

The technological leadership of the Russian Federation as the basis of the country's international competitiveness

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ORIGINAL ARTICLE

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Abstract. Nowadays, the Russian Federation has a lot of geopolitical and economic challenges, including the West's large-scale hybrid war, the urgency of enhancing its international competitiveness in all areas, particularly in technology. Therefore, achieving of the technological leadership is the one of the seven national goals for the period up to 2030 and for the long term up to 2036. The objective of this research is to consider the challenges of increasing the Russian Federation international competitiveness and identify ways to achieve technological leadership. The scientific novelty of the research involves identifying key challenges in enhancing the international competitiveness of the Russian Federation and ways to achieve technological leadership for the country. Moreover, it concerns with the development of technologies of the 3rd, 4th, 5th, 6th, and 7th technological paradigms in a multi-structured economy. The results have their potential use in developing comprehensive strategic plans to enhance the international competitiveness of the Russian Federation, including achieving technological leadership.

Keywords: technological leadership; the Russian Federation; international competitiveness; technological paradigms

JEL codes: O14, O32, M15

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Introduction

The natural change of technological structures taking place in the 2020s (currently the fifth technological structure of the sixth) [4] is traditionally accompanied by processes of deglobalisation and disintegration¹.

Due to the various types of wars taking place in the world during this period (ranging from trade wars to fairly large-scale armed confrontations), this period for the Russian Federation included sanctions and restrictions.

It resulted in import substitution policy, technological sovereignty. However, achieving the goal of technological leadership is a national goal² (Fig.1) and the basis for the growth of the country's international competitiveness.

¹ Economic deglobalisation: A challenge, risks, and an impetus for growth. Source: <https://www.if24.ru/deglobalizatsiya-ekonomiki/> (accessed on 11.01.2026)

² Russian Federation. President. (2024, May 7). Decree No. 309: On the national development goals of the Russian Federation for the period up to 2030 and for the future up to 2036. Source: <http://www.kremlin.ru/acts/bank/50542> (accessed on 11.01.2026)

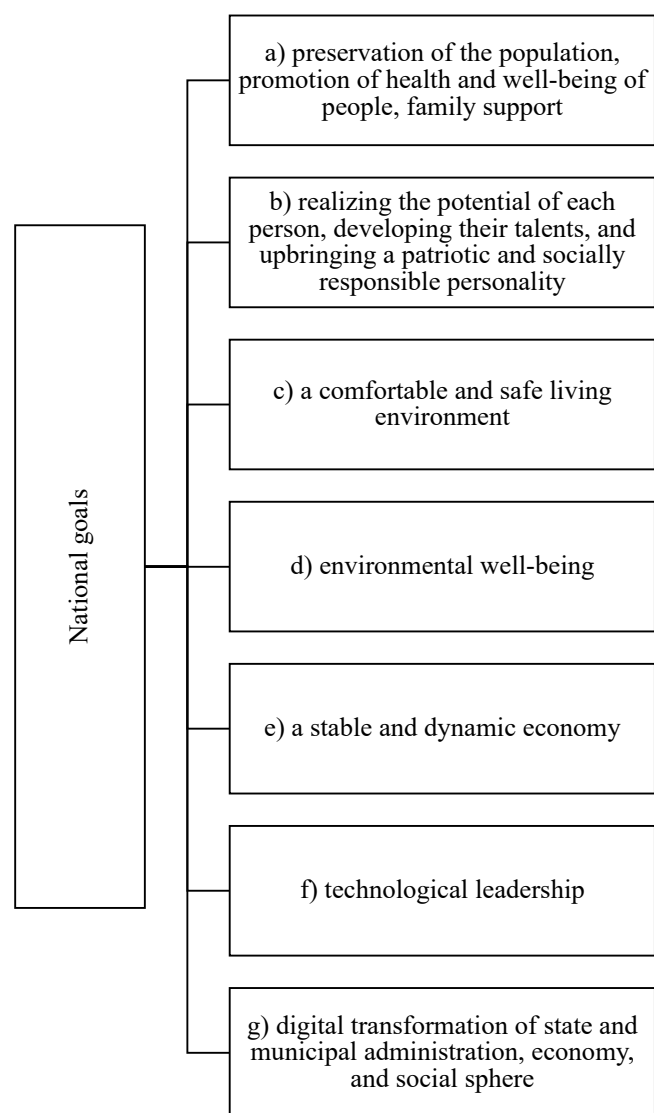


Figure 1. The national development goals of the Russian Federation for the period up to 2030 and for the future up to 2036

Source: Decree of the President of the Russian Federation on May 7, 2024 No. 309³

The purpose of the research is to consider the challenges of increasing the Russian Federation international competitiveness and identify ways to achieve technological leadership.

Methods

The methodological basis of the research consisted of scientific works devoted to the problem of increasing international competitiveness and ensuring the technological sovereignty of the Russian Federation by the following authors: Afanasyev A.A. [1], Zimovets A.V. [5], Kanunnikova A.M. [6], Kopteva L.A. [7], Lenchuk E.B. [8], Petrov M.N. [11], Rodina I.B. [12], Savenkova I.V. [13], Esterle T.A. [16], Yurevich M.A. [17], Tebekin A.V. [15], etc.

Results

According to the previous studies, failure to solve the problem of import substitution⁴ (largely due to inflated expectations when relying on parallel imports)⁵, in the domestic economy relied on ensuring the

³ Russian Federation. President. (2024, May 7). Decree No. 309: On the national development goals of the Russian Federation for the period up to 2030 and for the future up to 2036. Source: <http://www.kremlin.ru/acts/bank/50542> (accessed on 11.01.2026)

⁴ Klishas announced the failure of the import substitution program in Russia. (2022, May 19). RBC. Source: <https://www.rbc.ru/politics/19/05/2022/6285f0c79a7947c127bab983> (accessed on 11.01.2026)

⁵ Ministry of Industry and Trade of the Russian Federation. (2023, July 21). Order No. 2701 on approval of the list of goods (groups of

technological sovereignty of the country.

Moreover, in terms of the process of solving the problem of technological sovereignty, the technological independence of a country does not guarantee the leadership on the domestic market. However, in this situation many domestic companies continued to purchase foreign technical solutions.

As a result, the technological sovereignty of the country began to be considered together with the goal of technological leadership. Later it became a national goal (Fig.1).

Therefore, in the process of iteratively setting and solving the tasks of increasing the country's international competitiveness (Fig.2) Russia has to achieve the technological leadership.

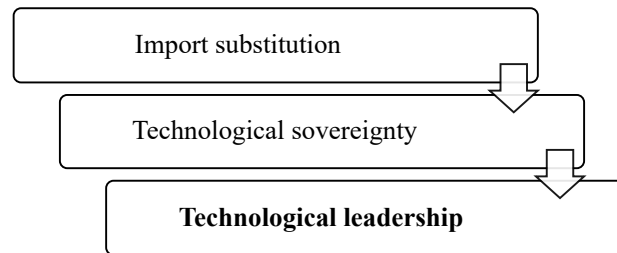


Figure 2. Iterative solution of the tasks of increasing county international competitiveness

Source: Authors

According to the 'Strategy for Economic Security of the Russian Federation for the period up to 2030'⁶, during the period of technological change that has occurred in the current decade [14], structural imbalances in the global economy are increasing. Therefore, the achievement of the technological leadership in the Russian Federation starts the prospects for the country.

Moreover, countries that are the first to master new technologies (technologies of the sixth technological order) during the period of technological change gain a significant production and technological advantage over other countries, increasing their international competitiveness.

In the initial formulation of the problem, the country's technological leadership was supposed to be achieved through the development of technologies of the sixth technological order (i.e. digitalisation).

However, the problem of increasing the country's international competitiveness, including achieving technological leadership within the framework of the sixth technological order, is significantly complicated by the disrupted continuity with the technologies of previous orders in the national economy (Fig.3) [10].

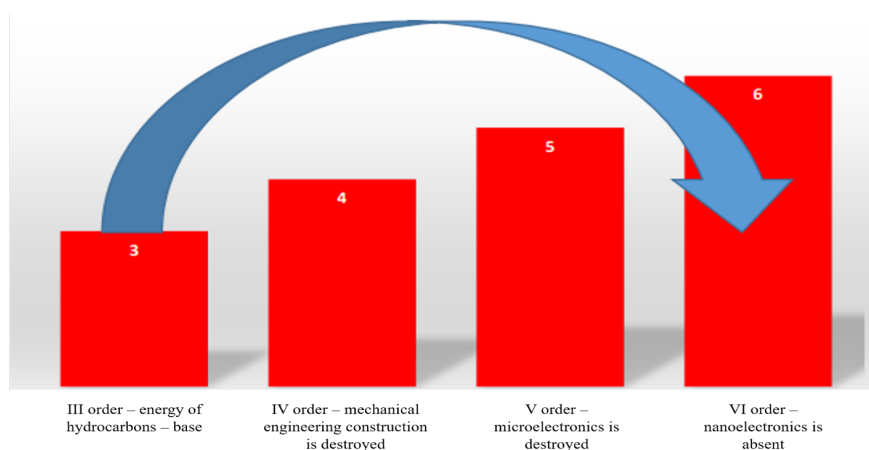


Figure 3. A model of the destroyed technological structure of the Russian economy [10]

Moreover, there is the continuing high level of dependence of the Russian Federation on imported supplies of machinery and equipment (Fig.4)⁷.

goods) for which certain provisions of the Civil Code of the Russian Federation do not apply under parallel import conditions. Source: <https://www.garant.ru/products/ipo/prime/doc/407384679/> (accessed on 11.01.2026)

⁶ Russian Federation. President. (2017, May 13). Decree No. 208: On the Strategy of Economic Security of the Russian Federation for the period up to 2030. Source: <https://www.garant.ru/products/ipo/prime/doc/71572608/> (accessed on 11.01.2026)

⁷ Russian exports and imports in 2024: Raw materials dominate, Asia maintains stability. (2025). Source: <https://spcard24.ru/>

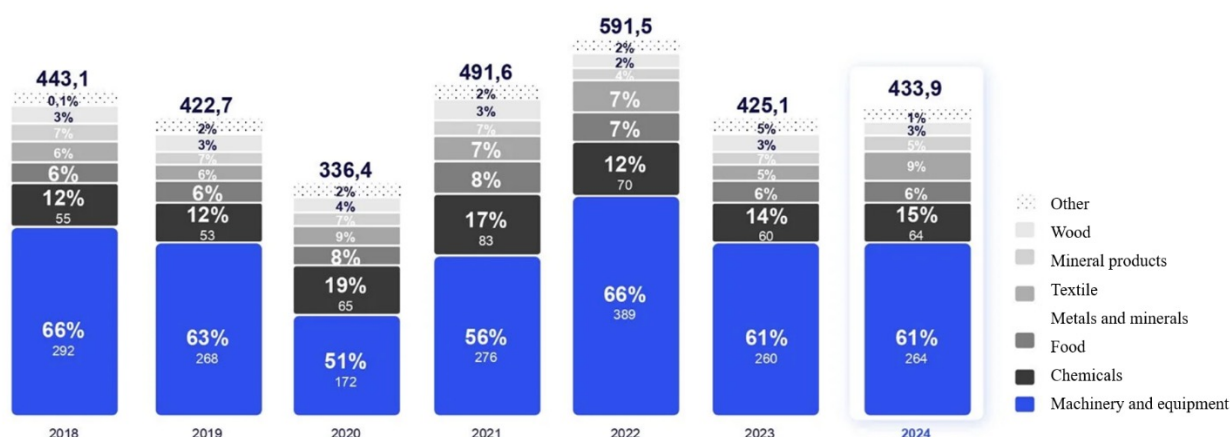


Figure 4. The structure of the Russian Federation exports and imports, 2018-2024

Source: *Russian exports and imports in 2024: Raw materials dominate, Asia maintains stability, 2025*⁸

The model of the destroyed technological structure of the Russian economy, shown in Fig.4, clearly demonstrates that the attempt is being made to move from technologies of the third stage, which are still the basis of the national economy⁹, to technologies of the sixth stage (in the absence of sufficient technological reserve). However, significantly destroyed structures of production based on technologies of the IVth and Vth modes of technological modes seems to be unpromising [10].

In scientific literature, the development of domestic engineering is considered as the primary basis for increasing the international competitiveness of the Russian Federation. It includes achieving the country's technological leadership (Fig.5). Indeed, the production of high-tech means of production ensures the quality and competitiveness of goods and services provided.

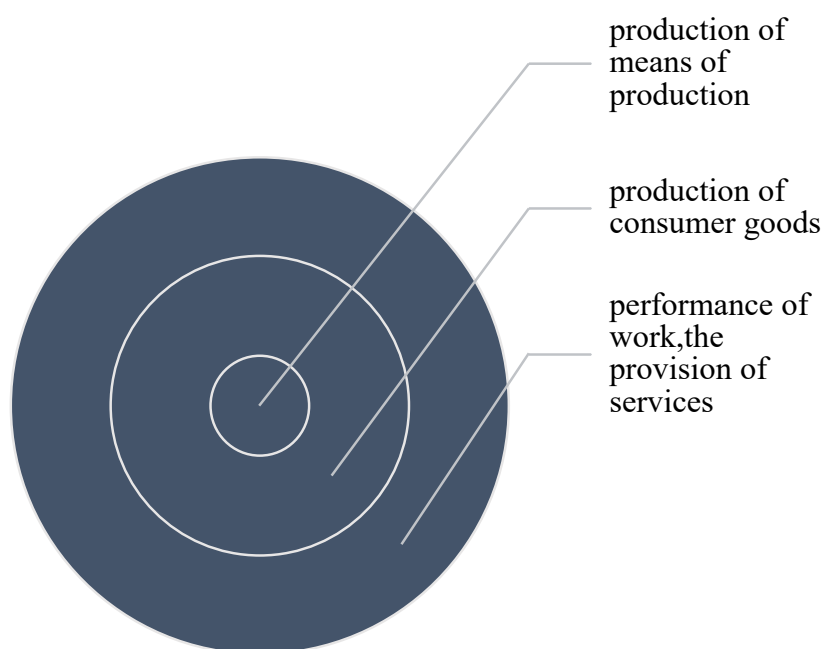


Figure 5. The production of means of production is the most relevant for the material production of consumer goods, the performance of work, and the provision of services

Source: Authors

novosti/tpost/hky7jhlty1-rossiiskii-eksport-i-import-v-2024-godu (accessed on 11.01.2026)

⁸ *Russian exports and imports in 2024: Raw materials dominate, Asia maintains stability. (2025). Source: <https://spcard24.ru/novosti/tpost/hky7jhlty1-rossiiskii-eksport-i-import-v-2024-godu> (accessed on 11.01.2026)*

⁹ *Fact-checking: Is the Russian budget dependent on oil revenues? (2024). Higher School of Economics. Source: <https://www.hse.ru/expertise/news/967286528.html> (accessed on 11.01.2026)*

Therefore, the destruction of the branches of domestic engineering, weakening of the military-industrial complex, and erosion of fixed capital [9] of domestic industry were the main goals of the Western curators of Gaidar's reforms. These destructive actions resulted in determination of the technological structure of domestic production (Fig.4). Nowadays, it has to be restored to ensure technological sovereignty and achieve technological leadership of the Russian Federation.

In this regard, the simultaneous development of technologies of the III, IV, V, and VI technological structures should be considered as priorities for increasing the international competitiveness of the Russian Federation. It includes the achievement of the technological leadership, while simultaneously forming scientific and technological reserves for technologies of the VII technological structure (Fig. 6).

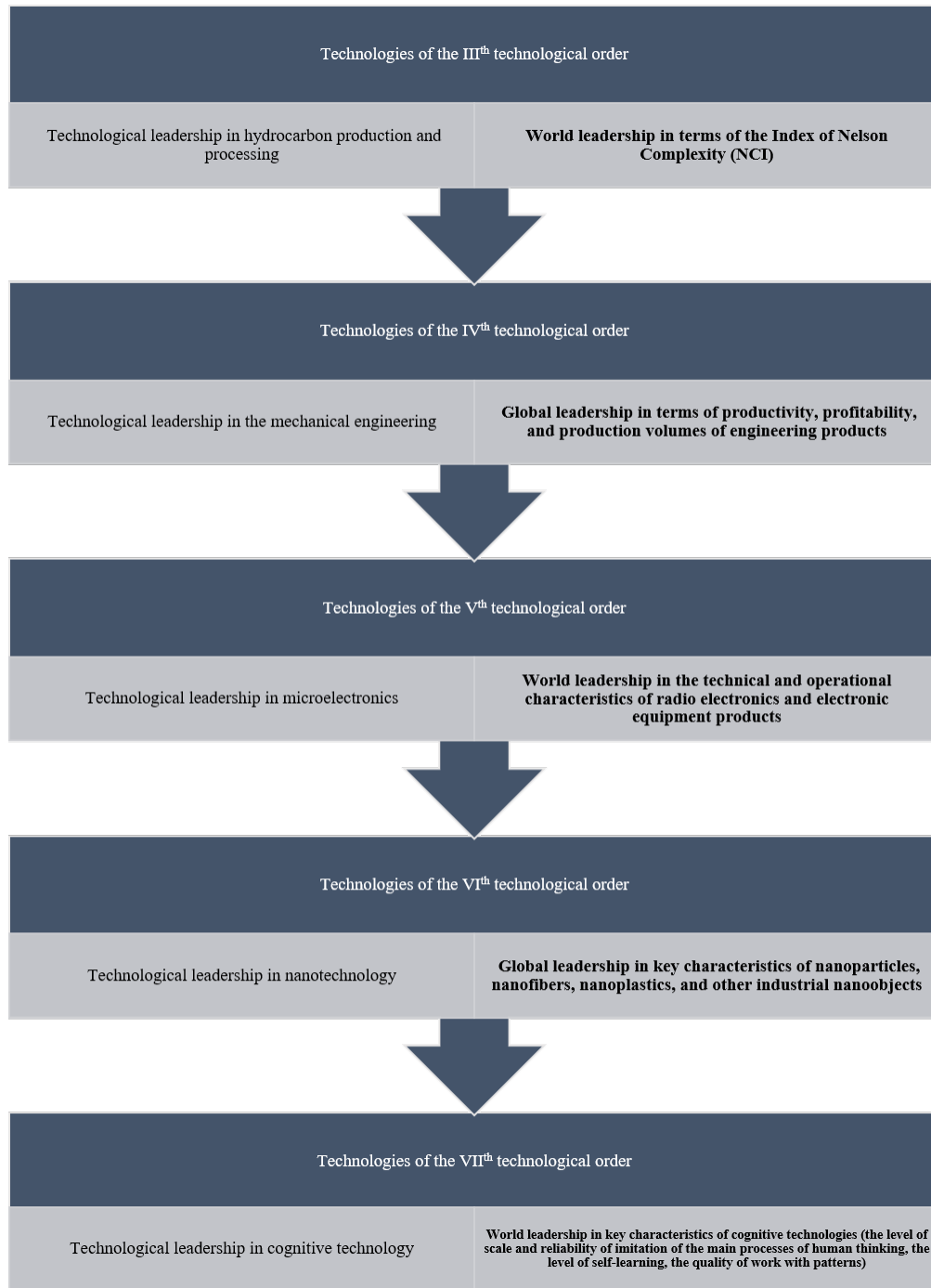


Figure 6. The priorities of increasing the international competitiveness of the Russian Federation through achieving the country's technological leadership

Source: Authors

Conclusions

Therefore, to increase the international competitiveness of the Russian Federation, we should restore the destroyed technological structure of domestic production.

In this regard, the simultaneous development of technologies of the III, IV, V, and VI technological structures should be considered as priorities for increasing the international competitiveness of the Russian Federation. It includes the achievement of the technological leadership, while simultaneously forming scientific and technological reserves for technologies of the VII technological structure.

The development of domestic engineering, including achieving the country's technological leadership, is the primary basis for increasing the international competitiveness of the Russian Federation. The production of high-tech means of production determines the quality and competitiveness of goods and services.

The results obtained can be used in the formation of comprehensive strategic plans for improving the international competitiveness of the Russian Federation, including achieving the country's technological leadership.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHORS' CONTRIBUTION

Alexey V. Tebekin – writing – original draft.

Artem I. Krivtsov – data curation, formal analysis, validation.

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