Report 2026 shows a significant disparity in earnings, revealing that the wealthiest decile of the global population currently commands more income than the remaining 90% combined. Furthermore, the bottom half of the population receives less than 10 % of the total income. This wealth imbalance is even more pronounced in asset ownership: the top 10 % control 75% of global capital, while the bottom 50 % possess merely 2 % (Figure 2).

At the same time, the wealthiest 0.001% (fewer than 60,000 multi-millionaires) own three times as much wealth as half of the world’s population. Their share has grown from 4% in 1995 to 6% today, underscoring the persistent nature of inequality.

Furthermore, the World Inequality Report 2026 notes that while the climate crisis represents a collective challenge, its effects and causes are distributed extremely unevenly (Figure 3).

As shown in Figure 3, the poorest 50% of the population account for only 3% of emissions associated with private capital ownership, while the top 10% wealthiest account for 77%. The concentration is even more pronounced at the top decile: the wealthiest 1% is responsible for 41% of emissions in this category, which is nearly double the total share of the bottom 90%. This inequality correlates directly with vulnerability: groups with the lowest emission levels – primarily populations in low-income countries – are exposed to the greatest climate risks. Conversely, the primary emitters possess the resources for effective adaptation and mitigation.

¹ Monitoring of the global economy and geopolitical risks. URL: <https://wec.hse.ru/mirror/pubs/share/1021755033.pdf> (accessed on: 18.02.2026).

² Georgieva K. The Economic Opportunities of My Grandchildren. URL: <https://www.imf.org/ru/news/articles/2024/03/08/sp031424-kings-college-cambridge-kristalina-georgieva> (accessed on: 21.02.2026).

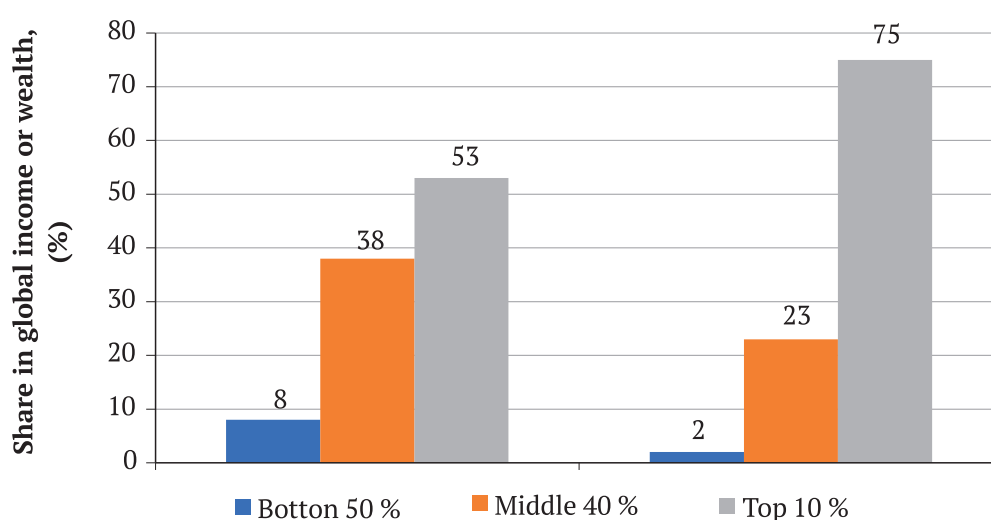


Fig. 2. Share of Global Income or Wealth by Population Group, 2025

Source: World Inequality Report (2026)¹.

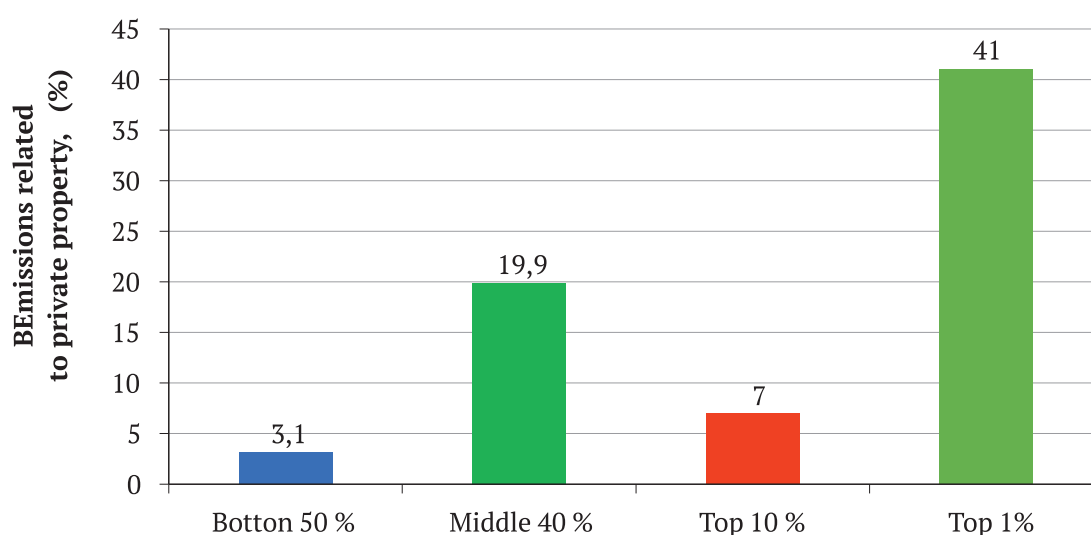


Fig. 3. Private Property-Related Emissions, 2022

Source: World Inequality Report (2026)².

Consequently, such a high degree of inequality in standards of living and wealth significantly restricts the reproduction of the human capital necessary for innovation and, more broadly, intensifies social and political tensions within society.

Thus, the analytical data on the growth of economic and climate inequality and the nature of their interrelationship – as presented in the World Inequality Report 2026 – demonstrates that neither “low-ambition” nor “high-ambition” growth scenarios are achievable without a fundamental transformation of technological development mechanisms. What is required is a tran-

¹ World Inequality Report (2026). URL: https://wir2026.wid.world/www-site/uploads/2025/12/WIR26_Executive_Summary_Russian.pdf (accessed on: 15.02.2026).

² World Inequality Report (2026). URL: https://wir2026.wid.world/www-site/uploads/2025/12/WIR26_Executive_Summary_Russian.pdf (accessed on: 15.02.2026).

sition from policies that stimulate “innovation for the sake of innovation” to policies where innovation serves as a tool for solving social and environmental challenges, aligns with shifts in societal values, and prioritizes cooperation and partnership. This exact methodological foundation is established in the OECD Program on Transformative Science, Technology, and Innovation Policy, which introduces a transformative approach to innovation policy (the details of which are given in Table 1)¹.

Table 1
Comparative analysis of traditional and transformative approaches to innovation policy²

Traditional Approach	Transformative Approach
• Focused on producing knowledge, technology, and innovations to increase competitiveness and economic growth; • Driving Force – Concepts of scientific excellence (based on publication activity) and economic effects; • Oriented toward initial stages of innovation cycle (scientific and technological achievements); • Concentrated exclusively on creating novelty; • Supports specific, fragmented, and unrelated management systems; • Assumes a narrow range of innovation policy instruments and aims to increase their efficiency	• Aimed at solving economic and social problems to achieve Sustainable Development Goals; • Driving Force – Broadly defined values aligned with transformation goals (interdisciplinarity, risk-taking, creation of additional social/environmental value); • A more holistic approach, encompassing infrastructure investment, the creation of new markets, support for related skills and behaviors, and the formation of collaborative spaces and new partnerships; • Actively promotes the decommissioning of technologies that cause social and environmental damage; • A systemic approach coordinated across multiple levels of management; • An experimental and flexible policy toolkit at the intersection of multiple thematic areas (e.g., environment and security)

The analysis of the works by J. Mokyr, P. Aghion, P. Howitt, and J. M. Keynes, alongside the World Inequality Report and the OECD Agenda For Transformative Science Technology And Innovation Policies, leads us to a central conclusion: the transition to sustainable economic growth and innovative development requires the resolution of fundamental contradictions (specifically social, environmental, and cognitive) that go beyond the purely market-driven paradigm of “creative destruction.” By integrating these ideas, we come to understand that modern technology requires more than just a “tune-up” of old institutions; it demands the formation of a fundamentally new social order. The concept of noonomy aims specifically to serve as the theoretical reflection of this order, referred to as the New Industrial Society of the Second Generation (NIS.2).

¹ OECD Agenda For Transformative Science Technology And Innovation Policies. URL: https://www.oecd.org/content/dam/oecd/en/publications/reports/2024/04/oecd-agenda-for-transformative-science-technology-and-innovation-policies_5ced463a/ba2aaf7b-en.pdf (accessed on: 17.02.2026).

² OECD calls for a transformation of innovation policy. URL <https://issek.hse.ru/news/930524717.html> (accessed on: 17.02.2026).

Noonomy as a Strategic Response to Civilizational Challenges

The concept of noonomy developed under the supervision of S. D. Bodrunov, Corresponding Member of the Russian Academy of Sciences, marks the exhaustion of the industrial-capitalist model. Its key contradictions – resource depletion, financialization, cognitive inequality, and the crisis of the classical “Economics” paradigm – cannot be resolved within the framework of the existing system. Noonomy represents an intellectual-creative paradigm that organically incorporates all the trends we have identified and elevates them to a new level [Bodrunov, Glazyev, 2023].

Let us examine more closely how the noonomy responds each of these challenges and trends.

1. Overcoming the “creative destruction” paradox through solidarism and cooperation. It is worth noting that in the Aghion-Howitt model, innovation has always a dual nature (creation for some and destruction for others). In the noonomy, however, this contradiction can be overcome. The foundation of this new order is solidarism: the cooperation of interests for the public good and a conscious striving for compromise and social cooperation [Bodrunov, 2024, p. 19]. In our view, this does not negate competition as such, but rather shifts its focus. While in the Aghion-Howitt model firms compete for exclusivity (the right to own technology and gain rent), in the noonomy, the focus shifts toward inclusivity and creativity. In other words, firms cease to compete by hiding knowledge for the sake of gaining monopoly rent. Instead, they begin to compete based on their ability to attract talents and the speed of horizontal cooperation. It is this very factor that determines a significant long-term economic effect, which is eventually capitalized by the market, even though with a substantial time lag. At the same time, in the short term, the market is unable to adequately evaluate the economic effects of developing horizontal links and their capacity to reproduce new knowledge. This occurs because of difficulties in the monetary valuation of intellectual deliverables and the failure to account for effects related to the critical emergent properties of horizontal system – such as resilience, adaptability, and identity – which determine a firm’s functioning in the long run. Moreover, within this competitive environment, less effective horizontal networks reorganize and adapt without the bankruptcy of individual units (specifically, firms). Comparison of these two types of competition is presented in Table 2.

Table 2
Comparison of the Two Types of Competition

Competition in the Industrial-Capitalist System	Competition in the Noonomy
for exclusivity	for inclusivity
Hiding of knowledge	Speed of cooperation
Gain of rent	Attraction of talents

Source: Compiled by the author

The phenomenon of open innovation during the COVID-19 pandemic serves as an example of this new type of competition. Under the conditions of the pandemic crisis, many companies and research centers voluntarily decided not to hide knowledge and not to gain monopoly rent. The Oxford-AstraZeneca COVID-19 vaccine was distributed on a non-profit basis, and open platforms united thousands of small firms and researchers without patent barriers. In this competitive struggle, the winners were those networks that demonstrated maximum speed in horizontal cooperation and talent attraction, rather than those that concealed data. Companies with less

effective results did not go bankrupt; instead, they reoriented themselves, transferring resources and information to more successful networks. It should be noted that following the acute phase of the pandemic crisis, many companies returned to a patent-based functioning model. Nevertheless, this phenomenon of open innovation clearly demonstrated that horizontal cooperation and solidarism are effective when a social aim dominates over private gain.

Thus, while P. Aghion and P. Howitt explained the mechanism for accelerating growth through “creative destruction,” the noonomy offers a path toward “creation” that is not accompanied by destructive social consequences. The latter implies a shift in the focus of competition – a transition from the gain of monopoly rent to the augmentation of collective intellectual capital.

2. Developing of J. Mokyr’s ideas: from “culture of growth” to “noo-human.” Similarly, while J. Mokyr revealed the importance of a culture that encourages the exchange of information, S.D. Bodrunov, within the concept of noonomy, develops this thesis toward the formation of the “noo-human” – a creator in meaning-making for whom creativity and development become the highest values [Bodrunov, 2025, pp. 19-20]. This aligns with the very changes in social norms and the transition to intangible incentives about which wrote J. M. Keynes. The process of socialization, identified as one of the four vectors of noo-transformation, implies that individuals acquire increasing social responsibility, with their behavior being shaped by moral values rather than mere market gain. Consequently, J. Mokyr’s “culture of growth” is transformed into a culture of creative self-actualization.

However, it is beyond doubt that economic growth and rising prosperity do not automatically produce such a “noo-human.” The historical experience of recent decades shows that time liberated from necessity can be filled equally well with either creative activity or hedonistic consumption. Therefore, the transition to a noosociety is impossible without a purposeful cultural and anthropological policy that shapes the corresponding values and behavioral models.

3. Responding to the OECD transformative approach: from “knowledge economy” to noonomy. The OECD transformative approach requires orientation toward societal values and the solving of social tasks. Noonomy, however, establishes a logic where their alignment emerges from the structure itself, rather than being achieved through an additional mediating link. A fundamental distinction is drawn between the “knowledge economy” and noonomy. While the knowledge economy continues to capitalize on intellectual products by turning them into commodities, noonomy marks a departure from this capitalization in favor of open ecosystems and horizontal cognitive cooperation. By introducing the concept of the “crystallization of noonomy” as a network model, the theory demonstrates that the creativity itself and the cooperative production of meanings become the core of development [Bodrunov, 2025, p. 23].

4. Solving issues of technological unemployment and economic inequality. Technological unemployment is the most acute problem generated by “creative destruction.” Noonomy proposes viewing this process not as a threat, but as the liberation of human lifetime for creative self-actualization. Digitalization and automation (NBICS convergence) lead to a reduction in mechanized labor. However, it is specifically within the framework of the New Industrial Society of the Second Generation (NIS.2) that the conditions are created for transitioning to “non-mechanized” activities – intellectual and creative work based on unique human qualities. The latter requires the modernization of education and retraining systems to foster soft and creative skills [Bodrunov, 2025, pp. 21-22]. The formation of relevant institutions is already underway, as evidenced by the EU’s adoption of the Council Recommendation on micro-credentials for lifelong learning and employability on June 16, 2022. These recommendations are designed to harmonize the develop-

ment and recognition of micro-credentials across the European Union, encompassing both the public and private sectors.

However, it must be noted that today we are witnessing not only economic inequality but also cognitive inequality. The capacity for creativity, the generation of new meanings, and complex intellectual activity is naturally distributed unevenly throughout the society and develops inconsistently under the influence of the social environment. In this regard, there is a looming danger of transitioning from a class-based society to a caste (feudal) society, established upon a new technological foundation. Accordingly, it is essential to ensure the development of educational and scientific institutions aimed at reducing cognitive inequality, while also creating an environment where everyone can find their own kind of creativity (not necessarily limited to advanced technology).

5. The diffusion of ownership as the foundation for new production relations. Noonomy also accounts for real shifts in ownership structures – the so-called diffusion of ownership. Individual property rights are transforming into flexible and more alienated forms of ownership and use (e.g., shareholding, associative ownership, public-private partnerships, etc.). This creates the prerequisites for a new type of economic motivation, where ownership and use are no longer rigidly tied to the individual, giving way to collective and network-based forms [Bodrunov, 2022, p. 20]. In such an environment, innovations are created not for the gain of monopoly rent (as in the Aghion-Howitt model), but for the development of the entire ecosystem.

Thus, noonomy serves not merely as an abstract theory, but as a strategic response to global civilizational challenges.

Conclusion

The analysis conducted has demonstrated the limitations of the traditional market paradigm within the framework of the current “creative destruction” mechanism as described by P. Aghion and P. Howitt. In this model, innovations inevitably generate technological unemployment, cognitive and economic inequality, and external environmental costs. The core problem lies in the fact that competition for monopoly rent induces hiding of knowledge and blocks the potential for horizontal cooperation. Consequently, further adherence to the logic of “creative destruction” without a shift in strategic objectives leads not to sustainable development, but to the reproduction of systemic crises. Drawing on the ideas of J. Mokyr and J. M. Keynes, it can be stated that technological and institutional conditions alone are insufficient. A “culture of growth” that encourages information exchange must be supplemented by a purposeful cultural and anthropological transformation. What is required is a transition to a policy where innovation becomes a tool for solving social and environmental challenges, rather than an end in itself.

The concept of noonomy (S.D. Bodrunov) offers exactly such a mechanism. It resolves the paradox of “creative destruction” through solidarism and cooperation, shifting the focus of competition from the gain of monopoly rent to the augmentation of collective intellectual capital. In doing so, the noonomy explains how to organize “creation” without destructive social consequences.

The noonomy assumes the formation of the “noo-human” – a creator in meaning-making for whom creativity becomes the highest value (developing the ideas of J. M. Keynes and J. Mokyr). Within this framework, technological unemployment is reframed as the liberation of time for “non-mechanized” creative activities. At the same time, the diffusion of ownership creates the material foundation for a new type of economic incentive – one oriented toward the development of the entire ecosystem rather than the protection of individual assets.

The study identifies cognitive inequality and the threat of a new caste society as the primary challenges of our time. Without the purposeful development of educational and scientific institutions aimed at reducing cognitive inequality and fostering an environment for diverse forms of creativity, technological progress will only solidify elite access to innovative activity.

Ultimately, sustainable innovative growth is impossible within the industrial-capitalist paradigm based on competition for exclusivity. The only way to achieve a trajectory of sustainable economic growth – while avoiding the traps of inequality, environmental catastrophes, and social conflicts – is through the formation of a new social and economic order. Transitioning to this order requires more than just technological change; it demands purposeful cultural, anthropological, and institutional transformations that prioritize solidarism, cooperation, and the augmentation of collective intellectual capital.

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NOONOMY EXPANDS ITS INTERNATIONAL PRESENCE: MEETINGS WITH REPRESENTATIVES OF THE PRC

As part of the Russian-Chinese roundtable discussion “Problems of Economic Modernization and Various Aspects of Aligning Russia and China’s Development Trajectories,” held on May 21, 2026, at the Congress Hall of the VEO of Russia, a working meeting was held between S.D. Bodrunov, Director of the S.Y. Witte Institute of Noonomy and New Industrial Development, President of the VEO of Russia, and Corresponding Member of the Russian Academy of Sciences, and Professor Cheng Enfu, Chairman of the World Association for Political Economy and Academician of the Chinese Academy of Social Sciences. Ding Xiaoqin, Secretary General of the World Association for Political Economy and Professor at the Shanghai University of Finance and Economics, also participated in the discussions.



During the meeting, the parties discussed prospects for developing Russian-Chinese scientific cooperation in the field of new theories of social development, with the concept of noonomy occupying a priority position. The Chinese colleagues emphasized the value of the theory of noonomy developed by S.D. Bodrunov for understanding contemporary socioeconomic development and expressed interest in its further study and promotion in China.

Following the talks, an agreement was reached to open a Noonomy Center at the Shanghai University of Finance and Economics. Furthermore, Academician Cheng Enfu and Professor Ding Xiaoqin joined the World Association of Noonomy, creating additional institutional opportunities

for expanding international scientific exchange of views.

Particular attention was given to organizing joint scientific and educational events. Specifically, the parties are exploring the possibility of merging the formats of the annual conference of the World Association for Political Economy (WAPE) and the Moscow International Political Economy Congress (IPEC).

The agreements reached open up new prospects for Russian-Chinese cooperation in research into the theory of noonomy, political economy, and alternative strategies for social development.

On the sidelines of the Moscow Academic Economic Forum (MAEF), a working meeting was held between S.D. Bodrunov and Professor Wang Wen, Director of the Chongyang Institute for Financial Studies and the School of Global Leadership at Renmin University of China, and Co-Chair of the Expert and Business Council of the Free Economics Society of Russia for the Development of Russian-Chinese Cooperation.

During the talks, the parties discussed prospects for institutionalizing international cooperation and reached an agreement to open a branch of the World Association of Noonomy at Renmin University of China. The announcement of the new center is expected during the Tianzhou Forum (October 10-11, 2026, Beijing).

Particular attention was given to developing educational cooperation. S.D. Bodrunov and Wang Wen agreed to conduct a lecture series on the theory of noonomy as part of the Global Leadership PhD program at Renmin University of China. This will allow students from more than 20 countries to learn about the fundamental concepts of noonomy and engage young researchers in a scientific dialogue on the transformation of modern society and new industrial development.



WORKING MEETING BETWEEN S.D. BODRUNOV AND PROFESSOR KAYSONE CHANSINA, DIRECTOR GENERAL OF THE OFFICE OF THE NATIONAL ACADEMY OF THE LAO PEOPLE'S DEMOCRATIC REPUBLIC

On May 27, 2026, a working meeting was held in Moscow between Professor S.D. Bodrunov, Director of the S. Yu. Witte Institute for Noonomy and New Industrial Development, Corresponding Member of the Russian Academy of Sciences, and Professor Kaysone Chansin, Director General of the Office of the National Academy of the Lao People's Democratic Republic.

The parties discussed the development of joint efforts, preparations for an academic conference, and a lecture course on the theory of noonomy in the Lao People's Democratic Republic. Following the talks, a package of activities aimed at promoting the theory of noonomy in South-east Asian countries through 2029 was approved.



CHINA-RUSSIA ROUNDTABLE DISCUSSION

On May 21, a roundtable discussion on Problems of Economic Modernization and Various Aspects of Aligning Russia and China's Development Trajectories was held at the VEO of Russia Congress Hall. Leading scholars and experts from Russia and China, including a delegation from the Chinese Embassy in Russia, attended the event.

S.D. Bodrunov, President of the Free Economic Society of Russia, Director of the S.Y. Witte Institute of Noonomy and New Industrial Development, and Corresponding Member of the Russian Academy of Sciences, opened the event and expressed gratitude to the Chinese Embassy in Russia for its attention to strengthening academic networking between Russian and Chinese scholars and emphasized that Russia and China are constantly seeking new forms of cooperation and common ground – in the economic, social, scientific, and expert dimensions, among others.

Ms. **Chang Xuhong**, Plenipotentiary Minister of the Chinese Embassy in Russia, on behalf of Zhang Hanhui, Ambassador of the People's Republic of China to the Russian Federation, thanked the Free Economic Society of Russia for hosting the Russian-Chinese roundtable and spoke about the dynamics and results of trade and economic cooperation between the two countries. According to Ms. Chang Xuhong, achievements in this area have been made possible, in part, by the joint work of Russian and Chinese scientists and experts.

"For the third year in a row, trade turnover between Russia and China has exceeded \$200 billion. It is expected to reach \$250 billion by the end of this year. At the same time, the structure of our trade is experiencing a quantum leap. The share of mechanical engineering and high-tech products is growing. The volume of high-value-added goods, including biomedical and aerospace products, is also increasing. This demonstrates that Chinese-Russian trade and economic cooperation has long since moved beyond simple commodity exchange and is shifting toward joint developments, cooperative production, and the alignment of our strategies. All these achievements have been made possible thanks to our leadership, and the joint efforts of various ministries, agencies, experts, and scientists from both countries," said the Plenipotentiary Minister of the Chinese Embassy in Russia.

Ms. Chang Xuhong believes that Russia and China must create new growth areas in bilateral trade.

"The economies of Russia and China are highly complementary. We must maintain the positive momentum of cooperation and heavily expand it in cutting-edge areas such as artificial intelligence and the digital economy. We must create new growth areas in bilateral trade and promote the improvement of the quality and level of our trade and economic cooperation," said the Plenipotentiary Minister of the Chinese Embassy in the Russian Federation.

Professor **Cheng Enfu**, Chairman of the World Association for Political Economy (WAPE) and an Academician of the Chinese Academy of Social Sciences, delivered the keynote address.

He noted the importance of deepening cooperation between the Eurasian Economic Union (EAEU) and China, and aligning the EAEU's development plans with the Belt and Road Initiative.

Professor Cheng Enfu emphasized the need to develop cooperation between Russia and China in the financial sector, including settlements in national currencies, and emphasized that the dollar's hegemony poses a serious threat not only to Russia and China but to the entire global community.

“Our countries and peoples must unite and resist new imperialism, neocolonialism, and all forms of hegemony. This will provide impetus for the development of our economies, improving education levels and the quality of life of our populations,” the scholar believes.

V.A. Kryukov, Academic Director of the Institute of Economics and Industrial Engineering of the Siberian Branch of the Russian Academy of Sciences, Academician of the Russian Academy of Sciences, and member of the Presidium of the Free Economic Society of Russia, focused his presentation on scientific and technical cooperation between the two countries and the transition to cooperation in the production of high-value-added products.

He argued that it is essential to connect the centers of economic activity in eastern Russia and China, establish sustainable and regular supplies of raw materials, supplies, and equipment, and move toward technological cooperation in the production of new products.

The scholar noted that Russia is greatly interested in China's experience in developing integrated projects that encompass the entire value chain.

Deputy Director of the Institute of Oil and Gas Problems of the Russian Academy of Sciences, Corresponding Member of the Russian Academy of Sciences, and Member of the Board of the Free Economic Society of Russia, **V.I. Bogoyavlensky**, noted the great potential for expanding cooperation between Russia and China in oil and gas development: Russia is a reliable supplier of oil and gas to the growing Chinese market. China, in turn, can supply our country with oil and gas drilling equipment, which, of course, doesn't eliminate the need to develop our own technologies.

“China is developing so rapidly that it is experiencing a shortage of hydrocarbons. This is the key to serious cooperation between our countries. Russia is increasing its hydrocarbon supplies to China every year,” said Vasily Bogoyavlensky.

A.V. Lomanov, Deputy Director for Research at the Institute of World Economy and International Relations (IMEMO RAS), agreed: China is interested in a reliable hydrocarbon supplier and the development of transport corridors, while both countries are interested in forming production alliances with friendly countries, which opens up new opportunities for deepening bilateral cooperation.

M.V. Ershov, Chief Director for Financial Research at the Institute of Energy and Finance and Member of the Board of the Free Economic Society of Russia, emphasized the need to explore issues related to alternative payment mechanisms between Russia and China.

“It's crucial to resolve settlement issues: payments must be timely and smooth. We need to find alternative mechanisms and solutions that will avoid the risk of secondary sanctions for banks and entities involved in payments. This includes digital currencies of the central banks of Russia and China, as well as the currencies of BRICS countries,” said Mikhail Ershov.

M.A. Minchenkov, Deputy Director of the Research Institute for Innovative Financial Instruments and Technologies at the Plekhanov Russian University of Economics, believes that de-dollarization of settlements requires new financial instruments and work to create a unified settlement and clearing system.

“The People's Bank of China is going to issue stablecoins backed by real assets in China. In Russia, a concept for tokenizing assets in the real economy has been approved. This allows our countries to move toward creating a unified clearing and settlement instrument for cooperation. We propose creating a system of distributed exchanges that can list stablecoins backed by real assets in national currencies,” said Mikhail Minchenkov.

Roundtable participants discussed expanding Russian-Chinese cooperation in scientific and expert fields.

Ding Xiaoqin, Professor at the Shanghai University of Finance and Economics and Secretary General of the World Association for Political Economy, mentioned the significant contribution of Russian scholars to the development of economic theory, highlighting the theory of noonomy developed by Sergey Bodrunov, President of the Russian Association of Political Economy. He also outlined plans to establish a joint Russian-Chinese research center at the Shanghai University of Finance and Economics, in collaboration with Xi Jinping Thought University and the S.Yu. Witte Institute for New Industrial Development.

Professor Cheng Enfu also made note of the importance of new theories of social development, particularly the concept of noonomy.

“We in China intend to develop the theory of noonomy extensively together with Sergey Bodrunov and our Chinese colleagues,” the scholar emphasized.

The roundtable featured publications by Russian and Chinese scholars, which generated considerable interest among the academic and expert community. In particular, Professor Cheng Enfu's monograph *The Global Situation and the Chinese Economy in the New Era*, published in Russian, was presented.

The roundtable and its outcomes were covered by TASS and other media outlets.

10TH INTERNATIONAL POLITICAL ECONOMY CONGRESS NAMED AFTER A.V. BUZGALIN



On May 28-29, 2026, the 10th International Political Economy Congress named after A.V. Buzgalin (IPEC) was held at the Faculty of Economics at Lomonosov Moscow State University. The theme was «Political Economy in the Study of Contemporary Challenges for Russia: From Technological Sovereignty to Advanced Development.»

The IPEC was co-organized by the S.Y. Witte Institute for New Industrial Development and the Faculty of Economics at Lomonosov Moscow State University, with the support of the Free Economic Society of Russia, the World Association for Political Economy (WAPE), and the Problems of Political Economy journal.

The event brought together over 200 participants from various regions of Russia, and from foreign countries (Azerbaijan, Belarus, Brazil, Great Britain, Hungary, Greece, Italy, Canada, China, Laos, Poland, the USA, France, Japan), which allowed for a broad exchange of academic experience and the results of research in the framework of modern political economy, as well as other related research traditions in economic theory.

Welcoming remarks were given by **S.D. Bodrunov** (Corresponding Member of the Russian Academy of Sciences, Doctor of Economics, Professor, President of the Free Economic Society of Russia, Director of the S.Yu. Witte Institute for New Industrial Development), **A.A. Auzan** (Doctor of Economics, Professor, Dean of the Faculty of Economics at Lomonosov Moscow State University), **A.P. Kozyrev** (Candidate of Philosophy, Associate Professor, Acting Dean of the Faculty of Philosophy at Lomonosov Moscow State University), **O.N. Smolin** (Academician of the Russian Academy of Education, Doctor of Philosophy, First Deputy Chairman of the Committee on Science

and Higher Education of the State Duma of the Federal Assembly of the Russian Federation), noting the increasing relevance of the methodology and theory of political economy in the context of modern global geopolitical and socio-economic challenges.



In his plenary presentation, «The Noo-Transition: Transforming the ‘Market-Plan’ Dichotomy into the ‘Planning-Strategizing-Global Governance’ Triad,» **S.D. Bodrunov** highlighted the pressing material prerequisites for accelerating the establishment of a New Industrial Society of the Second Generation with subsequent progress toward a noosociety, which are associated with the rapid expansion of knowledge-intensive components of material production and creative labor. At the same time, the fading neoliberal model has led to the emergence of profound contradictions expressed in the stagnation of socioeconomic development, environmental pollution, and growing geopolitical tensions. The modern world finds itself at a historical crossroads where one direction of development could be mutually beneficial and respectful cooperation between countries, creating the preconditions for the harmonious development of individuals and society. The other, however, could lead to the loss of public oversight over new technologies, regular military conflicts, and the degeneration of human civilization. These conditions require a more complex and flexible governance system based on the principles of strategizing and coordinating development projects between countries. As mentioned in the report, such a promising project is offered by China to the world in the form of the Global Governance Initiative presented by Xi Jinping in 2025.

The plenary report by Academician **Cheng Enfu** (President of the World Association for Political Economy (WAPE), Director of the Institute of Marxist Studies at the Shanghai University of Finance and Economics, member of the Academic Council of the Chinese Academy of Social Sciences) was devoted to the main development trends of modern political economy. First, the

ongoing deepening of research into the theory of living labor in the era of knowledge-based economy helps clarify the interrelationships between data, technology, and labor, identify new forms of exploitation, limit the uncontrolled expansion of platform capital, protect the rights and interests of workers, and provide a theoretical foundation for reforming the system of ownership rights and distribution in the era of knowledge-based economy. Second, modern political economy cannot be confined to a single theoretical paradigm. It must vigorously integrate modern applied economic disciplines such as finance (including public and corporate finance), monetary policy, and international economics to broaden its theoretical horizons and enhance its explanatory power, and to build a systematic and relevant theoretical framework for modern political economy. Third, an investigation of the institutional causes of slow economic growth caused by private monopoly capital under capitalism. Fourth, the formation of schools and the unification of forces in modern political economy to strengthen coordination, create alliances, and cooperate on an equal basis. The World Association for Political Economy (WAPE) and the international academic journal *World Review of Political Economy*, founded 20 years ago, serve as platforms for uniting left-wing academic forces. In conclusion, Professor Cheng Enfu expressed hope that Russian economists opposed to neoliberalism will play a more significant role in this area.

The following Russian scientists also presented their papers at the IPEC plenary session: **Yu. G. Lavrikova**, Doctor of Economics, Associate Professor, Director of the Institute of Economics, Ural Branch of the Russian Academy of Sciences; **A. A. Shabunova**, Doctor of Economics, Associate Professor, Director of the Vologda Scientific Center of the Russian Academy of Sciences; **G. B. Kleiner**, Corresponding Member of the Russian Academy of Sciences, Doctor of Economics, Professor, Head of the Meso-economics, Microeconomics, Corporate Economics research group at the Central Economics and Mathematics Institute of the Russian Academy of Sciences; **E. B. Lenchuk**, Doctor of Economics, Head of the Economic Policy research group at the Institute of Economics of the Russian Academy of Sciences; **A. Yu. Protasov**, Candidate of Economics, Associate Professor, Head of the Department of Economic Theory, Faculty of Economics and History of Economic Thought, St. Petersburg State University; **A. A. Porokhovskiy**, Doctor of Economics, Professor, Academic Director of the Department of Political Economy, Faculty of Economics, Lomonosov Moscow State University, **A. I. Kolganov**, Doctor of Economics, Professor, Head of the Laboratory for Comparative Research of Socio-Economic Systems, Faculty of Economics, Lomonosov Moscow State University, Editor-in-Chief of the *Problems of Political Economy*, **L. A. Karaseva**, Doctor of Economics, Professor of Economic Theory at the Institute of Economics and Management at Tver State University; **S. A. Tolkachev**, Doctor of Economics, Professor of Economic Theory at the Faculty of International Economic Relations at the Financial University under the Government of the Russian Federation; **Khubiev K. A.**, Doctor of Economics, Professor of Political Economy at the Faculty of Economics at Lomonosov Moscow State University, and foreign scholars: **Radhika Desai**, Co-Director of the Geopolitical Economy Research Group, Professor at the University of Manitoba, Visiting Professor at the London School of Economics (Canada, UK), **Chanxina Kayson**, Director General of the Office of National Academy of Politics and Public Administration (Laos), **Ding Xiaoqing**, Secretary General of the World Association for Political Economy (WAPE) (China), **Alan Freeman**, Co-Director of the Geopolitical Economy Research Group at the University of Manitoba, Professor at the University of Greenwich (Canada, UK), **Stavros Mavroudeas**, Professor of Social Policy at Panteion University (Greece), **Hélène Clément-Piot**, Professor Emeritus at the Faculty of Economics, Cergy-Pontoise University (France).

As part of a special event, **Branko Milanović**, Leontief Prize laureate, Senior Fellow at the Stone Center for the Study of Inequality at the City University of New York, Visiting Professor at the International Institute on Inequality at the London School of Economics and Political Science, and former Lead Economist at the World Bank Research Department, delivered a lecture entitled «The Great Global Transformation: The United States, China, and the Remaking of the World Economic Order.» The lecture demonstrated that global neoliberalism is experiencing a systemic crisis, leading to the emergence of more plutocratic and populist political regimes. The world is currently experiencing the largest shift in income structure since the Industrial Revolution, driven by Asia's growing economic power and the erosion of the middle class in Western countries. This is paving the way for the emergence of a new world order, coupled with rising geopolitical tensions.

Political economists from Russia, China, and Canada were awarded diplomas from the IPEC Programme Committee for their contributions to the development of political economy theory and methods, teaching, and advocacy in the field of political economy.





Twelve breakout sessions included a comprehensive discussion of the development of political economy theory and methods in the study of new societal challenges, the socioeconomic prerequisites and consequences of modern scientific and technological progress, the factors driving Russia's accelerated socioeconomic development and securing technological sovereignty, the potential and limits of moving toward a multipolar world, and a number of other relevant topics. Particular attention was paid to the integration of political economy courses into university curricula and the improvement of their content. The discussions maintained academic continuity with the results of previous congresses and laid the foundation for fruitful future work.



19TH ANNUAL FORUM OF THE WORLD ASSOCIATION FOR POLITICAL ECONOMY

The 19th Annual Forum of the World Association for Political Economy (WAPE) will be held on August 5-7, 2026.

The theme of the Forum: “The Wealth of Nations in the Multipolar Age”, marking the 250th anniversary of the publication of Adam Smith’s *Wealth of Nations*.

Forum venue: Old Royal Naval College, Greenwich, London (United Kingdom).

The following topics will be discussed at the Forum:

- Adam Smith’s significance for modern thought
- The relation of Marx and his successors with Smith
- The geopolitical economy of the age of capital
- The political economy of development
- Advancing productive powers in a multipolar world
- Modern Forces of Production, Artificial Intelligence, Noonomy, and the Creative Economy
- The negative effects of the dollar as a world currency and of USD-backed stablecoins
- The significance and impact of China’s recent policy initiatives (such as the Global Governance Initiative)
- The role of socialism in the political and geopolitical economy of capitalism
- The emerging role of organizations and structures such as BRICS and the Shanghai Cooperation Organization
- The role of regional blocs and institutions in shaping multipolar governance
- The ecological challenge and resource politics in a multipolar world
- Shifts in labour relations and production systems under multipolarity
- International production networks
- Livelihoods world-wide and the “Death Line” for the American People
- Contemporary forms of Hegemonism, Imperialism, Colonialism, and Racism
- Upholding Integrity and Innovating Marxist Political Economy Through International Cooperation
- Studies on the International Schools of Innovative Marxism
- Macroeconomic modelling

The Forum will be attended by a Russian delegation led by S. D. Bodrunov, Executive Director of the S. Y. Witte INID, Corresponding Member of the Russian Academy of Sciences, and Advisor to the World Association for Political Economy (WAPE).

For reference:

The World Association for Political Economy (WAPE) is an international scholarly organization registered in Paris and founded by Marxist economists and affiliated organizations worldwide. The mission of WAPE is to utilize modern Marxist political economy to analyze and study the world economy, reveal the laws of its development, and design policy measures to promote economic and social progress at national and global levels. Between 2006 and 2025, eighteen WAPE forums were held, taking place in Shanghai (China), Shimane (Japan), Beijing (China), Paris (France), Suzhou (China), Amherst (USA), Mexico City (Mexico), Florianópolis (Brazil), Hanoi (Vietnam), Johannesburg (South Africa), Patiala (India), Moscow (Russia), Berlin (Germany), Winnipeg (Canada), Shanghai (China), Fuzhou (China), Athens (Greece), and Istanbul (Turkey). Past WAPE forums have brought together representatives from more than 50 countries across Asia, Australia, Africa, Europe, North America, and South America.

The Chair of the World Association for Political Economy (WAPE) is Professor Cheng Enfu, Director of the Institute of Marxist Studies at the Shanghai University of Finance and Economics, Member of the Academic Council of the Chinese Academy of Social Sciences.

This year, at the Jubilee 10th Alexander Buzgalin International Political Economy Congress (IPEC) held at Lomonosov Moscow State University with the support of the S. Y. Witte INID, Professor Cheng Enfu was awarded an Honorary Diploma from the Congress Program Committee “For Outstanding Contribution to the Development of Political Economy”.



Global Transformations of the 21st Century: The Future of Humans, Markets and Capital

USA: Apple Academic Press Inc, 2026

Apple Academic Press* has published the book titled *Global Transformations of the 21st Century: The Future of Humans, Markets and Capital*.

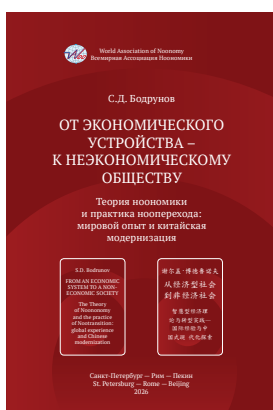
Professor S.D. Bodrunov is the Editor.

The book presents research by scholars from around the world on current issues of socioeconomic development. The book explains the methods of applying noonomy not only to the analysis of the modern socioeconomic system but also to forecasting its transformation and long-term development. It emphasizes that knowledge, not scientific and technological progress per se, is the underlying driving force that promotes the development of humanity, society, and civilization. At the same time, according to the theory, the long-term development of society must be humanistic in nature and scope, so alongside socioeconomic transformations, we should expect changes in people themselves.

This publication is the result of a scholarly discussion held at the international theoretical seminar of the S.Y. Witte Institute for New Industrial Development, "Global Transformations of the 21st Century: The Future of Humans, Markets and Capital," attended by economists from Russia, Turkey, Canada, the United States, China, Greece, Croatia, and the United Kingdom.

* Since 2012, Apple Academic Press has had an exclusive co-publishing partnership with Taylor & Francis international company which distributes and markets all AAP titles.

Taylor & Francis Group is one of the world's oldest and largest academic publishers, founded in the UK in 1798. Today, the company publishes over 2,500 peer-reviewed journals and over 8,000 new books annually. The company has offices in more than 15 countries and is recognized as a key global actor in digital books and open access, publishing cutting-edge literature in the humanities, STEM, and medicine.



From an Economic System to a Non-Economic Society.

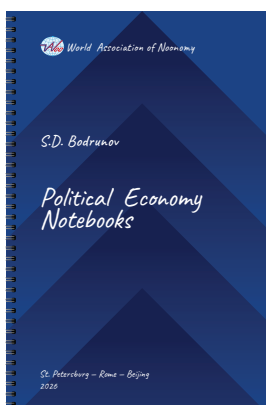
The Theory of Noonomy and the Practice of Nootransition: Global Experience and Chinese Modernization

S.D. Bodrunov

Collection of research papers. – St. Petersburg: S.Y. Witte INID, 2026. – 336 p.

This book includes a brief selection of original papers by Professor S.D. Bodrunov. The purpose of this work is not only to present the fundamental tenets of the theory of noonomy and the concept of nootransition but also to demonstrate practical approaches to their implementation, based on these nootransition principles. Thus, every reader can familiarize both with global socio-economic tendencies and trends, and with methodology of constructing national, regional and global ways and directions of social development. Special attention is paid to developing countries and states which have passed a long period of transformation, such as China, Russia, Brazil, Mexico, etc. All of them are searching for their own track while remaining within the single trajectory of the noomovement, since noosociety is a fruit of collective, joint efforts, knowledge-cenrtalization and knowledge-application.

The articles of the book are presented in Russian, English and Chinese.

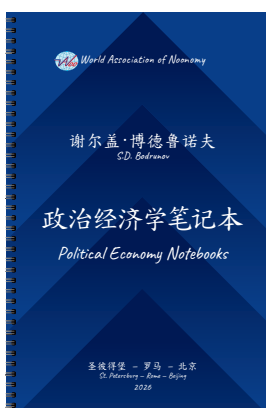


Political Economy Notebooks

S.D. Bodrunov

Collection of Research Papers / Compiling Editor A.I. Kolganov. – SPb:

S.Y. Witte INID 2026. – 384 pages.



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The book contains S.D. Bodrunov's articles where issues of modern trends of human civilization development are reviewed using theoretical and methodological range of political economy. Developing the noonomy theory, S.D. Bodrunov relies on political economy as a way of understanding those socio-economic contradictions which lead to increase of global problems, while creating prerequisites for the transition to a new development stage at the same time. Here, the results of the author's work over more than ten years grouped by thematic lines of research are presented. At the same time, political-economic view is represented in a context of wider, complex approach to the study of society development.

This book is intended for scholars and lecturers, as well as graduate and undergraduate students in the social sciences.

The articles are published in Russian, English, and Chinese.

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