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RUSSIA'S SPATIAL DEVELOPMENT STRATEGY: THE BALTIC VECTOR

DEVELOPMENT AS A KEY EVALUATIVE CONCEPT OF SPATIAL SYSTEM TRANSFORMATION

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This article examines the spatial socioeconomic development problems that have emerged prominently in Russia in recent years. A special focus is the notion of 'razvitie' (development) gaining mainstream traction in the vocabulary of Russian politicians, researchers and media professionals. Authoritative scholarly opinions are cited, describing development as a process of changes in objects and phenomena without implying a positive connotation. Using the example of external regulation of anthropogenic spatial systems, it is shown that development should enhance the stability of the systems' functioning, considering their equifinality and potential for self-organisation (self-development). A genetic connection is established between the concept of 'spatial development' and the global advances in economic geography. Attention is paid to the features of spatial and regional development as strategic planning objects. The article also examines the feasibility of accurately assessing the outcomes of a spatial development strategy by quantifying the achievement of its goals and targets. It is emphasised that results highlighting regional disparities and settlement patterns should be compared within groups of similar regions and macro-regions, such as northern, central and southern provinces of European Russia, Siberian territories, the Far East, the Arctic Zone and the republics of the North Caucasus. For demographic processes, comparisons should be based on specific population groups: children, youth, the working-age population, pensioners and migrants. Specific changes in productive forces distribution that align with target indicators should be verified by population assessments based on annual surveys.

Keywords:
spatial systems, spatial development, regional development, strategic planning

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Problem setting

The term *razvitie* [development] has been widely used in Russia to describe abstract improvements without specifying their causes or direct and indirect effects. This usage is prevalent in the media, official statements, documents, and in research and popular science publications by social scientists — economists, sociologists, regional scholars and political scientists.[1] It is deemed justified as among over forty most frequent synonyms of development — from 'anagenesis'[2] to 'evolution' — half have a positive connotation. These are 'renewal', 'rise', 'movement forward', 'progress', 'advancement', 'prosperity', 'expansion', 'growth', 'enhancement', 'maturation', 'formation', 'improvement', to name a few. All this translated in the popularity of the word in federal and regional, strategies, plans, programmes, and projects.[3] Although 'development' has become a household term, both this concept and its derivative phrases have entered common lexicon only recently. Prof. Viktor Vinogradov wrote in his seminal *History of Words*: 'In the standard Russian language, verbs *razvivat'–razvit'* and their reflexive counterparts *razvivat'sya–razvit'sya* only expressed concrete meanings (sometimes with professional implications) ensuing from their morphological composition (*razvit' verevku* [unravel a rope], *razvit' venok* [undo a wreath], *razvit' kosu* [undo a braid]). In the last quarter of the 18th century, the verb *razvivat'* assumed the abstract meanings of the French verb *développer* (and the noun *développement*). A dictionary issued in 1847 contains new, abstract meanings of *razvivat'* (to uncover one's intellectual abilities) and *razvivat'sya* (to get into grand motion; to multiply, increase, unfold). In his work *Philosophical Principles of Integral Knowledge,* Vladimir Soloviov wrote: *razvitie* "is that series of immanent changes in an organic being that proceeds from a known origin and directs itself toward a known, definite goal". The change in the meaning of the word *razvitie* occurred under the influence of synonymic convergence with

[1] The word 'development' is a common occurrence in everyday speech, where it is usually modified for semantic precision, cf. 'arrested development during childhood'.

[2] Anagenesis is the evolution of species characterised by the complication of organs, the improvement of their functioning and natural self-development.

[3] A typical example is Russia's national state programme Industrial Development and Competitiveness. It encompasses 12 projects, the title of each starting with the word *razvitie*. These are federal development projects pertaining to the manufacturing of agricultural machinery, specialized machinery, machinery for the food and processing industries, materials, automotive and transport machinery, capital goods, as well as metallurgy, rare and rare earth metals industry, the forestry industry, staple food industries, industrial infrastructure and regional production cooperation, and the system of technical regulation, standardisation, and metrological assurance.

the scientific term "evolution", which took place in the 1820—1840s'.[1] In recent decades, the lexicon of Russian social science has incorporated the phrases 'regional development' and 'spatial development' — both a common occurrence in academic writings, political journalism and regulatory acts.

The relevance of this article lies in the potential and often real risk of misapplying the terms 'development', 'spatial development', and 'regional development' to complex, multi-faceted shifts in sociopolitical and socioeconomic environments. As the saying goes, the devil is in the details. Indeed, the details of such shifts, traditionally labelled as 'development', tend to conceal phenomena that can undermine, and at times even negate, the seemingly positive result. This contribution aims to demonstrate the possibilities and limitations of the above definitions in evaluating transformations of spatial systems — the elements of the anthropogenic environment of human existence.[2] To this end, I will explore the academic understanding of development as a pivotal and highly complex concept for interpreting changes in both material and ideal phenomena and objects. I will prove the thesis about the stable functioning of spatial systems, highlighting the role of their equifinality and potential for self-organisation (self-development) in their successful transformation. The international origins of the concepts of 'spatial development' and 'regional development' will be examined, alongside an analysis of their features as objects of government regulation through strategic planning. An integrated evaluation of its effectiveness will be attempted. In preparing this text, I have drawn on my previous research, which is referenced in the third section of this article.

Development as the assertion of change

In his "Rules for the Direction of the Mind", Descartes wrote (rule XIII): almost all controversy would be removed from among philosophers if they were always to agree as to the meaning of words'.[3] I am uncertain whether this is entirely feasible (particularly, 'among philosophers'), but agreeing to 'the meaning of words' becomes a necessity for everyone at some point, and attempts to define development are a proof thereof. The brilliant philosopher, methodologist of science and one of the founders of Russian systemic studies, Erik Yudin, defined development as 'irreversible, purposive and orderly change in material

[1] Vinogradov, V. V. 1999, *Istoriya slov* [*History of Words*]. Moscow, Vinivgradov Russian Language Institute Press, p. 588—590 (own translation). The quote from Solovyov is cited from: Solovyov, V., *Philosophical Principles of Integral Knowledge*. Translated by Valeria Z. Nollan. Grand Rapids, Eerdmans Publishing Company, 2008, p. 21.

[2] The specifics of spatial systems have been discussed in several of my earlier publications [1—4].

[3] Descartes, R. 1911, Rules for the Direction of the Mind]. In: Elizabeth, S. Haldane et al. (translators). *The Philosophical Words of Descartes*, Cambridge University Press, p. 51.

and ideal objects… Capacity for development is a universal property of matter and consciousness. Development results in a new qualitative state of an object, a state manifesting itself in a change in its composition and structure (i. e. the emergence, transformation or disappearance of its elements or connections). One of the principal methodological objectives is to form representations of the structure and mechanisms of development, as well as their interconnections with processes of functioning'.[1] The authors of pertinent articles in the *New Philosophical Encyclopedia* share this view. For instance, philosopher, sociologist and methodologist of historical and sociological research Boris Grushin defines development as 'the highest form of motion and change in nature and society, associated with the transition from one quality or state to another, from the old to the new... Naturally, not any change is development, but only that which is connected with transformations in the internal structure of the object, in its system, representing a set of functionally interconnected elements, relationships and dependencies... The emergence or disappearance of any component in its structure is never just a quantitative change, a simple addition or subtraction of "one". It leads to the emergence of many new connections and dependencies, the transmutation of old ones, and so on, i. e. it is accompanied by more or less significant substantial and/or functional transformation of the entire mass of components within the system as a whole'.[2] In the same tome, Lyudmila Markova, a renowned expert in the methodology of history of science, epistemology, and philosophy of science, contributes to Grushin's definitional endeavours: 'Development is the irreversible, progressive change of objects in the spiritual and material world, occurring over time and seen as linear and unidirectional. Ancient philosophy lacked the concept of development as such, primarily due to the cyclical understanding of time... In the Modern era, the notion of linear time and, consequently, the concept of development have become dominant'.[3]

Remarkably, none of the aforementioned authors puts development on a par with improvement, but all refer to changes as such. The idea that such changes must necessarily lead to a positive outcome (improvement) is not inherent in the concept of 'development' itself but is instead suggested by a significant portion of its previously mentioned synonyms. However, in the modern world of numerous highly complex, isolated, systemically interconnected, internally contradictory and even conflicting realities, the well-honed philosophical definitions of development appear in a variety of forms, and the very concept of

[1] Yudin, E. G. 1975, Razvitie, *Bol'shaya sovetskaya entsiklopediya* [Great Soviet Encyclopedia], Moscow, Publishing House of the Soviet Encyclopedia, vol. 21, p. 409—410.

[2] Grushin, B. A. 2010, Razvitie, *Novaya filosofskaya entsiklopediya* [*New Philosophical Encyclopedia*]. Moscow, Mysl', vol. 3, p. 397—398.

[3] Markova, L. A. 2010, Razvitie, *Novaya filosofskaya entsiklopediya* [*New Philosophical Encyclopedia*]. Moscow, Mysl', vol. 3, p. 398—400.

'development' begins to assume new interpretations, becoming an object not only of cognitive but also of regulatory-political nature (for example, 'sustainable development').

In Russia and abroad, scholars absorb the ideas of development acquainting themselves as students with Hegel's vision of the progressive and irreversible movement of scientific knowledge, whose every achievement incorporates the previous in a 'sublated' form. Another important influence is positivists, such as Auguste Comte, John Stuart Mill, and Herbert Spencer, who, following Turgot, Marquis de Condorcet and Henri de Saint-Simon, never doubted the progressive development of human thought and society. The works of adherents of existentialism, phenomenology and post-positivism provide our contemporaries with the idea that the traditional understanding of time as linear and progressive was replaced by a notion of time as a synthesis of the past and future in the supersignificant 'now'. Later, ideas of bifurcations, the transition of equilibrium systems into non-equilibrium states, self-organisation, and 'order out of chaos' came into vogue, alongside the notion that even '[a] small fluctuation may start an entirely new evolution that will drastically change the whole behaviour of the macroscopic system' [5, p. 14]. The pursuit and establishment of new concepts viewing development as both progress and a phenomenon of probabilistic nature have commenced, exemplified by the work of Immanuel Wallerstein, Amitai Etzioni, and Walter Buckley.

Judgments about the consequences of development, progress or evolution are influenced by systematic evaluations of established and new phenomena and objects. For example, the unequivocally positive perception of development as directed towards a beneficial goal increasingly coexists with notions of the crisis-generating nature of concomitant globalisation, urbanisation, and digitalisation. So does the belief in the linear nature of development with its empirically confirmed phenomena of new forms of cyclicality, recurrence and the like. This largely explains the uncasing scholarly exploration of the idea, or theory, of development [6; 7], epistemology and the functioning of sociopolitical systems and institutions [8], commercial and educational organisations [9], and so on. An outstanding study into the reasons behind the growing interest in development issues is found in the work of the well-known Soviet and Russian historian and political scientist Marat Cheshkov [10]. These views on the essence of development cannot be ignored when analysing the possibilities and limitations of applying the concept of 'development' to the transformations of complex objects such as spatial systems.

Genesis of the notion of 'spatial development'

The phrase *prostranstvennoe razvitie* [spatial development] has entered Russian academic vocabulary quite recently, with its emergence closely tied to the growing prominence of the concept of 'spatial economy'. The latter has supple-

mented the entrenched term 'regional economy', sparking discussion on differences and the hierarchical relationship between the two. It is safe to assume that Russian social sciences borrowed the phrase in question from international science exploring the connection between space and the economy in a broad sense. Like any other borrowing, it was selective and, what is more important, adopted in a different, post-perestroika, reality. Until that time, the USSR had garnered unique experience in theoretical understanding and practical implementation of spatial development. Soviet geographers, economists and sociologists created a solid knowledge-based foundation for the spatial organisation of the unique socialist state.[1] Considering its overwhelming administrative control exercised by the party, predominantly popular ownership and planned management of all and everything, they devised a theoretical framework for production deployment and a well-ordered system for settlement and spatial organisation of society. Aware of the 'capitalist camp's' research advances, Soviet scientists could only employ some of the international methodological practices, for instance, mathematical techniques used in economics.

Since the late 1980s, Russia's social and political system has radically changed; its market economy has opened to the whole world. At the same time, the planned elements in public administration have been considerably reduced, while many uncompetitive companies have closed down. Moreover, growing labour mobility has spurred the concentration of economic and demographic strength in major cities. A new country, classified by analysts as a 'catching-up state', has formed over a historically brief period. The same happened to the 'catching-up' Russian social science, which was compelled to quickly adopt recent global advances in studying and regulating sociopolitical and socioeconomic processes — something that had been impossible under Soviet rule. Lexical borrowings became commonplace everywhere — from constitutional law to mortgage banking. A particularly significant contribution to the strategy and practice of Russian spatial development has come from the works of Western geographers and economists, as illustrated by several examples below.

Among the 19th-century works, modern Russian scholars most frequently reference Johann Heinrich von Thünen's *Der isolierte Staat in Beziehung auf Landwirtschaft und Nationalökonomie* [11], where the basic principles of spatial economics are examined through a specific example. Another commonly cited book dating back to the same period is Alfred Marshall's *Principles of Economics* [12], which reveals the reasons for economic concentration in cities. As for 20th-cen-

[1] A. G. Aganbegyan, G. A. Agranat, A. D. Armand, M. K. Bandman, P. Ya. Baklanov, N. N. Baranskiy, A. G. Granberg, N. N. Kolosovskiy, I. M. Mayergoiz, V. P. Maksakovskiy, P. A. Minakir, G. M. Lappo, O. P. Litovka, V. Ya. Lyubovny, E. N. Pertsik, A. E. Probst, O. S. Pchelintsev, B. B. Rodoman, Yu. G. Saushkin, B. S. Khorev, R. I. Shniper, and others.

tury ideas, Russian researchers have embraced Walter Christaller's central-place theory [13], which postulates geometric regularities in the distribution of cities of different sizes.[1] August Lösch's ideas about the economic landscape and the possibilities of reconciling the interests of political, market and transport structures, which he formulated in the 1940s, have been known since the Soviet times [15]. Recognising the growing spatial inequality of economic activity over the last thirty years, Russian researchers have shown particular interest in theoretical concepts about growth poles and centres inducing positive changes in a hinterland economy. All these theories have had a major impact on the ideology and language of future regional development policies and spatial development strategies. According to François Perroux, who first advanced the growth pole hypothesis [16], manufacturing organisations are divided into declining, with a decreasing share in the economy; rapidly developing but loosely connected with other economic entities; and briskly developing ones that give rise to 'growth centres' and spur the development of the entire economy. Another growth pole theorist, Jacques Boudeville [17], further expanded these ideas, shedding light on the formation of regional growth poles. He sees these poles as concentrations of developing entities causing their environments to develop as well. These entities may emerge (a) in smaller towns, influencing their immediate surroundings; (b) in larger towns and smaller cities in need of transfers and external investments; (c) in large urban agglomerations; and, finally, (d) within systems of such poles. Later, Pottier [18] proposed an idea, which has attracted keen interest from Russian regional scholars, namely, the concept of development axis — transport networks transmitting development momentum from one growth pole to another, thus shaping their spatial structure. Unfortunately, the ideas of another growth pole theorist, Lasuen [19], have been largely overlooked — specifically, his argument that, despite reflecting the realities of space and the economy, economic growth (and this is a crucial consideration) is not necessarily the result of polarisation.

The principles of the so-called new economic geography have provided considerable impetus for refining academic spatial development concepts. The history of these principles and the outcomes of their theoretical and practical applications are well studied. They have been shown to be a product of intensified international competition and the need to provide a rationale for the cyclical nature of national technological leadership [20], as well as revise economic geography models through the lens of a more serious attitude to geography and history [21]. As an independent school of thought, new economic geography is often linked to the names of Nobel Prize winner Paul Krugman and his co-authors. The

[1] There were earlier attempts at 'geometrising' economic space. For example, in 1882, Wilhelm Launhardt [14] described a model for optimal location of production as a 'location triangle'.

initially studied the phenomenon of increasing returns amid monopolistic competition in international trade [22], trade policy in third-world metropolises [23] and the link between globalisation and national inequality [24]. Krugman formulated the ideas of new economic geography proper while still focusing on the results of scale economies, production differentiation and patterns of trade [25]. Enthusiastically embraced in the country, these ideas have been applied in Russian governmental documents on spatial development. Krugman's remarkable article 'Increasing Returns and Economic Geography' [26] has been received in much the same way, amply referenced in Russian publications since the late 1990s. Today, every proficient regional scholar in Russia can answer Krugman's question, which he used as the title of his article: 'Where in the world is the new economic geography?' [27].

The theory developed by Paul Krugman and his adherents is not solely based on an analysis of the causes and motives behind the relocation of economic activities at the end of the 20th century [28; 29]. It also draws upon the extensive body of knowledge regarding the spatial development of capitalist economies, from Johann Heinrich von Thünen to John Vernon Henderson [30]. Their theory encapsulates principles regarding the forces driving spatial shifts in economic activity and resources, as well as the mechanisms through which a self-organizing economy 'selects' the required space: where transportation costs are low but the cost of acquiring products is high, a 'core-periphery' spatial structure is formed. One of Krugman's contributions [28] presents a theoretical model of a 'circular economy' with population distributed circularly and production randomly located, leading to the emergence of a core whose scale is inversely proportional to transport costs. Russian regional scholars and policymakers, aiming to combine the principles of market economy and spatial development, have widely adopted Krugman's notions of territorial competitiveness and competitive advantages. The ideas of new economic geography are anything but speculations of ivory tower theoreticians unaware of global economic realities. Instead, they are grounded in the analysis of concrete, but yet universal, situations serving as a snapshot of those realities. Using data from 1970 to 1990, Gordon Hanson examined 3,000 administrative counties in the US to demonstrate the factual relationship between market size, population migration and economic concentration in the 'core-periphery' model [31]. Likewise, Steven Brakman, Harry Garretsen, and Marc Schramm validated these conclusions in the context of the German economy [32], while Takanori Ago, Ikumo Isono and Takatoshi Tabuchi used the principles of the new economic geography to explain population redistribution across different countries over several centuries [33].

'Cluster' and 'agglomeration' are among the terms widely used in Russia and rooted in the spatial development practices of economically advanced countries. They have been frequently employed in Russian publications, dissertations, and

official documents at both federal and regional levels. The concept of 'Russian-style cluster' has quickly gained traction and become well-established, in part due to its resemblance to the Soviet 'territorial production complex'. This similarity is, however, merely superficial, as the latter were theoretically grounded and created as planned structures, while Western researchers described territorial-economic complexes that naturally developed under the influence of spatial systems' self-organisation. The concept of an 'economic cluster', which emerged in the 1990s, is conventionally attributed to Michael Porter, who linked a company's competitiveness to its spatial environment [34]. The factors and outcomes of such clustering have been studied and popularised by dozens of Western scholars, including Peter Maskell and Anders Malmberg [35], Stuart Rosenfeld [36], Allen Scott [37], Christian Ketels [38], Karl Wennberg and Göran Lindqvist [39].

As previously mentioned, the idea of clustering and, what is more important, the possibility to refer to territorial complexes in a Western style became in Russia a symbol of development in itself. In most regions, clusters have emerged beyond the industrial and innovation sectors, including those centered on culture, education, tourism, recreation, creative industries, northern design, winemaking (Don Valley), and others. The administrative encouragement of the formation of large urban agglomerations, followed by medium-sized and even rural ones, has similarly become a symbol of spatial development and an implicit indicator of the 'progressiveness' of regional and municipal authorities. One of my recent works [40] analyses the views of prominent Russian scholars on the systemic effects of sweeping agglomeration.

These and other global research advances have been uncritically adopted by many Russian regional scholars, despite the vast differences in the sociopolitical, economic and spatial environments between Russia and the West. What were initially research findings, descriptions of actual conditions and their theoretical generalisations in the West have often taken on the character of an imperative in Russia, becoming an object of strategic spatial planning. This marks the key difference between the two approaches.

Spatial development as an object of strategic planning

Article 3 of the federal law "On Strategic Planning in the Russian Federation" of 28 June 2014, № 172-FZ (referred to below as 172-FZ) states that 'the spatial development strategy... is a document... aimed at maintaining the sustainability of the settlement system in the Russian Federation'. However, government regulation № 870 On the Content, Composition, Procedure for the Development and Approval of the Strategy for Spatial Development of the Russian Federation and the Procedure for Monitoring and Controlling its Implementation, issued a year

later on 20 August 2015, supplements the above with the 'removal of infrastructure constraints in the socio-economic development of territories' and the 'priority placement of productive forces', a concept borrowed from the Soviet lexicon.

This understanding of spatial development coexists with a more defined concept of regional development. Paragraph 8 of the Foundations of 2025 State Policy for Regional Development of the Russian Federation, approved by Presidential Decree of 16 January 2017, № 13, describes its goals as 'a) narrowing the disparities in living standards and quality of life of Russian citizens residing in different regions, urban and rural areas; b) reducing disparities in regional socio-economic development; c) providing adequate infrastructure for all populated areas of the country; d) furthering the urbanisation process, particularly the development of large urban agglomerations, as a necessary condition for economic growth, technological development and enhancing the investment attractiveness and competitiveness of the Russian economy in global markets; and e) increasing the level of satisfaction among the population with the government bodies of Russian regions and local self-government bodies'. Paragraph 6 of the said Foundations effectively equates the objectives of regional development with the overall goals of national development, this trend becoming evident in other official documents. One of them is the Concept of the Strategy for Spatial Development of the Russian Federation, approved by the Deputy Chairman of the Government of the Russian Federation (May 22, 2017, № DK-P16-3247), which blurs the boundaries between spatial, regional and socio-economic development.

In Section 1 of the 2025 Strategy for Spatial Development of the Russian Federation, approved by Government Decree № 207-r on 13 February 2019 (referred to below as the Strategy), the concept of spatial development is defined as 'the improvement of the settlement system and territorial organisation of the economy, including through the implementation of effective state regional development policies'. It is noteworthy that this goal is to be achieved not solely through the Strategy. This conclusion is confirmed by the Report from the Centre for Strategic Developments of March 2024 on the interim results of the Strategy's implementation. The document states: 'The attainment of the indicators analysed in the report is not always directly related to the implementation of the Strategy; a range of decisions and measures taken by the Government of the Russian Federation has influenced the actual outcomes'. This is indeed the case, as the results of transformations in spatial systems are influenced by a full range of regulatory decisions and natural factors, including self-organisation and self-development.

Russia's state policy on spatial development combines several immutable principles with specific actions. These principles include the country's territorial integrity, the prevention of significant disparities in socio-economic conditions across regions, and the dominance of the capital with partial redistribution of centralised resources to subsidised regions. The actions involve designating

territories with special, often preferential regimes, such as territorial fragmentation of a unified legal space, special economic zones, and territories of advanced development. However, few of these practical measures have had the expected positive impact on the regions and the country as a whole. The same applies to changes in the administrative and political structure of the state. The Strategy for Spatial Development of the Russian Federation, identified in the aforementioned law 172-FZ as the primary 'strategic planning document', was intended to be the quintessence of state policy in this area.

It is beyond question that the government-led transformation of all parameters of a country's spatial organisation is an incredibly complex task, one that no state except the USSR has ever undertaken or approached. Such transformations occur naturally under the influence of various factors, including the shifting interests of population groups in different settlements and regions, changes in external and internal business operation conditions, the emergence of new economic zones, the depletion of natural resources, environmental and climatic changes, and the political ambitions of elites. Today's Russia faces an entirely different problem of national space restructuring, one that both stems from the qualitative changes in the country's fundamental societal structure and largely defines its major conflicts. Although this issue may eventually resolve itself, the process would take decades of ongoing crises for tens of thousands of settlements, millions of their inhabitants, and Russia's social and economic sectors. Therefore, the state's intentions to exert a positive influence on changes in the national spatial reality are entirely understandable.

Nevertheless, the implementation of objectives outlined in the aforementioned government regulation, № 870, seems largely unfeasible as Russia, one must admit, lacks the necessary experience and resources, both informational and institutional. For example, one of these objectives was 'to analyse the characteristics and challenges of spatial development in the Russian Federation and evaluate factors, conditions and risks of spatial development... including the current national settlement system; natural resource availability and the industrial landscape; transport and energy infrastructure; spatial aspects of interregional, cross-border and international cooperation; and assessments related to the spatial aspects of the economic and social development of the Russian Federation'. Additionally, among other objectives, it sought to set priorities for improving the national settlement system and create mechanisms to encourage settlement according to these priorities; to outline avenues for restructuring the economy at a regional level; to determine future competitive advantages and the economic specialisation of Russian regions within the interregional division of labour, considering their typological profile and the need to harmonise sectoral and regional development priorities; to forecast regional labour resource needs based on their prospective economic specialisation and expected socioeconomic performance;

to assess the need for federal engineering, transport, and social infrastructure placement and development in line with prospective territorial specialisations; to compile a list of potential territories of advanced socioeconomic development, based on a comprehensive evaluation of conditions and capacities for spatial development in the country; to draft proposals for the spatial distribution of national technological platforms; and to outline areas for national integration.

Although addressing these tasks is essential for developing a comprehensive strategy, the real issue is the complete lack of detailed studies, forecasts, projects, or calculations, with around a hundred needed. Additionally, no public discussions on these matters have taken place. In private expert discussions of the new Spatial Development Strategy concept, doubts are emerging as to the very possibility of evaluating its outcomes.

On the indicators of the Spatial Development Strategy implementation

A systemic assessment of the Strategy's implementation has never been conducted. Approximately a hundred measures outlined in its implementation plan (Government Decree № 3227-r of 27 December 2019) were to ensure the 'effective organisation of economic space in Russia by creating and developing promising centres of economic growth, unlocking the economic potential of various types of territories and developing human capital'. These measures were framed as 'proposal preparation', 'recommendation production', 'strategy development', 'rule formulation', 'amendment of previously adopted regulations', 'mechanism provision', 'forecast production', 'development of composite urban development index' and 'establishment of a centre for spatial analysis'. Reporting on a plan that lacked spatial development indicators was not an arduous task. Unsurprisingly, accounts of Strategy implementation failed to cover several aspects, namely: (1) how the introduction of preferential regimes in the territories of 'advanced development' or the focus on large urban agglomerations would affect the economic, social, demographic, settlement and other parameters of regions and settlements; and (2) which of the planned or forecasted changes in spatial systems resulted from achieving the Strategy's goals. Is it even possible to accurately assess the achievement of these goals? The following considerations suggest a positive answer to this question.

1. The results of the Strategy's implementation should be assessed not by the outcomes of the previously discussed 'action plan,' but by the quantitative measurement of goal achievement, using target indicators (TIs). These indicators should be grounded in statistical data and the metrics of other strategies, implementation plans and regulatory documents aimed at addressing spatial development problems. It would be appropriate to assign Rosstat the responsibility

for the methodological support of TI calculations, presenting the indicators in a special section of annual federal and regional statistical reports and ensuring the timeliness and accuracy of reporting.

2. TIs should be presented in tabular form, indicating for each indicator the initial value at the launch of the Strategy and the reporting year, the value at the end of the reporting year and quantitatively assessed measures that have influenced the results achieved. The list of these measures should include as separate items: a) specific target solutions outlined in the Strategy; b) financial support for regions within interregional transfers; c) preferential regimes in certain territories; d) special tax regulation measures; e) specific measures adopted within national projects, federal and state programmes, and government decisions on the construction of economic and infrastructure facilities.

3. The TIs that reflect a reduction in regional disparities should be accurately compared across similar groups of regions and macro-regions, taking into account the specific national context. These groups include northern, central, and southern regions of European Russia, regions of Siberia, the Far East, the Arctic zone, and the republics of the North Caucasus. Indicators may include the size of the permanent and working-age population, the region's own budget resources and per capita budgetary revenues, the ratio of federal support (see point 2 of this list) to regional budgetary resources, and GRP per working-age individual, as well as contributions from national projects, federal and state programmes, and state decisions regarding the construction of economic facilities and infrastructure.

4. The TIs related to the improvement of the settlement system should be categorised according to the same regional groups (see point 3). These could include urbanisation rates, the number of small rural settlements, medium and large cities, population concentration, and economic potential in major cities and regional administrative centres (separately for urban agglomerations), as well as the spillover of economic and innovation potential beyond agglomerations.

5. The TIs assessing demographic situations in the regions and macro-regions specified in point 2 should be compared across different population groups (children, youth, working-age individuals, retirees, and migrants). This comparison should be based on indicators such as birth rate, mortality rate, life expectancy, employment rates among the working-age population in the region, the share of migrants in the regional labour force, and the availability of social infrastructure in rural settlements, administrative centres and large cities.

6. The TIs that describe the impact of changes in the placement of productive forces on spatial development parameters should also be categorised according to the groups of regions and macro-regions (point 3). This should highlight how the region-specific manifestation of the factors discussed in point 2 affects the

distribution of productive forces and their impact on the parameters of regional disparities, the settlement system and the demographic situation as outlined in points 3 to 5.

It would be helpful to enhance these parameters with residents' assessments of the Strategy target achievement, based on annual sociological surveys conducted independently in the northern, central, and southern regions of European Russia, as well as in Siberia, the Far East, the Arctic zone, and the republics of the North Caucasus. The surveys should start by asking if the respondent is aware of the national Spatial Development Strategy and its counterpart adopted in their region of residence. The above considerations, developed in collaboration with Prof. Aleksandr Shvetsov for submission to the relevant committee of the Federation Council, are based on the idea that the updated Strategy will serve as an informal object of public governance. We also considered governance possibilities in the context of sanctions pressure, investor uncertainty and other factors, where the incremental logic of decision-making described by Charles Lindblom and adapted by James Quinn may be warranted. This logic holds that the success of any strategy depends on the ability to act appropriately in unforeseen circumstances and to redistribute resources wisely in the face of new constraints [41; 42]. Irina Klimova identifies several basic tenets of incrementalism that pertain to 'infinitesimal increments. In the context of this article, these principles may help ensure the stability of administratively transformed spatial systems. Summarising Lindblom's postulates, she writes: 'It is essential to proceed moderately and in small steps, breaking large problems into manageable parts while employing a trial-and-error approach… Given the constant deficit of knowledge, information, resources, and time, as well as the limited capacities of human intelligence and the prevailing uncertainty and weak controllability of the external environment, the goal should not be to find efficient solutions, but rather to pursue non-radical changes that improve the political situation and overall state of affairs' [43, p. 69]. Probably, in the real-world conditions of the third decade of the 21st century, the practice of managing spatial system transformations should also adopt an incremental approach.

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FORMAL BORDERS AND CROSS-BORDER INTERACTIONS: COUNTRY — REGION — MUNICIPALITY

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This study draws on the concept of isomorphism of formal borders (those established by legislative acts), which postulates similarity in their functions performed in different combinations by borders of various statuses. The article aims to explore the isomorphism of formal borders and their impact on the economy and the quotidian practices of the population. The study employs expert interviews and personal observations from several Russian regions while analysing regional and municipal socioeconomic development strategies. On the one hand, the barrier and constitutive functions of borders help to level the socioeconomic gradient within such boundaries. On the other hand, these same functions accentuate the contrasts between neighbouring territories. The general characteristics of borders also encompass their capacity to either attract or deter specific activities and create or exacerbate the peripherality of adjacent areas. The tension between the continuity of physical and social space and the barrier function of borders shapes the population's 'cross-border' practices, generating commodity flows and other interactions between neighbouring territories. This interaction, in turn, necessitates cooperation between border territories to address a range of cross-border issues. However, such collaborations exist almost exclusively at the interstate level. At the regional and municipal level, this need is either unaddressed or absent, even when acknowledged in strategic planning documents.

Keywords:
state borders, regional borders, municipal borders, isomorphism, functions, peripherality, cross-border interactions, cooperation, Russia

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Introduction and problem-setting

The current profound geopolitical shifts have highlighted the importance of borders in society, intensifying the focus of researchers on boundaries of various ranks and statuses. The beginning of the special military operation (SMO) in Ukraine and the break with the West have led to a sharp decline in bilateral trade, strengthened the barrier function of much of Russia's western border, effectively deadlocking many land communications and creating at the same time an urgent need to increase the capacity of border crossing points in the east. The shock effects of the recent COVID-19 pandemic, which led to the temporary closure of the national border and many internal boundaries, accompanied by their transformation into hard barriers, have not been forgotten. The onset of the SMO led to the toughening rhetoric of securing the country's frontiers. Moreover, municipal division reforms and administrative changes are transforming relationships between territories while altering social practices.

Currently, the redistribution of functions among borders of different levels, known as *re-bordering* and *de-bordering,* is taking place around the world. On the one hand, the collapse of states and the subsequent fragmentation of the political map have transformed some administrative borders into national boundaries. On the other hand, the barrier function of some other borders has diminished owing to regional integration. Political reforms are converting regional borders into municipal ones, and conversely, municipal borders are being elevated to the level of regional boundaries. These processes have led to the emergence of a hypothesis about a unified system of different-level borders [1] and subsequently to the concept of border isomorphism proposed in our earlier works [2; 3].

Isomorphism is a general scholarly term denoting the interchangeability of individual elements within a system while preserving its structure and overall properties. We propose using this term to refer to the similarity of functions of formal boundaries (i. e., those established by legal acts) across all levels, albeit these functions manifest differently and to varying degrees in each tier.

Although the interdisciplinary field of border studies has been firmly established for many years, as evidenced by the efforts of several international associations and academic journals, their focus has until now been almost exclusively on national borders. The connection and relationship between these and internal formal boundaries have been poorly studied.

Understanding the similarity of functions among boundaries of different levels is crucial for evaluating the impact of municipal reform on specific territories and establishing legally formalised interregional and inter-municipal partnerships to prevent the excessive strengthening of the barrier function of internal bound-

aries. This concern, in particular, was raised by participants in recent parliamentary hearings in the State Duma of Russia, which addressed the revision of the country's spatial development strategy.

This work aims to study the manifestations of border isomorphism, using specific cases and analyse the relationship between some of their functions at different levels. To achieve this goal, two interrelated research objectives were attained. Firstly, the functions of boundaries of various ranks were examined, and their prominence and effects were analysed through case studies of several Russian regions. Secondly, typical issues of interaction across boundaries were investigated, along with the existing institutional tools for addressing these issues and their representation in regional socioeconomic development strategies.

Materials and methods

This work is based on municipal-level statistics from the Federal State Statistics Service of Russia and the results of field research conducted by the authors in 2022 and 2023 in the Kaliningrad and Orenburg regions, Krasnodar Krai, the Sirius Federal Territory and the Republic of Adygea, as well as in the Republic of Abkhazia. These efforts helped gather detailed information on motivations for cross-border interactions and the existing mechanisms for their institutionalisation. To this end, interviews were carried out with representatives from government, business, public organisations, and the academic community.

Additionally, the research relies on analysing the socioeconomic development strategies of the aforementioned Russian regions. The Kaliningrad region adopted a socioeconomic development strategy in 2012, which was first revised in 2019 and then in 2022. The Orenburg region's strategy dates back to 2010, having undergone significant changes in 2023. The Krasnodar Krai strategy was approved in 2018 and amended between 2019 and 2023. Although such documents are often declarative, with their content and quality depending on the author, budget and other situational factors, they provide a comprehensive vision of a territory and lack adequate alternatives. Therefore, the insights into border statuses and cross-border cooperation offered within these strategies are highly informative.

During the study, interviews were conducted with the team behind the strategies for Krasnodar Krai and the Republic of Adygea, these documents closely aligned with the Space Without Borders project. Meeting protocols from the Krasnodar economic zone councils were examined along with the documents related to municipal-level strategic planning.

The study regions were selected based on their border status and differences in the functions performed by the respective national boundaries. Lithuania and Poland, which border the Kaliningrad region, are unfriendly states, and interactions with them are currently heavily restricted. The border between the Orenburg

region and Kazakhstan is part of the internal EAEU border, whose primary goal is to facilitate contact. Krasnodar Krai borders the partially recognised state of Abkhazia, for which ties with Russia are crucial. The Republic of Adygea — until 1991, part of Krasnodar Krai — is an enclave that only borders the large region from which it separated earlier. New districts of Krasnodar have long encroached on Adygea, highlighting the need for interactions between these regions. Finally, Krasnodar Krai borders the Sirius Federal Territory, which was withdrawn from the Sochi urban district in 2020. Cross-border relations between Sochi and Sirius are complicated by unresolved infrastructure and land issues. The four Russian regions have undergone or are undergoing municipal reforms that affect intraregional governance systems, elite relations and daily routines.

Another criterion for selecting the study regions was economic contrast. Krasnodar Krai is notable for its economic strength and high quality of life, while the Orenburg region performs at an average level, and Adygea is classified as a less developed territory.

This work adheres to the principle of multi-scalar analysis, namely simultaneous examination at three territorial levels: national, regional[1] and municipal ones. The logic of our study involves comparing the main functions of various formal borders. Moreover, based on the interviews and observations, we aim to systematise the effects of borders, quotidian cross-border practices and issues specific to borders of different ranks. Finally, we examine the needs of border territories at various levels for interaction and how these needs are represented in the activities of existing institutions and socioeconomic development strategies.

Unity of functions

Establishing formal boundaries is a fundamental need of society. Formal borders often overlap with informal, cultural, social and religious ones — vernacular boundaries associated with people's identities, daily routines and the borders of daily and other activity cycles, among other things. Any formal boundary, even one surrounding a 'closed community', such as a high-end gated residential compound, serves two main functions: firstly, ensuring the security of the socio-territorial group, and secondly, preserving or strengthening group identity and desire to remain within the community. This group could be either a small community formed around similarities in financial, social or professional status, or a large ethnic or ethnocultural community with millions of members. This idea was succinctly expressed by the prominent British sociologist Benedict Anderson: any border is inward-looking as it aims to separate a social group's territory from its neighbours and outward-looking as it strives to ensure this group's unity

[1] Below, the term 'region' will be used to refer to both Russian regions and similar territories.

or identity [4]. The need for 'hard' linear boundaries is also rooted in the political elites' interest in controlling and governing territories, which conflicts with the continuity of geographic space as such boundaries are generally absent in nature and society.

The border is a legal institution and a physical phenomenon, a category of public consciousness (an element of identity or a set of social constructs), a symbol of territorial sovereignty and a social practice. Serving as a dividing line exerting influence on the adjacent space, it is a crucial element of the territorial-political organisation of society and a tool for adapting to changes in the geographic and geopolitical situation within a territory. The border affects the spatial redistribution of political influence, power, resources, settlement patterns and economic activity. Such adaptation can occur through modifications in border functions and regimes or changes in the configuration of borders. For example, a decrease in population density may lead to the enlargement of regions or municipalities, while an increase in population may result in the emergence of new administrative units. The demarcation, functions, and regime of boundaries reflect the intricate relationships between various economic and political actors, including political elites, businesses, public associations, neighbouring states, other political entities and international organisations. Today, with advances in telecommunications, these relationships and boundary functions can be 'split' and projected onto any territory or even object, such as a diplomatic mission or airport, while some functions may span an entire country [2]. The permeability of borders, i.e. their contact function, and sometimes even borders themselves, vary for different actors and social groups. Moreover, some functions, such as the selection of relocatees and labour migrants, may be handled in the countries of origin, and border and customs control may be carried out in the inland part of a country or across its entire territory. Therefore, isomorphism suggests that boundary functions remain intact despite significant variations in their implementation.

The system of boundaries is in a state of constant flux. In the late 2000s and the early 2010s, several authors posited the concept of bordering — continuous territorial delimitation at various levels, which involves changes in the regime and significance of border functions under the influence of diverse internal and external, volatile and relatively inertial factors. These include the international situation, relations between neighbouring countries, exchange rates, the activities and reforms of political institutions, and the policies of central and local authorities [5—7].

The interplay between formal and informal boundaries is also highly dynamic, shaping the fragmentation of political space across different scales, shifts in territorial identity and approaches to public governance [8]. One of the most widely known and studied cases is the discrepancy between fixed administrative bound-

aries and the expanding boundaries of a city or agglomeration, prompting the system of local administration to adapt to this circumstance. Formal boundaries are rarely impermeable: the barrier function tends to coexist with the contact one. Typically, formal and, in most cases, informal interactions occur across boundaries, as legally established boundaries never fully align with informal ones. This discrepancy catalyses cross-border interactions encouraged by shared natural features, such as transboundary ecosystems (mountain ranges, river basins, lakes, internal seas, etc.), and quotidian practices and needs. In turn, these interactions influence the functions of boundaries.

Alongside the most general, 'synthetic' functions of any formal territorial boundary — the contact and barrier ones [9], with the transit function sometimes added [10] — a variety of more specific functions are identified based on different criteria (see, for example, [2; 7; 12—14]). Almost all of them are characteristic of formal boundaries at various levels and in different combinations.

A central function of formal boundaries is constitutive, involving the organisation and governance of a territory and ensuring its security. Without clearly defined boundaries, no steadfast national identity is possible, nor is a state that is economically and politically stable. Typically, municipalities, provinces or other regions within a state have legally delineated boundaries defining their tax base and scope of responsibility. Regional borders generate demand for public services, including security, and create a legal and regulatory environment.

Closely related to the constitutive function of formal boundaries are several others. They shape the geographical space as an arena for interaction between natural and socioeconomic processes, characterised by a specific geographic position, unique history, linkages to other areas within various networks and local social practices and factors of socialisation. Thus, formal boundaries have a pronounced cognitive and symbolic function. Not only do they aid in spatial orientation and understanding of the external world, but they also contribute to the reproduction and evolution of identity, namely an individual's self-identification with a specific community, its values and mindset.

The function of formal boundaries is to shape the spatial structure of the territory they define. On the one hand, due to their constitutive function and regulatory role, boundaries homogenise the socioeconomic landscape within their limits through integrative communication networks, a single legal and regulatory environment and, at a national level, a unified system of socialisation and technical standards. On the other hand, for the same reasons, boundaries exacerbate territorial inequality, as each spatial unit develops relatively autonomously and thus **asynchronously** with its neighbours. Disparities in economic development, wealth and resident identity often emerge at the borders of states, provinces and municipalities, generally intensifying over time.

Formal boundaries establish, alter and, in due course, entrench core-periphery differences. Although the development of network structures and telecommunications is believed to have made administrative functions more mobile and dispersed, most political and administrative units have a clearly defined core (an exception is the US states, where capitals are located in designated small towns). In specific geographical and historical conditions, the infrastructure of the core must align with the rank and potential of its territorial unit. Its stability, among other factors, depends on this alignment: the capital of a large state cannot be located in a village or small town. Redrawing boundaries, especially when a new core is established through administrative reorganisation, typically results in the creation of yet another periphery.

The concept of peripheral status is not only geographical (position-related) but also socioeconomic and political. It is associated with underdevelopment, poor sociodemographic performance and increased dependence on administrative decisions made by the central authority. Thus, the periphery may be situated near the core. However, proximity to the border, particularly remoteness from and limited accessibility to the core, often exacerbates peripheral traits in border areas [15]. Consequently, cross-border communications are seen as a means to overcome this issue. To avoid transforming the area into a 'tunnel', such communications should not be merely transit-focused, i.e. only serving the cores of neighbouring territories. The configuration of the transport network influences the intensity and directions of connections. It remains an open question whether the dependence of delimitation on key centres of settlement precedes or, conversely, if the border itself induces the decline in borderlands.

Unity of effects

The isomorphism of border functions at different levels is defined by the commonality of effects that significantly impact border areas and the similarity of problems faced by borderlands of various ranks. Most of these effects are related to the interplay between contact and barrier functions.

The first group of effects concerns the ability of borders to *attract certain types of activities to borderlands or deter them from those areas*. This is most evident in the case of national borders, where a border zone with regulated access and restrictions on economic activities is established. The span of this zone has changed over time: during the Soviet period, it often covered an entire border region, while post-Soviet Russia introduced a five-kilometre border zone in 1993; in some regions, it was extended to 10—15 km or more in 2004.

Following the expansion of 2005, the border zone in the Kaliningrad region included 35 % of the local towns — Sovetsk, Bagrationovsk and the popular seaside resorts of Svetlogorsk, Yantarny and Zelenogradsk. In 2013, the border zone

area, now reduced by almost 60 %, still included prominent tourist destinations: the famous Romincka Forest on the border with Poland, boasting cycling paths constructed under cross-border cooperation programmes, and Lake Vištytis on the border with Lithuania.

In the Orenburg region, the five-kilometre border zone was introduced only in 2001. It was significantly expanded in 2006 and notably reduced in most of the 15 border districts by 2019. In Krasnodar Krai, due to its recreational specialisation, the configuration of the border zone has been repeatedly reviewed: this happened in 2006, 2007, 2013, 2014, 2020 and 2023. Its area decreased over time, with the Azov Sea coast excluded from it following Crimea's incorporation into Russia.

On the one hand, the border zone regime sets restrictions on commercial fishing and hunting, major construction, mineral extraction and business activities attracting large numbers of people from outside the border zone, such as tourism and labour-intensive industries. Large companies supported by central authorities can sometimes overcome the strictures of the border regime. For example, in 2018, the Russian Copper Company and the Aktobe Copper Company began developing the Vesenne-Aralchinskoye copper deposit along the Russian-Kazakhstani border in the Dombarovsky district of the Orenburg region, with plans to process the raw materials in Orsk and Aktobe. However, such projects are exceptions. Our previous research has identified a significant decline in economic activity in Russia's border areas and a general trend of economic activity withdrawing from these borderlands [16].

On the other hand, borderlands attract businesses servicing cross-border flows. Many roadside infrastructure facilities, such as fuel stations, motels, secured parking lots, dining establishments, shops, currency exchange points, vehicle insurance agencies, and others, are located in close proximity to border crossing points.

At the Polish border, petrol stations catering to Polish fuel buyers played a pivotal role, while at the Krasnodar-Abkhazia border, food and clothing markets, including the famous Kazachiy Rynok in the Adler district, were the key to cross-border interactions. The activities of medium and large businesses in border areas are typically linked to providing transport and logistics services. In 2008, the Federal Customs Service developed a concept for customs clearance and control at locations near the Russian state border. Implementing this concept necessitated extensive construction of new transport and logistics terminals (TLTs) in border regions, and the development of new TLTs continues to this day in key areas. For example, a major TLT is planned in the Orenburg region, along the Europe — Western China international route.

The number and variety of border infrastructure facilities are directly related to the scale of cross-border freight and passenger flows, as well as the extent to

which the border acts as a barrier. In the Orenburg region, local authorities nostalgically recall the period of stricter border controls: customs provided prestigious and well-paid jobs for local residents, and longer waiting times for customs checks at the border provided ample opportunities for the local services sector.

The attraction effect is observed along regional and municipal borders separating densely populated agglomeration areas. Businesses leverage tax differentials and variations in land prices for large-scale housing development, deploying major warehouse and manufacturing facilities, and similar ventures. A prime example is the rapid expansion of the Krasnodar agglomeration into the neighbouring areas of Adygea. Good transport accessibility to the centre of Krasnodar, lower land prices, two- to three-fold differences in land tax rates and reduced electricity tariffs have led to intensive housing development in the villages of Yablonovsky, Kozet and Novaya Adygea. The latter accommodates the extensive Mega shopping centre targeted at Krasnodar residents. Since most of the villages' residents are employed and pay personal income tax in Krasnodar Krai, local and regional authorities are encountering difficulties in securing adequate funds for constructing schools, clinics, and kindergartens. In turn, authorities and permanent residents of Krasnodar are dissatisfied with the overburdened city infrastructure, which was not designed to handle the large influx of residents from neighbouring Adygea.

The repulsion effect in borderland economic activity is generally less pronounced because the contact functions of borders are predominant and security concerns are typically mild. This effect frequently arises in contexts involving ambiguous borders or border disputes. The Otradnensky District of Krasnodar Krai encountered difficulties with land cultivation along certain sections of the border with Karachay-Cherkessia from 2004 to 2018, as farmers, tax authorities and regulatory bodies were unsure which regional jurisdiction applied to a particular land plot. As of 2018, according to the State Register of Real Estate, just under 20 % of Russia's interregional borders were officially documented. By 2022, this percentage had increased to 70 %, excluding the new territories.[1]

Another group of effects is associated with borders' capacity to induce or intensify the *peripheralisation of neighbouring areas*. While it is challenging to provide a definitive answer on the relationship between a border position and peripheralisation, it is evident that borders tend to contribute to the emergence of peripheral regions. At the same time, borders are frequently established precisely in the most peripheral areas, far from the cores. The manifestation of peripheral characteristics in borderlands is influenced by the territorial organisation of the neighbouring areas, including factors such as transport route configuration

[1] State (national) report on the condition and use of land in the Russian Federation in 2022. Moscow, Rosreestr, 2023. 185 p.

and proximity to major centres. For example, in the Russian-Kazakhstani borderlands, the eccentricity of Kazakhstan's regional centres towards the Russian boundary has contributed to population retention in the border strip. In contrast, Russia's borderlands along the Kazakhstan border have experienced, on average, a much faster population decline. Along major transport routes, the state border acquires some characteristics of a core, attracting certain types of activities, as noted above, and peripheralisation is either checked or reversed.

The extent to which a border functions as a barrier does not always play a decisive role in the dynamics of peripheralisation [17]. Firstly, as evidenced by the EU and the EAEU, peripheralisation may occur even in conditions of open borders. Secondly, once peripheralisation becomes a solid fact, open borders have little impact on the socioeconomic development of the territory, which effectively becomes a kind of 'passive corridor' [18].

At internal national borders, the attributes of peripheralisation are distinctly evident in interregional border areas. In the Kaliningrad region, similarly to many other Russian territories, the need to consolidate the existing network of municipal districts periodically arises as a subject of discussion. Lacking an extensive rural surrounding, Sovetsk — a town with a population of 38,600 as of 2023 — is often cited as a potential core for a larger municipal entity encompassing the current Neman (15,400) and Slavsk municipalities (15,700). There has been considerable debate over expanding the Bagrationovsk municipality (32,900) to include the Mamonovo (8,500) and Ladushkin (3,700) urban districts. Similar discussions are occurring in other regions entertaining the idea of forming larger municipalities centred on major towns in the area to stimulate the economy and address peripheralisation by altering borders. The Orenburg region and, to a lesser extent, Krasnodar Krai are cases in point. However, regional and municipal consolidation typically leads to a new phase of peripheralisation involving former district centres and their surroundings [19; 20].

Another group of effects is associated with *considerable transaction costs — temporal, financial or organisational — arising from authorities' collaboration across borders*. Our interviews convincingly demonstrate that the inability to spend funds in neighbouring territories and the need to seek additional approvals and synchronise budget cycles pose challenges for central, regional and municipal authorities in project implementation, as well as in the management and protection of transboundary natural and anthropogenic resources.

Shared transboundary natural features, such as rivers, lakes and land areas — are either unclaimed or exploited by one party to the detriment of the other. At regional and municipal borders, only large transboundary objects are managed by designated budgetary institutions. For instance, the Tsentroregionvodkhoz water management organisation handles the Krasnodar reservoir on behalf of Krasnodar Krai and Adygea. However, bank reinforcement and the cleaning of

the riverbed and floodplain of the Laba River are carried out without proper coordination. Activities near the Adygea village of Koshekhabl have led to bank erosion in the Kurganinsk district of Krasnodar Krai. In the city of Sochi, uncontrolled construction in the upper reaches of rivers in the Piedmont and mountainous areas of some municipalities exacerbates flooding in others. The conflict of interests has become so severe that the Sochi 2035 Strategy envisages a radical reform of municipal divisions and the establishment of new district borders based on the water basin principle.

In 2020 and 2021, the construction of a weir dam near Orenburg sparked intense disagreements in the Russian-Kazakhstani borderlands: the Kazakhstani authorities were concerned about a reduction in the flow of the Ural River.

Similar challenges are evident across various border types, particularly, in the development of border crossing points, the construction of roads and bridges and the organisation of public transport routes. Resolving these issues is particularly problematic at state borders, as it requires coordinated actions between the national and regional authorities of two sovereign states. This is vividly illustrated by the construction of the 'Europe — Western China' transboundary artery in the Orenburg region, which faced significant delays threatening the project's implementation. Rectifying the situation required intervention at the highest level.

Large infrastructure projects can be adversely affected by shifts in geopolitical circumstances, leading to extended construction periods or even the termination of completed projects. Although the project of a new bridge near the existing Sovetsk—Panemunė connection dates back to the 2000s, it was only formalised as a large-scale project under the Russia—Poland—Lithuania cross-border cooperation programme run between 2007 and 2013. In 2014, an agreement was reached between Russia and Lithuania for the construction of the bridge, which was built by Russia using its own funds and remained the property of the Kaliningrad region. Additionally, a special 'restricted zone' was established on the Lithuanian side, guarded by Russian border guards. During construction, entry into this zone by Russian citizens was not regarded as a border crossing. Ultimately, the bridge was put into operation in December 2020 along with the Dubki—Rambinas border crossing point.

At a regional or municipal level, the main challenges to interactions stem from the lack of necessary legal frameworks and funding, inconsistencies in actions and plans, changes in priorities due to electoral cycles, and other factors. The lack of coordination between the authorities of the Republic of Adygea and Krasnodar Krai led to the situation where the Friendship Bridge, built in 2010 between the Adygean village of Ulyap and the Kuban *stanitsa* of Tenginskaya, had no access on the Krasnodar side. This structure, known locally as the 'ghost bridge', was completed in 2017 after the region had received federal funding and the necessary access roads had been constructed.

The barrier function of formal borders is closely linked to their differentiating role: due to the uniformity of the regulatory and legal environment within each territorial unit, borders *contribute to the accumulation of differences and contrasts between neighbouring territories*. Cross-border interactions are largely determined by territorial disparities. In some cases, stark contrasts generate asymmetry in interactions or even conflicts, reducing the potential for equitable partnership and cooperation. In other cases, the complementarity effect arises, where economies and markets for goods, services and labour complement each other. Differences in wages and prices foster conditions for exchanges and intensive transboundary mobility. Varied business conditions and tax rates encourage cross-border cooperation and/or spillover of business activity from one part of the borderlands to another [21].

Unity of interaction problems

Similar interactions occur across all formal boundaries, though their institutional complexity varies depending on whether the borders are national, regional or municipal. Cross-border interactions seek to mitigate the problems brought by the barrier function and other functions of the border, while also maximising the benefits it provides.

Firstly, any interaction depends on the organisation of transport, particularly public transport routes. Years of research on various sections of national, regional and municipal borders demonstrate that the success — speed, quality and synchronisation — of building and reconstructing transboundary communications is contingent on the status of the boundaries.

The exclave status of the Kaliningrad region and its link to the rest of the country is a priority for interactions with EU nations, even amid geopolitical crises. Complex and protracted negotiations, accompanied by extensive media campaigns,[1] were required for agreements on railway sections operated by Russian Railways in Kazakhstan and Kazakhstan Temir Zholy in Russia, including the 157 km Ilets section of the Kazakhstani railway connecting different parts of the Orenburg region.

Similarly, in urban agglomerations, transport connections between dormitory districts and areas where a significant number of jobs or businesses are clustered together demand cooperation across municipal boundaries, and in some cases, such as the Krasnodar agglomeration, across regional boundaries as well.

Secondly, a significant motivation for interactions across borders is the shared infrastructure. Energy, gas, water supply and sewage system networks cross all types of borders. For example, the settlement of Goncharka in Adygea's

[1] Besschastnov, A. Sem' raz otmer'... [Look before you leap]. *Gudok*, №48, 3 dekabrya 2010 g. https://www.gudok.ru/zdr/178/?ID=649236

Giaginsky district receives electricity from the Belorechensky district of Krasnodar Krai. The gas pipeline also enters the Giaginsky district from Krasnodar Krai. However, the barrier function of municipal borders often hinders infrastructure operation due to an inadequate regulatory framework for interaction, particularly in terms of interbudgetary relations. Coordination issues frequently arise between municipalities in riverbank reinforcement and the development and maintenance of road networks on their territories (cf. the case of the Laba River in Krasnodar Krai). Intermunicipal cooperation in solid waste disposal is also insubstantial, as evidenced by the situation in the Kurganinsk district of Krasnodar Krai.

Thirdly, cross-border interactions — mainly informal collaborations — emerge at all levels in the services sector, particularly in healthcare and education. Variations in the availability of these services, transport accessibility and differences in cost, quality and variety are common motivations for cross-border travel. At state borders, in contrast to internal borders, differences in prices are often the primary incentive for such trips. For instance, up until 2022, it was common for residents of the Kaliningrad region to purchase food and pharmaceuticals in Poland. In the Orenburg borderlands, the Russian city serves as a centre for healthcare and educational services for citizens of Kazakhstan. Residents of Abkhazia also tend to travel to Russia to access such services. These practices are widespread at the regional and municipal levels. Adygeans travel to Krasnodar Krai seeking medical assistance, and residents of Krasnodar Krai come to Adygea for the same purposes. Neighbouring Adygean districts attract denizens of the Apcheronsky, Belorechensky and Mostovsky districts and Armavir due to the availability of highly skilled specialists and advanced healthcare services, such as maternity care. Intermunicipal agreements allowing students to attend schools in neighbouring municipalities have been concluded between Krasnodar Krai and Adygea. These arrangements extend to Goncharka in Adygea's Giaginsky district and Stepnoy in the Belorechensky district, as well as between the Adler district in Sochi and the Sirius Federal Territory.

Finally, trips for consumer purposes are made across any border, especially between cities with comparable population sizes. This type of travel is encouraged by price differentials, varying assortments and the availability of certain goods and services on only one side of the border. In the Kaliningrad region, the phenomenon of consumer activity being partly 'transferred' to the Polish and Lithuanian borderlands was observed for many years. Over time, this consumer trend has developed, with one-day shopping trips increasingly being merged with family weekend excursions. Throughout the post-Soviet years, Polish citizens have been committed to purchasing cheap fuel in the region's border areas without entering Kaliningrad [22].

Kazakhstani's shopping trips to Russia have generally ceased. Since 2022, Russian citizens have increasingly travelled to neighbouring cities in Kazakhstan to obtain banking services unavailable in Russia (the so-called 'card tours'), purchasing 'sanctioned' durable goods, such as household appliances and cars, and using Kazakhstani airports for international flights.

These practices observed at regional and municipal borders have been insufficiently studied. Yet, despite the population and regional administrations not perceiving such travel as transboundary, it is a prevalent phenomenon.

Shared demand for institutions

A fundamental characteristic of all types of dividing lines is the increase in transaction costs of any interaction. According to the literature, this elevated level of transaction costs explains the diverse range of problems encountered by border regions [23, p. 13—18]. Institutions of cross-border cooperation can be understood as the rules governing interactions across borders, recognised by the majority of actors involved in these interactions. A significant portion of these practices, such as leveraging price differentials, is not legally formalised but remains crucial for daily life. At the same time, many legally established institutions have minimal impact on life in border regions.

The need for cross-border cooperation institutions is evident across all types of borders due to their shared functions, the problems they bring and the established practices of transboundary interactions. However, these institutions are most developed at *national borders*, primarily due to the higher transaction costs associated with this type of boundaries. The list of relevant institutional forms is outlined in the federal law "On the Framework for Cross-Border Cooperation" of 26 July 2017, №179-FZ, and the Concept of Cross-Border Cooperation in the Russian Federation of 7 October 2020. The practice of using these and other institutional forms not specified in regulatory documents varies depending on the border status.

Framework agreements on cross-border cooperation, the most common transboundary institution, were actively signed by Russian regions in the 1990s and updated approximately every ten years. In all three study regions, these agreements generally lacked specific details but established a legal framework for the interactions of regional authorities. Even when the documents did mention concrete projects, the corresponding initiatives typically never materialised due to a lack of either financial resources or jurisdiction (federal involvement was required). It is noteworthy that similar framework agreements are also established at internal Russian borders, where issues of insufficient authority and funding are similarly evident.

A more advanced tool is cross-border cooperation programmes. From 1991, Kaliningrad region participated in a range of EU cross-border programmes. Between 2000 and 2020, over 500 projects were implemented with a focus on transport infrastructure, utilities, environmental protection and cultural heritage preservation under three cooperation programmes. A distinguishing feature of these initiatives was a common budget, project-based financing principle and coordinated development priorities and project selection criteria [24].

In the Orenburg region, the first cooperation programme, covering all twelve Russian and seven Kazakhstani border regions, was launched in 1999. It was followed by two more documents in effect from 2008 to 2011 and from 2012 to 2017. Unlike their Kaliningrad counterparts, these programmes did not offer a list of projects, a description of financing mechanisms or tools for identifying common cooperation priorities. Action plans for these programmes were adopted and implemented in an uncoordinated manner, with the lack of focus on specific territorial issues leading to the absence of visible results from the cooperation.

Among other institutions, local border traffic agreements are notable. This regime simplified border crossing for residents of neighbouring regions (the Kaliningrad region and adjacent Polish voivodeships from 2012 to 2016) or selected border areas (Orenburg region since 2009). The Forum for Interregional Cooperation between Russia and Kazakhstan played a significant role in the Orenburg region, whereas Euroregions were particularly influential in the Kaliningrad region until the mid-2000s [25].

The lack of a necessary regulatory and legal framework for institutionalised cooperation at regional borders may explain why regional strategies pay only slightly more attention to this issue than to cross-border cooperation with neighbouring countries. All the strategies make comparisons with other regions within the same federal district across various socioeconomic measures, but these contrasts are framed in a ‘competitive’ context rather than aimed at identifying subtle differences. An exception is the strategy of Krasnodar Krai, which places heavy emphasis on cooperation with Adygea (see Table). The terms ‘border’ and ‘cross-border/transboundary’ are mentioned approximately 60 times throughout the document. A key component of the strategy is the flagship Space without Borders project, which serves as an umbrella initiative for development programmes in the cross-border Krasnodar and Sochi agglomerations, the ‘Caucasian Mountain Area’ and other territories. This approach aimed to offer a comprehensive vision for the future of multiple municipalities, facilitating the identification of key cooperation-focused inter-municipal projects. For the first time in Russian strategic planning, the concept of ‘cross-border economic cooperation’ has been used, encompassing contacts not only with foreign entities but also with neighbouring Russian regions.

The themes of municipal, regional, and national boundaries and cross-border cooperation as seen in regional socioeconomic development strategies

Kaliningrad region	Krasnodar krai	Orenburg region
Diagnostics		
Approach to interpreting the border position		
The geographical position is assessed at various scales: the region as part of Russia, the Baltic region and Greater Europe	The geographical position is examined at different scales — as part of relations with other countries and within the Russian macro-region. The geostrategic function of the region as an outpost, and the importance of ensuring transit to neighbouring states and other Russian regions	The border position is synonymous with a favourable transport-geographic location and a pronounced transit function. The status of a geostrategic border territory determines the avenues of interaction with the federal centre
Comparative assessment: what is the comparison made with?		
Comparison with Lithuania and Poland, partial comparison with regions of the North-Western federal district	Partial comparison with neighbouring Russian regions	Comparison with neighbouring Russian regions
Subregional differences and municipal boundaries		
Intermunicipal bus transport connectivity needs improvement	The analysis focuses on the heterogeneity of the territory in terms of socioeconomic development. Lines and nodes of different orders are distinguished in the spatial structure of the region. The development of local settlement systems (including agglomerations) is identified as spontaneous	The gravitation of the Orenburg region's outskirts towards neighbouring regional centres is seen as a challenge to the region's sustainable development
Strategies goals and objectives		
Cooperation across national and regional boundaries		
Unlocking the potential of international and interregional cooperation to ensure sustainable development	More efficient interactions with neighbouring regions and stronger international integration	An initiative for municipalities bordering Kazakhstan (no specific details provided)
Cooperation across municipal boundaries		
Enhancing subregional transport connectivity Unlocking the joint tourism potential of the region's eastern districts	Implementation of the Space Without Borders flagship project, which entails comprehensive spatial development of designated economic districts. Intermunicipal projects in transport, waste management, emergency services, and the economy, including tourism. Establishment of coordination councils for inter-municipal cooperation	Restoration of the Ural River initiative Development of combined tourist routes. Territorial and Professional Mobility initiative (subsidies to intra-regional labour migrants)

Source: compiled from the materials of Russian regions' socioeconomic development strategies.

In the strategy for the Orenburg region, one of the challenges 'that need to be overcome for the sustainable socioeconomic development of the region' is the spatial configuration of the territory, which causes the 'outskirts of the Orenburg region' to gravitate towards neighbouring regional centres. Although nearby cities in other regions could potentially support the development of the Orenburg outskirts, the lack of regulatory and legal foundations for such interaction causes them to merely drain the population from the periphery.

The strategic documents vary in their approach to *municipal borders*. In the strategy for the Kaliningrad region, subregional differences and municipal borders are scarcely addressed, except for transport connectivity. Despite noticeable disparities in socioeconomic development within the exclave, inter-municipal initiatives remain limited. The region's eastern districts are mentioned only as the object of a unified tourism policy. Yet, measures to consolidate inter-municipal efforts for tourism development in these territories are not specified.

The strategy for the Orenburg region mentions several initiatives for cooperation across municipal borders. One of them, the Restoration of the Ural River, involves the development of inter-municipal tourist routes. Within another, titled Territorial and Professional Mobility, subsidies are provided for relocation within the framework of intra-regional labour migration.

The strategy for Krasnodar Krai includes a detailed multi-scale analysis of the region's spatial structure, identifying lines and nodes (or cores) of varying significance. Unusual for such documents, this analysis reveals that local settlement systems, including the Krasnodar and Sochi agglomerations, develop somewhat spontaneously. The document's forecasting section contains a thorough examination of borders, highlighting the need for cross-border cooperation. The Space without Borders project envisions the creation of economic districts (zones) within Krasnodar Krai, based on shared development goals and objectives while considering economic specialisation, natural conditions and other factors. The strategy includes a range of inter-municipal projects in transport, waste management, emergency services and tourism, along with a mechanism for their institutionalisation through setting up coordination councils for inter-municipal interaction. However, even this progressive approach lacks support from lower-level (municipal) strategic documents and practical implementation.

Analysis of municipal strategies reveals that interactions with neighbouring territories are mainly mentioned in the context of evaluations of geographical and transport-geographical positions. Strategic development sections rarely mention inter-municipal initiatives, such as waste management, water level monitoring systems, tourist routes, and healthcare services, and when they do, they generally leave out specific implementation mechanisms. Expert interviews indicate that such initiatives are not being realised. For instance, the administration of the Kurganinsk district emphasised the gravity of 'cross-border' solid waste disposal issues, yet there is no interaction with neighbours on this matter. The only am-

bitious inter-municipal initiative is the New Armavir project — a million-strong agglomeration that necessitates the expansion into new territories and redefinition of municipal boundaries.

The formally established institution for inter-municipal cooperation in Krasnodar Krai consists of councils for seven economic zones (districts) identified in the strategy. Expert interviews revealed several bases for delineating these zones: 1) the similarity of functions performed by territories in urban agglomerations, mountainous, steppe or coastal resort areas and other environments; 2) shared economic specialisation, which suggests the potential for cumulative effects from joint planning; 3) joint branding of products in manufacturing and tourism (e. g., creating a tourism brand for the Black Sea region, comprehensive development of the Yeisk coast); 4) rational natural resource use in cross-border geosystems (for instance, the Akhtarsky wetlands in the Coastal zone); 5) possibilities for joint development of specific strategies and programmes to obtain federal funding.

However, an assessment of the available development plans for these economic zones between 2018 and 2019 shows that municipal representatives have a limited understanding of the significance of such areas. The project lists proposed at the zone council meetings predominantly feature local initiatives confined to a single municipality. Cross-border issues include only a few projects, such as road construction, site selection for grain processing plants, regulation of electrical and gas capacity surpluses or shortages and changes to municipal boundaries (Armavir and the Uspensky district).

Research on institutional cooperation indicates that cross-border cooperation programmes have been the most successful form of collaboration along Russia's state borders, particularly with EU states in the country's northwest [26]. We believe that applying the programme-project approach used in these programmes could be beneficial not only for Russia's external borders but also for internal ones — both regional and municipal. This approach would solve the issues of the lack of jurisdiction and financial resources for cross-border cooperation.

Conclusion

Between the barrier, symbolic, and authority-legitimizing functions of borders on one side, and the necessity for cooperation to address a variety of cross-border issues on the other, lies a contradiction inherent to all types of formal boundaries. In our view, this contradiction strongly supports the concept of border isomorphism. State, regional and municipal borders all play a role in organising and governing a territory. They define its regulatory and legal space, including areas for public services and the dissemination of standards. Institutionalised borders of all types enhance spatial contrast and add to peripheralisation effects. Routine transboundary practices, which arise not only to shorten travel distances but also due to differences in the range and quality of goods and services, are connected to the disparities present at any border. Both regional and municipal borders, similarly to state boundaries, function to attract or repel economic activities. This is

most evident in the agglomeration zones of Krasnodar and Greater Sochi, which accommodate large residential developments and major shopping centres like Mega.

Cooperation institutions address spatial development issues by helping 'surmount' the borders. Agreements between states, regions and municipalities give residents in borderlands access to the nearest centres for education, healthcare, and other services. However, the impact of these institutions on mitigating cross-border disparities is ambiguous: they may bridge, exploit or amplify these differences.

Yet, interregional and inter-municipal cooperation institutions remain extremely underdeveloped. Analysis of regional and municipal socioeconomic development strategies generally reveals a lack of awareness regarding their necessity; despite the ambitious cooperation plans outlined in the strategies of Krasnodar Krai and Adygea, actual collaboration does not materialise. Fundamental reasons for this situation include the specifics of national and regional political culture, national governance traditions and the absence of a legal framework at the federal level. Research into existing institutions and practices revealed, firstly, that significant obstacles are found in land and property relations: municipalities encounter serious challenges when establishing joint industrial and infrastructure projects. Secondly, implementing joint projects is hindered by the inability to co-finance such initiatives or reallocate budgets between municipalities. Thirdly, there is a lack of effective legal mechanisms for creating supramunicipal forms of management and cooperation. Fourthly, low budgetary provision at the municipal level necessitates the development of specific programmes to support inter-municipal and interregional cooperation projects.

One factor hindering inter-municipal and interregional cooperation is the fear of boundary changes, such as those expressed by the authorities of Adygea regarding its three municipalities absorbed into the Krasnodar agglomeration. The interviews frequently highlighted the narrative that excessively close connections between territories pose a risk of their merger. Establishing cooperation institutions and thus the rules to abide by could be the key to resolving this contradiction, as it allows addressing cross-border issues without altering boundaries.

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TRAJECTORIES AND PROBLEMS OF THE CURRENT SPATIAL DEVELOPMENT OF RUSSIA'S EUROPEAN NEAR NORTH REGIONS

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This article employs a comprehensive economic and geographical approach to examine the extensive European segment of Russia that extends north of the Moscow region — the area commonly known as Blizhny Sever (Near North). New challenges require an improvement of Russia's spatial development strategy. The case of the region is used to illustrate the possibility of a multiscale approach to identifying socioeconomic contrasts within regions and describing the interdependent development of their parts. The study analyses population change trends from 1990 to 2022 alongside the territory's migration patterns, employment trends and infrastructure development. The spatial approach is crucial in this context, owing to the natural variations within the macroregion, the suburban-peripheral contrasts and the growing role of the central cities. The study closely examines the eastern part of the macro-region, from Yaroslavl to Kirov. The compression of developed areas and the degradation of essential living conditions have been the most pronounced trends in the post-Soviet period, along with organisational and economic changes in key economic sectors. The study also explores how the impact of regional centres on surrounding areas changes with distance. It places emphasis on the shifting paradigm of agricultural land use under new institutional and economic conditions, the increasingly patchwork character of farming and the implications of the focus on animal husbandry. The work relies on analysing municipal-level statistical information and the extensive use of maps. Identifying both relatively successful and highly problematic areas within this vast macro-region can aid in devising new visions to enhance national and regional spatial development strategies.

Keywords:
spatial development, municipal area, centres, periphery, migration, employment, agriculture and forestry

Problem statement and previous research

One of the main and widespread problems of Russia with its vast space and a relatively sparse network of large cities is the centre-periphery socio-economic differences [1]. The depth of these differences is often underestimated, especially

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in studying the development of Russia at the level of its regions, including in the adopted Strategy for the Spatial Development of the country and its regions until 2025. Its disadvantages are largely related to the focus mainly on regions and large centres and the lack of a multi-scale approach to solving problems [2]. This is especially true in regions with diverse and complex natural conditions, and relatively sparsely populated, where the influence of centres leads to many types of problems within regions that determine the development of both centres and peripheries. In addition to the eastern regions of Russia, these include the old-developed regions of the Near North of the European part of Russia.

The Near North of Russia is the vast territory of the Non-Chernozem region, characterized in the past, in addition to forestry, by relatively sparse agricultural development and animal husbandry, and now it is largely subject to desolation, as a result of depopulation and curtailment of key activities. The agricultural development in pre-Soviet times and during the Soviet period distinguished the Near North from the Far North, where the use of minerals and forest resources was and remains the basis of management. The term "Near North of Russia" was proposed and justified by geographers [3]. With a certain degree of conditionality, it can include regions north, northwest and northeast of the Moscow region from the Pskov and Tver regions to Vologda and Kirov.

The Near North of the European part of Russia has enormous natural potential — a huge territory, forest and water resources, and relatively high biodiversity. At the same time, this is a very problematic macroregion in terms of economic "compression" in space, depopulation, social depression and exclusion of the rural population. Back in Soviet times, the population in rural areas was declining and more and more abandoned houses appeared here. Collective-farm and state-farm agriculture in most of the territory existed due to huge subsidies. With the departure of Soviet agricultural and timber enterprises, which supported not only the economy of the regions but also infrastructure and employment, the decrease in social and economic activity zones accelerated. This is largely due to the shift in modern market conditions of agricultural production to more southern regions with favourable natural conditions for agriculture, as well as the transformation of the timber industry. All this stimulated the departure of the population from rural areas and small towns [4; 5]. The emergence of new technologies at the preserved enterprises of agriculture and forestry, requiring the involvement of a much smaller number of employees, only increased the outflow of the local population, especially since the centres of the regions, not to mention Moscow and St. Petersburg, both in Soviet and post-Soviet times attracted the population from the surrounding territories [6]. At the same time, the forest resources and ecosystem functions of the region remain important. The lack of economic mechanisms for reforestation and "predatory" forest management in many places has led to a significant depletion of economically available forest resources, and the

richest natural and ecological potential of the territory is largely not in demand [7]. The accumulated cultural potential in this old-developed region is no less important and is being lost.

The Spatial Development Strategy of Russia until 2025 provided for the acceleration of the country's economic growth through the development of promising centres. There are no in the macro-region most promising centres with annual economic growth of more than 1 %. Nevertheless, for most of the centres in this region, the Strategy assumed an increase of 0.2 to 1.0 %. Economic growth of < 0.2 % was predicted only for Kostroma and Kirov. At the same time, the macro-region, which concentrates 6.5 million people, is characterized by a sparse and very contrasting socio-economic space, a high and increasing concentration of the population in the centres of the regions, insufficient transport connectivity and, in general, significant infrastructure constraints. In a macro-region with such a high role of central places in an increasingly sparse socio-economic space [8; 9], a geographical approach that identifies the most problematic territories is especially important. The question has been repeatedly raised that the processes of "social desertification" outside the regional centres must be stopped, if not stopped, then at least achieve "regulated compression" [3; 10].

Despite the relative compactness of the macro-region, it is characterized by a wide variety of internal problems. This article examines the eastern part of the Near North from the Yaroslavl region through Kostroma, Vologda to the Kirov region. The strong socio-economic contrast of this territory at the municipal level requires a comprehensive geographical study of various indicators and processes — from the degree of development of the territory to population migrations and the economy in their interaction. The article is of a reconnaissance nature, identifying only some key problems of spatial development at the municipal level, the analysis and determination of solutions to which need further study.

The main modern problem of the Russian Non-Chernozem region remains strong rural depopulation, a steady outflow of young and active population to cities, and the abandonment of villages [11]. For the Tver, Yaroslavl, and Vologda oblasts, these aspects were considered in detail at different scale levels [12—15]. Nevertheless, these processes are not unique to the studied regions and even to Russia. In the twentieth century, they have also been observed in many European countries. However, there is reason to believe that urbanization in Russia has not been completed [16]. The population tends to the centres and closer to them [17—19]. Combined with a relatively sparse network of large cities, especially characteristic of the Near North, this leads to the devastation of vast territories. In addition to their own regional centres, the most "powerful pumps" are located south and northwest of the macro-region, pulling the population — Moscow and St. Petersburg. This has created and continues to strengthen contrasts between the centres and the periphery of the regions, although rare "growth points", based on their own resources or with the help of the arrived population [20; 21], appear at a distance from large centres. In recent decades temporary return migrations

(dachas) between cities, especially large ones, and rural areas are becoming more and more obvious, most evident near Moscow and St. Petersburg, but characteristic also for the regions of the Near North [22; 23].

The considered regions are often positioned both in the scientific literature and in public opinion as a zone of socio-economic depression with shrinking agricultural lands, the abandonment of which is often perceived as a tragedy. Indeed, between half of the cultivated land in the Vologda and Kirov regions and up to 70 % in the Kostroma region has fallen out of circulation. These are primarily lands with reduced fertility and those located far from urban centres [24; 25]. At the same time, parallel processes of concentration of agricultural production [26] largely compensate for the food supply of cities and districts. There is a spontaneous overgrowth of abandoned lands with low-yielding and fire-hazardous forests. The transition from extensive to intensive forest management can be a way out for such areas, similar to Finland and Sweden, taking into account the potential of forests grown on abandoned agricultural lands.[1]

Materials and methods of research

Using the example of four regions in the eastern part of the Near North (Yaroslavl, Kostroma, Vologda and Kirov regions), the article examines socio-economic changes from 1990 to 2022 and modern spatial natural and socio-economic contrasts of the territory. The study was based on official statistics on municipalities of the Federal State Statistics Service (Rosstat) of Russia. Data on municipal districts and municipal okrugs (including small towns) were used, reflecting the density of population, different types of migration, infrastructural development, employment in forestry and agriculture, the level of salaries, as well as some indicators of the transformation of agriculture: changes in acreage and livestock, the degree of concentration of livestock and others. Urban districts were considered separately as units that affect municipal districts. At the same time, the study was based on the author's experience in long-term study of some regions. Drawing up maps in the context of municipal districts and graphs showing different natural conditions and socio-economic indicators from the centre to the periphery made it possible to visually present the modern inter-regional and intra-regional contrasts and their changes.

The results of the study

The specifics of the influence of natural differences and large cities

The main vectors of the organization of the space in the regions of the Near North and its changes over 30 years, like many regions of the Non-Chernozem macro-region, can be conditionally associated with natural prerequisites and re-

[1] Schwartz, E. 2023, National Project — Dark forest, Kommersant, № 203, URL: https://www.kommersant.ru/doc/6310324 (accessed 01.03.2024).

moteness from large cities [5]. An indicator of natural conditions, including agriculture, which played a significant role in maintaining rural areas and supplying cities with food in pre-Soviet, Soviet times and continues to play in modern conditions, although differently, are differences in bioclimatic potential (long-term values of the sum of temperatures above 10 degrees with combinations of precipitation and evaporation). Figure 1 clearly shows these differences between the south and north of the macro-region, although they do not always have a strictly latitudinal direction.

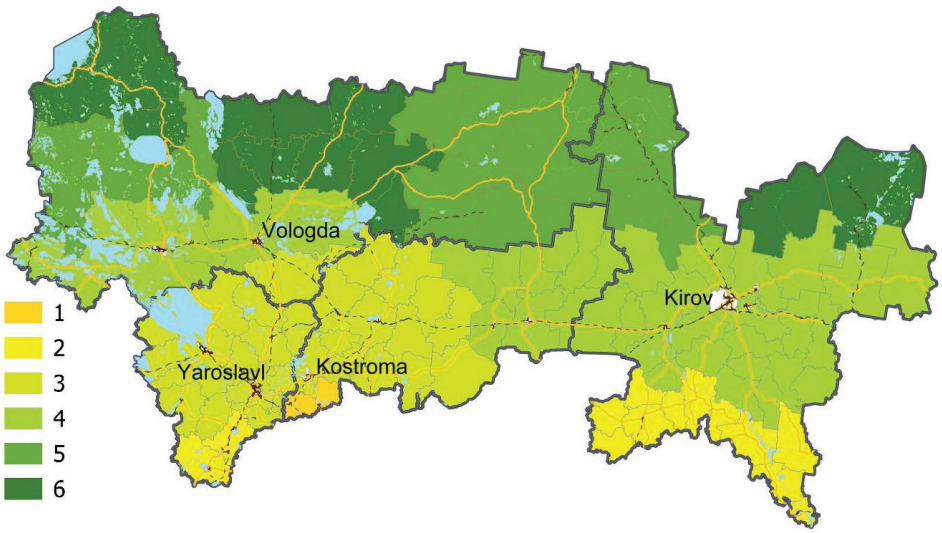


Fig. 1. Bioclimatic potential calculated by combining the sum of temperatures above 10 °C and humidification, where *1* is the most favourable, *6* is the most unfavourable[1]

The influence of large cities, especially regional centres most clearly affects the suburbs, that is, adjacent municipal areas, but not only. The conventionality of the map in Figure 2 is that the degree of influence on the surrounding area depends on the population of the centre of the region, the density of the population, as well as the characteristics and configuration of the municipal division of each region. But one way or another, the degree of influence, as a rule, decreases from the suburbs of the regional capital to the periphery of the region [11], forming extensive zones in this macro-region, remote from all centres. The centres themselves also differ: from the largest Yaroslavl (Fig. 3), whose influence is enhanced by its comparative proximity to Moscow, to the weakest — Kostroma. The Yaroslavl region has a second large city, though noticeably losing its popu-

[1] The most favourable (*1*) were considered natural conditions with the sum of the temperatures of the growing season of 2075° and an excess of precipitation over evaporation of 1.2; less favorable (*2*) — 1950 and 1.1, respectively; even less (*3*) — 1850 and 1.2; (*4*) — 1775—1750 and 1.2; (*5*) — 1550—1575 and 1.3; the least favorable (*6*) — 1450—1475 and 1.3 (cold and waterlogged).

lation, Rybinsk (184 thousand inhabitants). The influence of Vologda is strengthened by the nearby Cherepovets, which is approximately equal to it in terms of population and very stable in terms of population dynamics (300 thousand inhabitants), therefore, not only the Vologda district but also the Cherepovets district is classified as a suburban area. Small and medium-sized cities in the region are catastrophically losing their population and, as a rule, forming local zones of influence. Nevertheless, 17 small and medium-sized cities of the Kirov region with a total population of 380 thousand people in 2022 (in 2002 their population reached 620 thousand people) form a certain framework of the territory. The most difficult situation is observed in the Kostroma region, whose territory stretches to the northeast, and 11 small towns have a total population of 150 thousand people (217 thousand in 2002).

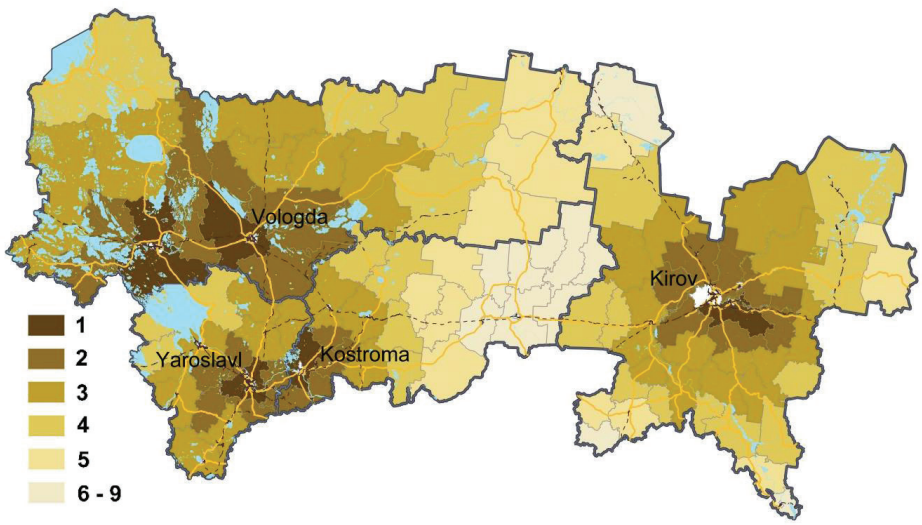


Fig. 2. Suburban-peripheral differences:
1 — suburbs — municipal districts adjacent to regional centres;
2—9 — neighbourhoods of the centre of the second
and subsequent orders (*5—9* — the far periphery of the regions)

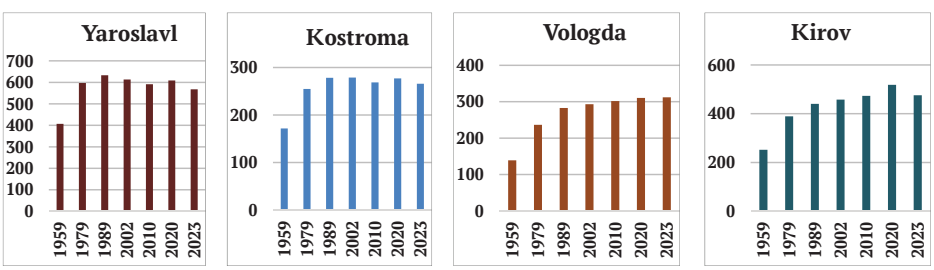
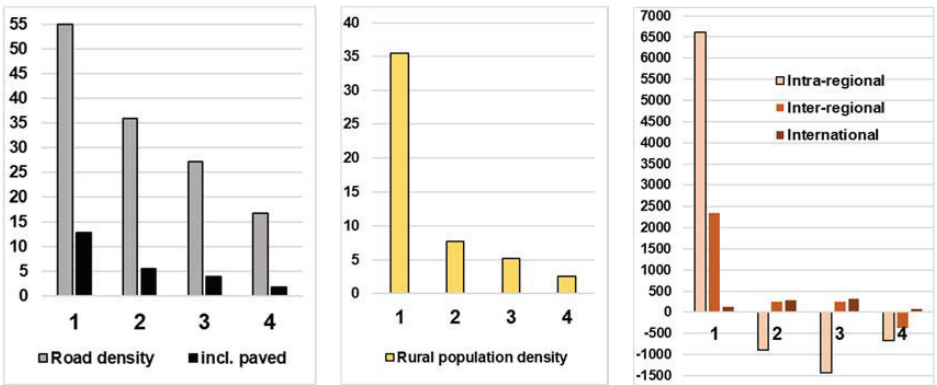


Fig. 3. The population of the centres of the regions
from 1959 to 2023, thousand people
(based on population censuses and statistical data)

Intraregional socio-economic contrasts of regions

The influence of cities affects primarily the development of the territory and the density of the rural population. For example, in the Yaroslavl region (see details [14]), the density of roads, especially paved ones, decreases markedly from the suburbs to the periphery (Fig. 4, *a*). The rural population density is also maximum in the suburbs of Yaroslavl (Fig. 4, *b*). At the same time, the suburban area is attractive for all categories of migrants, including interregional ones (Fig. 4, *c*). As a result, only in the suburban Yaroslavl district, the population increased by 10 % in 2018—2022 due to migration, despite the fact that in all districts of the region (including suburbs), the mortality rate is higher than the birth rate.

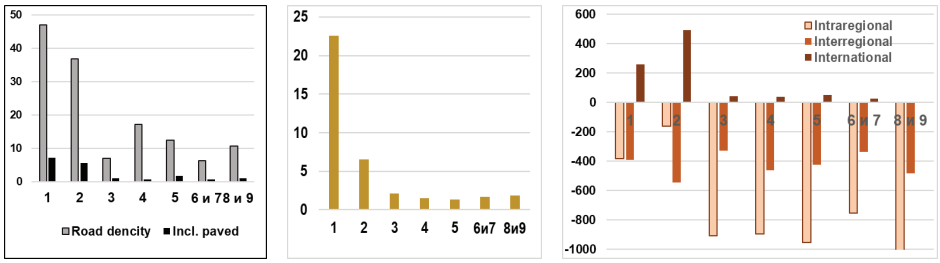


a *b* *c*

Fig. 4. Intraregional contrasts of the Yaroslavl region from the suburbs (*1*) to the periphery (*4*): *a* — density of roads, 2022, km/km^2; *b* — density of rural population, 2022, people/km^2; *c* — balance of population migrations, the amount for 2018—2022, people

Calculated based on Rosstat data for municipal units.

In the Kostroma region, the contrasts in the arrangement of the territory are even stronger (Fig. 5, *a*). The population density in the suburban Kostroma district continues to be the highest (Fig. 5, *b*), although it is no longer attractive for migrants even from its region, only for international ones (Fig. 5, *c*). Together with the natural population decline, this leads to a decrease in the population even in the suburbs. The population density is decreasing especially strongly, starting from the areas of the third order of the neighbourhood to the regional centre and further. Even better-drained and more fertile soils in the east and northeast of the region, which were previously characterized by a stable population, can no longer keep rural residents [5, p. 224—236].

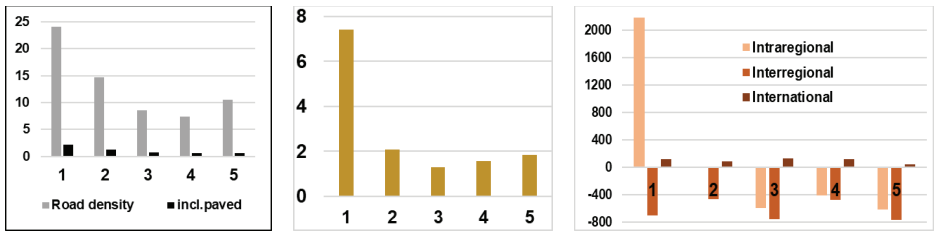


a *b* *c*

Fig. 5. Intraregional contrasts of the Kostroma region
from the suburbs (*1*) to the periphery (*4—9*): *a* — density of roads, 2022, km/km^2;
b — density of rural population, 2022, people/km^2;
c — balance of population migrations, the amount for 2018—2022, people

Calculated based on Rosstat data for municipal units.

In the Vologda Oblast, two centres of equal population size form an extensive zone of influence (Fig. 2), attractive to intraregional migrants (Fig. 6, *c*), which leads to increased population concentration not only in the centres but also in the suburbs of Vologda and Cherepovets (Fig. 6, *b*), although not as strong as in the previous two regions. At the same time, the natural decline is so great that the population is decreasing even in the suburbs, not to mention the rest of the region. The density of roads with improved pavement even in the suburbs leaves much to be desired (Fig. 6, *a*).



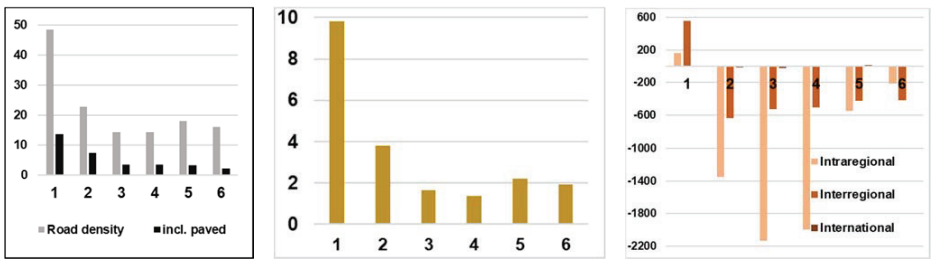
a *b* *c*

Fig. 6. Intraregional contrasts of the Vologda region
from the suburbs (*1*) to the periphery (*5*): *a* — density of roads, 2022, km/km^2;
b — density of rural population, 2022, people/km^2; *c* — balance
of population migrations, the amount for 2018—2022, people

Calculated based on Rosstat data for municipal units.

Differences between suburbs and peripheries are observed in the Kirov region (Fig. 7), although southern districts have more favourable natural conditions

(Fig. 2). In the southern half of the region, both the population density and the density of roads are higher. Nevertheless, all districts have a negative migration balance, except for the suburbs, and even the southern municipal districts have lost 10 % of the population over the past 5 years due to natural attrition and migration outflow.



a *b* *c*

Fig. 7. Intraregional contrasts of the Kirov region
from the suburbs (*1*) to the periphery (*6*): *a* — density of roads, 2022, km/km^2;
b — density of rural population, 2022, people/km^2; *c* — balance
of population migrations, the amount for 2018—2022, people

Calculated based on Rosstat data for municipal units.

The sum of migration outflow and natural population loss as a result of excess mortality over fertility in 2018—2022 shows the real compression of the social space of the macro-region. This compression is typical for almost the territory outside the suburbs of Yaroslavl. However, it is maximum in the outlying districts in the Kirov and Kostroma regions, even with relatively favourable natural conditions (the agricultural south of the Kirov region, as well as the formerly more densely populated agricultural lands in the northeast of the Kostroma region). The scale of these losses is most evident when calculated per 1000 inhabitants (Fig. 8). Thus, the outlying districts of the Kirov and Kostroma regions lost every fourth or sixth inhabitant in 5 years, which allows us to imagine the speed of further processes of devastation of the territory. In the Yaroslavl region, its northwestern suburbs are the most disadvantaged. The Vologda oblast is characterized by much smaller scales and contrasts in general, although population decline is typical for all districts.

The migration behaviour of the population outside the regional centres depends on many factors: differences in living conditions, the ability to find work, spatial contrasts in wages, etc. As indicators of the living conditions, in addition to the density and quality of roads (Fig. 4—7), can also serve the availability of pipeline gas and water supply in rural and even small urban settlements. For example, according to Rosstat, in the Yaroslavl region even in the suburban district, 70 % of rural settlements do not have pipeline gas, and in the north of the region their share reaches 95 %. From 80 to 95 % of rural settlements are not provided

with centralized water supply there. In the suburbs of Kostroma, the situation is better — half of rural settlements have pipeline gas and water supply. However, starting from the municipal districts — Kostroma's neighbours of the 3rd—4th and subsequent orders — the share of villages with piped gas drops to 0 %, and with piped water supply — to 20 %. The only exception is Sharya, the second most populous town and an important timber industry centre in the east of the region.

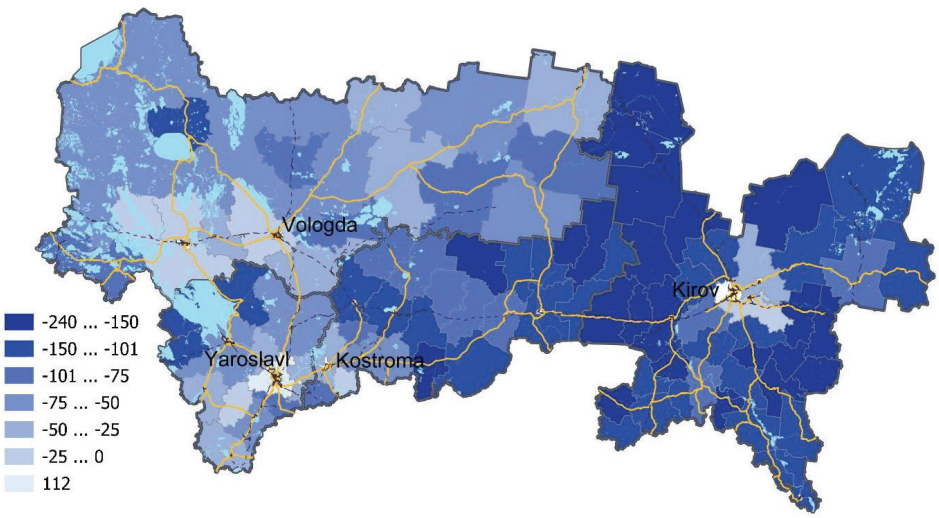


Fig. 8. The sum of migration outflow and natural population loss for 2018—2022 per 1000 people of the population of municipal districts, people

Calculated according to Rosstat data.

However, the main incentives for the departure of the population, especially in the post-Soviet period, were the reduction of jobs due to the closure of a number of enterprises in small towns and rural areas as well as technological and organizational changes. The difference in the level of average salaries in regional centres and other municipalities is also important. The greatest contrasts in the level of wages are typical of the Kirov region: between the capital, a powerful and strengthened machine-building centre in recent years, including the military-industrial complex, and the rest of the municipal districts of the region. Only in the suburbs, it reaches 50 % of the level of the centre, and in other areas it ranges from 38 to 48 %. As a result, the population of Kirov has been growing recently. In 2022 alone, it increased by 4.4 thousand people. (by 0.8 %). Modern Kostroma is one of the weakest regional centres of the macro-region under consideration with lower wages in the city. Nevertheless, it still stands out compared to the municipalities in the region, where salaries fluctuate between 50—67 % of those in the regional centre. The exceptions are the Krasnoselsky district with its specialization in gold products and the Galichsky district with its powerful livestock and timber industry complexes. In Kostroma, the population continues to decline (1.6 thousand in 2022). Salaries in the municipalities of the Vologda region are more even,

including due to the relative stability of the timber industry, and range from 60 to 90 % to the regional centre, and in the Cherepovets district salaries are higher than in Vologda. In the Yaroslavl region, municipal salaries range from 63 % of the regional centre's level in the northern Poshekhonsky district to 94 % in Rybinsk. In the suburban areas, salaries are even higher than in Yaroslavl, reaching 106 % of the centre's level. In Yaroslavl, with a population of 571 thousand inhabitants, there is a small migration outflow related to the processes of suburbanization.

Post-Soviet transformation of the background sectors of the economy

Job loss, combined with the lack of alternative employment outside major cities and low wages, is a key factor driving population outflow. The problems of the Non-Chernozem region have accumulated in Soviet times [4], a sharp decrease in huge subsidies to agriculture since the 1990s and the transition to market economy led to a strong compression of agricultural land and to significant decrease in livestock numbers in all regions under consideration (Fig. 9). At the same time, livestock technologies changed, which led to a strong territorial concentration of livestock and poultry at large enterprises often within the framework of agro-industrial complexes (Fig. 10). As a result, most of the livestock, pigs and poultry, instead of the previously relatively uniform distribution across municipal districts in collective farms and state farms, concentrated now in separate foci. If in the 1990s, 30—35 % of cattle were located in 20 % of municipal districts (typically two or three districts in the region), by 2022, 60—70 % of cattle were concentrated in the same 20 % of districts (Fig. 11). More often these are suburban areas and locations of large livestock complexes. The acreage also shrank into small foci: closer to Rostov and Yaroslavl, around Vologda and Cherepovets, in the southwest of the Kostroma region. In Kirov region, in addition to the areas surrounding the capital, they are located in the southern districts with more favorable natural conditions in (Fig. 12).

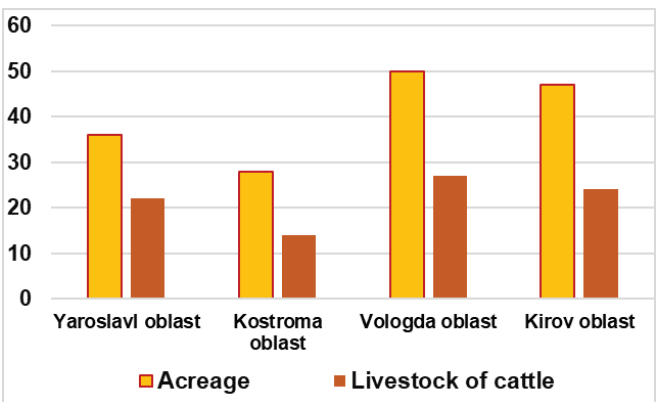


Fig. 9. Dynamics of acreage and livestock of cattle, 2022, % by 1990

Calculated based on Rosstat data.

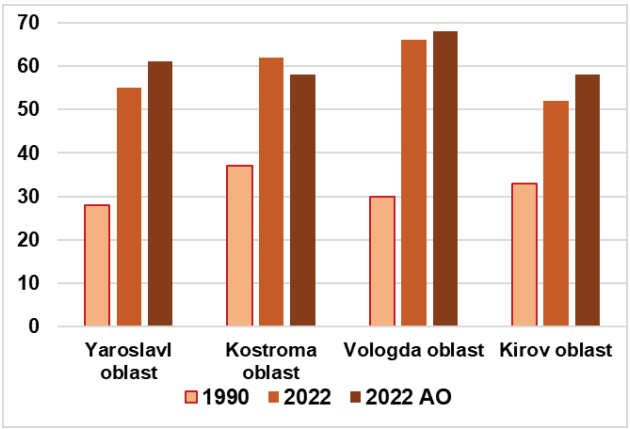


Fig. 10. Concentration of livestock, % of cattle in 20 % of municipal districts in 1990 and 2022, in total and agricultural organizations (AO) in 2022

Calculated based on Rosstat data.

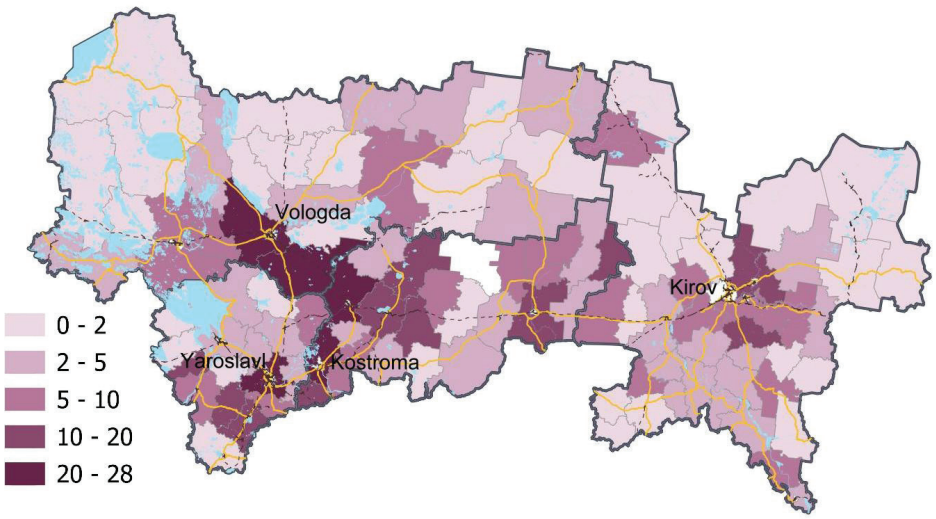


Fig. 11. The share of cattle in municipal districts in the total number of cattle in each region in 2022, %

Calculated based on Rosstat data.

The consequence of these processes was a massive reduction in employment in agriculture at enterprises. Jobs have been preserved and sometimes expanded (although not much due to automation of production) mainly in areas where large agricultural holdings are located. However, the latter often prefer to hire migrants from CIS countries for unskilled work.

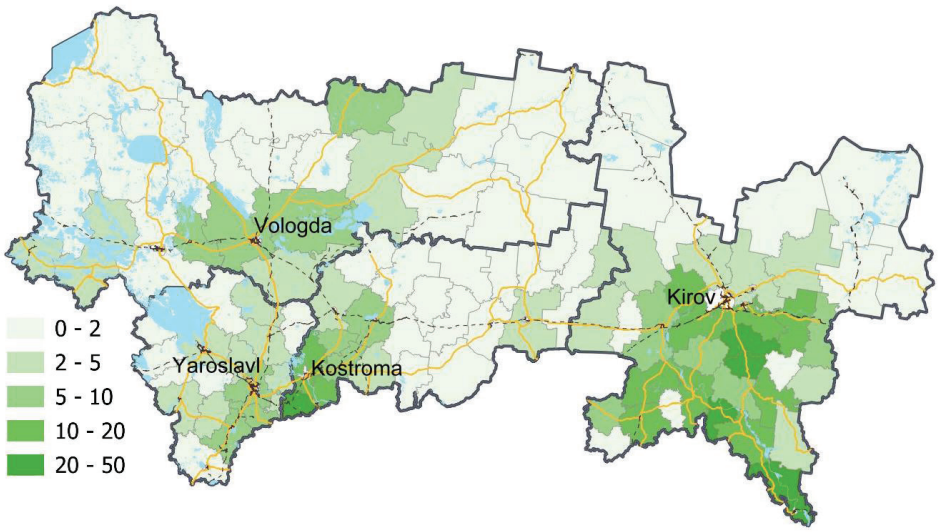


Fig. 12. The share of acreage in the total area of municipal districts in 2022, %

Calculated based on Rosstat data.

In all the regions under consideration, the share of acreage in the total land area has significantly declined and continues to decrease as the distance from the suburbs to the regional periphery increases. The maximum losses in the post-Soviet years occurred precisely in areas remote from the centres. The only exception is the Kirov region, where the southern agricultural areas remain relatively prosperous so far. Nevertheless, the sharp contrasts in living standards between the regional centre and the periphery, including the southern one, and the decrease in the rural population raise questions about the sustainability of agricultural production even in the areas with the most favourable natural conditions.

In many areas, especially in the Vologda, Kirov and Kostroma regions, the forest remained one of the main resources of the economy and areas of employment outside the regional centres. However, after the transformation of Soviet forestry enterprises and the abandonment of part of forest roads, the availability of forests decreased and logging shifted to highways. The forest industry is also characterized by increased concentration around large timber processing enterprises, which now prefer to harvest wood from more accessible areas compared to the Soviet era. The transition to forest leasing and the use of modern equipment in logging, which requires significantly fewer personnel and specialized training [27], has also contributed to a decline in employment.[1] This reduction

[1] The exceptions are the largest companies that lease remote forest areas. But they usually do not work with local people.

in forestry jobs has been further exacerbated by changes in the Forest Code, which have sharply decreased the number of foresters and other forest protection services.

As a result, the share of people employed in agriculture and forestry — primarily the main sectors of employment outside large cities in this macro-region — has decreased in the post-Soviet period. In most areas beyond the influence of large agricultural holdings and logging enterprises, this share is now less than 10—15 % (Fig. 13).

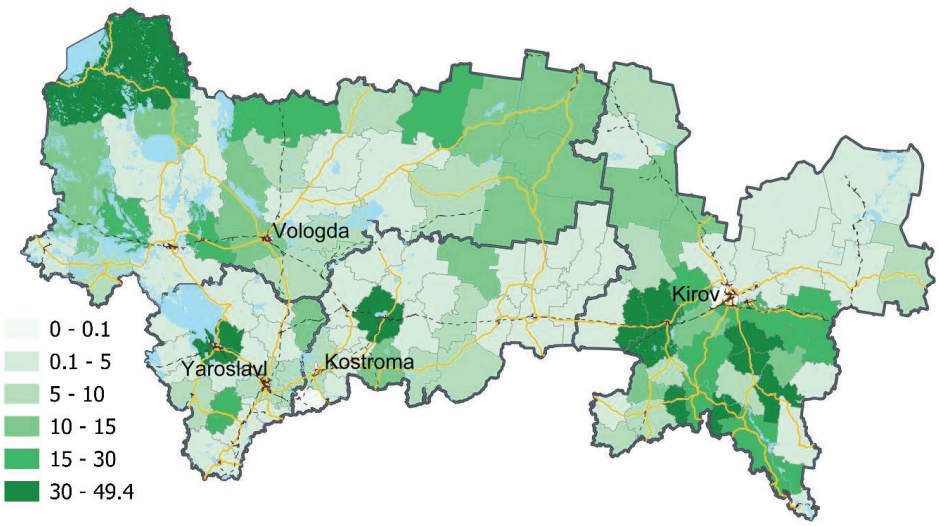


Fig. 13. The share of people employed in agriculture and forestry in the total number of people employed by municipalities, 2022, %

Calculated based on Rosstat data.

However, other types of employment have undergone significant changes, which has become an additional trigger for the departure of population. This is primarily due to the all-Russian program of consolidation of municipalities [28]. Despite the 'good goals' of the municipal reform to equalize incomes and meet budget obligations, its consequences for population dynamics have become catastrophic, especially in the regions of the Near North. For example, the number of grassroots management units decreased 3.4 times from 2000 to 2020 in the Yaroslavl region, and 2.5 times in the Kostroma region [29]. The reform led to a massive reduction ('optimization') of employees of administrations, as well as schools, hospitals, FAPs, clubs, etc. and, consequently, to a reduction in the number of jobs in rural areas and the social sphere and their concentration in larger settlements. This, along with a severe shortage and poor quality of roads (excluding federal highways and major regional routes), has prompted the departure of not only young people but also families with children and the elderly population from rural area to big cities.

With significant losses of the able-bodied population, the development of small-scale private farming also faces challenges. In remote and more northern areas, it is associated with small private logging companies that lease wood to large processors, for example, to the SWISS KRONO plant in the east of the Kostroma region, which produces chipboard and does not impose increased requirements on raw materials. In addition to its own logging, the company accepts substandard wood from small-scale loggers. Small private companies also harvest firewood for the population in the absence of centralized heating.

The share of households in food production and farms in general is small, although it increases from the suburbs to the periphery of the regions (including for survival purposes). In Soviet times, collective farms helped private subsidiary farms, partially providing them with animal feed [11]. Now everything depends on human capital, primarily on the age of the remaining population and their desire to live in the countryside.

However, there are areas where a historically strong private economy has developed — typically in regions with more fertile soils among forests — that are still somewhat maintained today. This includes the Rostov district of the Yaroslavl region, situated on the sapropels of Lake Nero, as well as the Vokhomsky and Bogovarovsky districts in the eastern Kostroma region, known for their better-drained soils, and parts of southern Kirov region, among others. Nevertheless, the most noticeable increase in the share of small-scale private farming is typical only for areas that have better preserved the population or for areas that significantly 'cut off' from active life. However, there are also deviations from the typical transformation processes of a private economy. This is often due to the relocation of the urban population, ready to realize themselves in new rural conditions. Compared to the mass departure from rural areas to cities, this is a 'drop in the ocean', but very noticeable in the media world. Examples are the Bolsheselsky district of the Yaroslavl region, where an entire community of former urban residents was formed, and the Tarnogsky district of the Vologda Region [20]. These examples show spontaneously emerging new ways of adapting urban populations to local conditions and are very interesting to study.

State measures are also being taken to support peripheral territories and improve living conditions in rural areas. Within the framework of the Federal program "Integrated Rural Development until 2031", the Ministry of Agriculture of the Russian Federation proposed to implement 397 projects throughout the country in 2022—2025, including "commissioning of gas distribution networks and connection to gas supply, commissioning of centralized water supply networks, improving educational conditions, receiving primary medical care, receiving cultural and leisure services." However, these projects cover only 0.8—1.2 % of the rural population per year and primarily concern areas that have retained their population.

A special type of development of remote rural areas is associated with the temporary use of rural houses by citizens. We are talking not only and not so much about garden associations in the suburbs, forming vast, densely populated one- and two-storey 'semi-towns' around regional and other urban centres, as well as in municipal areas adjacent to the Moscow region (Pereslavsky, Uglich in the Yaroslavl region). In recent decades, a significant role in the "revival" of the regions of the Near North in the summer season, especially at a short distance from the main transport routes, has been played by distant dachas of Muscovites and residents of other large cities who are ready to buy houses in villages up to 500—600 km from Moscow and spend several weeks to several months there in the summer season [22]. The reliability and duration of such use remain questionable, but the 'smouldering' life of small villages is supported by the townspeople, offering work to local residents on the arrangement of houses and plots, buying products from their personal subsidiary farms and generally creating, albeit seasonally, a more active social environment [3; 30].

Conclusion

In regions such as the Near North of Russia, identifying optimal ways to utilize natural resources and the diminishing human capital outside of large cities and suburbs represents a crucial scientific and practical challenge. This task includes the development and enhancement of the Spatial Development Strategy of Russia, especially in light of the directive from the Prime Minister of the Russian Federation to formulate a new concept. The Strategy should encompass not only the various forms of territorial organization of society and the economy but also an understanding of the relationships among different types of territorial units at various scales [2].

It is essential to consider not only interregional but also intraregional contrasts among territories, which vary significantly across different parts of the country. The primary tasks for the development of the regions of the Near North, characterized by shrinking populations and concentrated economies, are closely tied to new social and economic realities. Accordingly, the Spatial Development Strategy of these regions should contain answers to difficult questions. Is it possible, with the desire of the population to the centres, to find ways to slow down or suspend the compression of the developed space? How can we preserve the living and working conditions necessary for the modern needs of the population in small towns and rural areas, so that large cities with their accumulated economic, demographic and cultural potential do not remain 'cathedrals in the desert' in these areas as a result?

The trends of socio-economic changes in the spatial dimension presented in the article and the identification of municipal areas with both successful solu-

tions to urgent tasks and the most acute socio-economic problems are only one of the first steps of research on this path. The analysis of different combinations of natural, human and economic capital in different municipal areas has shown various examples of modern adaptation of the population and economy of the regions of the Near North to new socio-economic realities. The analysis presented in the article shows that modern business and the population, in the presence of common patterns, still react differently to the changes of recent decades. This is clearly illustrated by the example of the Vologda region, which, despite being further north than Kostroma, has managed to better preserve its population and jobs. These examples require a deeper scientific analysis, which will reveal the specifics of the regions, their social, economic and geographical differences and the most pressing problems.

This is important for formulating wishes to government bodies of various levels, including municipal and settlement, on geographically differentiated measures of financial (budgetary), organizational, and infrastructural, including transport, and support. It should be noted that the announced applied programmes for the 'restoration of rural settlements' or 'return to the circulation of lost agricultural land' in these territories are most often put forward in the political field and are based mainly on the reproduction of the economic base and human capital that existed in the past, which is not feasible in modern conditions.

This article proposes an approach to the comparative analysis of various municipal units, considering both external and internal prerequisites and opportunities, as well as existing challenges. It highlights the role of municipal districts within the broader system of socio-economic relations. This framework aims to facilitate the development of diversified, scientifically grounded solutions that account for the geographical location, natural resources, economic conditions, and social constraints of specific territories in comparison to others.

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THE BALTIC AGENDA IN THE STRATEGIES OF RUSSIA'S BALTIC REGIONS AND MUNICIPALITIES

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Quantitative content analysis was employed to examine 63 strategies for the socio-economic development of regions and municipalities within Russian Baltic territories. The aim was to assess the extent to which the 'Baltic agenda' – themes specific to this area — manifest themselves in the documents. Strategies developed between 2010 and 2023 and in force as of February 2024 were analysed. The Vector Prominence Indicator (VPI) was calculated based on the number of mentions of 77 marker words. The formula for the VPI calculation includes the absolute number of mentions of words, adjusted for their significance, which was determined by their frequency of use and location within the text of the strategy. The VPI was computed for three interrelated vectors: Baltic, European and global. The maximum values of VPIs are characteristic of the strategy of the Kaliningrad region, which, in addition to objective factors, is due to the unusual voluminosity of the document. At the municipal level, the most impressive performances on this measure are seen in municipalities of the Kaliningrad region (Kaliningrad, Zelenogradsk, Gusev, Slavsk, Baltiysk and Bagrationovsk), Vyborg in the Leningrad region and Pskov. For Kaliningrad and Vyborg, two strategy versions were examined, making it possible to observe changes in the volume and focus on Baltic issues: the strategies are becoming shorter, with diminishing attention given to the Baltic agenda. A map diagram was drawn to illustrate the division of municipal strategies into five groups for each vector. Spatial differentiation is evident: the average VPI value for the documents of the inner band of the Russian Baltic area is 2.7 times higher than that for strategies of the outer band.

Keywords:
Baltic agenda, Baltic region, socioeconomic development strategy, subject of the Federation, municipality, content analysis

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Introduction

The Baltic vector (like any other vector in territorial development) can evolve relatively spontaneously or be shaped under the influence of governance bodies. The question of the relationship between objective and subjective factors, the alignment of strategic regional policy planning, and actual socio-economic development constantly attracts scholarly attention. For example, research by Druzhinin and Kuznetsova on the impact of the "sea factor" on regional policy in the Baltic region addresses this topic [1; 2]. The authors discuss the relevance of including an assessment of the potential for forming maritime economic activity formats in coastal regions in the Spatial Development Strategy of the Russian Federation for the period until 2025 [1, p. 14], thus highlighting the issue of the interconnectedness of planning, management, and development.

The premise of our study stems from this question in the following reframing: to what extent is the territorially-specific economic profile, influenced by proximity to the Baltic Sea, the result of targeted interventions from regional and municipal levels of governance? Is the role of these levels of governance significant, or does development primarily occur under the influence of business decisions and the federal centre? Answering this question is challenging as it breaks down into many sub-questions. We attempt to address one of these in this article: do regional and municipal authorities recognize the specific opportunities and limitations associated with proximity to the Baltic Sea, and are these aspects reflected in the socio-economic development strategies of federal subjects and municipalities (hereinafter referred to as strategies)?

Given the above, the specific research objective is formulated as follows: to identify the extent of the Baltic vector's presence in the strategies of regions and municipalities in the Russian Baltic. In this study, the presence of the Baltic vector in a strategy is understood as the degree to which the strategy text reflects issues and development directions determined by the location in the Baltic region. The presence of the Baltic vector is studied in conjunction with the presence of European and global vectors.

In addition to this primary objective, there is an accompanying goal — to test additions to the author's content analysis methodology, which allows for a more adequate assessment of the reflection of specific issues in the strategy.

The article presents the results of the following research tasks (stages):

1. Based on an examination of approaches to delineating the boundaries of the Baltic region, to establish a list of Russian objects (federal subjects and municipalities) included in the Baltic region (or part of it);

2. Determine the research period and conduct a systematic search for official strategy texts for these objects adopted during this period;

3. Modify the content analysis methodology for strategy texts to obtain quantitative assessments of the presence of Baltic, European, and global vectors (specifically, to compile a list of marker words, establish a counting scheme, and develop an integral presence index);

4. Analyze and evaluate the texts, obtaining quantitative characteristics of the vectors' presence;

5. Study and describe the specific features of the presence of Baltic, European, and global vectors in regional and municipal strategies, depending on geographical and other factors.

Our research is embedded in the context of related works and relies on their results. The following aspects are significant for the study: the boundaries and essence of the Baltic region [3, p. 18], and coastal and border positions as factors in the development of regions and municipalities [1—2; 4—7]. The study of strategy texts, including content analysis, is directly related to our research, as is the underexplored question of reflecting local specificity in planning documents [8].

The study of planning documents, primarily regional strategies, emerged as a scientific direction simultaneously with the appearance of the strategies themselves. Among the pioneers are Klimanov and colleagues [9], who used structural-content analysis. Later, works relying on content analysis appeared [8; 10—13]. For the Baltic region, content analysis of regional strategy texts was applied by Stepanova in the study of tourism and recreational development issues in the border subjects of northwest Russia [14]. Glukhikh examined the strategies of the Northwestern Federal District (NWFD) of the Russian Federation using qualitative and quantitative content analysis to determine the compliance of regional target development indicators of non-commodity and non-energy exports with federal ones [15].

Among foreign research works where content analysis is used to study socio-economic planning in the Baltic region, one can mention Marciszewska's research aimed at studying the prevalence of public-private partnership themes for tourism development in the strategic documents of Northern Poland's voivodeships [16]. Rinkinen, Oikarinen, and Melkas use qualitative content analysis to study Finland's regional strategies for considering social business themes as an innovation and a source of economic growth [17]. Ahvenniemi and Huovila explore how the themes of 'smart city' and 'sustainable city' are implemented in Finland's urban strategies. The authors studied the strategies of six major cities in Finland and concluded that the implementation of these two themes in urban strategies often does not coincide but correlates more with economic and social sustainability themes [18].

The method of strategy study we chose — content analysis — has become widely popular among representatives of social and humanitarian sciences, including geographers and economists [19, p. 4; 20] worldwide (for example, in the works of Iranian scholars [21; 22]). In recent years, extensive literature has appeared on the limitations and possibilities of content analysis as a research tool in various fields of knowledge [23—26]. Baden and colleagues suggest a

transition to hybrid content analysis with the possibility of automatic classification of objects under the researcher's control [27]. Specialized software such as CiteSpace [28], MAXQDA [21], or ATLAS.ti [29] is increasingly being used for content analysis.

Materials and methods

To form the set of materials studied, it was necessary to rely on one of the existing approaches to defining the composition of countries and their territories included in the Baltic region. A thorough systematic consideration of this issue is provided in the article [3]. In determining the list of studied federal subjects and municipalities (for brevity, we will call them "Baltic objects"), it was decided to base the definition of the Baltic region designated in this article as "Extended A (VASAB)" [3, p. 18]. Based on this definition, the Russian part of the Baltic region (sometimes referred to as the "Russian Baltic") includes seven federal subjects: Saint Petersburg, Leningrad, Kaliningrad, Novgorod, Pskov, Murmansk regions, and the Republic of Karelia.

From this list, we excluded the Novgorod region, leaving only six regions that have direct access to the Baltic Sea or border foreign countries in the Baltic region (these are eight countries: Denmark, Sweden, Finland, Estonia, Latvia, Lithuania, Poland, and Germany). In this article, we will use the term "Russian Baltic" for these six regions (it would be more accurate to use "Russian Baltic without the Novgorod region" each time).

As a result, the studied Baltic objects included six federal subjects, all municipalities (MPs) of the Leningrad and Kaliningrad regions, and border MPs of the Pskov and Murmansk regions and the Republic of Karelia. For further comparisons and to identify the impact of the spatial factor, the inner and outer circles of the Russian Baltic are highlighted:

- The inner circle of the Russian Baltic objects includes regions with a maritime border (Leningrad and Kaliningrad regions, Saint Petersburg), all municipal districts, and urban districts (UDs) of the Kaliningrad region, and municipal districts and UDs of the Leningrad region adjacent to the maritime or land border of Russia;
- The outer circle of the Russian Baltic objects includes regions that have only land borders with foreign countries of the Baltic region (Pskov, Murmansk regions, and the Republic of Karelia) and their border municipal districts and UDs, as well as municipal districts and UDs of the Leningrad region not adjacent to the Russian border.

Thus, the full list of Russian Baltic objects for which strategies were searched included 70 objects:

• 6 federal subjects: Saint Petersburg, Leningrad, Kaliningrad, Pskov, Murmansk regions, and the Republic of Karelia;

• 18 MPs of the Leningrad region: 17 municipal districts (Boksitogorsky, Volosovsky, Volkhovsky, Vsevolozhsky, Vyborgsky, Gatchinsky, Kingiseppsky, Kirishsky, Kirovsky, Lodeynopolsky, Lomonosovsky, Luzhsky, Podporozhsky, Priozersky, Slantsovsky, Tikhvinsky, Tosnensky) and Sosnovoborsky urban district;

• 22 MPs in the Kaliningrad region: 12 municipal districts (Bagrationovsky, Gvardeisky, Guryevsky, Zelenogradsky, Krasnoznamensky, Neman,[1] Nesterovsky, Ozersky, Polessky, Pravdinsky, Slavsky, Chernyakhovsky) and 10 UDs (Baltiysk, Gusev, Ladushkin, Mamonovo, Pionersky, Svetly, Svetlogorsk, Sovetsk, Yantarny, and the urban district "City of Kaliningrad");

• 9 MPs in the Pskov region: the city of Pskov, 3 municipal districts (Pechorsky, Pytalovsky, Krasnogorodsky), and 5 districts (Gdovsky, Plyussky, Pskovsky, Palkinsky, Sebezhsky);

• 4 MPs in the Murmansk region: 2 municipal districts (Pechengsky, Kandalakshsky); 2 districts (Kovdorsky, Kolskiy);

• 11 MPs in the Republic of Karelia: 10 municipal districts (Loukhsky, Kalevalsky, Muyezersky, Suoyarvsky, Sortavalsky, Lahdenpokhsky, Pitkyarantsky, Olonetsky, Pryazhinsky, Prionezhsky) and Kostomuksha urban district.

The search and selection of strategies for the listed objects were conducted in February 2024 using the State Automated Information System "Management" (hereinafter referred to as GASI) and MP websites.[2] The search focused on official socio-economic development strategies approved by the relevant ministries or MP economic development departments. The year the strategy was developed was recorded based on the date of its approval or adoption by the relevant authorities.

The search was complicated by several factors typical of the existing practice of presenting municipal information: discrepancies in data on MP websites and GASI; the low quality of websites of small MPs; the lack of a system for storing previous documents and document editions. Despite this, after careful work, up-to-date strategies were found for the vast majority of objects (64 out of 70). No strategies meeting the search criteria were found for 6 MPs (3 in the Kaliningrad region and 3 in the Murmansk region). The reasons for the absence of strategies in these MPs were not specifically studied.

For analysis, primarily the original editions of strategies without subsequent corrections were selected. Content analysis was conducted according to the

[1] Objects, whose strategies were not detected, are marked in italics.

[2] M. Ignatieva and T. Shubina, students of the National Research University "Higher School of Economics", who had an internship in the Leontief Centre, took part in the collection and primary content analysis.

scheme described in our work [30], which included: a) forming a list of marker words relevant to the studied topic; b) recording one of three counting options for each word (considering or not considering synonyms and forms); c) counting the number of mentions. In this study, the methodology was significantly supplemented: weights were introduced for marker words depending on the place of mention in the strategy text and the rarity of word usage; relative indicators (calculated per 1,000 words of text) were determined.

The set of marker words was compiled considering the main objective — identifying the level of the Baltic vector's presence understood as the level of reflection in the strategy text of opportunities and development constraints determined by inclusion in the Baltic region. Proximity to the Baltic Sea and Baltic countries serves as a premise for including in development plans such topics as cross-border cooperation, solving common environmental issues with neighbouring countries, and exchanging experiences in solving similar problems due to geographical proximity. Coastal and border positions also offer more global opportunities to access world markets through the sea and neighbours. This is clearly stated in the article: "Thus, the main function of the Baltic Sea as the basis of the Baltic region is the ability to connect any coastal state or city with any other coastal state or city without crossing transit territories" [6, p. 148]. Therefore, the Baltic vector is inseparably connected with European and global vectors, embedded within them. Accordingly, the list of marker words includes not only the names of countries in the Baltic region and their coastal areas but also terms such as "globalization," "European integration," etc.

A total of 77 words were selected. The search for marker words in strategy texts was conducted semi-automatically using the built-in search tools of Microsoft Word and Adobe Acrobat. The texts were reviewed twice to identify synonyms and related marker words. The results were recorded in an Excel spreadsheet format.

Based on the identified frequency of marker word occurrences in the entire array of texts, it turned out that out of 77, only 51 words were found. Marker words within each vector were divided into three groups according to their significance, and a significance coefficient was assigned to each group: highly significant (1.5), significant (1), and less significant (0.5). More significant were considered words that are rarer and more specific. Highly significant words were defined as those found in less than 10 % of the strategies; there were 24 of them. Significant were words found in 10—20 % of the strategies (13 of them). Less significant were common words found in more than 20 % of the strategies (14 of them, such as "Baltic," "Baltic Sea," "Europe / European," and "foreign"). To differentiate strategies by vector presence, their value is lower than that of rarely occurring words (Table 1).

Table 1

List of marker words with distribution by vectors, significance, and counting option

Counting Option	Marker Words
Baltic Vector (47 Marker Words)	
All forms	Baltic (0.5), Baltics (0.5), Hanseatic (1.5), Denmark (1.5), Sweden (0.5), Finland (0.5), Estonia (0.5), Latvia (1), Lithuania (0.5), Poland (0.5), Germany (0.5), Hamburg (1.5), *Wismar*, Rostock (1.5), *Lübeck, Kiel*, *Szczecin*, Gdańsk (1), Gdynia (1.5), Klaipeda (1.5), Ventspils (1.5), Riga (1), *Visby*, Paldiski, Tallinn (1), *Hamina-Kotka*, Helsinki (1), *Turku, Naantali, Mariehamn, Kapellskär*, Stockholm (1.5), *Nynäshamn, Malmö*, Copenhagen (1.5)
Unique Form	Baltic region (1), Baltic macroregion (1), Baltic Sea (0.5), Gulf of Finland (1), Fennoscandia (1.5), *Baltic Pomerania, Vision and Strategies Around the Baltic Sea (VASAB)/Models and Strategies Around the Baltic Sea*, Trans-European Cooperation for Balanced Development in the Baltic Sea Region (INTERREG) (1.5), *Union of Baltic Cities (UBC),* Council of the Baltic Sea States (CBSS) (1.5), *"Baltic Sea" — Baltic Sea project (BSP)*
With Synonyms	Cross-border cooperation (0.5)
European Vector (13 Marker Words)	
All forms	Europe/European (0.5)
Unique Form	European Commission (1.5), European Union (EU) (0.5), *Council of Europe, European Parliament (Euro parliament)*, Northern Dimension (ND) (1.5), North Atlantic Treaty Organization (NATO) (1.5), *Technical Assistance Program of the European Union to the CIS and Mongolia (TACIS)*
With Synonyms	*Brussels,* Euroregion *(1), Schengen Area,* Eurozone (1.5)*, European integration*
Global Vector (17 Marker Words)	
All forms	Foreign/Overseas (0.5), Globalization (0.5), Global Market (1.5), World Trade (1), World Financial Market (1.5)
Unique Form	*Westernization*, Developed/Developing Countries (1), World Trade Organization (WTO) (1), World Bank (1.5), *World Health Organization (WHO)*, World Heritage (UNESCO) (1), International Monetary Fund (IMF) (1.5), BRICS (1.5), UN (1.5)
With Synonyms	Transnational Companies/TNCs (1.5), Transboundary Cooperation (1.5), *G20*

Note. Words that did not appear in the studied texts are given in *italics*; the significance coefficient is indicated in parentheses; the features of the counting options are explained in [30, p. 42].

The frequency count was conducted both across the entire text of the strategy and separately for the main standard sections, of which five were identified: analysis of socio-economic development (current state); goals and objectives, strategic priorities; expected results, target indicators; activities, projects, initiatives (implementation mechanisms); external and interregional relations. In practice, strategies differ significantly in structure, so aligning text fragments with a standard section was imprecise.

A weighting factor of 1.25 was introduced for words occurring outside the "Analysis" section, which contains the analysis of socio-economic development (description of the current state). This means that mentions of marker words in sections related to priorities, goals, objectives, projects, and target indicators are considered more significant than when stating the current situation and geographical position.

To assess the prominence of the vector in a particular strategy, the Vector Prominence Indicator (VPI) was calculated as a weighted sum of the number of marker word mentions. The formula for the calculation is:

$$VPI = (1{,}5 \cdot N_{hswa} + N_{sa} + 0{,}5 \cdot N_{lswa}) + 1.25 \cdot (1.5 \cdot N_{hw} + N_{s} + 0.5 \cdot N_{ls}),$$

where:

N_{hswa} is the number of mentions of highly significant words in the "Analysis" section;

N_{sa} is the number of mentions of significant words in the "Analysis" section;

N_{lswa} is the number of mentions of less significant words in the "Analysis" section;

N_{hw} is the number of mentions of highly significant words in all sections except "Analysis";

N_{s} is the number of mentions of significant words in all sections except "Analysis";

N_{ls} is the number of mentions of less significant words in all sections except "Analysis."

The significance of mentions of marker words also depends on the text volume. Therefore, in cases where texts with significantly different lengths are compared, it is useful to use the relative (per 1,000 words of text) number of mentions in addition to the absolute number of marker word mentions. Accordingly, we will refer to the absolute VPI as the VPI calculated according to the given formula, and the relative VPI as the value of the absolute VPI divided by the number of words in the text and multiplied by 1,000.

In the further analysis, the absolute VPI was primarily used; therefore, unless otherwise specified, the term VPI refers to the absolute VPI. Cases where the text volume could significantly affect the vector prominence assessment when using the absolute VPI were considered separately.

Results and discussion

Text corpus

Using the described methodology, absolute and relative Vector Prominence Indicators (VPIs) were calculated for 63 (6 regional and 57 municipal) of the 64 strategies of Baltic objects found in February 2024.[1]

Most of the studied strategies were adopted in the five-year period from 2017 to 2021. Five were adopted before 2017, and six after 2021.

The strategies vary significantly in length. Among the federal subjects, the longest strategy belongs to the Kaliningrad region — 111,720 words, while the shortest is the Leningrad region's — 13,638 (an eightfold difference). The remaining regions show less variation: Republic of Karelia — 54,767, Pskov region — 46,573, Saint Petersburg — 44,256, Murmansk region — 31,493.

Among the municipalities, the variation is even higher (elevenfold), with the longest (Pskov strategy — 83,653 words) and the shortest strategy (Krasnogorodsky district strategy — 7,391 words) both found in the Pskov region (Table 2). The average size of a municipal strategy varies by region: shorter in the Kaliningrad and Pskov regions, and longer in the Leningrad region and the Republic of Karelia. There is no correlation between the length of a regional strategy and the average length of the region's municipal strategies.

Table 2

Differentiation of text length in 57 strategies of the Baltic municipal entities

Region	Number of Strategies (units)	Text Length (words)		
		Average	Maximum	Minimum
Murmansk region	1	15 235	15 235	15 235
Kaliningrad region	19	19 544	38 724	9917
Pskov region	8	27 252	83 653	7391
Leningrad region	18	36 833	59 984	10 538
Republic of Karelia	11	41 651	79 500	18 379

The observed variation in the strategies' text lengths prompted a hypothesis check on the substantial influence of text length on the absolute VPIs. The Pearson correlation coefficient between VPI values (in points) and text length (number of words) for the municipal strategy sample varies from 0.20 (for the European vector VPI) to 0.28 (for the cumulative VPI), indicating a weak relationship between strategy length and VPI values. Additionally, the coefficient of determination for the same sample based on cumulative VPI values and strategy

[1] Due to technical reasons, the text of the strategy of the Sebezhsky District, Pskov Oblast, was not processed.

length was calculated. The R^2 value equals 0.07, meaning that the strategy length is not an explanatory characteristic for VPI values. In further analysis, both absolute and relative VPIs are used.

Strategies of the federal subjects

Let us consider the results of the VPI calculations for the federal subjects. The absolute leader in the presence of Baltic, European, and global themes in the socio-economic development strategy is the Kaliningrad region (Table 3). The sum of the VPIs for the three vectors in the Kaliningrad region's strategy exceeds the corresponding indicator of the next highest strategy, that of Saint Petersburg, by more than six times, and the indicator of the Leningrad region by more than 80 times.

Table 3

Presence of Baltic, European, and global vectors in the strategies of Russian Baltic regions

Federal Subject	Share of Marker Words (% of all marker words)	VPI (points)			Sum of VPIs	Relative VPI (points per 1,000 words of strategy)			Relative VPI (sum of VPIs)
		Baltic	European	Global		Baltic	European	Global	
Kaliningrad region	53	254.8	125.1	186.4	566.3	2.27	1.12	1.66	5.06
Saint Petersburg	29	34.9	15.1	43.0	93.0	0.79	0.34	0.97	2.10
Pskov region	12	23.6	0.5	22.1	46.3	0.51	0.01	0.48	0.99
Murmansk region	10	1.0	10.0	12.9	23.9	0.03	0.32	0.41	0.76
Republic of Karelia	10	16.9	1.9	3.9	22.6	0.31	0.03	0.07	0.41
Leningrad region	9	3.5	1.0	2.5	7.0	0.25	0.07	0.18	0.51
Difference between the maximum and minimum VPI values, points		251.3	124.1	183.9	559.3	2.24	1.11	1.59	4.65
Difference between the maximum and minimum VPI values (without Kaliningrad region), points		31.4	14.1	40.5	86	0.76	0.33	0.90	1.69

The greatest difference between the maximum and minimum VPI values is observed for the Baltic vector if the Kaliningrad region is considered; without it, the greatest difference is observed for the global vector's VPI.

It should be noted that at the federal subject level, the expected pattern is revealed — the Baltic vector presence in two out of the three strategies from the inner circle of Baltic objects is higher than in the three strategies from the outer circle. The strategy of the Leningrad region, however, is an anomaly.

The leader in the cumulative absolute VPI — the Kaliningrad region's strategy — also demonstrated the best results in relative VPIs, surpassing other strate-

gies in each of the three vectors and cumulatively (Table 3). The shortest strategy in the sample, the Leningrad region's strategy, showed better relative VPI values than the Republic of Karelia's strategy but lags behind the Murmansk region's strategy in terms of European and global vectors as well as cumulatively. Overall, the ranking of regional strategies by absolute and relative VPI values almost completely coincides.

The authors do not overestimate the epistemological value of the quantitative comparisons made. However, at a minimum, such analysis allows for identifying the most interesting cases for describing best practices and studying the reasons for counterintuitive results.

Let us consider two extreme examples among the studied regional strategies: the expectedly leading (but surprisingly with a significant margin) strategy of the Kaliningrad region and the unexpectedly lagging strategy of the Leningrad region.

For interpretation, it is important to remember that we are studying not regions and municipalities but the texts of their strategies. These texts are shaped under the influence of several factors: a) the objective situation; b) the degree of its recognition by the authors of the text; c) the readiness and ability of the developers and the client to adequately express this situation in the text; d) the general political context and federal narratives of the period when the strategy was adopted.

In the **Kaliningrad region**, the document studied was "The Strategy for the Socio-Economic Development of the Kaliningrad Region for the Long-Term Perspective," adopted by the Kaliningrad Regional Government's Decree № 583 of August 2, 2012.[1] This is the second oldest document in the sample (only the strategy of the Bagrationovsky district, from 2010, is older). Amendments were made in 2019 and 2022, but they mostly concerned technical matters — target indicators were updated, and the names of official documents were added and clarified.

The region's objective specificity influenced the structure of the strategy. A lengthy section is devoted to international and interregional cooperation issues, with mentions of Baltic partner regions and Baltic cooperation organizations. There is a large section on export (in fact, a separate export strategy integrated into the strategy as the section "Strategy for Ensuring Favourable Conditions for Export Activity Development," adopted by the Kaliningrad Regional Government on April 13, 2022). The entire post-Soviet history of the region is thoroughly presented in connection with the Russian and international context, broken down by stages (the 1990s, 2005—2008, 2008—2010), and EU documents are analyzed, including the "Europe 2020" programme. The thor-

[1] Resolution of the Government of the Kaliningrad region № 583 of 02.08.2012, *Government of the Kaliningrad region*, URL: https://gov39.ru/working/ekonomy/strategy/ (accessed 21.05.2024).

oughness of these topics and the text as a whole was laid down in previous strategies created with the involvement of consultants funded by international grants and supported by a strong local scientific potential. One of the previous strategies, adopted in 2003, referred to international cooperation even in its title — "The Strategy for the Socio-Economic Development of the Kaliningrad Region as a Cooperation Region for the Period until 2010" [31].

The Kaliningrad region's strategy is the most extensive in the sample — it contains 111,720 words, so the absolute number of marker word mentions is large — 832. Among the most frequently mentioned are "foreign/overseas" (186 mentions), "Europe/European" (110), "Lithuania" (78), "Poland" (57), "Baltic" (50), "Germany" (50), and "Baltic Sea" (46), "WTO" (46).

Thus, in addition to the obvious objective factors, the presence of Baltic, European, and global themes in the Kaliningrad region's strategy was influenced by its volume and scientific style, due to the ability to involve highly qualified scholars and the abundance of scientific and analytical materials dedicated to this unique region.

The opposite situation is observed in the **Leningrad region**. The "Strategy for the Socio-Economic Development of the Leningrad Region until 2030" was initially approved by the regional law on August 8, 2016, and amended on December 3, 2019.[1] This strategy is radically different from standard regional strategies, primarily in its minimalism — it contains 13,638 words (55 pages), eight times fewer than the Kaliningrad region's strategy and four times fewer than standard strategies, which usually have around 200 pages. Additionally, seven pages are formatted as annexes, so the strategy itself occupies 48 pages. If the topic of export is allocated 54 pages in the Kaliningrad region's strategy, in the Leningrad region's strategy, it occupies just over one page. A brief economic-geographical note is placed in the annex and occupies two pages.

It is clear that with such brevity, one cannot expect a large number of marker words: there are only 12 of them, with the words "Baltic," "Finland," "Estonia," "EU," and "foreign/overseas" each appearing twice.

In such a short text, the significance of each phrase increases. It is noteworthy that among the six factors named as important for the development of the Leningrad region, four are related to the studied vectors:

1. Border location (border with two EU countries);

2. Favorable coastal position (shore of the Baltic Sea), the presence of large active and under-construction seaports;

3. Transport hub located in the alignment of the Pan-European transport corridor and the North-South international transport corridor;

[1] Strategy of Socio-Economic Development of the Leningrad Region until 2030, Committee for Economic Development and Investment Activity of the Leningrad Region, URL: https://econ.lenobl.ru/ru/budget/planning/concept2030/ (accessed 20.05.2024).

4. Multimodal transportation: the intersection of sea, river, rail, road, air, pipeline, and telecommunications routes.

In this case, it could be grounds for classifying the Leningrad region's strategy as one with a high presence of the Baltic, European, and global vectors.

The examples considered show the limitations of the formal marker word counting method but also confirm its ability to identify important situations for in-depth research.

Municipal Strategies

Now let us turn to municipal strategies. Their grouping by five levels of vector presence is shown in the figure. For the Baltic and global vectors, the range of VPI values is roughly the same, and the scale boundaries coincide. For the European vector, the scale differs.

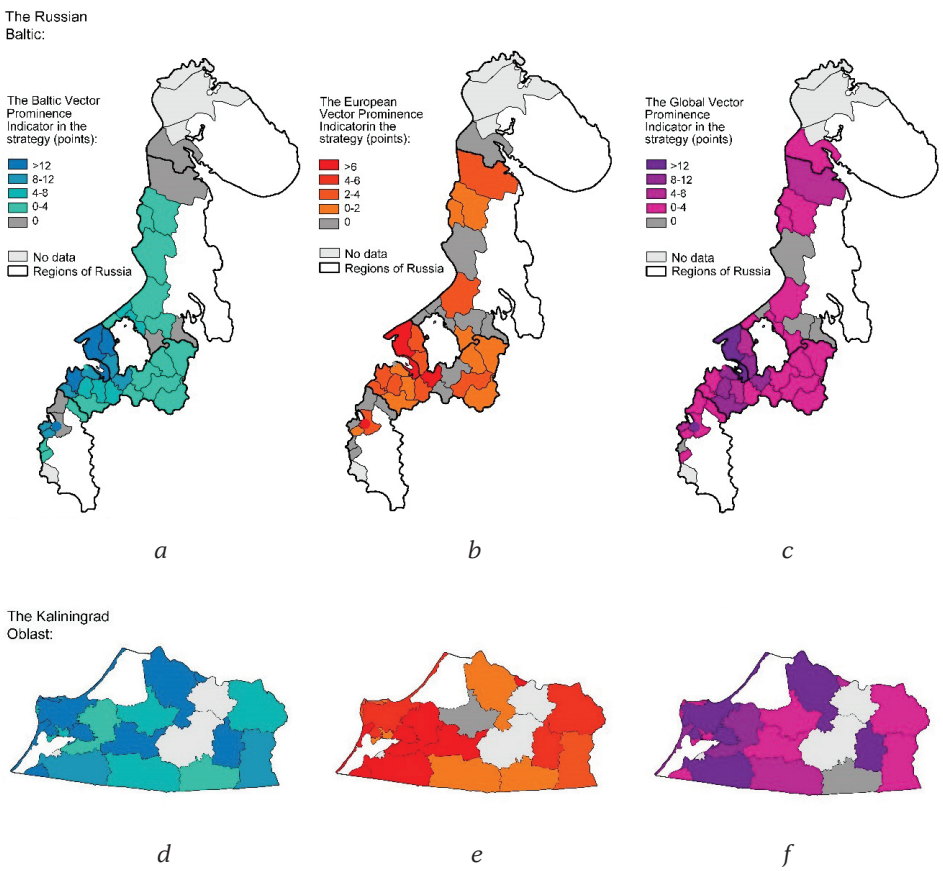

Fig. Presence of the Baltic (*a*), European (*b*), and global (*c*) vectors in the strategies of Russian Baltic municipalities (excluding the Kaliningrad region); presence of these vectors in the municipalities of the Kaliningrad region (*d*—*f*)

Note: The map scheme shows only the municipalities and regions included in the study. For the map pairs *a*—*d*, *b*—*e*, *c*—*f*, the same symbols are used.

The cumulative VPI values turned out to be extremely differentiated, ranging from 0 points for the Prionezhsky municipal district to 983 points for Pskov. At the same time, 26 municipal strategies (46 % of all those studied) have a cumulative VPI for the three vectors below 10.

A similar differentiation is observed for each vector. The Baltic vector VPI values range from 0 to 696, the European vector — from 0 to 234, and the global vector — from 0 to 20.

Zero VPI values deserve special attention. The global vector did not manifest in the strategies of 6 MPs, 4 of them in the Republic of Karelia, 1 each in the Pskov and Kaliningrad regions. For the Baltic vector, 6 strategies also showed zero VPI — all municipalities with such strategies belong to the outer circle of the Russian Baltic. The European vector did not manifest in the strategies of 16 municipalities: in the Pskov region, five out of eight strategies studied, and in Karelia — six out of eleven. One strategy, that of the Prionezhsky district in the Republic of Karelia, received zero points for the cumulative VPI.

To some extent, this situation has objective prerequisites — many districts in Karelia and the Pskov region are peripheral and poorly connected to the outside world. It is also possible that the subjective factor of insufficient developer qualification played a role — the budgets of Pskov districts likely do not allow for hiring professional consultants. Detailed study of this phenomenon could be the subject of separate research.

Geographical patterns are fully revealed only for the Baltic vector: VPI values decrease in the direction of the north, east, and south relative to the coast of the Gulf of Finland (Fig., *a*). Among the leaders are the Vyborg district, Saint Petersburg, and the Kingisepp district. The VPI values of municipalities in the Leningrad region are generally higher than in the Pskov region, the Republic of Karelia, and the Murmansk region.

However, there are exceptions. The strategy of Pskov ranks second in the entire sample in terms of the Baltic vector VPI. In the Pskov region, the VPI values for the Pechorsky and Palkinsky districts are higher than for the more northerly located Gdovsky, Pskovsky, and Plyussky districts.

The municipalities of the Kaliningrad region generally demonstrated a high level of the Baltic vector presence in their strategies. The leaders are Kaliningrad and the Zelenogradsky urban district.

For the European and global vectors, similar geographical patterns are less pronounced: VPI values do not consistently decrease with increasing distance from the Baltic Sea coast. For example, in the Leningrad region, the Kirovsky district is one of the leaders in the European vector VPI, while in the Republic of Karelia, the most northern Loisky district and the Suoyarvsky district stand out (Fig., *b*). In the latter case, the result can be explained by the border factor or the "neighbour effect," but in the case of the Leningrad region, these factors do not provide a sufficient explanation.

In the Kaliningrad region, the distribution of VPI values for the European and global vectors is again uneven, with no apparent patterns like "west-east," "north-south," or "centre-periphery" (Fig., *d*, *e*). The absence of such clear geographical patterns can be explained by a complex of non-spatial factors, such as the specifics of the consultants involved in development and the political culture of local communities.

Only the expected differentiation between the inner and outer circles of Baltic objects is clearly expressed: the Baltic and European vectors in the inner circle's strategies are 2.7 times stronger than in the outer circle's strategies (Table 4). It is also logical that the differentiation in the global vector presence is somewhat lower (1.9 times).

Table 4

Presence of Baltic, European, and global vectors in the municipal strategies of the inner and outer circles of the Russian Baltic

Circles of Baltic Objects	Number of Strategies (units)	Average VPI Value (points)			
		Baltic vector	European vector	Global vector	Total VPI
Inner Circle	24	14.79	4.78	6.56	26.13
Outer Circle	33	5.48	1.73	3.52	10.73
Difference between average VPI values (times)		2.70	2.76	1.86	2.43

Let us take a look at the municipal strategies with the highest VPI values (Table 5). The maximum VPI values were obtained for the Baltic vector, which is explained, on the one hand, by the research methodology (more marker words were considered for the Baltic vector), and on the other hand, by the objective significance of the theme for the studied municipalities and regions. Thus, the weight of VPI values for the Baltic vector dominates in the cumulative assessment; however, the ranking results by the Baltic vector VPI and the cumulative VPI differ.

Table 5

Leaders in the VPI for the Baltic, European, and global vectors in the strategies of Russian Baltic municipalities

Baltic vector			European vector			Global vector			Total		
Municipality	VPI	Relative VPI	Municipality	VPI	Relative VPI	Municipality	VPI	Relative VPI	Municipality	VPI	Relative VPI
Pskov	69.6	0.83	Kaliningrad	23.4	1.35	Bagrationovsk	20.0	0.91	Pskov	98.3	1.17
Vyborgsky District	54.6	0.98	Pskov	15.8	0.19	Kaliningrad	17.8	1.03	Vyborgsky District	77.4	1.39

The end of Table 2

Baltic vector			European vector			Global vector			Total		
Municipality	VPI	Relative VPI	Municipality	VPI	Relative VPI	Municipality	VPI	Relative VPI	Municipality	VPI	Relative VPI
Kaliningrad	35.9	2.08	Bagrationovsk	9.9	0.45	Slavsk	14.8	0.86	Kaliningrad	77.0	4.46
Zelenogradsk	31.5	1.97	Baltyisk	9.8	0.25	Vyborgsky District	13.5	0.24	Zelenogradsk	50.4	3.15
Kingisepp	29.5	1.43	Kirovsk	9.5	0.17	Zelenogradsk	13.3	0.83	Baltyisk	46.0	1.19
Baltyisk	27.9	0.72	Vyborgsky District	9.3	0.17	Pskov	12.9	0.15	Bagrationovsk	39.1	1.79
Gusev	21.0	0.93	Gvardeysk	7.0	0.40	Gusev	12.5	0.55	Gusev	37.8	1.67
Priozersky District	18.4	0.33	Mamonovo	6.9	0.29	Kirovsky District	12.0	0.21	Kingisepp	35.5	1.72
Svetlogorsk	16.9	0.51	Sovetsk	6.1	0.29	Luga District	10.9	0.23	Kirovsky District	32.5	0.58
Sovetsk	16.8	0.79	Gurievsk	6.1	0.37	Vsevolzhsky District	10.0	0.17	Slavsk	29.4	1.71

For municipal strategies (unlike regional ones), the transition from analyzing absolute VPI to relative VPI makes noticeable adjustments to the results. The Kaliningrad strategy, which holds the third position in cumulative absolute VPI, ranks first in relative VPI, with a significant margin from other strategies. The Pskov strategy, which ranked first in absolute VPI for the Baltic vector, drops to eighth place. The Krasnoznamensk municipal strategy, which does not rank in the top ten in absolute VPI for the European vector, ranks third in relative VPI. However, the overall ranking results are similar: the lists of the top ten leaders in absolute and relative VPI for the Baltic and European vectors match by 70 %, for the global vector — by 50 %, and cumulatively — by 80 %.

If the presence of Kaliningrad and the Vyborgsky district in the top three leaders is not surprising, the high position of Pskov is at first glance unexpected. Let us take a closer look at the strategies of these municipalities.

Pskov's Baltic orientation is natural. It is determined by its location and is clearly reflected on the city's website: the historical note states that "the development of the region was facilitated by the connection of the river system of Lake Peipus with the Varangian (Baltic) Sea."[1] The Pskov strategy is one of the most recent and extensive. The document, titled "Pskov City Development Strategy until 2030," was approved by the Pskov City Duma on December 25, 2020,

[1] History, *Pskov City Municipal Entity*, URL: https://pskov.gosuslugi.ru/o-munitsipalnom-obrazovanii/istoriya/ (accessed 21.05.2024).

and contains 83,653 words (about 300 pages).[1] In the document's structure, the analysis section is disproportionately highlighted, occupying two-thirds of the total volume — 200 pages. The high VPI values (9.83) were influenced by the frequent use of words such as "foreign" (21), "Europe / European" (19), "cross-border" (18), "Hanseatic / Hanseatic" (13), "Estonia" (10), "Latvia" (8), "EU" (8). A total of 122 mentions, and if it weren't for the lowering coefficient for words appearing in the analysis section, Pskov's strategy would have been even more dominant.

A significant portion of the marker words appear in the context of tourism development, which is given considerable attention in Pskov. Traditionally, Pskov participated in international cooperation programmes, and in 2018, the Committee for the Implementation of Cross-Border Cooperation Programmes and Tourism was established, with a dedicated department for cross-border cooperation programme implementation. In 2020, at least ten projects were operating under six bilateral and multilateral cross-border and transboundary cooperation programmes. In the strategy's target sections, there are significantly fewer marker words, mostly concentrated in a special section dedicated to developing and strengthening cross-border and transboundary cooperation. Thus, the high VPI values of the Pskov strategy are due both to the objective factors of its border location and the use of this for cooperation programme implementation, as well as the increased volume of the strategy text.

Historically and geographically, the **Vyborgsky district of the Leningrad region**, once part of Finland and having a long maritime border, is most predisposed to the manifestation of the Baltic vector in development. This is reflected in its strategy. The studied document, "The Strategy for Socio-Economic Development of the Vyborgsky District of the Leningrad Region until 2025," is stored on the district's website as a draft prepared by the company Enko.[2] It can be assumed that it was adopted in this form in December 2015. In the text, 111 marker words were found (cumulative VPI — 768). The most frequently mentioned words are "Finland" (25), "Gulf of Finland" (19), "foreign/overseas" (16), "EU" (13), "Helsinki" (9).

The strategy text occupies nearly 200 pages (55,496 words), with part of the text (30 pages) formatted as annexes. The document was prepared by professional geographers and planners. Accordingly, there is a thorough section describing and analyzing the current situation and an adequate assessment of geographical position features. The border location with the EU, the presence of a maritime

[1] Decision of the Pskov City Duma of 25.12.2020 №1411 "On Approval of the Strategy for the Development of the City of Pskov until 2030", *Portal of the Pskov City Administration*, URL: http://kser.pskovadmin.ru/strategia (accessed 22.05.2024).

[2] Decision of the Council of Deputies of the municipal formation "Vyborg District" Leningrad region №75 of 23.11.2010, Official portal of the municipal formation "Vyborgsky district" Leningrad region, URL: https://vbglenobl.ru/ekonomika/kontseptsiya-sotsialno-ekonomicheskogo-razvitiya (accessed 27.05.2024).

outlet and three ports, and the importance of the Saimaa Canal are noted. Among the important development factors is the favourable transport-geographical location, which led to the passage of international transport corridors through the district ("Pan-European Transport Corridor № 9," "Eurasian International Transport Corridor 'North-South,' "Eurasian International Transport Corridor 'Trans-Siberian'"). Strengthening the transport and logistics function is recognized as an important development direction.

These same topics are preserved in the "Strategy for the Socio-Economic Development of the Vyborgsky District of the Leningrad Region until 2035," adopted on May 21, 2024.[1] This strategy conceptually maintains continuity with the 2015 strategy but has become four times shorter (56 pages). The Baltic orientation is already evident in the first section, where the presence of international checkpoints is noted. It mentions the port complex in Primorsk, which became the largest specialized port for oil and oil product exports in Russia, and the LNG terminals in Vysotsk and Portovaya Bay. The Vysotsk port is nearing the completion of a terminal for grain cargo transshipment, with recipients potentially being countries in Northwest and Western Africa. The paragraph from the previous strategy listing international transport corridors is repeated almost verbatim.

The reduction in text volume and the radical change in the geopolitical situation have led to marker words appearing much less frequently and in a different context. Derivatives of the word "Europe" appear only three times, characterizing Vyborg as a monument of medieval European architecture and in the name of the "Window to Europe" film festival. Similarly, derivatives of the word "Finland" are mentioned only three times, two of which refer to railway checkpoints — the Finland Station and the St. Petersburg-Finland station. The Gulf of Finland is mentioned three times. "Baltic Sea" is mentioned twice, with a total of ten derivatives from the word "Baltic." The "EU" is mentioned once in the context of assessing the weaknesses of the geographical location — "The cessation of cross-border cooperation with EU countries." The border status remains in the description of one of the three key strategic directions: "The Vyborgsky District of the Leningrad Region is a strategic border territory with a developed transport and logistics complex and a competitive economy based on the use of advanced technologies in industry and agriculture." Curiously, in the 2015 strategy, this phrase did not include the second part about a competitive economy.

A substantive study of both Vyborgsky district strategies allows us to assert that the Baltic vector is adequately reflected in them, which would be insufficiently manifested in a formal marker word count in the 2024 strategy.

Kaliningrad was one of the first in Russia to embrace strategic planning — the first strategy appeared almost immediately after the Strategic Plan of St. Peters-

[1] Decision of the Council of Deputies of the municipal formation "Vyborg District" of the Leningrad Region № 272 of 21.05.2024, URL: https://vbglenobl.ru/sites/default/files/doc/272.pdf (accessed 27.05.2024).

burg (1997) and was very similar to it. The current "Strategy for Socio-Economic Development of the Urban District 'City of Kaliningrad' until 2035" was adopted in 2013, with changes made annually to certain sections from 2016 to 2020, and in October 2023, the text was completely replaced.[1]

Quantitative analysis was conducted for the initial 2013 edition. The strategy is relatively short — 17,261 words, 81 pages. Nevertheless, in terms of the absolute number of marker words (123), this text surpasses significantly more extensive strategies like Pskov (122) and Vyborg district (111). However, considering the weighting used in the calculation formula for absolute VPI, Kaliningrad's strategy ranks third in cumulative VPI, being first in the European vector VPI, second in the global vector VPI, and third in the Baltic vector VPI. The transition to relative VPI places Kaliningrad's strategy first in all parameters (see Table 5). The most frequently encountered words are "Europe/European" (35), "Baltic" (18), "foreign/overseas" (15), "Germany" (10), "Poland" (8), "Baltic macroregion" (7), "EU" (7), "WTO" (5).

One of the city's development scenarios is titled "Communicative (Risky)." It is based on the idea of turning Kaliningrad into an international trade fair and exhibition centre for the Baltic macroregion, a centre of cultural and business communication between Russia and Europe. Elements of this scenario are reflected in the city's mission: "Kaliningrad — a city for comfortable living and working, a platform for communication and interaction between Russia and European countries in the fields of business, innovative economy, education, and culture."

After the update in late 2023, Kaliningrad's strategy became almost three times shorter, fitting into 32 pages (of which 8 pages are an annex with descriptions of individual territory transformation projects). The number of themes related to external functions has sharply decreased, with more attention given to internal aspects — the concept of a compact city, spatial development, a comfortable environment, creative industries, healthcare, transitioning to a knowledge economy, tourism, etc. The connection to the Baltic region is only visible in a few phrases — it is mentioned that a strong side of the city is its ice-free port in the Baltic with developed port infrastructure. The updated city mission no longer mentions communications between Russia and Europe, but it does include a reference to the Baltic: "Kaliningrad — a city with 15-minute accessibility, an innovation-educational creative tourist centre on the Baltic." Marker words have practically disappeared.

The examined metamorphosis of Kaliningrad's strategy vividly illustrates how the significance and direction of a particular vector change following shifts in the global context.

[1] Strategy of socio-economic development of the City of Kaliningrad for the period up to 2035, Administration of the City of Kaliningrad City, URL: https://www.klgd.ru/activity/economy/planirovaniye/strategy/ (accessed 20.05.2024).

Conclusion

Reflecting on the results of the study leads to several conclusions that can be grouped into several directions.

1. Studying strategies

Ideally, a strategy accumulates the ideas prevailing in a given territory within the "authority — business — society" triangle and influences actual socio-economic development. Therefore, it is not accidental that the study of strategies has become a special scientific direction, allowing, in particular, judgments about the target orientations of certain territorial communities. However, in reality, a strategy may turn out to be created "for the sake of form," without the interested participation of the community, and in this case, it will only reflect stamp-like non-specific provisions introduced by an uninterested consultant or copied from the Internet by a local specialist. Moreover, development does not always follow the strategy. These circumstances should always be kept in mind.

If we assume that the strategy was ideally developed, then the absence of signs of the Baltic vector in it corresponds to the objective situation. But this fact may also be caused by the low qualification and insufficient diligence of the developer.

2. The influence of strategies on development

Referring to the overarching task stated at the beginning of the article — to contribute to the problem of identifying the influence of municipal and regional planning on territorial development — we can assert that a small step in this direction has been made. We have identified those municipalities in the Russian Baltic where strategies are significantly oriented towards the Baltic vector. But this is only the first step. To find out to what extent the objectively observed Baltic vector is man-made and which level of authority had more weight in forming this vector, a historical-economic analysis of each case is necessary. When selecting cases, one can orient oneself to municipalities with a higher presence of the Baltic vector. The history of individual cities and regions is well known. For example, Saint Petersburg has always positioned itself as a window to Europe, and the activities of its first mayor, Anatoly Sobchak, were undoubtedly an important factor in strengthening the Baltic and European vectors, which were recorded in the first Strategic Plan of Saint Petersburg in 1997. Similarly, the significant contribution of the first head of the Kaliningrad region administration, Yuri Matochkin, is clear. He achieved the status of a special economic zone for the region, relying on local expert potential. The significant role of the regional and city authorities of Pskov in initiating Baltic cooperation projects is also evident. We can assert that at least there are regions and MPs where strategies supported the objective opportunities for development in the direction of the Baltic vector.

3. The Russian Baltic

Studying the Russian Baltic through the strategies of its constituent regions and MPs provides new knowledge about the state of the territorial management system. The obvious fact of the heterogeneity of such a large macro-region as the Russian Baltic has manifested itself in the degree of attention given by the authorities in strategies to the opportunities and limitations caused by inclusion in this macro-region. And this is not always related to geographical proximity to the

sea or external borders. The presence of transport connectivity and the subjective factor — the presence in the administration team of specialists oriented towards international cooperation and ready for it — also plays a role.

It turned out that if one considers the Russian Baltic as a set of MPs and looks at the "gravitational force" towards the Baltic Sea and Baltic opportunities manifested in the strategies, gaps and mosaicism will be revealed: MPs where the Baltic vector is absent or very weakly expressed. This allows the map scheme presented in the article to be used as a basis for further reflections on the composition of the Russian Baltic.

4. Practical significance

In light of the beginning of a new stage of strategic planning in 2024, associated with the establishment of updated national development goals, as well as changes in the situation in the Baltic Sea basin, a comparative assessment of existing strategies may be very useful. Identified examples of best practices in reflecting the Baltic vector of development in strategies can be used by strategy developers. Regional authorities may pay increased attention to the development of strategies for MPs where the Baltic vector is insufficiently taken into account and provide them with assistance.

5. Strategies to study

Strategic planning at the municipal level in Russia has been around for more than 25 years. In many MPs, several strategies have already been adopted, each of which has been corrected. This opens up opportunities for studying strategies in dynamics, allowing tracking changes in goals and development priorities of an individual MP or a group of MPs. For example, including new versions of strategies for Kaliningrad and the Vyborg district in the research orbit made it possible to see how the scale and modality of the vectors under consideration change under the influence of a radical change in the geopolitical situation. However, realizing these opportunities is not easy — if past strategy versions can be found in GASI, then it can be impossible to find previous versions of strategies not accounted for in GASI. When specifying the conditions for each new study over a certain period, it is necessary to clearly fix the task of the search — whether we will take corrections into account, study the initial or final versions, or both. In our study, we were unable to compare VPIs of several versions for one region or MP, although this thought did arise.

Another nuance is the appearance in the planning document system of master plans for cities and agglomerations, which in significant part overlap with strategies in content. Whether to include them in the analysis and how to use content analysis considering the large amount of non-textual information (illustrations, map schemes) in master plans are questions to consider. For example, in our study, the oldest strategy is that of the Bagrationovsky district. At the same time, a master plan for Bagrationovsk was recently created, which was not included in the list of studied documents.

6. Studying strategies: content analysis

In our view, content analysis of strategy texts yields useful results not on its own but in combination with other methods. Most often, content analysis can serve as a preliminary stage, allowing the identification of cases deserving at-

tention, which are then subjected to expert review. For example, the study of VPI differentiation revealed both expected patterns (the predominance of VPI in the inner circle of Russian Baltic objects over VPI in the outer circle) and some anomalies (the disproportionately large gap in the VPI of the Kaliningrad region's strategy from all others and the strong lag in the VPI of the Leningrad region). These anomalies were studied and explained by differences in the volume and style of strategy texts.

Content analysis should not be an end in itself but should be embedded in the context of a specific research task. The modification we used involves forming a list of marker words relevant to the research question and analyzing the frequency of these words. This approach is more productive than, for example, that applied in [10], where a "word cloud" is created and patterns are searched for within it.

During the study, a valuable methodological result was obtained — additions to the author's method were tested, allowing intuitive differences in word significance to be taken into account in the context of the research task. A scheme was proposed to objectively divide the set of marker words by significance based on their actual occurrence in the studied text corpus. Additionally, significance was differentiated depending on the section of the strategy in which the word is found. This is already an element of combining content analysis with expert analysis. In the future, it will be useful to work out an algorithm for transitioning from content analysis to expert structural content analysis or incorporating content analysis into expert analysis.

An important aspect was the use of relative word occurrence values (calculated per word count in the text). It turned out that in this case, there is no significant correlation between the strategy volume and VPI values. Small strategies with high VPI values are encountered, as are large strategies with low VPI values. Comparing the results of strategy rankings by absolute and relative VPI values did not show significant differences. In the future, we plan to use relative values.

7. Deepening the research

The subject of continuing this research could be a comparison of the objective expression of the Baltic vector and the presence of this vector in the strategy. To do this, it will be necessary to find a way to assess the objective expression of the vector in the economy (through the analysis of transport links, commodity flows, and tourist visits), in the public sector (using similar management methods with Baltic countries, the presence of cooperation projects), in urban environments and behavioural stereotypes of residents (toponymy, types of public catering establishments, public spaces, etc.).

The study was carried out in accordance with the state assignment of the Institute of Economic Forecasting of the Russian Academy of Sciences under the theme "Development of Theoretical and Methodological Foundations of Scientific and Technological Development of the Economy Based on Innovation Dynamics and the Formation of Mechanisms for Its Implementation in the Regions" (code FMGS-2024-0001).

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POLITICS AND ECONOMICS

DIVIDING LINES IN THE EU'S COMMON FOREIGN POLICY: RUSSIA AS A POLARISING FACTOR

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Amid the ongoing confrontation between Russia and the West, the processes of consolidation and divergence among political elites are crucial for understanding the mechanisms that form dividing lines. This is particularly important when examining the elites of the European Union in their opposition to Russia. This article aims to develop a framework for analysing the dividing lines among EU elites in the context of relations with Russia. The analysis employs a multi-tier model establishing a relationship between the 'depth' of a dividing line and the degree of elite disunity. The model includes two levels of analysis of dividing lines within the EU: supranational and national. The research demonstrates that, depending on the degree of interest misalignment and the availability of communication channels, elite divergence can result in segmentation, fragmentation or polarisation. Each of the tiers of divergence increasingly reduces the likelihood of forming a common EU position on foreign policy issues. All three tendencies — segmentation, fragmentation and polarisation — are observed within the EU in relation to Russia at different levels of elite analysis. Crucial to the formation of a dividing line is the aspect of EU—Russia relations in question: the degree of distancing from the country or support for, and funding of, containment. Additional variables include factors such as the regional affiliation of the elite, their ideology and position within the power structure. Among all levels of analysis, polarisation is most evident in the efforts of supranational elites to promote 'militant integration', which conflicts with the interests of national elites and citizens of member states.

Keywords:
Russia, European Union, Europe, elites, dividing lines, fragmentation, polarisation, segmentation

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Introduction

One of the most significant phenomena in contemporary international relations is the confrontation between Russia and the West, which tends to escalate. In these circumstances, the research on the factors influencing Western countries' foreign policy decision-making process and the dividing lines existing within Western elites regarding policy formulation towards Russia becomes particularly relevant. It is especially important given the fact that, as President Vladimir Putin noted, Russia is not opposed by unfriendly states but by unfriendly elites.[1] These issues are also highly relevant to the European Union (EU), one of the key centres of the modern world and a significant counterbalance to Russia. In the EU, foreign policy decision-making processes at both national and supranational levels are closely interconnected, yet they also exhibit substantial distinctive features.

While maintaining an official anti-Russian stance, EU member states are increasingly confronted with internal and external divisions across various levels of society, driven by socio-economic, political, ideological, and other factors. In the current situation of open confrontation with Russia, the articulation and implementation of a common foreign policy course towards Russia have become an impetus for the formation of dividing lines within European countries. Here, the EU's political elites play a central role, differentiating in their degree of support for anti-Russian initiatives based on political or national affiliation.

Scientific research on this phenomenon is of great value for determining the current political line concerning the EU and individual European countries. For this reason, the article's authors propose their approach to analysing the dividing lines formation process among EU political groups, standardised within a unified model. The supranational segment of the EU elite, associated with the "multicomponent European elite system" [1, p. 28], is considered as an example. At the same time, divergence is considered only within political circles as a specific manifestation of the EU elite's multi-level and complex environment.

The article aims to develop a model for analysing dividing lines within Western elites, using the EU as a case study in contemporary relation to Russia. The model relies on the authors' gradation of elite divergence degree, including stages such as segmentation, fragmentation, and polarization. The priority is to identify common mechanisms for the dividing line formation in the EU derived from the supranational environment. Consequently, the model presented in the article might be applied further to other Western countries.

The article is structurally composed of theoretical, methodological, and empirical parts. The first and second parts address the general scientific aspects of inter-elite dividing line creation. They draw on concepts of social divergence

[1] Meeting with cultural workers of the Tver region, 27 March 2024, *President of Russia*, URL: http://kremlin.ru/events/president/news/73747 (accessed 17.04.2024).

and the structure of the EU elites. These sections establish the general framework of the model for analysing dividing lines. The third section focuses on practical examples of elite divergence from EU practice, expressed in specific political cases.

In developing the model, the authors employ a structural and functional analysis, focusing on identifying the broader, supranational elite system and evaluating the functional connections and positions of Euro-elite segments concerning foreign policy decisions. The model is based on a comparative analysis of elite segments, assessing their stances on two key aspects of relations with Russia: the severance of ties and support for Ukraine. Accompanying factors (ideological, geopolitical, institutional, etc.) determined the resulting configuration of dividing lines.

The empirical basis of the work includes speeches and statements by EU politicians reflecting differences in the EU elite discourse. Statements are selected based on the representation of the three main segments of the EU elite, depending on the cases and forms of divergence under consideration. The examples are general and do not intend to delineate the full range of existing positions. Their purpose is to illustrate the broad contours of the presented analytical model.

Dividing lines within society and political elites: theoretical aspect

The emergence of dividing lines in modern political and national communities is a natural phenomenon with a significant range of causal prerequisites. The disunity of society and elites is not uniform or homogeneous. It includes gradation, which determines the "depths" of the dividing lines. In contemporary social sciences, a list of terms reflects various forms of social divergence. Among them, 'segmentation' used in economic market research, 'fragmentation' [2], which comes from the field of digital and computer systems analysis [3; 4], and 'polarization', which has gained popularity over the past decade against the backdrop of global populism growth, play a central role [5]. These categories are used in scientific research in conjunction or separately but rarely form a systematic or multi-level understanding of the process of social divergence.

Nevertheless, the gradation of divergence is a necessary basis for studying dividing lines, as it defines criteria for empirically significant cases of cleavage formation when analyzing inter-elite interaction. For this reason, the authors of the work carry out a general systematization of the concepts of *segmentation*, *fragmentation*, and *polarization*. The gradation of three forms of rejection of compromise existence among elites relies on the intensity of contacts between political groups and the degree of ideological differences. A potential transition from one stage to another features the reduction of ties, followed by a transformation in mutual perception.

Segmentation, as the initial stage of elite divergence, implies a split into separate parts while maintaining mutual contacts. The emergence of segmentation elements signifies the division of community members into groups based on distinctive characteristics, which is a prerequisite (but not necessarily a cause) for ideological cocoons and information barriers in communication [6, p. 58]. The basis of segmentation may lie in classic ideological boundaries, relying on old and updated ideological markers ('left', 'right', 'liberals', 'conservatives', 'nationalists', 'fundamentalists', 'radicals', etc.) [7, p. 179].

The next stage of elite divergence, *fragmentation*, forms a trend toward the reduction or disappearance of intergroup communications present during the segmentation stage. Fragmentation manifests in cutting dialogue in favour of direct separation and the rupture of mutual ties between already formed groups. It leads to decreasing social solidarity between emerging groups and increasing ideological disproportion while each group consolidates its interests and goals. However, unlike polarization, subgroups in the fragmentation process may have similar or overlapping interests, leading to mutual sporadic cooperation and coordination without stable connections.

Polarization only solidifies the breakdown of the social structure and leads to conflicting and non-overlapping positions. It is no longer just a communication breakdown. It creates a 'counter-narrative' and polar positions that provoke direct or indirect confrontations among elites. It is associated with the division into groups with different views, differing beliefs, and interests, as well as the fixation of dividing lines in conflicting narratives. In other words, consolidation of dividing lines and political group distancing form the basis of polarization. At present, polarization studies highlight two main foundations: preference-based polarization, or issue-oriented polarization, and so-called identity-based polarization, or affective (social) polarization [8—10, p. 922]. The latter is directly related to the ideological chasm between political groups and interpersonal confrontation among their representatives [11, p. 53]. At the same time, polarization can be, depending on the research agenda, a gradual *process* or a formed *state* of the elite and society [9]. All these characteristics clarify the polarization features and secure its status as a critical point in ties degradation between elites.

Any stage of social divergence can manifest as a result of the decline in the overall density of social contacts or the degradation of political consensus. There can also be causes stemming from other spheres of social life (e.g., economic stratification or intercultural confrontation). At the same time, dividing lines emerge at various levels of society, including disunity between social groups, marginalized groups and the mainstream of society, the masses, and elites, or the elites themselves.

It is necessary to emphasize the relevance of introducing a gradation of elite divergence in the context of foreign policy dynamics and the process of forming a collective position on specific aspects of international relations. Regarding this

spectrum of issues, dividing line formation can occur due to internal and external causes. Internal causes depend on the relevance of the considered issue for society within the country and the structure of communication channels among political elites. External causes may be associated with direct and indirect external information influence, the position of the actor under consideration in the context of international ties of the state itself, its status within the international system, or various regions of a particular country. At the same time, external intervention has different importance depending on the phase of elite divergence. Artificial incitement of contradictions is a reason for consolidation, while the presence of real dividing lines facilitates the usage of the external factor in the context of elite conflict. All these variables create boundaries in the transition from one degree of inter-elite separation to the next.

Of all three categories of divergence — from segmentation to polarization — the most significant boundary is between polarization and fragmentation, as segmentation, to some extent, represents the natural state of a multiparty political environment. In contrast, fragmentation and polarization indicate the beginning of the degradation of social ties. However, within the framework of group dynamics, all three stages are possible only in the presence of a common phenomenon that triggers these processes. The absence of a common problem field does not create positive or negative connections for further inter-elite dynamics. It is also reflected in the subsequent securitization of key national priorities by the elite and the communication with the masses [12, p. 2; 13, p. 67].

The political space of European countries shows that complex political connections arise between political elites, varying in a spectrum from conditional unity to sharp confrontation. The structure of these relations depends on the specific topic or factor at the centre of attention. The demonstrated closeness, for example, on issues of relations with partners, may have a diametrically opposite character when discussing interaction with opponents. The most significant are those topics that can outweigh stable connections and create a rupture between elite groups. According to post-functional integration theory [14; 15], such topics include particularly sensitive issues affecting the elite's or the country's identity.

In the current situation, the political agenda concerning Russia is increasingly becoming such a topic for European countries. In some cases, this issue serves as a subject for elite fragmentation, maintaining an unstable balance, while in others, it becomes a real cause for polarization. It indicates the status of polarization as a process with active dynamics and the potential to transition from a problem-based to an affective form.

A clear definition of the 'depth' of dividing lines allows for an accurate characterization of the state of the elite in a particular country. It also aids in avoiding the simplification of the situation or an attempt to project an ideologically favourable state onto the actual circumstances. Such aspects are crucial in foreign policy

planning. The state of fragmentation among elites preserves the possibility of consensus maintenance between fragments despite apparent disunity. In contrast, polarized ideological differences in narratives indicate a low likelihood of finding consensus (or its absence).

There is a vast number of sources for the emergence of social and inter-elite divergence, ranging from inequality, uncertainty [16], degradation of political culture, and populism [17; 18] to a set of individual prerequisites (cultural-religious, ethnic, and demographic differences). These factors lead to ideological and political differences in interests and positions. In other words, the social, political, and economic basis becomes the starting point for fragmentation, making subsequent polarization on key issues (including foreign policy formation) possible.

Thus, the theoretical understanding of dividing lines forming among elites points to differences and variability in the possible states of inter-elite balance. While polarization refers to the separation of elites with apparent distancing and rivalry with each other, fragmentation is associated only with the simpler divergence of elites into multiple separate groups or subgroups with minimal (but potentially maintained) communication. This gradation allows for a better understanding of the conditions under which it is appropriate to speak of politically significant divergence between elites and when it is an ideological split, not turning into a conflict of elites.

Levels and parameters for analyzing dividing lines within the EU supranational elites

A substantial component of studying the mechanism of dividing line formation remains the conditions to assess the elite divergence level. The model for analyzing the degree of divergence among EU elites in the face of confrontation with Russia, proposed by the authors, supplements the gradation of divergence with three key questions. Each of these forms the prerequisite for establishing fault lines. The figure depicts the general features and variables for analysis.

The following includes a critical assessment of which political groups should be considered the EU elite in foreign policy matters today (Variable 1). Equally important is to identify issues in relations with Russia that form dividing lines (Variable 2). The third aspect concerns the environmental factors determining the divergence conditions (Variable 3). The choice of subjects is determined by the functional relationship between the agent, context, and triggers [19]. The final part of the model records the overall degree of divergence. This model, as currently presented, is the author's algorithm for analysis. It does not form a final matrix or coordinate system for determining the final conditions of each dividing line type. Its heuristic value lies in the distribution and systematization of observable prerequisites for dividing line creation within the EU elites. The model allows for the characterization of the dividing lines and specifies the state

of divergence. By doing so, it avoids oversimplifying the nature of elite disunity by viewing it through the lens of only one component. Below is a clarification of why these variables are central to the model.

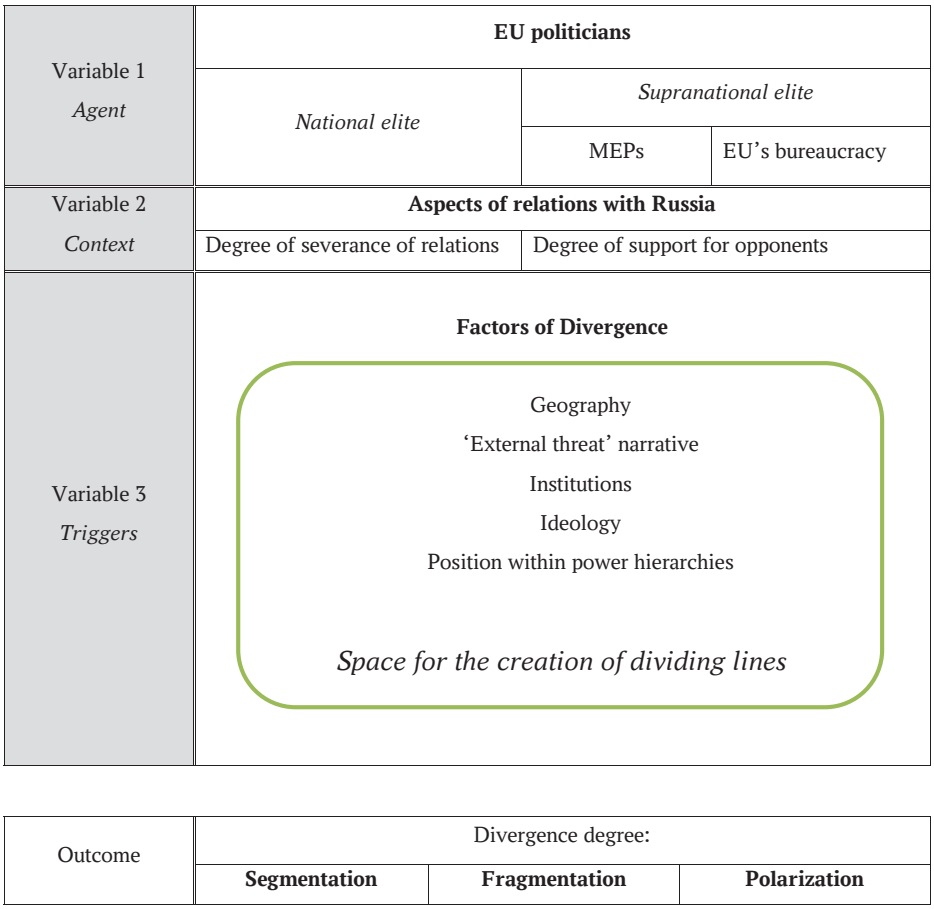

Fig. 1. Model for analyzing the divergence of European elites

The issue of political circles (Variable 1) is of fundamental importance because it largely determines the structural complexity of the current foreign policy decision-making system in Europe. The primary assumption here is that the European space (and the space of the collective West within European borders) is associated with integration structures, primarily the EU. This assumption certainly does not account for the fact that not all European countries are part of EU institutions (e.g., the United Kingdom, Norway, Switzerland). However, to identify the patterns of polarization among elites in unfriendly countries, and given the EU's role in coordinating anti-Russian measures, this assumption is considered acceptable.

From this assumption follows the key feature of the modern political systems of most European states, namely their multi-level structure, combining national and supranational elements [20—22], and thus national and supranational political elites [23; 24]. The former derives from traditional party ties and connections with central authorities. The latter, supranational, is associated with European institutions (e. g., the European Commission, the European Parliament, the European External Action Service (EEAS), etc.) and is represented by appointed 'EU's bureaucrats' and elected MEPs. The existing institutional balance in the EU suggests that some institutions—the Council of Ministers and the European Council—ensure the status and functions of national elites. Other European institutions represent more of a union elite than a national one. However, supranational political groups have direct connections with nation-states, as there is often a transfer of national elites to the rank of supranational elites and vice versa.

Each elite has its own internal group identity [15]. National elites maintain an important role in determining political direction within the system. However, managing foreign policy issues is complicated by various priorities of the EU's political elite (MEPs and EU's bureaucrats) with a polycentric system of national forces. This trend has solidified since the EU gained international legal personality and established a permanent foreign policy institution (EEAS) [25; 26]. However, while national elites enjoy a high level of legitimacy, often due to their connection with the institution of elections, EU's bureaucrats suffer from a legitimacy deficit, also referred to as a "democratic deficit" [27; 28]. The institutional procedures for appointing EU's bureaucrats, even considering reforms undertaken in the 21st century, do not entirely depend on the choice of EU citizens.

In summary, the political space of the EU is a multi-component elite system, including national political elites, who can unite for activities at the European level, and the EU's political elite. It is crucial to point out that business elites, civil society, and other political process participants are excluded from this system, as they have an indirect (albeit crucial) influence on the decision-making process and require separate consideration.

The second (contextual) part of the model (Variable 2) reflects those aspects of relations with Russia that create the basis for forming dividing lines in foreign policy issues. The foundation consists of two central contradictions: socio-economic issues and military-political confrontation. These have emerged since the onset of the sanctions confrontation and the information war between the EU and Russia in the mid-2010s [29; 30]. Both issues are logically connected but can contribute to elite divergence to varying degrees.

Under current conditions, the first includes the degree of severance of relations with Russia, and the second involves the degree of participation in the conflict in Ukraine. The severance of ties primarily includes varying sanctions measures and various forms of reduction in socio-economic and cultural contacts with Russia. Participation in the conflict in Ukraine signifies the EU and its elites' shift from competitor status to that of unfriendly states and alliances. It is expressed in various forms, such as humanitarian aid or discussions about the possible deployment of a limited military contingent.

It is important to emphasize that dividing line creation, like divergence itself, is more of a process than a state, reflecting inter-elite dynamics. In the EU space, the factor of Russia as a thematic field for elite fragmentation simultaneously creates a basis for all three levels of divergence, directly dependent on factors that exacerbate tensions between elites (Variable 3). The foundation for analyzing such factors can be found within social variables [31], which include:

— Geographical proximity (border with Russia);
— Tone of the narrative about the "external threat";
— Institutional framework;
— Internal and external ideological divergence;
— Position within power structures (ruling or opposition).

The list of variables is not exhaustive, but on a conceptual level, the essential element is the relationship between the factors and the level of divergence, which are systematically dependent on the elite level and the considered issues at a specific time. Depending on the empirical basis, certain factors will be more significant in determining elite divergence. For example, it can be assumed that the ideological divergence between right- and left-wing forces regarding material support for Ukraine will be crucial among MEPs but is hardly noticeable among the EU's bureaucrats. At the same time, the nature of divergence (fragmentation, polarization, etc.) may be determined by the immediate position within the power structure — dominant or marginal. There is also evidence [32] of a geographical correlation that provokes the fragmentation of the national segment of the EU elite regarding reducing support for severing relations with Russia.

Thus, the presented analytical model includes a combination of theoretical concepts and practical variables, forming a unified problem field for determining the "depth" of dividing lines. The model requires further refinement by implementing quantitative assessment tools and tracking divergence dynamics. However, in its current form, it allows for the initial classification of dividing line formation cases among EU elites, thereby enabling its limited testing.

Russia as a dividing lines emergence factor

The gradual formation of a supranational Euro-elite, which preceded the modern confrontation between the West and Russia, created a context where the consolidation of contradictions in the inter-elite consensus accompanied the Euro-elite's search for its place within the EU's political system. The multi-faceted nature of this process, with the dominant role of nation-states, simultaneously imposed limitations on national interests for the sake of consensus, forcing a balance of priorities at different system levels [29]. However, embedding limitations on elite and state interests through balancing (through sanctions and normative pressure) creates a basis for fragmentation. It derives from the lack of a dominant force, only partially filled by EU leaders in tandem with leading member states. In sum, it defines the conditions for elite divergence at the supranational level (with a projection onto the states) when forming a common foreign policy towards Russia.

Examples with varying degrees of separation help to identify the nature of EU elite divergence. Further case analysis illustrates each situation presented in the theoretical part, with subsequent reflection on the previously introduced variables.

Segmentation of EU elites

The EU elite system implies that political heterogeneity and segmentation in European countries is (even without external confrontation) a state of normalcy. For example, even before the start of the Special Military Operation (SMO) in February 2022, there were fault lines in the West at the transatlantic (in transnational and transgovernmental manifestations) [33], intra-regional (between Western and Eastern Europe), and intra-state levels [34]. Such conflicts cannot be fully perceived as interstate, as they reveal a component of confrontation between the conventionally liberal and conservative vectors of the multifaceted European elite.

Some examples of dividing lines became direct precursors to further fault lines in the context of the onset of the SMO. For example, the inconsistent course of German elites regarding Nord Stream 2 found a direct continuation in the form of a heterogeneous reaction to sanctions and the reduction of economic contacts with Russia after 2022. It indicates the presence of a whole layer of predominantly national prerequisites [35; 36] that served as the basis for an intra-elite split following the escalation of the confrontation in 2022.

The start of the SMO triggered a relatively homogeneous collective reaction from the majority of the EU elite, expressed in particular by the position of the

European Council,[1] echoed by the EEAS[2] and the European Parliament.[3] However, various segments of the EU elite subsequently differentiated their positions on building socio-economic ties with Russia, primarily on sanctions. Notably, the issue of the oil price cap demonstrated divergence.[4] While there was broad support for the measure, Polish and Baltic politicians deviated from the consensus toward a lower price cap.[5] In contrast, Hungary and several other countries retained the right not to participate in this mechanism.[6] The price cap on Russian gas proved to be an even greater stumbling block, provoking a less uniform reaction across Europe. Greek Energy Minister Kostas Skrekas remarked that "Europe is engaging in futile debates".[7] Hungarian Foreign Minister Péter Szijjártó emphasized that in a trial vote among energy ministers, nine countries voiced critical opinions on the issue, opposing the price cap.[8] Meanwhile, at the level of EU supranational leaders, including European Commission President Ursula von der Leyen, there was a strong push to promote restrictions in the energy sector.[9] Consequently, a dynamic mechanism was established, which became a means of maintaining a state of segmentation without escalating into more acute dividing lines in the positions of countries and elites.

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[1] Special meeting of the European Council, 24 February 2022, *European Council*, URL: https://www.consilium.europa.eu/en/meetings/european-council/2022/02/24/ (accessed 14.03.2024).

[2] HR/VP Press Statement on Russia's aggression against Ukraine, 24.02.2022, *EEAS*, URL: https://www.eeas.europa.eu/eeas/hrvp-press-statement-russias-aggression-against-ukraine_en (accessed 14.03.2024).

[3] European Parliament resolution of 1 March 2022 on the Russian aggression against Ukraine (2022/2564(RSP)), URL: https://www.europarl.europa.eu/doceo/document/TA-9-2022-0052_EN.html (accessed 14.03.2024).

[4] EU struggles to agree Russian oil product price cap, seeks Friday deal, 01.02.2023, *Reuters*, URL: https://www.reuters.com/business/energy/eu-struggles-agree-russian-oil-product-price-cap-seeks-friday-deal-2023-02-01/ (accessed 14.03.2024).

[5] EU Debates Russian Oil Price Cap as Low as $62 as Talks Slow, 22.11.2022, *Bloomberg*, URL: https://www.bloomberg.com/news/articles/2022-11-28/eu-states-to-resume-russia-oil-price-cap-talks-monday-evening?srnd=premium-europe (accessed 14.03.2024).

[6] Hungary exempted from applying a price ceiling on Russian oil, 03.12.2022, RBC, URL: https://www.rbc.ru/politics/03/12/2022/638b9f819a79474c6a0321cd (accessed 14.03.2024).

[7] EU delays decision on natural gas price cap, countries still at odds, 14.12.2022, *Reuters*, URL: https://www.reuters.com/business/energy/eu-unity-stake-countries-try-break-gas-price-cap-impasse-2022-12-13/ (accessed 14.03.2024).

[8] Nine EU countries opposed to gas price ceiling, 19.12.2022, RIA Novosti, URL: https://ria.ru/20221219/evrosoyuz-1839750917.html?utm_source=yxnews&utm_medium=desktop (accessed 14.03.2024).

[9] Statement by President von der Leyen on energy, 07.09.2022, *European Commission*, URL: https://ec.europa.eu/commission/presscorner/detail/en/speech_22_5389 (accessed 14.03.2024).

A key illustration of the overall segmentation of EU elites is their support for Ukraine during the conflict. Despite the dominant position that comprehensive assistance is necessary, an important indicator becomes the question of its degree and form. Elites express disproportionate support for various initiatives, ranging from political statements and basic humanitarian aid to points on EU membership and direct interference. The most pressing issue by the beginning of 2024 is the problem of financing military expenditures. Among the elites, there are opposing views on the possibility of creating joint EU bonds to finance arms supplies to Ukraine: the initiative is supported by politicians from France, Estonia, and Poland but not from Germany, the Netherlands, and Austria.[1] Efforts to avoid deepening the dividing lines on this issue are being made at various levels. For this purpose, EU politicians consistently declare Russia's intention for a "prolonged conflict with the West"[2] and adopt general resolutions of the European Parliament[3] on military support for Ukraine.

The examples lead to the conclusion that the factors of segmentation are economic beliefs (case of financing military expenses) or the geography of the elites (price cap situation). EU countries with a common border with Russia show a greater inclination towards active support for Ukraine, while in countries farther from Russia, the desire for support diminishes.[4] This national division is aligned partially at the supranational level, where the EU's bureaucracy expresses little divergence and MEPs rarely defend national geopolitical priorities. It reduces the divergence process to merely a segmentation status.

At the same time, considering the multifaceted nature of the elite, individual EU politicians have come to realize that the "available space for adopting new measures is becoming increasingly limited".[5] Further trends toward intensifying support for Ukraine will increase the degree of "militant integration" [37; 38],

[1] Russia doubles down on Ukraine war while EU leaders are divided on how to finance weapons, 21.03.2024, *Politico*, URL: https://www.politico.eu/article/russia-doubles-down-ukraine-war-while-eu-leaders-divided-how-finance-weapons/ (accessed 01.04.2024).

[2] Finnish leader says Russia is preparing for 'long conflict with the West', 13.03.2024, *Reuters*, URL: https://www.reuters.com/world/europe/finnish-leader-says-russia-is-preparing-long-conflict-with-west-2024-03-13/ (accessed 14.03.2024).

[3] Parliament calls on the EU to give Ukraine whatever it needs to defeat Russia, 29.02.2024, *European Parliament*, URL: https://www.europarl.europa.eu/news/en/press-room/20240223IPR18097/parliament-calls-on-the-eu-to-give-ukraine-whatever-it-needs-to-defeat-russia (accessed 14.03.2024).

[4] As U. S. Support for Ukraine Falters, Europe Splits on Filling the Gap. 10.01.2024, *The New York Times*, URL: https://www.nytimes.com/2024/01/10/world/europe/ukraine-war-support-europe.html (accessed 14.03.2024).

[5] EU reports difficulties in agreeing on 14 package of sanctions against Russia, 09.04.2024, RBC, URL: https://www.rbc.ru/politics/09/04/2024/6615901a9a79474b4ac42a4c (accessed 16.03.2024).

which, on the other hand, may potentially provoke a response from opponents of such an EU trajectory in the form of fragmentation or polarization. However, the visibility of increased divergence will depend on the scope of elites deviating from the thesis of the existential necessity for the EU to increase support for Ukraine.

Fragmentation of EU elites

The attempt to use external consolidation as a lever for rapprochement is associated with the desire to reduce the threat of divergence in the face of common challenges [10]. Representatives of the elite of the largest EU states undertake initiatives in this direction [38]. However, the intuitive connection between a collective external adversary and consolidation can be either dynamic [39] or even misleading. As a result, not only may unification not occur, but a directly opposite trend toward fragmentation may emerge.

In some cases, the degree of support for Ukraine, especially such confrontational measures as the supply of Taurus cruise missiles or statements about the possibility of sending a military contingent made by French President Emmanuel Macron,[1] serve as grounds for fragmentation. On these issues, the positions of Olaf Scholz[2] and Emmanuel Macron are directly opposed. Scholz openly stated that "there will be neither ground troops nor soldiers sent there by European countries or NATO states on Ukrainian soil"[3] and spoke against the supply of Taurus missiles.[4] In these matters, divergence shifts to a qualitatively new state as conflicting positions entrench fault lines in opinions. To adopt an opposing position is not considered acceptable, yet communication on these issues continues.

The fragmentation of opinions due to the situation with missiles and ground troops in Ukraine can be attributed, at least in part, to the absence of direct leadership among the national segment of the European elite. For this reason, the EU's

[1] Macron calls Russia threat 'existential' ahead of meeting with Tusk, Scholz, 15.03.2024, *Politico*, URL: https://www.politico.eu/newsletter/brussels-playbook/macron-calls-russia-threat-existential-ahead-of-meeting-with-tusk-scholz/ (accessed 16.03.2024).

[2] Bundeskanzler Olaf Scholz: Wir erleben eine Zeitenwende, 2022, *Deutscher Bundestag*, URL: https://www.bundestag.de/dokumente/textarchiv/2022/kw08-sondersitzung-882198 (accessed 16.03.2024).

[3] Send missiles to Ukraine or stand accused of appeasing Russia? Olaf Scholz must choose, 03.04.2024, *The Guardian*, URL: https://www.theguardian.com/commentisfree/2024/apr/03/send-missiles-to-ukraine-or-stand-accused-of-appeasing-russia-olaf-scholz-must-choose (accessed 16.03.2024).

[4] Germany's Scholz says sending Taurus missiles to Ukraine is 'out of the question', 13.03.2024, *Politico*, URL: https://www.politico.eu/article/germanys-scholz-says-sending-taurus-missiles-to-ukraine-is-out-of-the-question/ (accessed 16.03.2024).

bureaucracy[1] and MEPs are attempting to reduce fault lines by shifting the initiative towards further militarization to themselves. Consequently, in opposition to Scholz's stance, MEPs are advocating for the deployment of Taurus missiles to Ukraine.[2] However, the boundaries between sovereign and supranational initiatives and mutual pressure further fragment the elites within states and between levels of the EU elite system on matters of great sensitivity.

A similar trend is present in the European Parliament. Contrary to the expected consolidation of deputies, the opposite effect has occurred, revealing the ideological and regional fault lines that existed before the SMO [32]. Primarily, this refers to the dividing line between developed and developing EU countries and the growing isolation of eurosceptic MEP [40]. These trends may be identified by indirect indicators, namely the intensity of network connections within social media observed since the beginning of the SMO. Despite the initial general surge in network activity among all groups of MEPs at the start of the conflict, Eurosceptic circles have reduced their participation in verbal support and online discussion of issues related to the conflict in Ukraine [32]. It encompasses marginal and radical groups, as well as supporters of an alternative political agenda in general. Due to the weak propagation of their position through traditional media, social networks become an important platform for them, where fragmentation is captured.

This trend illustrates the shift to a more pronounced form of divergence and significantly reveals the fragmentation of the only EU institution directly elected by citizens. In comparison with the more homogeneous line of EU bureaucrats, this suggests that the degree of divergence in support for European initiatives and policies towards Russia can significantly vary when comparing the elected and appointed parts of the European elite. In turn, it contributes to the fragmentation of not only political groups within the European Parliament but also different parts of the supranational Euro-elite.

Polarization of EU elites

The most challenging aspect of the EU's foreign policy is the ideological divergence intersecting with the issue of various elites' connections to Russia. In academic and political discourse, there is a prevailing image of a direct link between European right-wing conservative circles and Russia, or at least a closeness to it [41; 42]. However, the reality is more complex. A review of 37 far-right

[1] Von der Leyen wants to be a wartime president. Now she has to convince EU leaders, 21.03.2024, *Politico*, URL: https://www.politico.eu/article/ursula-von-der-leyen-wartime-president-ukraine-europe-election/ (accessed 16.03.2024).

[2] Parliament calls on the EU to give Ukraine whatever it needs to defeat Russia, 29.02.2024, *European Parliament*, URL: https://www.europarl.europa.eu/news/en/press-room/20240223IPR18097/parliament-calls-on-the-eu-to-give-ukraine-whatever-it-needs-to-defeat-russia (accessed 16.03.2024).

parties [43] and an analysis of their activities in the European Parliament [44] show that fragmentation exists even among them. Some elites quickly distanced themselves from supporting Russia after the start of the SMO,[1] while others, using cultural-civilizational arguments, justified their stance toward Russia's policies.[2]

Even more significant is the inability of the shifts in European politics and the nominal consolidation of the European space to "delegitimize" right-wing ideological views. After a brief retreat, these views have, on the contrary, seen an increase in electoral support for right-wing forces. Some right-wing politicians have used pro-Russian rhetoric as a tool to criticize the worsening economic situation in Europe [43]. These observations are reproducible within both the national and supranational segments of the Euro-elite, forming the basis for political divergence to transition into a stage of polarization. At the same time, this trend occurs on the political periphery, frequently found in circles with strong cultural and economic ties to Russia.

The most striking manifestation of polarization is the mainstream political establishment's direct effort to block the political agenda of pro-Russian right-wing circles. In the run-up to the 2024 European Parliament elections, the scandal surrounding the news website Voice of Europe reflected this effort,[3] since the website promotes pro-Russian views on sanctions and the situation in Ukraine. This situation strongly affected far-right German politicians[4] and extended to representatives of similar political circles[5] in France, Italy, the Netherlands, and others. In a speech by Ursula von der Leyen, special concern was expressed about right-wing elite members opposing the EU.[6]

Ideological divergence combined with emerging polarization on issues related to interactions with Russia is observed not only in right-wing political circles. In some cases, it appears on the opposite, the left side of the political spectrum.

[1] What are Marine Le Pen's ties to Vladimir Putin's Russia? 21.04.2022, *Le Monde*, URL: https://www.lemonde.fr/en/les-decodeurs/article/2022/04/21/what-are-marine-le-pen-s-ties-to-vladimir-putin-s-russia_5981192_8.html (accessed 16.03.2024).

[2] Dutch MP quits group in European Parliament over stance on Russia, 25.10.2022, RIA Novosti, URL: https://ria.ru/20221025/evroparlament-1826603223.html (accessed 16.04.2024).

[3] Russian influence scandal rocks EU, 29.03.2024, *Politico*, URL: https://www.politico.eu/article/voice-of-europe-russia-influence-scandal-election/ (accessed 16.03.2024).

[4] EU's Russiagate hits German far right, 03.04.2024, *Politico*, URL: https://www.politico.eu/article/russiagate-hits-german-far-right-european-parliament-afd/ (accessed 16.03.2024).

[5] 'I hope Ukraine will lose': What MEPs told Russian propaganda channel, 11.04.2024, *Politico*, URL: https://www.politico.eu/article/i-hope-ukraine-will-lose-meps-russian-propaganda-channel/ (accessed 16.03.2024).

[6] Von der Leyen castigates far-right AfD over Russiagate scandal. 13.04.2024, *Politico*, URL: https://www.politico.eu/article/ursula-von-der-leyen-germany-afd-russia-scandal-voice-of-europe/ (accessed 16.03.2024).

A differentiated understanding of the left movement shows that one part is ideologically post-communist, while the other is socially democratic. The ideological disunity of left-wing forces is indicated by more pro-Russian views from the former (expressed, for example, in direct calls by these German leftist forces for a peaceful resolution[1]) and an anti-Russian stance from the latter [31]. However, as with the right-wing movement, this trend reflects more marginal rather than central political contradictions in Europe.

If polarization is considered not from the perspective of support for Russia but from the position of assessing actions to support Ukraine within the framework of the conflict, then dividing lines emerge between ruling elites and opposition forces [45]. It particularly affects questions of the effectiveness of sanctions.[2] Opposition forces often use the conflict and its national costs to increase their electoral support, contrary to expectations of consolidation. At the same time, the pro-war policies of the current authorities are presented in terms of path dependence. In this context, the European Parliament elections also indicate a trend toward polarization, which is confirmed by growing concerns[3] about the strengthening of opposition and radical forces in the new composition of the European Parliament.

Thus, the EU illustrates a multifactorial and complex environment in which the formation of dividing lines on foreign policy issues is coupled with varying degrees of divergence. Polarization between support for and opposition to Russia's policies within the European elites is limited and marginal, while fragmentation and segmentation are more pronounced. In some cases, the existing political expectations of polarization in the public space do not align with the actual dividing lines. For this reason, applying a gradation of the degree of divergence allows for avoiding a false determination of the real European agenda. This approach offers a more precise understanding of the communication structure between EU elites, particularly between the bureaucracy and party elites.

Conclusion

The model formulated in this article for studying the dividing lines among EU elites on issues related to Russia has three fundamentally important variables for analysis. First, the basis is the gradation of the degree of elite divergence that

[1] Mehr Milliarden für den Krieg,14.03.2024, *Die Linke im Europäischen Parlament*, URL: https://dielinke-europa.eu/2024/mehr-milliarden-fuer-den-krieg/ (accessed 16.03.2024).

[2] Austria's opposition believes that India, China and the US have benefited from EU sanctions against Russia, 28.02.2024, TASS, https://tass.ru/mezhdunarodnaya-panorama/20100345 (accessed 16.03.2024).

[3] A Far-Right Takeover of Europe Is Underway, 13.03.2024, *Foreign Policy*, URL: https://foreignpolicy.com/2024/03/13/eu-parliament-elections-populism-far-right/ (accessed 16.03.2024).

forms the dividing lines. It includes the segmentation of elites, their fragmentation, and polarization. Second, the multifaceted nature of the EU elite requires the incorporation of European supranational elites (elected and appointed) in the analysis framework alongside traditional national elites. The role of state elite representatives is to articulate interests at the level of individual EU institutions. Third, the issue articulation in relations with Russia is of fundamental importance for the creation of the dividing lines. There is a notable difference among elites depending on whether the issue concerns the degree of severing relations with Russia (economic, cultural, etc.) or the degree of involvement in the conflict in Ukraine. Furthermore, geographic and ideological variables, combined with the status of a particular elite within power structures, play a significant role in determining the divisions and the degree of divergence. These factors most often determine the resulting degree of elite divergence.

The real polarization (with the highest degree of dividing lines) lies in the search by supranational elites for means of reputational growth and ways to intensify "militant integration." It is perceived in ideologically and geographically divided political circles in a polarized manner, especially in conditions of supranational democracy deficit. The growth of polarization correlates with the transition of the discussed issues from the social and economic field to the military and political sphere. The divergence of demands from national or ideological groups on these issues within supranational bodies can potentially provoke elites to move to higher levels of divergence.

At the same time, as the multi-level analysis in the EU shows, hard polarization, and consequently the emergence of deep dividing lines, remains more of a hypothetical development scenario for the EU elites under current conditions. The actual situation is associated only with a trend toward the intensification of segmentation, which (in some cases) shifts to fragmentation along certain dividing lines. This phenomenon reduces the likelihood of maintaining a consolidated position among the elites and EU countries regarding Russia. The presence of certain political groups opposing increased confrontation, along with institutional complexity, creates conditions for deepening dividing lines.

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MOVING TOWARDS TECHNOLOGICAL SOVEREIGNTY: A NEW GLOBAL TREND AND THE RUSSIAN SPECIFICS

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This paper investigates the global trend of the early 2020s, characterized by securitization of industrial strategies and the course towards technological self-sufficiency/sovereignty (the TS course) in both developed and developing countries, accompanied by geopolitical fragmentation of the world economy. We first identify typical features of the process of securitization of industrial policy in the context of its historical models' evolution, then consider parameters of the TS course, including motives, objectives, tools, and risks, in Western nations (EU and USA) and in leading BRICS members (China, India, Brazil). It is shown that Western countries strive for product and technological independence from China while aiming for global leadership in the field of semiconductor (USA) or green (EU) technologies. Conversely, China aims for a central role in the global economy, prioritizing technological independence from the West. In India and Brazil, the TS course is shaped by structural economic challenges and the risks of growth slowdown. Against this background, we proceed to examine Russia's TS course, analyzing its rationale, design of TS projects, as well as limitations and risks posed by sanctions. Then we highlight the distinctions between Russia's TS course and its foreign analogues, as well as reveal risks of Russia's increasing technological dependence on China. The conclusion suggests that achieving TS, driven by security imperatives, may present a more formidable challenge than anticipated by governments across different types of countries.

Keywords:
technological sovereignty, economic self-sufficiency, geopolitical fragmentation, securitization of industrial policy, friendshoring, critical technologies, US-China decoupling, Russia's technology policy

Over the past three decades, globalisation, driven by open market policies and the expansion of multilateral cooperation, has markedly increased the inter-

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dependence of national economies. However, the advantages of participation in global value chains and deepening the division of labour are now undermined by new conflicts.

Firstly, the growing complexity of non-linear global networks has increased the fragility of the global economy. Local disruptions in supply chains — whether due to cyberattacks, natural disasters, or other events — can trigger waves of economic shocks that rapidly propagate on a global scale. In the wake of the 2020 pandemic, these ripple effects have sparked political frictions between countries, calls for de-globalization, and a rise in protectionist measures [1].

Secondly, the world faced weaponization of its economic connectivity: major suppliers such as China began to use interdependencies as a means of geopolitical pressure on trade partners, including dumping practices to displace competitors. This resulted in China's trade conflicts, first with the US and then with the EU.

Thirdly, the ongoing armed conflicts and new sanction barriers have further restricted freedom of trade, breaking the previously established economic ties. The unprecedented volume of sanctions imposed on Russia in 2022 has effectively severed its direct contacts with the West, while numerous third-party countries have become exposed to the risk of secondary sanctions [2]. Finally, the intensifying technological rivalry between the US and China, especially for the semiconductor market, has created the threat of technological decoupling when global production may divide into two separate ecosystems.

Basically, the technological race and the decline in trust between the West and the East in recent years have led nations to perceive multilateral cooperation less as an advantage and more as a potential threat to national security [3; 4]. This shift has given rise to the 'securitization' of international economic relations, with countries increasingly forming geopolitical blocs based on 'friendshoring' — prioritizing trade and production partnerships with ideologically close, "friendly" nations [5]. The prevailing view in academic discourse is that a separation of the global economy into three segments — the United States-aligned West, the China-aligned East, and a group of non-aligned states manoeuvring between the first and the second — will have adverse implications for international trade, global economic growth, and the domestic development of nations due to increased costs [6].

A similar securitization can be observed in domestic economic policymaking. Since the early 2020s, more and more developed and developing countries have been refocusing their industrial strategies from their previous priority of enhancing efficiency to the task of ensuring security. This shift has entailed efforts to bolster technological self-sufficiency, particularly in strategic sectors. For Russia, which is facing unparalleled Western sanctions, the prospect of achieving technological sovereignty represents a unique conceptual and practical challenge.

This paper explores the extent to which Russia's push for technological sovereignty aligns with global trends and how it differs from similar strategies implemented today by other nations. We first examine the very process of the securitization of industrial policy in the context of its historical models (Section 1). Next, we analyze the objectives, instruments, and challenges of the course towards technological self-sufficiency both in Western countries (the EU and the USA) and in the leading BRICS members (China, India, and Brazil) (Sections 2—3). Against this background, we describe Russia's strategy for achieving technolog-

ical sovereignty and assess the relevant measures that have been put forth by the Russian government (Section 4). Finally, we highlight how Russia's approach differs from its foreign counterparts and discuss the challenges and risks to its success (Section 5). In conclusion, we evaluate the feasibility of achieving technological self-sufficiency under the ongoing geopolitical fragmentation of the world economy.

1. The evolution of industrial policy models and the shift towards securitization

The defining feature of the current historical moment is that the idea of enhancing economic and technological self-sufficiency, often termed "technological sovereignty" (TS), has simultaneously become a central objective for various groups of countries. The focus on achieving TS now plays a key role in shaping national industrial strategies across both developed and developing economies. However, such a shift in industrial policy challenges the logic of its traditional evolution in alignment with technological progress and the increasing complexity of production systems.

Indeed, for seven decades since the 1950s, the conceptual and practical changes in national industrial strategies have been driven primarily by the goal of modernizing the economy to improve its efficiency and ensure long-term sustainability. Historically, this evolution has involved a gradual shift from a predominantly vertical industrial policy (focused on specific sectors) to a more horizontal approach (emphasizing horizontal policies across all sectors). Eventually, these two models were synthesized into a systemic approach, designed to overcome the limitations of earlier models and capitalize on their strengths (Table 1).

Table 1

Evolution of industrial policy models until the 2020s

Type of modernization	Catching up industrialization (1950s—1980s)	Internationalization and market transition (1980s—2000s)	Innovation transition and adaptation to globalization (mid. 2000s—2010s)
Industrial policy model and its conceptualization	Vertical, or classic model (Asian developmentalism)	Horizontal model (neoclassical Washington Consensus, neo-Schumpeterian growth theory)	Systemic model (post-Washington Consensus, post-developmentalism, complexity theory)
Main objectives	Critical mass of new industries, import substitution and exports of finished goods	Critical mass of market institutions, opening the economy and increasing its efficiency through deregulation	Critical mass of network ecosystems for Industry 4.0 development and efficient participation in global value chains

The end of Table 1

Type of modernization	Catching up industrialization (1950s—1980s)	Internationalization and market transition (1980s—2000s)	Innovation transition and adaptation to globalization (mid. 2000s—2010s)
Typical examples	Japan, South Korea, later — other "Asian Tigers"	Developed and transition economies in Europe, other emerging markets	Scandinavian countries, U.S., EU, and other developed and major developing economies
Role and functions of the state	Supreme manager and developer of industries and technologies (defines priorities for businesses and promotes their implementation)	Supervisor of liberalized markets (supports competitive environment and creative destruction)	Network partner to business and academia, network coordinator (supports networking and collaboration)
Typical state interventions	Vertical (selecting sectors for fiscal support, picking and nurturing business "winners")	Horizontal (ensuring the level playing field for all sectors, improving the market redistribution mechanisms)	Horizontal with vertical projections (connecting "winners" picked by markets into joint cluster networks)
Typical business links in the system	Domination of vertical and hierarchical ties	Vertical and horizontal ties	Domination of horizontal networks and platform-based collaborations

Source: compiled by authors after: [7—10].

By the mid-to-late 2010s, many OECD countries had incorporated the cluster and ecosystem approach — typical for the systemic model — into their industrial policies aimed at transitioning to a knowledge-based economy. These countries included the former Asian practitioners of classical industrial policy, European countries like France, the European Union (which had previously been committed to a horizontal model), and technologically advanced economies such as the USA, Canada, the UK, and the Netherlands, which had previously lacked formal industrial policies. Major developing countries have also followed suit, focusing on building Internet platforms, network institutions, and policies for the effective use of these instruments [7].

However, in 2020, this trend shifted dramatically. The COVID-19 pandemic crisis and the disruptions to global supply chains prompted many Western countries, especially in Europe, to adjust their industrial strategies to cope with the external shocks. This shift included pursuing greater self-sufficiency in vital consumer goods (e. g., medical supplies), reducing dependence on critical intermediate imports from Asia, and encouraging global firms to increase the resilience of their transborder supply chains by diversifying or reshoring their links [1].

Moreover, by the late2023, with tensions escalating between China and various nations, and the Russian-Ukrainian conflict persisting, the world witnessed

not just a resurgence of proactive industrial policy, but its complete reloading [11]. Across continents, industrial strategies that once focused on enhancing national competitiveness began to incorporate political and geopolitical priorities centred on enhancing national economic security.[1] Basically, such priorities have emerged as a cumulative reaction of countries to the risks and challenges of the previous five years, including the increased potential for information wars, armed conflicts, and internal social tensions. However, the key underlying motive behind this shift remains the growing threat to G7 countries, other national economies, and the whole world order posed by China's widespread practice of trade weaponization [12]. To reduce dependence on China and protect themselves from potential losses, the US and the EU have begun to pursue a policy of "de-risking", encouraging geographical reconfiguration of global value chains in line with the principles of "friendshoring."

An expected fragmentation of the world economy into competing blocs of allies and adversaries has shaped the current aspiration of various countries to strengthen economic and technological self-sufficiency. Despite the multitude of national differences in such a course, as will be outlined below, we can identify several of its common features, including quite contradictory policy objectives.

Firstly, for the first time in history, national industrial strategies have begun to prioritize security over efficiency. These strategies now attempt to balance two conflicting goals: achieving self-sufficiency, which is aligned with practices of the past industrial era, and accelerating technological development, which is aligned with the modern era of distributed production. Since globalization has benefited all types of economies, enabling many developing nations, from China to Vietnam, to make a leap in development [13], governments are not seeking to entirely disengage from the existing global value chains but rather tend to retain the advantages of participating in them. However, the principle of friendshoring, which looks for a trade-off between security concerns and economic integration, may prove to become a serious obstacle to the natural, market-based evolution of globalized production [6]. The emergence of geopolitical blocs built on countries' grouping around certain shared security preferences and close ideological values, along with nations' deliberate curtailment of inter-bloc trade, is not identical to the business-led regionalization of the global value chains when their links have been increasingly concentrated within the major world macro-regions to form three interconnected production ecosystems in North America, Europe, and Asia-Pacific [1].

Secondly, in addition to the waning trust between Eastern and Western powers, there are internal factors that are pushing nations towards greater self-sufficiency. A growing number of governments are now questioning the sufficiency of market-based regulatory approaches to address the current challenges. Consequently, state intervention in the economy is increasing worldwide, even in regions that have

[1] Economic security refers to the field of international economic policy that encompasses any government interventions aimed at mitigating external economic risks (from pandemic shock to the effects of climate change) which could harm a country's national security or its long-term well-being. Goodman, M. P. 2024, Policymaking is all about trade-offs, *Greenberg Center for Geoeconomic Studies*, URL: https://www.cfr.org/article/policymaking-all-about-trade-offs (accessed 02.04.2024).

historically relied on market forces for promoting economic activity, such as the United States and other in Europe, where the proactive industrial policy had previously been viewed with scepticism. Governments are now ready to make unprecedented budget investments into those industries and technologies that they consider strategically important for national security [14]. As a result, the role of budget stimulus and state-led redistribution mechanisms, which are the hallmarks of the classic industrial policy, is sharply rising in national strategies. Such an approach is particularly prevalent in China and other emerging markets, where the benefits of state intervention have long been a tenet of economic policy. At the same time, the largest economies seek to curtail the competitiveness of rival nations and secure exclusive advantages in advanced technology markets, which largely differs from the idea of developmentalism, typical for the classic model, where the developer state focuses on fostering national competitiveness [4].

Thirdly, both developed and developing countries are shifting the focus of industrial policy from narrow sector-specific targets to broader 'mission-oriented' initiatives. These large-scale projects — such as import substitution in high-tech sectors, achieving technological independence, accelerated green transition, or addressing social issues like eliminating inequality — are viewed as exceeding the capabilities of private business and requiring substantial state investment. On the one hand, the reorientation towards ambitious "missions" and technological breakthroughs is fueled by popular narratives about the "entrepreneurial state" as outlined in the research of Mariana Mazzucato [15]. On the other hand, in the context of security goals, governments have come to perceive technological modernization (mastering industries 4.0) as the result of large-scale budget programmes. Such perception is at odds with Schumpeterian and evolutionary theories that link technological advancements with the development of competitive markets able to generate gradual innovation, creative destruction, and feedback linkages [16]. As a result, the contemporary role of the state, until recently associated with the cultivation of horizontal partnerships and innovation ecosystems in accordance with the systemic model of industrial policy, is fading into obscurity. Instead of a parallel development of technological and institutional innovations, governments start to focus on just the technological component (digitalization, robotization, etc.), isolating it from the needed institutional measures. Meanwhile, this gap in the advancement of both components may lead to economic distortions, especially in emerging market economies, such as China or Russia.

It should be noted that modern economic science offers no conceptual or empirical justification for better development of advanced industries within the framework of friendshoring and technological sovereignty. On the contrary, the existing studies warn about high costs of such a policy course, indicating that the revival of import tariffs and non-tariff barriers to protect national markets may adversely affect global trade, world GDP and the innovation-led transition itself. The rising costs can ultimately lead to the opposite effect — a reduction in industrial exports and a slowdown in national economies [11; 17]. Nevertheless, governments are adopting protectionist measures as a macroeconomic trade-off, anticipating that these actions will mitigate more significant risks to sustainable growth. Under geopolitical pressures, the new model of industrial policy is gaining traction, which makes the fragmentation of the world economy into blocs almost inevitable.

The precise parameters of this fragmentation remain uncertain. However, prominent think tanks see its constitutive factor in the technological decoupling between the United States and China. This decoupling, they argue, may lead to the fragmentation of the global economy into three separate blocs: the Western bloc (embracing the US and its allies, including the EU), the unfriendly Eastern bloc (China and its allies, including Russia), and a group of neutral countries (Brazil, India, Turkey, etc.) seeking to maintain trade and business ties with both blocs [18; 19]. Other researchers draw attention to the mounting opposition to the developed world from the developing world. The latter is already responsible for generating half of the world's GDP, increasing its share in trade and investment flows. Meanwhile, the BRICS countries, which have extended invitations to six new members to join their association, produce a total of about 30 % of the world's GDP, thereby challenging the dominance of G7 countries in this regard [11]. Against this backdrop, official Russian economists tend to view geopolitical fragmentation as a natural process of regionalization. They believe that reconfiguration of global supply chains will enable the Global South to form new integration blocs and centres of influence. Furthermore, they hope that Russia is uniquely positioned to lead this new wave due to its focus on developing technological capabilities [20].

2. The technological self-sufficiency course in Western countries (the EU and USA)

The European Union

In the EU, three key events triggered the securitization of industrial policy: Brexit (2016—2020), widespread supply chain disruptions during the COVID-19 pandemic shock (2020), and mounting geopolitical risks after the outbreak of the Russian-Ukrainian conflict (2022) [21]. The current turn towards economic security, starting with energy security (marked by Europe's accelerated exit from reliance on Russian hydrocarbons in 2022—2023), has been facilitated by already existing political and legal groundwork, laid in the late 2010s within the European concept of "strategic autonomy".

The concept of strategic autonomy represents the EU's evolving stance on relations with the rest of the world, transitioning from a period of total openness and multilateral cooperation (1990s—2000s) to selective cooperation (2010s), and now, to a focus on self-sufficiency in critical sectors (2020s). The EU's democratic approaches to cooperation with third countries have not changed, but the protective component has been strengthened: now these countries are ranked from a group of like-minded (as potential partners) to a group of unfriendly ones that should be economically restrained to mitigate the risks of conflicts and losses [22].

It is noteworthy that strategic autonomy is interpreted in the EU not as a goal but rather as an instrumental policy covering its internal and external territorial con- tours. Within Europe, it concerns projects that deepen integration, protect indus- tries from external threats, and reduce the critical dependence of the member states (especially Germany) on supplies from China and other centres of economic influence. Simultaneously, sovereignty is viewed as a tool for managing

external threats by extending the EU's normative power outward (e. g., pushing the worldwide introduction of a carbon tax to discourage industries threatening Europe's ecology).[1]

The concept of technological sovereignty (hereinafter TS, also denoting technological self-sufficiency for other country cases) stems from this broader notion of strategic sovereignty, focusing on the EU's ability to independently produce critical products and control key high-tech sectors [23]. The critical products span a wide range of sectors that rely on three groups of advanced technologies: green, digital (including semiconductors), and biotechnologies. The priority development of these technologies to achieve product and technological self-sufficiency in relevant sectors is aligned with core objectives of the European TS agenda (Table 2), which in turn are outlined in the EU Economic Security Strategy. This strategy, adopted in June 2023, also defines the main directions and tools of the EU's renewed industrial policy, with the idea of TS integrated into all major pan-European programmes introduced in this area since 2022.[2]

Table 2

The course towards technological self-sufficiency in the EU and USA

Parameters	European Union	USA
Main programmes and documents (year of adoption, amount of funding)	— REPowerEU (2022, €210 billion by 2027) — Green Deal Industrial Plan (2023, €250 billion by 2050) — European Chips Act (2023, €43 billion by 2030) — Strategic Technologies for Europe Platform (STEP, 2024)	— The CHIPS and Science Act (2022, $53 billion by 2030) — Inflation Reduction Act (2022, $370 billion by 2030) — Presidential Executive Orders: on U.S. supply chains (2021); on critical technology investments in countries of concern (2024)
Key objectives	— reducing dependence on China and several Southeast Asian countries in three groups of technologies (de-risking) — energy reform — acceleration of digital and green transition — achieving global leadership in green technologies	— decoupling with China on two groups of critical technologies (hard de-risking) — acceleration of green transition — reducing inequality and revitalizing old industrial areas — achieving global leadership in semiconductors

[1] Round table "The 'Strategic autonomy' of the EU: the essence, manifestations and consequences for Russia", 21.12.2023, *Russian International Affairs Council*, URL: https://russiancouncil.ru/en/news/round-table-the-strategic-autonomy-of-the-eu-the-essence-manifestations-and-consequences-for-russia/ (accessed 22.12.2023).

[2] Joint communication to the European Parliament, the European Council and the Council on "European Economic Security Strategy", 20.06.2023, *EUR-Lex*, URL: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52023JC0020 (accessed 21.06.2023).

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Parameters	European Union	USA
Sectoral and technological priorities	— green technologies — digital technologies (industries 4.0, semiconductors, etc.) — biotechnologies	— green technologies — the current and next generation of semiconductors
Main instruments and approaches	— supply chains' realignment (friendshoring and right-shoring) — stimulating investment and output in critical sectors (through budget subsidies) — diversification of the fossil fuel suppliers — anti-dumping duties — investments in specialized R&D and personnel training	— supply chains' realignment (friendshoring and right-shoring) — stimulating demand for domestic high-tech products (through tax incentives) — building innovation ecosystems and clusters in microelectronics — investments in the modernization of the industrial base — anti-dumping duties — investments in R&D and training

Source: compiled by authors from the official EU and US documents.

The largest allocations from the EU funds are directed to the REPowerEU energy security programme that supports Europe's exit from hydrocarbon dependence, as well as to the associated Green Deal Industrial Plan that aims to position Europe as a global leader in the creation and use of green technologies needed to develop industries 4.0. Another priority concerns policy incentives for semiconductor manufacturing (European Chips Act) to accelerate inter alia the digital and green transition. To further support these efforts, the STEP Platform was launched in 2024, which acts as a one-stop shop for venture capital financing, targeting companies and start-ups with promising projects in the field of strategic technologies.

The European TS course is inextricably linked to the concept of de-risking.[1] This refers to a policy of risk management in an interdependent world, which aims to combat trade weaponization and technology leakage, among other things. It envisages reducing imports from China in sectors that rely on the above-mentioned critical technologies, decreasing the EU's dependence on semiconductors supplies from Southeast Asian countries, as well as creating resilient global supply chains with reliable suppliers in these sectors, even if such measures are accompanied by increased costs and reduced output [5]. The European Commission encourages businesses — via key budget programmes and subsidies — to rebuild

[1] The idea of de-risking was first voiced in March 2023 by the head of the European Commission Ursula von der Leyen, and later, adopted by the US administration. Speech by President von der Leyen on EU-China relations to the Mercator Institute for China Studies and the European Policy Center, 30.03.2023, *European Commission*, URL: https://ec.europa.eu/commission/presscorner/detail/en/speech_23_2063 (accessed 31.03.2023).

supply chains according to the principles of friendshoring and to diversify their links according to principles of right-shoring. Right-shoring is not so much about the widespread return of capacity to Europe from outside its borders (reshoring), but rather about the strategic placement of links in those third countries where supply security is higher, and innovation potential is greater.

Despite these policy shifts, Europe maintains a multifaceted view of China. While regarding China as a systemic rival and a potentially adversarial force, it also perceives it as an advantageous trading partner, with whom further cooperation should be developed where possible, upon mitigating the potential for adversarial action [22]. At the same time, the EU intends to strengthen ties with the US, which have weakened over the past decade.

In governing technological development, the European Commission aims to find a balance between the American market-driven approach and Chinese state-centric model [22]. For the sake of security, it reinforces the centralized reallocation of resources in favour of priority sectors, while simultaneously requiring businesses to strictly differentiate their external ties. The prospect of strengthening the EU's self-sufficiency will obviously be supported by joint efforts of the 27 member states. The potential of Europe as one of the three network 'factories' of the world will additionally work in this direction — due to the dense interdependence of European economies through intermediate supplies on a macro-regional scale [1]. At the same time, Europe faces significant competitive challenges. Currently, it suffers from getting into a mid-level technology trap, lagging noticeably behind the US and China in developing digital sectors and biotechnologies, in generating radical innovations, and overall, in business innovation activity [24].

The United States

In the US, the TS course is shaped by its geopolitical confrontation with China and by the increased economic dependence on it, which has reached a level of security concern for the national economy [25]. However, the catalyst for the US retreat from an ultra-liberal model of industrial policy was not solely the trade conflict with China during Trump's presidency. Rather it was the acute shortage of medical masks and other multiple vulnerabilities in American supply chains, exposed during the COVID-19 pandemic [26]. In response, President Biden issued an executive order in the spring of 2021, aimed at making the US supply chains not just more resilient to shock disruptions but also less dependent on foreign intermediaries. One year later, the Biden administration unveiled the Modern American Industrial Strategy designed to bolster the country's global competitiveness and national security.[1] The renewed industrial policy, codified in legislation, has identified green technologies and semiconductors as two pivotal groups of technologies and related sectors for obtaining priority budget support and for reducing the country's dependence on import supplies from China (Table 2).

[1] Remarks on executing a Modern American Industrial Strategy by NEC Director Brian Deese, 10/13/2022, *The White House*, URL: https://www.whitehouse.gov/briefing-room/speeches-remarks/2022/10/13/remarks-on-executing-a-modern-american-industrial-strategy-by-nec-director-brian-deese (accessed 14.10.2022).

One major legislative effort, the CHIPS and Science Act, allocates unprecedented funding to restore the US share in the global semiconductor market up to the previous 37 % instead of the current 12 %. The Act is also meant to advance next-generation chip manufacturing and to reconfigure American global value chains in this industry in line with the same principles of friendshoring and rightshoring as in the EU. The US seeks to become a global leader in semiconductors, which could ensure its global technological leadership in principle, leaving it in the future ahead of China. Besides, for the sake of comprehensive digital development, the Act stimulates partnerships among firms and leading universities to foster innovation and nurture regional innovation clusters [27].

Another significant piece of legislation, the Inflation Reduction Act, was passed in August 2022 to address the challenge of sharply increased consumer prices under the global energy shock caused by sanctions against Russia and the Russian countersanctions. However, while its title reflects inflation concerns, the Act is primarily about the acceleration of the green energy transition. It provides for multibillion-dollar subsidies and programmes to finance investments in building infrastructure for new energy, reducing industrial emissions and energy costs, decarbonizing transportation, and increasing domestic production of currently imported electric vehicles. Furthermore, the US plans vast allocations in cutting-edge education programmes to develop critical technologies and create high-paying jobs (including the problem of alleviating the increased inequality), as well as various fiscal incentives to modernize depressed industrial areas that had emerged during the years of offshoring.

On the external front, the US has adopted a version of the European de-risking strategy, but with its own approach to dealing with China, encapsulated in the principle of "small yard, high fence".[1] This principle implies that to achieve self-sufficiency and maintain global leadership, the US should be ready to decisively decouple from China, cutting off trade and investment ties with it in a certain, quite narrow range of critical sectors. In 2024, to prevent the leakage of its advanced technologies and the emergence of new Chinese competitors, the US administration imposed a total or partial ban on private investment in China and other "countries of concern" in relation to three advanced sectors, namely, semiconductors and microelectronics, quantum cryptography, and several artificial intelligence systems.

It should be noted that in the US, as in the EU, the implementation of the TS course is accompanied by numerous potential risks. Particularly, even unprecedented budget injections in the semiconductor industry may prove insufficient against this industry's objective investment needs and in light of China's incomparably greater spending in this area.

[1] This formula was launched in the US in late 2022 by Jake Sullivan, the National Security Advisor to the President. Remarks by National Security Advisor Jake Sullivan on the Biden-Harris Administration's National Security Strategy, 12.10.2022, *The White House*, URL: https://www.whitehouse.gov/briefing-room/speeches-remarks/2022/10/13/remarks-by-national-security-advisor-jake-sullivan-on-the-biden-harris-administrations-national-security-strategy (accessed 13.10.2022).

3. The technological self-sufficiency course in the leading BRICS countries (China, India, Brazil)

China

China has addressed the TS course after years of pursuing economic openness since the 1990s. The turn in this direction, structured in line with the country's geopolitical stance vis-à-vis the US, can be traced back to the mid-2010s when the "Made in China 2025" strategy was adopted. However, the ultimate securitization of Chinese industrial policy has been spurred by several consequent events — the trade war with the US in 2018, the shock of the pandemic, and the sharpening of foreign policy discourse regarding Taiwan. The country's most recent five-year economic development plan for 2021—2025 proclaimed the achievement of technological sovereignty as a strategic pillar of national development [28].

China's approach to TS is inextricably linked to a broader idea of economic self-sufficiency. The respective policies and their budgets are informed by a couple of overarching conceptual frameworks — the Dual Circulation Strategy (hereinafter DC) and the previously adopted Belt and Road Initiative (Table 3). Their implementation pursues two goals: firstly, to ensure that China is not dependent on the West, thereby making any sanctions ineffective in deterring the country's actions; and secondly, to make China a dominant player in the global economy by 2049 (the 100th anniversary of the founding of the People's Republic of China), thus displacing the US from its dominant position in advanced markets, including those in microelectronics and green technologies [28].

Table 3

The course to achieve technological and economic self-sufficiency in China

Parameters	Substance
Main strategies and documents (year of adoption, amount of funding)	— Double Circulation Strategy (2020, $ 248 billion minimum budget investment per year, or about 1.5 % of GDP) — Belt and Road Initiative (2013, $ 1 trillion cumulative investment by the end of 2023) — XIV Five-Year Economic Development Plan (2021—2025)
Key goals and objectives	— take the central place in the world economy (by 2049) — decouple from the US in semiconductors — achieve input and technological independence from the West in critical industries — ensure deep digital transformation of manufacturing — eliminate technological gaps across the widest possible range of industries — gain product and technological dominance in the Global South markets

The end of Table 3

Parameters	Substance
Sectoral priorities (key core technologies)	— semiconductors — digital technologies — green technologies — aerospace sector — biotechnologies
Main instruments and approaches	— massive fiscal promotion of digital transition (especially in the semiconductors industry) — stimulation of domestic demand — diversification of links in transborder supply chains and completion of domestic value chains — in a wide range of industries (maximum localization) — protection of promising high-tech companies from external competition (through import tariffs and subsidies) — attracting foreign investment to sectors with the largest technological gaps — dumping and other measures to oust Western companies from the global ICT and green technology markets

Source: ccompiled by authors from [28—30].

The idea of DC combines self-sufficiency (internal resource cycle with China relying on indigenous technologies and growing domestic demand) with adjusted external openness (external cycle with China moving away from dependence on imported technologies and relying on alternative, non-Western markets). The main goal of the strategy is to ensure China's resource and product self-sufficiency in "key core technologies" — any existing or emerging technologies that could provide the country with critical strategic advantages in case it controls the creation, dissemination, and use of these technologies.[1] In practice, this goal implies not only accelerated development of industries 4.0 but also maximized localization of a wide range of industries with high-tech products that Chinese firms cannot yet produce or produce them using imported parts, be it components or know-how [28]. While there is no official list of Chinese priority sectors, the literature provides a list of 35 technologies, seven of which are related to the semiconductor industry [30]. The elimination of import dependence and the stimulation of domestic demand are considered in China as measures to safeguard against the potential loss of Western markets in the event of decoupling from the US or the imposition of tighter Western sanctions. It is noteworthy that the annual funding allocated to the strategy's activities significantly exceeds (in semiconductors—several times) the combined multi-year budgets of TS programmes in the US and Europe.

The "Belt and Road" serves as the outer contour of the DC strategy. By linking the logistics networks of Europe, Asia, and Africa, this initiative is meant to guarantee China's open access to alternative markets for raw materials imports

[1] Key core technologies, 2024, *The Center for Strategic Translation*, URL: https://www.strategictranslation.org/glossary/key-core-technologies (accessed 09.07.2024).

and finished goods exports, as well as to ensure China's product and technology dominance in the Global South countries. It is assumed that over time these countries will form a trade and economic bloc led by China, where logistics and trade links are governed by "the hub-and-spoke" principle: participants are expected to develop bilateral interactions with and through China to a much greater extent than direct horizontal linkages with each other [29].

To achieve these goals, the Chinese leadership has set forth plans to accelerate digitalization in manufacturing. Concurrently, the authorities are intensifying digital and centralized control over business operations, steering them in the intended direction with the help of a "carrot and stick" policy, i. e., through combining strict regulation with generous fiscal incentives (substantial subsidies, investment funds, etc.). China aims to diversify the raw material suppliers and the sales markets in its global value chains, integrating their links into national industrial networks. This implies localizing stages of these chains within China's borders, and thereby, building more complete domestic supply chains across a wide range of industries. At the same time, China seeks to attract foreign investment to sectors experiencing the most significant technological gaps. In essence, China is trying to strike a balance between fostering its own technological advancements wherever possible, including through the protection of promising sectors from import competition, while at the same time remaining open to the inflow of foreign investment and technologies in areas that require serious modernization.

In recent years, China has managed to increase self-sufficiency in several key sectors, achieve impressive advancements in some scientific and technological domains, as well as to attain an unparalleled level of investment in R&D, both in terms of scale and dynamism, when compared to the US and the EU. However, empirical studies indicate that the production and macroeconomic returns on these huge public allocations remain relatively low. Indeed, the substitution of private market motivations with a large-scale fiscal stimulus does not necessarily make the economy more efficient. For instance, the enterprises involved in the "Made in China 2025" strategy have received considerable subsidies and even expanded their own investments in R&D, yet they have not reached any discernible increase in productivity levels [31]. Within the framework of the DC strategy, the rapid achievement of self-sufficiency through fiscal stimulus also appears to become an end in itself, taking precedence over the task of improving the quality of growth and the social parameters of economic development. Furthermore, the literature points to future risks that China may face in maintaining its previous competitive advantages in case of its decoupling from the West and moving away from the capacious markets of the US and the EU [29]. And China's dominance in the Global South markets may not necessarily contribute to obtaining the desired global technological leadership.

India and Brazil

India and Brazil are two prominent developing countries where the TS course is shaped by strikingly similar structural challenges. The involvement in global value chains afforded both countries access to cutting-edge technologies, thus facilitating their significant economic advancements. However, due to the initial distortions in the economy — in terms of industrial structure, geography, employment, and so forth — the benefits of this economic breakthrough have been dis-

tributed unevenly across sectors, regions, and social groups. This has resulted in increased internal imbalances, income inequality, and, consequently, an elevated risk of growth deceleration. Nevertheless, governmental bodies have come to regard the problem of imbalances not so much in structural-institutional terms, but rather as an immediate adverse outcome of the preceding growth model that rested on the idea of economic openness and integration into the globalized environment. Therefore, upon taking an opposite course towards less openness and greater self-sufficiency, these countries aim to retain within the economy considerable incomes that have so far flowed out abroad as profits of Western multinationals. Governments believe that strengthening budget redistributive mechanisms will allow them to redirect the retained revenues into problematic areas and eliminate certain imbalances. Meanwhile, it is frequently overlooked that without the inflow of foreign investment and technology through global value chains, these additional incomes would simply never exist.

Particularly, **India** has followed the path of market reforms and foreign economic liberalization for 30 years (1991—2019), emulating the successful experience of Southeast Asia countries (import of intermediate goods for the sake of more profitable exports), which ensured high growth rates (up to 8 % in some years), development of infrastructure and human capital, and finally, the transformation of the country into the world's 5th largest economy [32]. However, growing inequality in the development of industries and regions, coupled with a shrinking manufacturing industry (low-margin and labour-intensive one), has led to an expanding trade deficit with South Korea, Japan, and China (India was exporting raw materials while importing finished products). Together with the persistence of massive poverty and a decline in GDP growth rates, this complex of problems has disappointed the Indian authorities in the efficacy of liberalization and globalization.

By 2020, following a series of competitive setbacks in dynamic Southeast Asia markets, India withdrew from free trade agreements with these countries. Additionally, the shock of the pandemic, which caused a 7 % decline in GDP and vaccine shortages, compelled India to abandon its entry into the RCEP, despite eight years of negotiations [32]. In 2020, India unveiled an alternative strategy, "Atmanirbhar Bharat" (Self-Sufficient India), designed to reduce external dependence, increase self-sufficiency, and simultaneously preserve the advantages of a market economy without resorting to protectionism and autarky. An additional trigger for the TS course was the risk of losing access to critical imports in case of a strict economic decoupling between the US and China. Given the context of ongoing political conflict with neighbouring countries, this risk poses a crucial challenge to India's economic stability.

With the new course, India has set forth an ambitious plan to enhance its economic competitiveness and become a developed country running upper-middle-income by 2047 (the 100th anniversary of the country's independence). To achieve this goal, the strategy "Atmanirbhar Bharat" proclaims inclusive and sustainable growth, with a particular focus on creating more profitable employment opportunities and reducing inequality. The following five major areas of the strategy should contribute to this outcome [32]:

1) *Stimulating growth* — targeting over 7 % annual growth through achieving economies of scale.

2) *Public investment in infrastructure* — focusing on green and digital transition to improve energy efficiency and create new jobs.

3) *Modernization of economic system* — through digitalization and introduction of advanced technologies (in cooperation with the US).

4) *Leveraging active demography* — capitalizing on the demographic dividend by enhancing skills (especially regarding youth) through public investments in health and education.

5) *Boosting domestic demand and enhancing its sophistication* — meeting industrial demand with domestic products while reducing manufacturing imports and exporting only surplus production, with an emphasis on innovation and building full-cycle internal value chains that capitalize on the vast capacity of the domestic market.

However, leading experts on the Indian economy [33] argue that India's focus on self-sufficiency rests on three fundamental misconceptions: overestimating the capacity of its domestic market, overemphasizing the priority of domestic demand, and underestimating national export potential in a fragmented world economy. India still has enormous export opportunities in labour-intensive industries that are less affected by global fragmentation. But these opportunities could be realized only under a greater economic openness, rather than under orientation towards domestic demand and self-sufficiency.

Brazil, while following similar anti-globalization motives due to mounting structural imbalances, has also turned towards technological self-sufficiency. It strives for a "fairer" redistribution of resources and income, a reduced dependence on intermediate imports in the event of sudden shocks, and an increase in self-sufficiency to prepare for a possible technological decoupling between the US and China. Just like India, the Brazilian economy has undergone premature deindustrialization, with the share of its manufacturing sector in GDP steadily declining since the late 1980s to almost 10 %. This has been aggravated by high informal employment (over 40 % of the working-age population), which complicates the inter-sectoral flow of labour force [34].

The Brazilian TS course is outlined in its 10-year New Industrial Strategy (2023—2033), developed in collaboration with the economist Mariana Mazzucato. The strategy consists of six mission-oriented projects, all of which aim to strengthen self-sufficiency, particularly in digital and green technologies:[1]

1) *Food security* — modernizing the agro-industrial complex, with businesses required to source 95 % of equipment domestically.

2) *Healthcare* — reducing reliance on imported pharmaceuticals and medical equipment, with the goal of covering 70 % of demand with domestic products.

3) *Urban well-being* — upgrading housing and transport infrastructure using green technologies, with a target of increasing contribution of Brazilian supplier firms in global green transport chains by 25 %.

4) *Digital transformation of the manufacturing industry* — increasing the share of enterprises using digital technologies from 23.5 to 90 %.

[1] Brazil launches new industrial policy with development goals and measures up to 2033, 26.01.2024, *Presidência da República*, URL: https://www.gov.br/planalto/en/latest-news/2024/01/brazil-launches-new-industrial-policy-with-development-goals-and-measures-up-to-2033 (accessed 27.01.2024).

5) *Bioeconomy and green transition* — boosting the share of biofuels in transportation by 50 %, reducing emissions by 30 %, and promoting green energy and production of green goods.

6) *Defense* — achieving full autonomy in the production of 50 % of critical technologies, including nuclear power, communications, and drones.

Although Brazil has a long-term experience in implementing extensive public programmes, most of them have failed to achieve their goals. This outcome is largely attributed to inherent shortcomings within the Brazilian institutional environment, including coordination failures, inappropriate selection of policy measures, or the presence of conflicting strategic priorities [35]. Such shortcomings call into question the successful realization of large-scale mission projects that require a much higher level of sophisticated public management skills.

Basically, for both India and Brazil, the key to addressing the problem of growing internal imbalances and increased inequality lies in improving national institutional systems, rather than in pursuing a path towards self-sufficiency. As evidenced by both literature and practice, this problem is generated not so much by globalization itself, but by changing realities brought in by the pace of scientific and technological progress. In the current era of increasing production complexity, a widening social gap can be witnessed even in rich developed countries like the US. Eric Maskin suggests that this gap, observed both within and between economies, is due to the growing disparity between high- and low-paid labour as professions evolve and change much faster than before [36].

4. The logic and specificity of Russia's technological sovereignty course under sanctions

For countries that have fallen under large-scale international sanctions, and thereby, under serious isolation from global markets, the course towards technological self-sufficiency looks reasonable and arguably unavoidable. Governments, starting with the Iranian example, are actively developing such a course through industrial and/or scientific and technological policies, striving to maintain the economy at the current level of development and even even bring it to the technological frontiers. Russia has set the objective of achieving TS after the imposition of sanctions in 2014, a decision that preceded the emergence of a similar global trend. The present-day recognition of this course as the primary strategic direction until 2030—2035 entails pursuing the following three goals: mass import substitution, transition to domestic advanced technologies, and alignment of regional development through large investments [37; 38]. The parameters of strategic direction itself are outlined by means of three complementary documents adopted in the field of technological policy, namely, the *Concept of Technological Development of Russia until 2030*, the *Strategy for Scientific and Technological Development of the Russian Federation*, and *the Federal law "On Technology*

Policy in the Russian Federation".[1] In total, these documents emphasize that Russian business should prioritize control over the domestic market, rather than simply replace Western imports with those from the East.

According to the Concept, the Russian TS course implies launching at least a dozen large-scale megaprojects, collectively termed "technological sovereignty projects" (TS-projects), that will be deployed within Russia's borders or within the framework of international cooperation but under Russian control. Such projects are meant to develop domestic production lines, involving critical and cross-cutting technologies of the Russian origin, which is expected to advance the output of high-tech products, with the goal of replacing imports of intermediate and final goods in priority manufacturing industries. In essence, TS projects should provide an organizational foundation and public funding for large businesses to build a multitude of completed, full-cycle industrial chains encompassing all stages of creating a certain product classified as high-tech, which is described in the Concept as "projects of the full innovation cycle". The list of preferred technologies, types of products (goods and services) with a high-tech status, a range of priority sectors and, most importantly, the list of megaprojects with secured budget financing are determined and approved by the Russian government — as the principal agent responsible for implementing the national technological policy.[2]

Judging by the initial ten megaprojects, already adopted and covering 13 priority sectors (including engineering, chemistry, pharmaceuticals, electronics, and energy), in practice, the state support concerns the production of a diverse range of products utilizing the Russian technologies and equipment. They encompass a wide array of goods, from medicines, machine tools and diesel engines to liquefied natural gas, ships, and drones. To ensure the availability of guaranteed producers and buyers for these products, the system of governance in the field of Russia's technological development will be restructured and put under a strict administrative vertical. As noted in the Strategy, after 2022, Russia is forced to move from the previous stage of building an innovation-oriented economy (2002—2021) to the stage of "mobilization development under the pressure of sanctions", which requires the consolidation of economic entities and resources around priorities determined by the state. Thus, Russia turns to adopting attributes of a classic industrial policy. This option is confirmed by the statements of experts and government officials regarding Russia's expected return to *an investment-oriented economy*. They assert that with the backing of the state, businesses will bolster their investments in fixed capital and in the modernization of production — the prospect supposed to launch mechanisms for sustainable economic growth [38].

[1] The Concept was approved by the Order of the Government of the Russian Federation dated 20.05.2023 (http://government.ru/news/48570/), The Strategy is a Decree of the President of the Russian Federation dated 28.02.2024 (http://kremlin.ru/acts/bank/50358), while the law is still in a draft stage — adopted by the State Duma in the first reading on 18.06.2024 (http://regulation.gov.ru/p/142132). See the provisions of these documents here.

[2] Back in April 2023, the Government approved a list of "TS projects" covering 13 priority industries and several related technologies to be developed. In October 2023, a list of the first ten megaprojects was approved, each of which is expected to receive at least 10 billion rubles from the budget (http://government.ru/news/49869/).

The logic of implementing megaprojects is also more in line with the era of catching-up industrial development than with modern needs for innovation-led transition. According to the law "On Technology Policy in the Russian Federation", the Government is expectedly at the head of the administrative hierarchy, executing the above-mentioned functions of selecting priorities across sectors, technologies, and products (Fig. 1). Each megaproject has a curator in the face of one or another deputy prime minister (depending on the group of industries), who performs supervisory functions and coordinates the activities of two central participants in the process — a complex of "qualified customers" (major state-owned companies and various state organizations) and a complex of "head contractors" (large companies or business groups, acting as industry leaders).

From the viewpoint of the curator's tasks, the outcome of a TS project is the conclusion of a long-term agreement between qualified customers and head contractors: the former guarantee long-term demand and purchase of high-tech products, while the latter guarantee their production and supply upon building an industry-wide value chain. With such mutual guarantees, market competitiveness and export potential of manufactured products are secondary concerns, as the focus remains on self-sufficiency and state-driven demand.

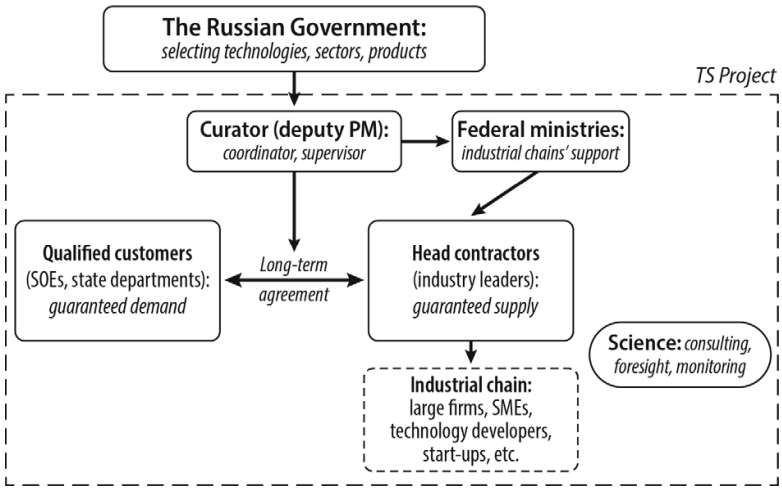

Fig 1. Organizational design of the Russian technological sovereignty projects

Source: compiled by authors from official documents of the Russian technologypolicy.

Industrial chains built by the head contractor may include small and medium-sized enterprises, universities and research organizations, including in the role of developers of their own technological solutions. It is assumed that chain participants create mutually beneficial partnerships [39]. However, judging by the documents, participants will most likely interact indirectly, through officials of federal agencies responsible for coordinating their activities and for managing fiscal support (through subsidies, tax benefits, and allocations). Priorities in receiving state support are given to incumbent, large companies in the industries, including state-owned ones, while new, fast-growing firms (start-ups) are expected to join supply chains as subcontractors of larger firms. Basic science institutions, such as the

Russian Academy of Sciences, are relegated to a more passive, advisory role — offering support for TS projects by contributing to foresight development, refining sectoral priorities, or monitoring the effectiveness of policy implementation.

The Russian authorities expect that the "mobilization approach" in pursuing TS will provide a breakthrough in economic development. As follows from the Concept, in just six years, Russia should sharply (by 2.5 times) reduce its dependence on foreign technologies, no less sharply (by 2.3 times) increase the level of business innovation activity, raise the share of domestically produced high-tech products in total consumption up to 75 %, and nearly double the production of innovative goods upon relying on indigenous technologies. Besides, Russia plans to move away from its historical dependence on raw materials by boosting the volume of non-commodity, non-energy exports by 1.5 times.

Time will tell the extent to which these ambitious plans will be realized. However, when assessing their feasibility, it is crucial to consider the potential risks.

The initial unfavourable circumstance is that even prior to the 2022 sanctions, the Russian economy has experienced a prolonged period of underfunding of the R&D sector, a lack of innovative activity among businesses, and a sluggish pace of technological renewal. As reported by Rosstat, over the past decades, Russia's total spending on R&D has not exceeded 1.1 % of GDP. In 2022, this figure fell to a historic minimum of 0.94 %. The contribution of private business to these expenditures has remained at the level of 30 % (against 70 % in developed economies), with the share of innovatively active firms in the total number of companies exhibiting little variation, staying steadily at a minimum of about 10 %.[1]

The further initial obstacle may be the compression of the accumulated knowledge base. As is known from contemporary innovation theory, a successful technological advance is largely the result of long-term, cumulative effects of knowledge accumulation, rather than an immediate outcome of huge budget incentives [40]. The departure of foreign companies and specialists from Russia, coupled with the relocation abroad of qualified domestic personnel, erodes this knowledge base, thereby causing long-term damage to the country's technological capacity. This is a loss that is challenging to compensate for, unlike the replacement of high-tech imports.

Another type of risk relates to the very design of TS projects. Both international experience and cluster theory reveal that the formation of vertical supply chains, where a network of subcontractors concentrates around orders and budgetary capacities of a single dominant "anchor" company, while horizontal cross-links remain weak, is not an effective organizational framework for technological and innovation development. This particularly applies to chains built through a top-down approach, with government officials selecting priorities and participants [7].

The most significant risks arise from the specific operating patterns of sanctioned economies. Sanctions frequently transform them into semi-closed systems with a vast shadow sector. In such environments, market self-regulatory mechanisms are distorted, business incentives are misaligned, and there is a resurgence of less efficient forms of economic governance, like those prevailing in the industrial era. To address market failures and resist sanctions pressure, governments tend to replace market redistribution mechanisms with budgetary and

[1] Rosstat, 2024, URL: https://rosstat.gov.ru/statistics/science (accessed 09.07.2024).

administrative ones, particularly considering the task of wide import substitution across industries. Such a policy can facilitate operations for selected groups of enterprises, yet simultaneously impose constraints on the broader advancement of technological and production capabilities. Relying solely on its own resources and those of friendly partners, the country may succeed in enhancing the development of some individual high-tech sectors (for example, in IT or the military-industrial complex). However, as Iran's experience shows, the chance to advance technological competencies and raise technological level of the entire economy is small [41]. The failure of the Iranian "resistance economy" also demonstrates that even with the successful deployment of new manufacturing industries through fiscal incentives, it is not easy to effectively expand non-commodity exports. Economies usually adapt to sanctions by simplifying technology and reducing profitability, thus reinforcing their dependence on raw energy exports [42].

5. Differences of the Russian course from the global trend

Russia's TS course is often portrayed as part of a broader global trend. However, despite surface similarities (e. g., large-scale budgetary projects, increased defense spending, and protectionist measures for domestic markets), significant internal differences arise from the unique challenges of operating under sanctions.

Firstly, across different countries worldwide, the TS course, despite being linked to specific projects and missions, remains confined to a limited range of sectors. In terms of scope, the US exemplifies the narrowest version of technological sovereignty, Europe represents a middle ground, while China is implementing the broadest version. Russia, in contrast, is deploying megaprojects for the purpose of import substitution and obtaining a self-sufficient set of technologies in the overwhelming number of industrial sectors. Such a task appears to be unfeasible even for a developed country, and in a sanctioned economy, an accelerated transition of industry to its own technological lines may be accompanied by a decrease, rather than an increase, in production standards. Russia's long-standing trend of economic simplification is also proving to be a hindrance in this area. According to the Global Index of Economic Complexity, Russia has dropped from the third ten to the sixth ten (out of 133 countries in the world) in the 2000s, remaining at this level by 2022.[1]

Secondly, while Western countries are focused on national control over the latest cross-cutting technologies, Russia's primary objective is to replace critical imported technologies with domestic ones (even if they are of previous generations), restructure logistics, and localize production [43]. Only at the second stage does Russia plan to rely on its own advanced technologies and ensure accelerated catching-up development by applying a technology leapfrogging approach [39]. Meanwhile, as the literature indicates, focusing on a technological leap represents a risky bet in the pursuit of self-sufficiency, even when adequately trained engineering personnel are available [44]. Moreover, it will be challenging for Russia to realize high-cost, cutting-edge technology projects due to their unprofitability under sanctions. One of the main obstacles to achieving a project recoupment is the lack of economies of scale: even under guaranteed government orders, the

[1] The Atlas of Economic Complexity, *The Growth Lab at Harvard Kennedy School*, URL: https://atlas.cid.harvard.edu/countries/186 (accessed 20.06.2024).

domestic demand for sophisticated, complex products is inherently limited in Russia, while the chance to introduce these products in foreign markets may be hindered by sanctions and insufficient competitiveness.

Thirdly, in developed and developing economies alike, energy security based on renewable sources constitutes an indispensable aspect of technological sovereignty. From 2023 onwards, the leading BRICS members have embarked upon a course of green transition. This approach is regarded as opening a promising avenue for a technological leap, both because green technologies (for instance, electric vehicles) necessitate significant advances in a range of industrial sectors, and because the country's emphasis on attaining carbon neutrality results in a substantial surge in demand for green products [45]. Russia does not prioritize an accelerated green transition on its strategic agenda. Rather, it views China's and other friendly countries' investments in green technologies as a security risk, potentially leading to a loss of export and budget revenues. This, in turn, diminishes the Russian economy's readiness for a possible technological leap, especially considering its limited access to global technology markets and the priority of mass import substitution.

Finally, in contrast to the Western geopolitical bloc, where the restructuring of global supply chains presupposes increased cooperation among developed countries, Russia's partnership with the Eastern bloc countries is of little help to strengthen its position in cutting-edge technologies. The "full innovation cycle" value chains that Russia is now building domestically may not be aligned with the requirements of modern, complex production systems.

Likewise, the expectations of Russian experts and authorities that global fragmentation will open new opportunities for Russia's mutually beneficial collaboration with friendly countries in Asia and the Global South [20] may also prove unfounded.

Particularly, it will be challenging for Russia to establish a balanced production cooperation with China, which would guarantee the preservation of its technological sovereignty. The trend of increasing Russia's dependence on China was formed long before the 2022 sanctions, particularly in terms of intermediate imports. In contrast, the counter-dependence of Chinese industry on Russian supplies and sales markets has remained insignificant by the early 2020s (Fig. 2).

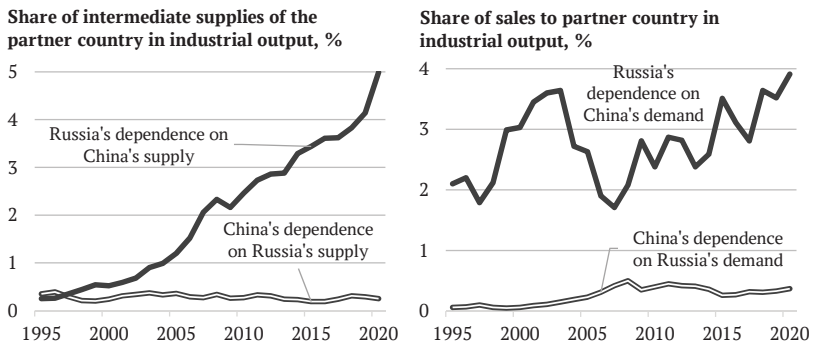

Fig 2. Asymmetry in production interdependencies between Russia and China (value added flows), 1995—2020

Source: compiled by authors according to Richard Baldwin's methodology [46], data from OECD TiVA database, 2023.

By switching its ties to the East, Russia has widely opened its market to the inflow of Chinese goods and capital. However, China has not yet demonstrated any willingness to make direct investments into the Russian economy or to permit the entry of Russian non-commodity exports into its own economy. Today's Russia is of interest to China primarily as a supplier of inexpensive raw materials (not just hydrocarbons but also rare metals necessary for competing with the US in technology), as a market for cars and other finished products sold at increased prices, and as a convenient testing ground for the resistance to Western sanctions. In the past two years, China has significantly expanded its trade with Russia, primarily in pursuit of rent profits in a market where it can dictate prices as both a dominant supplier and a dominant consumer. In contrast, for Russia, robust trade relations with China are a key factor for supporting economic growth, which gives rise to several types of critical dependencies. Particularly, in Russia, industrial production depends on Chinese intermediate supplies (including dual-use goods), the federal budget, Chinese oil and gas demand, and foreign exchange reserves, on the state of the yuan and the passage of currency payments through Chinese banks under threat of secondary sanctions. Furthermore, Russia's efforts to expand trade with the Global South are impeded by formidable competition from China that benefits from cost advantages in manufacturing exports due to economies of scale.

So, regardless of possible configuration of the Eastern bloc, it appears that Russia will retain asymmetrical reliance on China, which will compel it to largely adhere to Chinese technical and technological solutions — even while intensively developing its own.

* * *

Although the process of geopolitical fragmentation is frequently discussed today in the context of reducing nations' dependence on supplies from unfriendly countries, the literature indicates that its main driver may be the intensifying rivalry between the US and China, and between the West and the East for global technological leadership [4]. In any case, the move towards technological self-sufficiency is becoming a common feature of industrial strategies across a wide range of very different economies. Each country has its own reasons for strengthening the domestic industrial and technological base, but the trend itself reflects the contradictory nature of the current historical moment. On the one hand, there is a push for digitalization and green transition to reduce costs and increase efficiency, on the other hand, — growing decoupling, securitization, and the intrusion of politically motivated factors into economic agenda, which raises potential costs.

The key costs are associated with the interruption of supplies of critical intermediate imports. As evidenced by global experience, such trade restrictions often result in the loss of value-added, leading to reduced industrial output and slower GDP growth. The Index of Geopolitical Fragmentation, developed by the IMF experts, reveals that the division of the global economy into competing blocs will negatively affect all countries in terms of output losses, with emerging market economies facing much greater losses than developed ones [47]. Put differently, the restructuring of global value chains on the principles of friendshoring may

have painful macroeconomic consequences, while the task of achieving technological self-sufficiency, driven by security concerns or rivalry reasons, may prove more challenging than governments expect. The risks we have discussed above with respect to the EU, the US, the three major emerging economies, and Russia itself further raise doubts about the success of its solution.

Compared to other nations, Russia will likely suffer less direct losses from the ongoing global fragmentation, as it has already managed to weather the shocks of disengagement from the West back in 2022. Nevertheless, it remains unrealistic for Russia to challenge the technological dominance of either the US or China [48]. Over time, sanctions and efforts to adapt to them may place Russia in a vulnerable position, causing stagflation. In sanctioned economies, the risks of stagflation are predetermined by a long-term macroeconomic stress, high inflation costs, and an increasing reliance on fiscal stimulus to keep the economy afloat [42]. In this situation, the planned state support for industry within the framework of Russian TS projects may positively affect the GDP dynamics for some short-term period, but hardly ensure a long-term stimulating effect, since sanctions largely suppress traditional market-based growth drivers.

Moreover, while large-scale spending on megaprojects may offset sanctions-related losses for major Russian businesses, including state-owned enterprises, these investments will hardly help to achieve the outlined goals in the field of technological development. The problem extends far beyond the too broad range of sectoral priorities, involving numerous structural and institutional barriers. It is crucial for Russia to avoid a scenario where the interest of large businesses in receiving subsidies and maintaining industry leadership is restricting the growth opportunities of medium-sized technology companies, both private and mixed, who are central to innovation and to establishing collaboration with universities, research institutions, and small innovative firms [39]. Furthermore, the issue of technological sovereignty highlights the acute need for facilitating the transfer of technology, capital, and labour force from defense to civilian sectors, which has historically been a challenge for Russian industrial policy.

Despite the growing influence of developing countries in the global economy, a bloc association with geopolitically close partners may also prove ineffective in delivering the anticipated strategic benefits to Russia. These countries are objectively unable to compensate Russia for the loss of Western markets, especially in terms of attracting investment and the latest technologies, given their economic capabilities and the pattern of their attitude toward cooperation with Russia. In the context of a fragmented world, they will most likely remain the main beneficiaries of the Russian sanctioned stance, continuing to profit from price arbitrage mechanisms [3].

High oil revenues, which have so far allowed Russia to pay for increasingly expensive imports and cover increased transaction costs, may get insufficient if China's economic slowdown persists or if India turns to alternative oil suppliers such as Saudi Arabia or Venezuela. In such a scenario, an influx of Chinese capital could provide relief, though this prospect depends not just on Russia's efforts, but also on China's future strategy for dealing with the West. Despite China's pivot towards technological self-sufficiency, its businesses and banks still prioritize the American and European markets, often complying with the sanctions

regime to avoid the risk of secondary sanctions. What does not depend for Russia on external circumstances is a possible determination of the Russian authorities to follow China's example in increasing budget investments in science, especially basic science. Considering the sanctions, this approach should be regarded as an imperative: without a concerted effort to enhance the knowledge base, Russia will find it difficult to maintain its current technological standards.

In today's historical context, Russia's move towards technological sovereignty has seemingly no viable alternatives. However, even under an optimized implementation, such a course does not guarantee automatic progress in innovation or economic growth dynamism. A realistic approach is to admit that an economy's self-adaptation to sanctions is usually accompanied by its shift to a lower technological trajectory, where the reduced level of complexity provides a new macro-equilibrium and "natural" self-sufficiency. Attempts by governments to realize a more positive adaptation scenario, thus making the economy more productive and profitable than the balancing market forces would allow, have not yet succeeded anywhere.

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INEQUALITY AMONG RESIDENTS AND ENTERPRISES IN THE LATVIAN ONLINE MARKET OF DIGITAL MARKETING

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Despite the widespread adoption of digital technologies and their potential to break down traditional barriers in business and communication, many Latvian residents and enterprises still lack access to digital marketing tools and the advantages they offer. This article aims to analyze inequality among residents and enterprises in the Latvian online market of digital marketing. The conceptual basis of the study is the technology acceptance model (TAM), the theory of digital divide and the resource approach based on the theory of social fields. For dynamic analysis of statistical data, the con(di)vergence of indicators of the involvement of various socio-demographic and geographical groups of Latvian residents and enterprises in the online market of digital marketing is assessed. The empirical study is based on Latvian statistics for 2013— 2022 (for some indicators — 2023). The results of the study show that the development of digital marketing in Latvia is happening very quickly, but the potential for development still remains very large, since with 90 % of Latvian residents regularly (at least once a week) using the internet, more than 30 % of Latvians have not yet made a purchase or order on the internet. The development of digital marketing in Latvia reduces socio-demographic and geographical inequalities among residents and enterprises in the online market in relation to the 'digital inequality of input' (access to the online market), but in relation to the 'digital inequality of output' (returns from this access) the equalizing opportunities of digital marketing in Latvia (especially in its regions) are limited by the specifics of the functioning of the economy based on social capital. In this economy, models and theories developed for the economy based on innovation practically do not work. The novelty of this study is a

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comprehensive analysis of the general background and dynamics of the development of the Latvian online market of digital marketing in the context of digital inequality among residents and enterprises.

Keywords:
digital marketing, online market, digital inequality, digital divide, con(di)vergence, coefficient of variation, Latvia

Introduction

In Latvia, digital marketing has been actively utilized for over 15 years (globally, for more than 30 years [1]), and it essentially encompasses a range of strategies designed to promote and sell goods and services through electronic media. The lion's share of this process is occupied by activities on the Internet (representing the technological basis for a separate segment of the market of marketing services),[1] but digital marketing also covers activities on radio and television (not only overt advertising, but also the promotion of consumer ideas, and lifestyle — the so-called hidden agenda').[2]

The global market of digital marketing is projected to reach a value of approximately USD 363.05 billion by 2023,[3] driven by the growing number of users of digital channels. Owing to the rapid adoption of online advertising and increasing investments in ICT and digital platforms, the market of digital marketing is expected to further grow at a compound annual growth rate (CAGR) of 13.1 % during the forecast period 2024—2032.[4] North America is the leading regional market of digital marketing and will continue to dominate in the coming years. The region is expected to account for 38 % to 42 % of the total digital marketing expenditure during the forecast period.[5] The large target audience of the region is encouraging key players and brands in North America to promote their content, products and services online, which in turn is fueling the growth of the market of digital marketing. Asia Pacific is also expected to witness significant growth in the market of digital marketing in the coming years, owing to the high population density in the region, the spread of the Internet and the growing popularity of smartphones among the population.[6]

[1] The online market of digital marketing is an area on the Internet where enterprises and brands use various digital tools and platforms to promote their products, and services and promote their brand on mobile devices (Expert Market Research, 2023).
[2] Draudzīgs Internets. 2023, *Digitālais mārketings — situācija Latvijā*, URL: https://www.draudzigsinternets.lv/digitalais-marketings-interneta/ (accessed 20.03.2024).
[3] Expert Market Research. 2023, *Global Digital Marketing Market Outlook*, URL: https://www.expertmarketresearch.com/reports/digital-marketing-market (accessed 20.03.2024).
[4] Ibid.
[5] Ibid.
[6] Ibid.

In turn, Latvia, according to the Digital Economy and Society Index (DESI) for 2021, has been doing well in terms of connectivity, use of Internet services and digitalization of public services, but the degree of business digitalization among small and medium-sized enterprises (SMEs) and e-commerce lags far behind the European Union (EU) average.[1] This makes Latvia one of the least developed countries in the EU in this aspect, with the lowest level of web sales to enterprises and governments in the EU.[2] SMEs in Latvia are undergoing a digital adaptation while lagging behind large enterprises in all areas of digitalization.

Even though currently there are tens of thousands of enterprises' websites registered in Latvia, only a small part of them attract visitors from the world's largest search engine Google. Insufficient content, incorrect technical settings or lack of popularity means that only their owners know about the existence of such websites.[3] For a website to be successful and attract customers, potential customers need to know about it. Digital marketing tools can help with this if the right solutions are used and the website is adapted to best sales practices [2]. The so-called digital inequality[4] or digital divide [3— 5] among enterprises can be observed here, which is the disparity in technical, professional, cultural and other capabilities and abilities to successfully operate in the online market of digital marketing.

Regarding potential participants in the Latvian online market of digital marketing, in 2022, 10 % of the country's population (and 16.3 % in Latgale, a traditionally lagging southeastern region [6]) did not use the Internet regularly (at least once a week),[5] which means they are practically out of reach of digital marketing tools. In turn, in 2019 (before the COVID-19 pandemic, which was the impetus for increased digitalization of many spheres of activity in most countries of the world) the share of Latvians who did not use the Internet at least once a week was 16.3 % (in Latgale, 23.5 %).[6]

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[1] European Commission. 2021, *Digital Economy and Society Index (DESI) 2021 Latvia*, URL: https://www.varam.gov.lv/lv/media/29250/download (accessed 20.03.2024).

[2] Ibid.

[3] Latvijas Republikas Vides aizsardzības un reģionālās attīstības ministrija (LR VARAM). 2020, *Latvijas uzņēmēju aptaujas rezultāti — Digitālo tehnoloģiju izmantošana uzņēmumos,* URL: https://www.varam.gov.lv/lv/petijumi-e-parvaldes-joma (accessed 20.03.2024).

[4] Buhtz, K., Reinartz, A., König, A., Graf-Vlachy, L. 2014, Second-order digital inequality: the case of e-commerce. *Proceedings of the 35th International Conference on Information Systems*, Auckland, URL: https://www.graf-vlachy.com/publications/Buhtz%20et%20al%202014%20Second-Order%20Digital%20Inequality-%20The%20Case%20of%20E-Commerce%20ICIS.pdf (accessed 20.03.2024).

[5] Latvijas Republikas Centrālā statistikas pārvalde (LR CSP). Tabula DLM010: Iedzīvotāji, kuri lieto datoru / internetu (procentos no iedzīvotāju kopskaita attiecīgajā grupā), 2004— 2023, *Statistikas datubāze*, URL: https://stat.gov.lv/lv/statistikas-temas/informacijas-tehn/ikt-majsaimniecibas/tabulas/dlm010-iedzivotaji-kuri-lieto?themeCode=EK (accessed 20.03.2024).

[6] Ibid.

Scientific literature [7; 8] and business practices [9] recognize that the online market of digital marketing has the potential to reduce digital inequality among residents and enterprises. On the other hand, the results of some studies suggest that equalization of opportunities in the sense of access to the Internet leads to even greater technological inequality because individuals with initially higher socio-economic status are much more successful in using the opportunities offered by the Internet in general and by the online market of digital marketing in particular [10].

Thus, despite the widespread use of digital technologies and their potential to reduce traditional barriers in business and communication, there are significant inequalities in access to digital marketing tools and benefits from their use among Latvian residents and enterprises. This inequality is manifested both in differences in technical equipment and professional competencies, as well as in geographical and socio-economic divisions, which significantly affects the involvement of residents and enterprises in the online market of digital marketing.

This article aims to analyze the inequality among residents and enterprises in the Latvian online market of digital marketing. We hypothesize that the rapid development of digital marketing in Latvia is contributing to a reduction in digital inequality among residents and enterprises. The empirical basis of this study is the data of the Latvian Central Statistical Bureau (CSB) (Latvian: *Centrālā statistikas pārvalde, CSP*) for the last 10—11 years (from 2013 to 2022 (for some indicators — to 2023)) on the involvement of various groups of residents and enterprises in the online market of digital marketing.

Literature review and a brief analysis

The term 'digital marketing' appeared in the 1990s, during the period of rapid development of information and communication technologies (ICT) [11; 12]. Nowadays, digital marketing is considered one of the four components of comprehensive digitalization of an enterprise, and all four interrelated components (ICT development (infrastructure modernization), digitization of operations, digital marketing and digital business) "are stages in the digital journey of most enterprises" [9, p. 3]. The concept of the digital journey as a long process (and the thesis 'transform or die') is also used by the authors of the "SMEs Digital Journey Report Latvia 2021: Mechanism of the Digital Transformation" to analyze the digital transformation process of Latvian small and medium-sized enterprises (SMEs), which usually start their digital journey with digitization of general administration and marketing operations.[1]

The next step is the use of social media or participation in e-commerce. However, as more sophisticated technologies (such as big data and artificial intelli-

[1] Rupeika-Apoga, R., Bule, L. 2021, SMEs Digital Journey Report Latvia 2021: Mechanism of the Digital Transformation, University of Latvia, Faculty of Business, Management and Economics, URL: https://www.bvef.lu.lv/fileadmin/user_upload/LU.LV/Apaksvietnes/Fakultates/www.bvef.lu.lv/Report.pdf (accessed 20.03.2024).

gence) enter the market, the ability of SMEs to adopt them is significantly reduced compared to large enterprises.[1] While some experts argue that digital marketing provides equal growth opportunities for every enterprise[2] [8], the competence of enterprises in digital marketing often leaves much to be desired because "digital marketing is more than just technology adoption, it is also about strategies for integrating technology into business processes" [13, p. 4].

As for the behaviour of potential customers of enterprises in the online market of digital marketing, for example, the results of a study conducted in Lithuania show that Lithuanian customers prefer traditional shopping in stores rather than online shopping [2]. For instance, 44 % of shoppers visit physical stores more than three times a week. Despite the preference for traditional shopping, the authors of a Lithuanian study indicate that the online shopping market in Lithuania is still growing. The Lithuanian study also identified key characteristics of online stores that most influence online shopping behaviour. These factors include website design, informativeness, convenience, security, and the store's popularity [2]. Overall, Lithuanian researchers emphasize the importance of adapting digital marketing and online sales strategies to the preferences and behaviour of local consumers, as well as the need for further research in this area, especially in other geographical regions with similar economic and cultural conditions [2] — for example, in Latvia.

The scientific literature identifies young people as the most promising target audience in the online digital marketing market [7; 14; 15]. For example, the results of a study conducted in Pakistan show that young Pakistanis prefer attractive and well-designed websites or social networks with many unique features to purchase goods and services. In particular, good website design and features increase shopping intention by 55.2 % [7]. The results of factor analysis show that overall social media marketing (SMM) determines the shopping behaviour of youth in Pakistan by 53.5 % and the remaining 46.5 % is due to other external and internal factors that are not related to SMM (such as personal, social, psychological, cultural differences or environmental factors) [7].

The rapidly growing online market of digital marketing worldwide has also created its own stratification, most often referred to in the scientific literature by the terms 'digital inequality' or 'digital divide'. Researchers identify several levels of digital inequality, such as a first- and a second-order effect: a first-order effect is created by inequality in access to ICT, and a second-order effect is cre-

[1] Rupeika-Apoga, R., Bule, L. 2021, SMEs Digital Journey Report Latvia 2021: Mechanism of the Digital Transformation, University of Latvia, Faculty of Business, Management and Economics, URL: https://www.bvef.lu.lv/fileadmin/user_upload/LU.LV/Apaksvietnes/Fakultates/www.bvef.lu.lv/Report.pdf (accessed 20.03.2024).

[2] Zwilling, M. 2014, Digital marketing is a great equalizer for startups, *Forbes*, 25.11, URL: https://www.forbes.com/sites/martinzwilling/2014/11/25/digital-marketing-is-a-great-equalizer-for-startups/?sh=486eddc96bd4 (accessed 20.03.2024).

ated by inequality in the use of ICT.[1] Despite claims by some researchers that the digital divide will disappear over time due to increasing access to the Internet [4], the results of a six-month study of the online behaviour of 2,819 e-commerce users in the US show a different picture: even with comparable levels of Internet access, users with relatively high socio-economic status benefit more from e-commerce than those with relatively low socio-economic status.[2] Specifically, higher-income users shop on more websites within a certain category of digital platforms; higher-income users are also more likely to shop on more digital platforms; a direct and statistically significant ($p < 0.01$) effect of income on the use of alternative e-commerce platforms was found; a direct relationship between income and the use of price comparison websites was also found; higher income users are more likely to shop on more digital platforms. Thus, a second-order effect describes that some individuals benefit less from digital opportunities not so much because of limited access to ICT, but because of limited ability to use it.

Some researchers distinguish three levels of the digital divide among residents [5; 14]: (1) access to the Internet — the difference in access to the latest ICT (presence or absence of material base) and include not only the possession of special devices (smartphones, computers, etc.) but also the availability of the Internet, as well as its qualitative characteristics (speed, cost, etc.); (2) use of the Internet — the difference in the skills necessary for the effective use of ICT (the presence of abilities not only to consume content but also to produce it, to be an active participant in interaction); (3) benefits from the use of the Internet — difference in life chances and opportunities resulting from the use of ICT (this level is the most difficult to measure and is based on information about the level of digitalization of the certain spheres of a society's life). The results of a study conducted in Russia [14] allow its author to state the existence of differences in access to and use of the Internet between generations, both in terms of the possession of digital devices and in terms of the purpose of using the Internet. At the same time, there is a positive trend among representatives of all generations in Internet use. The assessment of the digital divide of the third level allows the author to conclude that there are benefits for all generations in Russia from the use of the Internet [14].

In Latvia, various aspects of the online market of digital marketing and digital inequality among residents, enterprises and also municipalities are actively studied at the Faculty of Business, Management and Economics of the University of Latvia, mainly under the leadership of Professor Sloka. The results of the

[1] Buhtz, K., Reinartz, A., König, A., Graf-Vlachy, L. 2014, Second-order digital inequality: the case of e-commerce. *Proceedings of the 35th International Conference on Information Systems*, Auckland, URL: https://www.graf-vlachy.com/publications/Buhtz%20et%20al%202014%20Second-Order%20Digital%20Inequality-%20The%20Case%20of%20E-Commerce%20ICIS.pdf (accessed 20.03.2024).

[2] Ibid.

research show that there is digital inequality among municipalities in Latvia.[1] Out of 119 municipalities in Latvia, 13 do not use social networks at all. Some municipalities use up to 4 different social networks, while others limit themselves to one or two. In particular, 37 municipalities use four different social networks.[2] These data indicate significant differences in the adoption and use of ICT among Latvian municipalities, which may exacerbate the digital divide between residents and enterprises at the third level, based on the level of digitalization of local administrative and public services [5; 14].

Furthermore, Latvian researchers study the problem of digital inequality among households depending on such characteristics as place of residence (region, city or rural area), income level and education level [16]. Using data from the Latvian CSB for 2019, Lase and Sloka identified differences between urban and rural Internet access, and socio-economic differences between residents with different income and education, which affects their opportunities as the result of Internet access and digital skills. The researchers concluded that Latvian society needs to strengthen motivation for lifelong learning, invest in ICT and raise awareness among residents about the importance of digitalization [16].

Despite a rather active study of the online market of digital marketing and digital inequality in Latvia, we have not been able to find any long-term dynamic analysis of the changes taking place in the Latvian online market of digital marketing in the context of digital inequality among residents and enterprises. Consequently, no attempt has yet been made to confirm or reject the hypothesis that the development of digital marketing in Latvia is very fast and reduces inequality among residents and enterprises in the online market. Furthermore, there are no studies analyzing the general background and dynamics of the Latvian online market of digital marketing and digital inequality among residents and enterprises.

Conceptual framework and the research methodology

Since the Internet market is based on technology, the conceptual understanding and description of the behaviour of its potential and actual participants can be based on the technology acceptance model (TAM) developed by Davis, which explains how users accept and use computerized information systems[3] [17]. First, the perceived usefulness of a new technology is important — the degree to which

[1] Sloka, B. Lase, K., Vītols, M. 2021, *Social Media Use in Municipalities in Latvia*, University of Latvia, URL: http://dspace.lu.lv/dspace/bitstream/handle/7/56470/Social_Media_Use.pdf?sequence=3&isAllowed=y (accessed 20.03.2024).

[2] Ibid.

[3] Davis, F. D. 1986, *A Technology Acceptance Model for Empirically Testing New End-User Information Systems: Theory and Results*, Ph. D. Thesis, Massachusetts Institute of Technology, Sloan School of Management, URL: https://www.researchgate.net/publication/35465050_A_Technology_Acceptance_Model_for_Empirically_Testing_New_End-User_Information_Systems (accessed 20.03.2024).

an individual believes that using a particular computerized information system will improve his or her work (if a technology is perceived as useful, it is more likely to be accepted and used). Second, the perceived ease of use of the new technology is also important — the extent to which the individual believes that using the technology will not require excessive effort. If a technology is perceived as easy to use, the likelihood of its adoption by a potential user increases [17].

The perception of usefulness and ease of use of a new technology is likely to be strongly influenced by the socio-economic status of individuals.[1] It can then be expected that Latvians with a relatively low socio-economic status will find online market activities difficult and risky and will be less motivated by the utilitarian benefits of these activities, which will lead to less effective use of digital marketing tools compared to their fellow citizens with a relatively high socio-economic status.

The conceptual basis of inequality in the online market of digital marketing is further explained using the theory of the digital divide developed by van Dijk [18, 19], used in those studies that distinguish several levels of digital inequality[2] [3] or digital divide [5; 14]. Van Dijk identifies four types of access to ICT [19]:

(1) motivational access — interest, desire and need to use ICT; relates to potential users' beliefs and attitudes towards technology, including their interest in ICTs and perceptions of their usefulness;

(2) material access — the physical presence of a computer, smartphone and Internet connection; also includes the availability and cost of equipment and services, which may be a significant barrier for some groups of potential users;

(3) access skills — abilities and skills necessary for the effective use of ICT (ability to use software and hardware, ability to search, find and process information);

(4) access use — the actual use and application of ICT in everyday life, work and learning; How often and how effectively individuals use technology to achieve their goals.

Van Dijk emphasizes that all these types of access to ICT are interconnected and important for understanding the digital divide — a lack of any of them can become an obstacle to full inclusion in the digital society [18; 19]. Thus, the main causes of digital inequality among Latvian residents and enterprises, located at different levels, are the following: inequality in ICT skills and competencies, inequality in access to infrastructure, socio-economic inequality (a first-order effect), inequality in the efficiency of using opportunities, opening up in the online market of digital marketing (a second-order effect).

[1] Buhtz, K., Reinartz, A., König, A., Graf-Vlachy, L. 2014, Second-order digital inequality: the case of e-commerce. *Proceedings of the 35th International Conference on Information Systems,* Auckland, URL: https://www.graf-vlachy.com/publications/Buhtz%20et%20al%202014%20Second-Order%20Digital%20Inequality-%20The%20Case%20of%20E-Commerce%20ICIS.pdf (accessed 20.03.2024).

[2] Ibid.

Another paradigm for conceptual understanding and description of the behaviour of potential and actual participants in the online market of digital marketing is offered by the resource approach based on the theory of social fields developed by Bourdieu [20], actively used in research at Daugavpils University (Latvia) to study the volume and structure of the 'resource portfolio' and the total capital of various social strata [22—24]. The resource approach or the resource-asset-capital approach, developed by Tikhonova as a new theoretical paradigm in stratification studies [21], is based on the following methodological premise: the resources available to an individual/enterprise, as a result of their [resources] activation, can be converted into its assets, which, in turn, can bring socio-economic returns as a result of their [assets] capitalization, i.e. become the capital of an individual/enterprise. According to the methodology developed by Menshikov [22] and further modified [24], nine groups of resources — economic, cultural, professional, social, administrative, political, symbolic, physical and geographical — form the structure of a 'resource portfolio' characteristic of European society.[1] In Latvia, using the example of two social strata, workers and the 'middle class' (identified based on three characteristics: income, education, self-identification), a statistically significant difference was discovered in the volume of the 'resource portfolio', and it was also found that workers are less successfully than representatives of the 'middle class' capitalize the resources at their disposal, i.e. less able to convert them into their capital [24]. Thus, social strata differ from each other not so much in the specificity of resources, but in the specificity of the capital obtained from them [24].

Overall, the technology acceptance model, the theory of digital divide and the resource approach based on the theory of social fields offer essentially a common conceptual understanding that digital inequality (like any other type of inequality) includes two main aspects: inequality of opportunity (input) and inequality of achievement (output). Each of the above-mentioned theoretical and methodological approaches used in this study explains the mechanism of digital inequality in different reference systems and terms, but they all recognize the fact that equality of access to ICT does not yet mean equality of results (I.e. the capabilities of a computer greatly depend on the abilities of the person who is sitting behind it). In application to the hypothesis of this study that the development of digital marketing in Latvia reduces inequality among residents and enterprises in the online market, this means the following: the hypothesis may be true in relation to the 'digital inequality of input' and not entirely true in relation to 'digital inequality of output'.

[1] In other societies, the structure of the 'resource portfolio' may be different. For example, a recent study in two Southeast Asian countries, Indonesia and Thailand [25], shows that in these societies, religious resource-asset-capital plays a crucial role in social stratification because it is used as a starting point for access to other resources and their activation-capitalization. But in modern Latvia, people's religious affiliation does not give them any advantages [26], i.e. is not a determining factor of social stratification, which is most likely true for the entire European society.

In the framework of this study, the development of the online market of digital marketing is conceptually understood primarily in a quantitative aspect — as an increase in the share of Latvian residents and enterprises potentially and actually involved in the online market of digital marketing. Empirically, this is interpreted as the share of Latvian residents who regularly (at least once a week) use the Internet and make purchases or orders there, as well as the share of Latvian enterprises that have a website and use social media on the Internet. Based on available statistical data,[1] the following figure shows the structure of Latvian residents and enterprises potentially and already involved in the online market of digital marketing.

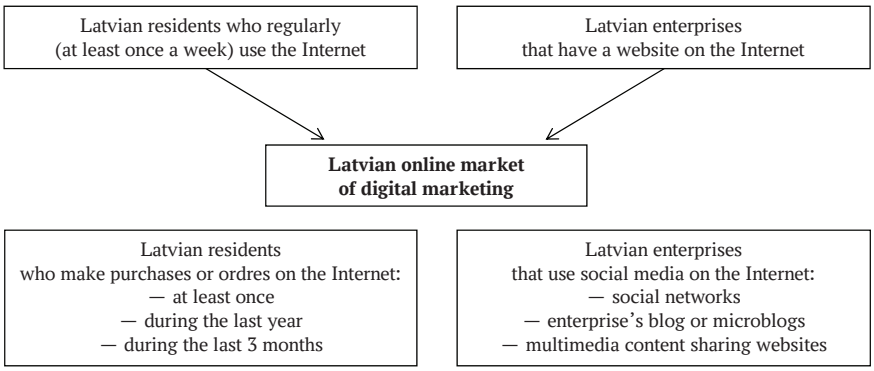

Fig. 1. The structure of potential and actual participants in the Latvian online market of digital marketing

Source: developed on the basis of the classification adopted in Latvian statistics.

To study the dynamics of the share of Latvian residents and enterprises potentially and actually involved in the online market of digital marketing, i. e. the share of Latvian residents who regularly (at least once a week) use the Internet and make purchases or orders there, as well as the share of Latvian enterprises that have a website and use social media on the Internet, we use the method of assessing con(di)vergence [27—29] of indicators of the involvement of various

[1] Latvijas Republikas Centrālā statistikas pārvalde (LR CSP). Tabula DLM010: Iedzīvotāji, kuri lieto datoru / internetu (procentos no iedzīvotāju kopskaita attiecīgajā grupā), 2004—2023. *Statistikas datubāze,* URL: https://stat.gov.lv/lv/statistikas-temas/informacijas-tehn/ikt-majsaimniecibas/tabulas/dlm010-iedzivotaji-kuri-lieto?themeCode=EK; Tabula EKI020: Iedzīvotāji, kuri ir vai nav veikuši pirkumus tiešsaistē internetā personiskiem mērķiem (procentos no iedzīvotāju kopskaita attiecīgajā grupā), 2013–2022, *Statistikas datubāze,* URL: https://data.stat.gov.lv/pxweb/lv/OSP_PUB/START__IKT__EK__EKI/EKI020; Tabula DLU010: Datoru, interneta un mājaslapas lietošana uzņēmumos (% no uzņēmumu kopskaita attiecīgajā grupā), *Statistikas datubāze,* URL: https://data.stat.gov.lv/pxweb/lv/OSP_PUB/START__IKT__DL__DLU/DLU010; Tabula DLU050. Sociālo mediju lietošana internetā uzņēmumos (% no uzņēmumu kopskaita attiecīgajā grupā), *Statistikas datubāze*, URL: https://data.stat.gov.lv/pxweb/lv/OSP_PUB/START__IKT__DL__DLU/DLU050 (accessed 20.03.2024).

groups of residents and enterprises in the Latvian online market of digital marketing for the period of time from 2013 to 2022 (2023) using comparative analysis of data and calculation of the coefficient of variation.[1]

The concept of con(di)vergence is quite applicable to describe the convergence or divergence of the indicators of involvement of various groups of Latvian residents and enterprises in the online market of digital marketing over a certain period since in economic and social contexts convergence refers to the process when the indicators of different groups or territories come closer together according to certain indicators [27]. To confirm the presence of convergence (decreasing the digital inequality) or divergence (increasing the digital inequality), we can use statistical data on the dynamics of indicators of the involvement of various groups of Latvian residents and enterprises in the online market of digital marketing to find out the degree of their [indicators] convergence or divergence.

In the scientific (mainly econometric) literature [27—29], there are two main types of con(di)vergence: β(beta)-con(di)vergence and σ(sigma)-con(di)vergence. These are two different concepts mainly used by economists to study interterritorial convergence or divergence by various indicators [30—32]. Thus, the concept of β-convergence is used to describe the process in which relatively poor economies grow at a faster rate than relatively rich ones, which over time leads to a decrease in the gap in measured indicators between them [31]. It can be called convergence over time and can be applied to any indicators and groups, including indicators of the involvement of various groups of residents and enterprises in the Latvian online market of digital marketing over the studied period. It is expected that lagging groups of residents and enterprises will increase their involvement in the online market at a faster pace.

In turn, the concept of σ-con(di)vergence describes a decrease or increase in the variability (scatter) of indicators among (in this study) various groups of residents and enterprises. It can be called con(di)vergence in space (not only physical but also socio-economic), leading to a decrease or increase in inequality between the groups studied. The conclusion about the presence or absence of σ-con(di) vergence of indicators is made based on a dynamic analysis of the coefficient of variation [31], which makes it possible to assess the variability (scatter) of an indicator within normalized boundaries [33]. The coefficient of variation is calculated as the ratio of the standard deviation to the arithmetic mean of the sample;[2] if its value is less than 10 %, then the variability (scatter) of the indicator is considered weak, at 10—30 % — medium, 30—60 % — strong, 60—100 % — very strong [33]. The coefficient of variation can be used to analyze con(di)vergence, especially in the context of σ-con(di)vergence [31].

[1] Marques, A., Soukiazis, E. 1998, *Per Capita Income Convergence across Countries and across Regions in the European Union. Some New Evidence*, Paper presented during the 2nd International meeting of European Economy organized by CEDIN(ISEG) in Lisbon, URL: http://www4.fe.uc.pt/ceue/working_papers/iconver.pdf (accessed 20.03.2024).

[2] Marques, A., Soukiazis, E. 1998, *Per Capita Income Convergence across Countries and across Regions in the European Union. Some New Evidence*, Paper presented during the 2nd International meeting of European Economy organized by CEDIN(ISEG) in Lisbon, URL: http://www4.fe.uc.pt/ceue/working_papers/iconver.pdf (accessed 20.03.2024).

The empirical basis of this study is the data from the Latvian Central Statistical Bureau for the last 10—11 years (from 2013 to 2022 (2023)) on the involvement of various groups of Latvian residents and enterprises in the online market of digital marketing (Fig. 1) both for Latvia as a whole and depending on their socio-demographic and geographical characteristics: for residents — age (16—24 years, 25—34 years, 35—44 years, 45—54 years, 55—64 years, 65—74 years), education (ISCED 0—2 — no school education, education below primary, basic or primary education; ISCED 3 — general secondary education; ISCED 5—8 — higher education[1]), economic activity (employed, unemployed, schoolchildren or students, other economically inactive) and region of residence (Riga (the capital of Latvia), around Riga (the Pieriga region), Vidzeme region, Kurzeme region, Zemgale region, and the Latgale region); for enterprises — the number of employees (10—49 employees (small enterprises), 50—249 employees (medium-sized enterprises), 250+ employees (large enterprises)[2]) and industry (according to NACE 2 classification).

Results and discussion

In line with the research methodology, the statistical analysis of the development of Latvia's online digital marketing market, in the context of digital inequality among residents and enterprises, involves examining the dynamics of potential and actual market participants. This includes analyzing the share of Latvian residents who regularly (at least once a week) use the Internet for purchases or orders, as well as the share of Latvian enterprises that maintain a website and utilize social media.

As the statistics indicate, the share of Latvian residents who regularly (at least once a week) use the Internet, i.e. potential participants in the Latvian online market of digital marketing, over the past 10 years has increased by 18.8 percentage points — from 71.2 % of the population in 2013 to 90.0 % in 2022 (hereinafter in the text — calculated according to the data of Latvian Central Statistical Bureau). At the same time, the smallest increase (16.8—17.2 percentage points) was observed in Riga and around Riga (the Pieriga region), which in the reference year of 2013 had the largest share of residents who regularly use the Internet (74.9 % and 75.0 %, respectively). In turn, the largest increase in potential participants in the online market of digital marketing was observed in the peripheral regions of Latvia, although it cannot be said that in the Latgale region, where at the time of the reference year 2013 there was the smallest share of residents who regularly use the Internet (64.9 %), the increase was the largest (which characterizes β-convergence, in which the indicators of more lagging groups grow faster).

As for σ-convergence, the variability (scatter) of the indicator of the regularity of Internet use across the regions of Latvia was weak both in 2013 (5.4 %) and in 2022 (3.2 %), while decreasing over 10 years by 2.2 percentage points. This suggests that in access to ICT, unlike most other socio-economic indicators, there is virtually

[1] The statistics does not contain data on the level of education ISCED 4.

[2] The statistics contain data only for enterprises with 10+ employees.

no regional inequality in Latvia (furthermore, regional variability in access to ICT continues to decrease, with the largest decrease observed during the COVID-19 pandemic — from 4.2 % in 2020 to 2.8 % in 2021). This also supports the research hypothesis that geographic inequality among residents in the Latvian online market of digital marketing will decrease, at least in terms of access to this market.

In the framework of this study, we did not analyze the regularity of Internet use by Latvian residents depending on their age, education, and economic activity, but went straight to the analysis of the actual involvement of Latvian residents in the online market of digital marketing depending on all these indicators.

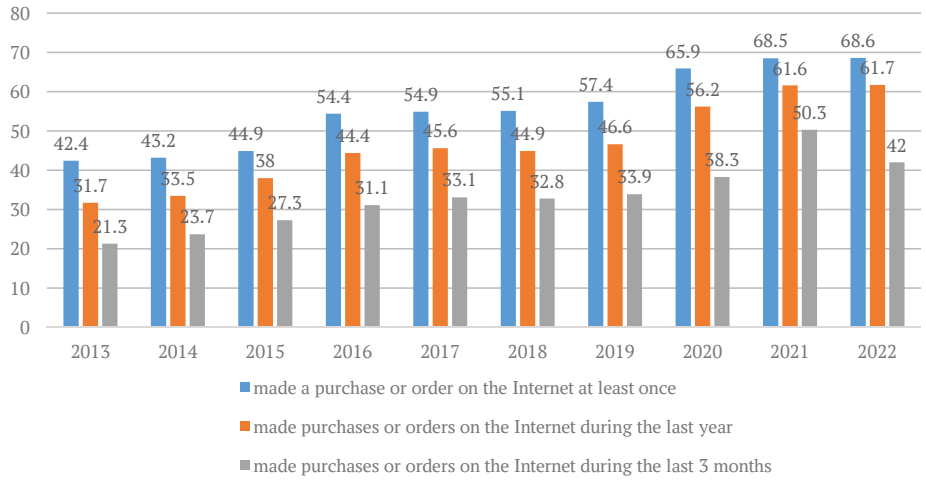

Fig. 2. Share of Latvian residents making purchases or placing orders on the Internet (by frequency of purchases or orders), % of the total number of residents, 2013—2022

Source: compiled based on the data of Latvian statistics.[1]

As the data in Figure 2 shows, the share of Latvian residents who make purchases or orders on the Internet, i. e. actual participants in the Latvian online market of digital marketing, over the past 10 years has increased by 20.7—30.0 percentage points. At the same time, the largest increase in digital buyers occurred in the group who made purchases or orders on the Internet during the last year, which indicates a very rapid pace of development of the Latvian online market of digital marketing. At the same time, the potential for development remains substantial. In 2022, despite 90 % of Latvian residents using the Internet regularly (at least once a week), over 30 % had not yet made any purchases or orders online.

The share of Latvian residents who make purchases or orders on the Internet is quickly converging geographically (regionally), both in terms of β-convergence and σ-convergence. Thus, in full accordance with the character-

[1] Latvijas Republikas Centrālā statistikas pārvalde (LR CSP). Tabula EKI020: Iedzīvotāji, kuri ir vai nav veikuši pirkumus tiešsaistē internetā personiskiem mērķiem (procentos no iedzīvotāju kopskaita attiecīgajā grupā), 2013—2022, *Statistikas datubāze*, URL: https://data.stat.gov.lv/pxweb/lv/OSP_PUB/START__IKT__EK__EKI/EKI020 (accessed 20.03.2024).

istic of β-convergence, in those regions of Latvia in which the least activity of digital buyers was observed in 2013, this indicator increased generally faster than in 'advanced' regions, greatly reducing the digital gap among Latvian residents by geographic attribute: for example, the share of Latgale region's residents who made purchases or orders on the Internet during the last year increased from 16.3 % in 2013 to 49.8 % in 2022, i. e. by 33.5 percentage points, while in Riga this increase was the smallest among the regions of Latvia — by 27.1 percentage points (from 41.0 % in 2013 to 68.1 % in 2022). However, this is not the case for all indicators — for example, the share of residents who have made a purchase or order on the Internet at least once in the Latgale region (which lags behind in this indicator) is not growing at the fastest pace, being inferior in terms of the growth rate of the share of digital buyers to almost all other Latvian regions. Thus, according to this indicator, β-convergence does not occur.

As for σ-convergence, there are pronounced processes of convergence of indicators on a geographic (regional) basis (i. e. in geographic space). Thus, regional variability in the activity of Latvian residents making purchases or orders on the Internet has decreased by 10.5—17.2 percentage points over the past 10 years, but Riga remains the leader, and the Latgale region still lags behind, but with a smaller gap.

The share of Latvian residents who make purchases or orders on the Internet is converging by age just as quickly as by region, at least in terms of σ-convergence. Thus, the age variability in the activity of Latvian residents making purchases or orders on the Internet has decreased by 15.1—17.6 percentage points over the past 10 years, but the age group of 25—34 years old still remains the leader, and the age group of 55+ is still behind, although with a smaller gap.

In turn, β-convergence by age does not occur because lagging age groups do not increase their activity in the online market of digital marketing faster than 'advanced' age groups. Interestingly, the highest rate of increase in shopping activity in the online market is observed in the age group of 16—24 years (although in 2013, this group already occupied second place after the age group of 25—34 years). Indirectly, this may indicate that the youngest age group is not so much increasing their shopping activity in the online market, but rather helping their grandparents to do this — the age group 55+, in which interest in the online market of digital marketing is also increasing, but there is a lack of knowledge and skills in handling it.

The share of Latvian residents who make purchases or orders on the Internet is converging faster by educational level than by age and region (in terms of σ-convergence). Thus, the educational variability of the shopping activity of Latvian residents making purchases or orders on the Internet has decreased by 18.9—25.2 percentage points over the past 10 years, but the group with higher education remains the leader, and the group with the lowest level of education still lags behind, although with a smaller gap (especially in terms of those who have made a purchase or order on the Internet at least once).

In turn, β-convergence by educational level, as well as by age, does not occur, since groups with a low level of education (ISCED 0—2 and ISCED 3) are increasing their activity in the online market of digital marketing faster than the group with higher education only in terms of testing shopping activity on the

Internet (based on the share of those who have made a purchase or order on the Internet at least once or made purchases or orders on the Internet during the last year). In turn, the shopping activity in the online market in terms of making purchases or orders on the Internet during the last 3 months has been growing faster in the group with a higher education, which was already a leader in this aspect. Thus, it can be argued that Latvian residents with a low level of education are more actively trying to enter the online market of digital marketing, but most likely face greater challenges there than users with higher education.

The share of Latvian residents who make purchases or orders on the Internet is also quickly converging by economic activity in terms of σ-convergence but β-convergence does not occur, i. e. the shopping activity in the online market is growing faster in those groups that were already leading in this aspect (in particular, among employees and student youth), while the unemployed and other economically inactive groups of Latvian residents are increasing their shopping activity in the online market at a slower pace. At the same time, the variability of indicators of the shopping activity in the online market among groups with different economic activity over the past 10 years still decreased by 12.8—13.8 percentage points (i. e. σ-convergence occurred), although to a lesser extent than by age, education and geographic (regional) basis.

In 2013, the highest coefficient of variation (55.0—63.7 %) in the shopping activity of Latvian residents in the online market was observed by age, education (47.1—54.3 %) and economic activity (45.6—54.1 %); the coefficient of variation (19.5—32.9 %) was quite low by geographic (regional) basis. Over the past 10 years, the variability in the shopping activity of Latvian residents in the online market has decreased significantly. In 2022, the highest coefficient of variation (37.4—48.6 %) remained by age, followed (unlike in 2013) by economic activity (32.8—40.3 %), and then by education (22.2—35.4 %). The coefficient of variation based on geographic (regional) factors dropped to 9.0—17.1 %.

Such a significant decrease in digital inequality among Latvian residents in terms of their access to the online market of digital marketing and actual involvement in this market over the period from 2013 to 2022 was mainly due to the σ-convergence of indicators of the shopping activity of Latvian residents in the online market for almost all analyzed characteristics. In turn, β-convergence was observed only in some cases, which still did not prevent the decrease of digital inequality among Latvian residents (which [digital inequality], however, still exists). Overall, statistics indicate that the development of digital marketing in Latvia is very fast and reduces inequality among residents in the online market.

Next, we move on to analyzing the involvement of Latvian enterprises in the online market of digital marketing, starting with an analysis of the share of enterprises that have a website on the Internet. According to the research methodology, it is precisely such enterprises that are potential participants in the online market of digital marketing, since, as already indicated in the introduction of this article, a huge number of websites of Latvian enterprises, in reality, remain practically without the attention of the target audience, and only the owners themselves know about their existence.

Table 1

Share of Latvian enterprises having a website, % of all enterprises and the number of employees,* 2013—2023**

Groups of enterprises	2013	2014	2015	2016	2017	2018	2019	2020	2021	2023	Difference 2023/2013, % points
All enterprises	55.7	55.9	59.0	63.5	62.9	63.0	64.8	62.6	67.8	67.3	+11.6
Incl. by the number of employees:											
10—49 employees (small enterprises)	51.6	50.8	53.3	58.8	58.3	58.5	59.7	58.4	63.5	63.4	+11.8
50—249 employees (medium-sized enterprises)	74.5	78.4	83.8	84.2	82.5	82.8	86.4	81.0	87.3	86.0	+11.5
250+ employees (large enterprises)	92.1	94.8	94.6	96.3	96.2	95.0	95.0	94.1	95.5	98.1	+6.0
Coefficient of variation, %	22.8	24.3	22.6	19.6	19.8	19.3	18.7	18.9	16.5	17.4	–5.4

* The statistics contain data only for enterprises with 10+ employees.

** The statistics do not contain data for 2022.

Source: compiled based on the data of Latvian statistics.[1]

As the data presented in Table 1 shows, the share of Latvian enterprises with a website on the Internet is constantly growing. A particularly large increase, more than 5 percentage points per year, occurred during the COVID-19 pandemic. There is β-convergence between SMEs and large enterprises, whereby SMEs are increasing their potential presence in the online market of digital marketing faster than large enterprises.

As for σ-convergence among Latvian enterprises by the number of employees, there is also a process of convergence of the indicator of a website presence on the Internet — from 22.8% variability in 2013 to 17.4% in 2022 (i.e. — 5.4 percentage points over 11 years) (Table 1).

In relation to the presence of a website on the Internet, there is no β-convergence of Latvian enterprises by industry, i.e. in industries with almost the same share of enterprises having a website on the Internet in 2013 (for example, in manufacturing (57.6%) and electricity, gas supply, heating and air conditioning, water supply, wastewater, recycling and reclamation of waste (57.0%)), the growth rates over the past 11 years could be completely different (in this case — 14.9% and 25.0%, respectively). In some sectors of the economy, which at the time of 2013

[1] Latvijas Republikas Centrālā statistikas pārvalde (LR CSP). Tabula DLU010: Datoru, interneta un mājaslapas lietošana uzņēmumos (% no uzņēmumu kopskaita attiecīgajā grupā) 2009—2023, *Statistikas datubāze*, URL: https://data.stat.gov.lv/pxweb/lv/OSP_PUB/START__IKT__DL__DLU/DLU010 (accessed 20.03.2024).

had relatively high indicators, there was even decrease over 11 years: hotels and accommodation (– 1.1 %), information and communication services (– 4.1 %), activities of administrative institutions and enterprises of services (– 3.9 %).

As for σ-convergence among Latvian enterprises by industry, there is a process of convergence in the indicators of the presence of a website on the Internet between groups of enterprises — from 28.7 % variability in 2013 to 19.7 % in 2023 (i. e. – 9.0 percentage points over 11 years). Thus, the digital inequality among Latvian enterprises by the number of employees and industry (at least in terms of potential access to the online market of digital marketing) is decreasing, and this decrease was especially pronounced during the COVID-19 pandemic: by 2.4 percentage points over one year of the pandemic by the number of employees and by 2.2 percentage points by industry.

Next, we move on to analyzing the use of social media on the Internet by Latvian enterprises, i. e. to the analysis of the actual involvement of enterprises in the online market of digital marketing. According to the classification adopted in Latvian statistics, social media on the Internet includes social networks, enterprise blogs or microblogs and multimedia content-sharing websites.

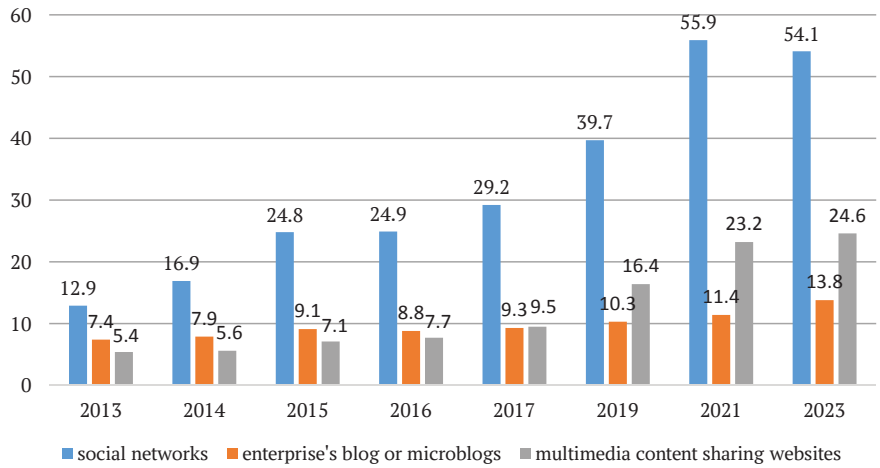

Fig. 3. Share of Latvian enterprises using social media on the Internet (by type of social media), % of all enterprises,* 2013—2023**

*The statistics contain data only for enterprises with 10 + employees.

** The statistics do not contain data for 2018, 2020, 2022.

Source: compiled based on the data of Latvian statistics.[1]

As Figure 3 shows, among Latvian enterprises using social media on the Internet, the largest increase (41.2 percentage points) over the past 11 years has been

[1] Latvijas Republikas Centrālā statistikas pārvalde (LR CSP). Tabula DLU050. Sociālo mediju lietošana internetā uzņēmumos (% no uzņēmumu kopskaita attiecīgajā grupā), *Statistikas datubāze*, URL: https://data.stat.gov.lv/pxweb/lv/OSP_PUB/START__IKT__DL__DLU/DLU050 (accessed 20.03.2024).

observed in the use of social networks (which is quite consistent with the strategy "if a business is not present on a social network, it is not on the market"), and the smallest (6.4 percentage points) is in the use of enterprise's blog or microblogs.

The share of small, medium-sized and large enterprises in Latvia using social media on the Internet (i. e. actual participants in the online market of digital marketing) is constantly growing, and this growth sometimes exceeds 50 percentage points over 11 years, as in the case of the use of social media by medium-sized and large enterprises (although they used social networks more often than small enterprises also in 2013). Overall, in terms of the use of social media (all analyzed types) on the Internet, the growth rate of large enterprises is faster than that of medium-sized and especially small enterprises, although initially large enterprises were in the lead in relation to medium-sized ones, and medium-sized enterprises — in relation to small ones (i. e. no β-convergence occurs here).

As for σ-convergence among Latvian enterprises by the number of employees, there is also a rather rapid process of convergence, i. e. decrease of the variability of indicators of the use of social media on the Internet: over 11 years — by 22.7 percentage points for social media, up 5.1 percentage points for enterprise's blog or microblogs and 16.5 percentage points for multimedia content sharing websites. Despite this rather rapid process of convergence in terms of the use of social media on the Internet, large Latvian enterprises in this aspect are still far ahead of medium-sized and especially small enterprises — by tens of percentage points.

The variability of indicators of the use of social networks by Latvian enterprises across industries in 2013 was very strong (80.3 %), and over 11 years it decreased by 54.8 percentage points, falling to 25.5 %, i. e. there has been a rapid σ-convergence in the use of social networks among Latvian enterprises by industry (this is the largest decrease of digital inequality within the scope of this study).

As for β-convergence among Latvian enterprises by industry, we can say that lagging industries are growing faster (in full accordance with the β-convergence conception) — for example, wholesale and retail trade, car and motorcycle repairs with 12.7 % of the use of social networks in 2013 and an increase of 51.0 percentage points over 11 years.

The variability of indicators regarding the use of enterprise blogs or microblogs by Latvian enterprises across industries in 2013 was nearly as pronounced as that of social networks (78.3 % and 80.3 %, respectively). However, over the course of 11 years, this variability has decreased significantly less than in the case of social networks, declining by only 16.2 percentage points to 62.1 %. Thus, σ-convergence in the use of enterprise blogs or microblogs among Latvian enterprises is not as marked as in the case of social networks. As a result, the variability across industries in the use of enterprise blogs or microblogs, although decreased, still remains very strong (the leader with a big gap here is the information and communication services).

As for β-convergence among Latvian enterprises by industry, it does not occur with regard to the use of blogs or microblogs by enterprises, i. e. industries lagging behind in this regard do not grow faster, and sometimes (for example, in the case of wholesale, retail trade and repair of cars and motorcycles) even

demonstrate a decrease. At the same time, the largest increase (14.6 % percentage points) in the use of enterprise blogs or microblogs was observed in the information and communication services, which was already the leader in 2013.

The variability of indicators of the use of multimedia content-sharing websites by Latvian enterprises across industries in 2013 was even greater (coefficient of variation — 83.6 %) than in the case of social networks and enterprise blogs or microblogs, and over 11 years this variability has decreased by almost a half, i. e. by 41.4 percentage points, falling to 42.2 %. Thus, σ-convergence in the use of multimedia content-sharing websites among Latvian enterprises was almost as significant as in the case of social networks, resulting in a significant decrease in the variability across industries.

As for β-convergence among Latvian enterprises by industry, it does not occur in relation to the use of multimedia content-sharing websites (as is in the case with enterprise's blogs or microblogs), i. e. industries lagging behind (in 2013) in this regard can demonstrate both a rapid growth rate (for example, retail trade, except for trade in cars and motorcycles, with an increase of 23.4 percentage points), and quite moderate (for example, transportation and storage with an increase of 14.2 percentage points), and the leader in the use of multimedia content sharing websites in 2013, the information and communication services industry, demonstrates a relatively large increase of 23.8 percentage points.

Thus, at the time of 2013, the greatest digital inequality among Latvian enterprises was observed not so much in terms of access to the online market of digital marketing (in terms of a website presence on the Internet, the coefficient of variation was 22.8 % by the number of employees (Table 1) and 28.7 % by industry), but in terms of actual involvement in this market (for example, in terms of the use of social networks, the coefficient of variation was 47.5 % by the number of employees and 80.3 % by industry). Over 11 years the digital inequality among Latvian enterprises has decreased significantly, and by 2022 there is no longer such a significant difference between inequality among enterprises in terms of access to the online market of digital marketing and in terms of actual involvement in this market. Thus, in terms of the presence of a website on the Internet, the coefficient of variation in 2022 decreased to 17.4 % by the number of employees, i. e. by 5.4 % percentage points (Table. 1), and up to 19.7 % by industry, i. e. by 9.0 percentage points. In turn, in terms of the use of social networks, the coefficient of variation in 2022 decreased to 24.8 % by the number of employees, i. e. by 22.7 percentage points, and up to 25.5 % by industry, i. e. by 54.8 % percentage points.

Such a significant decrease in digital inequality among Latvian enterprises in terms of their access to the online market of digital marketing and actual involvement in this market over the period from 2013 to 2023 was mainly due to σ-convergence of indicators of the presence of a website and use of social media on the Internet. In turn, β-convergence was observed only in some cases, which still did not prevent the decrease of digital inequality among Latvian enterprises (which, however, remains quite strong).

The research hypothesis that the development of digital marketing in Latvia is very fast and reduces inequality among residents and enterprises in the online market can be considered proven, but in conclusion, it is necessary to include the reducing digital inequality in the context of more general inequality in the distribution of income among Latvian residents in the hope of seeing a decrease of inequality in terms of the Gini coefficient, simultaneously with the rapid development of digital marketing in Latvia. Statistics show that over 10 years the decrease in the Gini coefficient in Latvia was 1.5 percentage points. At the same time, at the start of the COVID-19 pandemic, the Gini coefficient was higher than in 2013, and over the two years of the pandemic, it decreased more than in all 10 years — by 1.7 percentage points (Fig. 4).

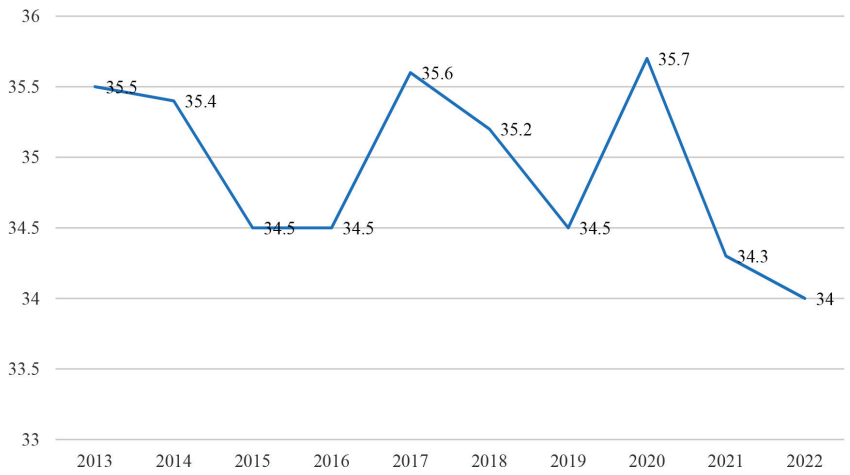

Fig. 4. Inequality in income distribution among Latvian residents, Gini coefficient, %, 2013—2022

Source: compiled based on the data of Latvian statistics.[1]

The accelerated decrease in inequality during the COVID-19 pandemic can be explained from the perspective of the theory of digital divide presented in the methodological section of this study [18, 19], namely, the fourth type of access to ICT (their actual use and application in everyday life, work and learning), which became an inevitable necessity only during the COVID-19 pandemic.

However, as the analyzed statistics reveal, digital inequality among Latvian residents and enterprises — along with broader socio-economic inequality — persists on a significant scale. We can begin to elucidate its possible causes through the case study presented in the following table.

[1] Latvijas Republikas Centrālā statistikas pārvalde (LR CSP). Tabula NNI030. Džini koeficients (procentos), *Statistikas datubāze*, URL: https://data.stat.gov.lv/pxweb/lv/OSP_PUB/START__POP__NN__NNI/NNI030/table/tableViewLayout1/ (accessed 20.03.2024).

Table 2

Case study: the comparison of two enterprises operating in the Latvian online market for the delivery of food and essential goods

Comparable indicators*	Online store *BARBORA*	Online store *Vietējais top!*
Delivery territory	Products are delivered only in Riga region and around it (Pieriga region)	Products are delivered even in rural areas in the regions
Competitors in the delivery territory	Yes	No
Delivery time	The day and time of delivery is selected by the client during making order from the options offered on the website	There is no option on the website to select the day and time of delivery, but the delivery information states that it occurs on the same day if payment is received before 13.00—15.00
Website design	The website is beautifully designed	The website is beautifully designed
Website informability	Good — products are grouped (which makes them easier to find), and there are all the necessary sections of information	Good — products are grouped (which makes them easier to find), and there are all the necessary sections of information
Website usability	The website is quite easy to use: product sections open quickly (but the transition between them is not very convenient), the table for selecting delivery times appears twice, and the orders were always completed successfully	The website is very inconvenient to use: product sections take a long time to open, there are often unnecessary switches from one group of products to another, and the finished cart may 'freeze' during payment (in this case, I had to create a new profile and place the order again)
Additional opportunities	The website features a section for recipes, allowing users to order ingredients directly in a basket. It also includes sections for new products and a 'World of Wine.' Additionally, users can create basket templates for typically repeated purchases	No
Bonuses	Coupons and discounts are offered using a special code	Coupons and discounts are offered using a special code
Support in case of problems	Three communication channels are offered: telephone, e-mail and Internet chat; respond and help through all channels (if they can't answer the phone right away, they always call back)	Two communication channels are provided: telephone and email. However, phone calls often go unanswered, and emails receive no response. When contacting a specific physical store where the order is supposed to arrive, staff express understanding and sympathy but are unable to assist while the order remains in standby mode, citing that 'the owner is on vacation

The end of Table 2

Comparable indicators*	Online store *BARBORA*	Online store *Vietējais top!*
Shopping experience	Multiple successful experiences, but only when visiting Riga and the Pieriga region, because this service is not available in the peripheral regions	Completely unsuccessful experience (the order was not completed): loss of time to place the order (at first it 'froze' during payment, and it took a long time to order again since groups of goods take a long time to open), at the time of writing the article, the completed and paid order was 'hung' in standby mode for almost week and has already lost the relevance for the buyer
Business owners	Patrika Ltd.	MADARA 89 Ltd.
Legal address of the enterprise	Maskavas street 257, Riga, LV-1019, Latvia	Baznicas laukums 2, Smiltene, Smiltene County, LV-4729, Latvia

* Formulated partly based on [2].

Source: compiled based on both personal experience and information from the enterprises' websites.

The results of the case study of two enterprises operating in the Latvian online market for the delivery of food and essential goods, presented in Table 2, can be explained within the conceptual framework and methodology of this study, based on the technology acceptance model, the theory of digital divide and the resource approach.

Using the technology acceptance model, which works with the user's subjectively perceived usefulness and ease of use of computerized information systems[1] [17], it is possible to explain the user's shopping experience in the online market of digital marketing as follows: the service of ordering and delivering food and essential goods is subjectively perceived by the user as useful and easy to use. However, the reasons for a successful shopping experience in the first case and a completely unsuccessful one in the second case cannot be explained using this model. The methodological assumption that differences in the socio-economic status of users determine their inequality in the use of digital marketing tools does not work here either,[2] since both successful and completely unsuccessful shopping experiences belong to the same user.

[1] Davis, F. D. 1986, *A Technology Acceptance Model for Empirically Testing New End-User Information Systems: Theory and Results*, Ph. D. Thesis, Massachusetts Institute of Technology, Sloan School of Management, URL: https://www.researchgate.net/publication/35465050_A_Technology_Acceptance_Model_for_Empirically_Testing_New_End-User_Information_Systems (accessed 20.03.2024).

[2] Buhtz, K., Reinartz, A., König, A., Graf-Vlachy, L. 2014, Second-order digital inequality: the case of e-commerce. *Proceedings of the 35th International Conference on Information Systems*, Auckland, URL: https://www.graf-vlachy.com/publications/Buhtz%20et%20al%202014%20Second-Order%20Digital%20Inequality-%20The%20Case%20of%20E-Commerce%20ICIS.pdf (accessed 20.03.2024).

The theory of digital divide and its four types of access to ICT (motivational access, material access, access skills and access use) [18; 19] can explain the results of the case study by shortcomings in the fourth type of access that have become an obstacle to successful experience in the online market of digital marketing in the case of the online store *Vietējais top!* (Table 2). In particular, in this case, one can state shortcomings in the access use, i. e. in the effectiveness of the actual use and application of ICT for the implementation of an order on the Internet. In the context of digital inequality on a geographical (regional) basis, addressed by this study, it is noteworthy that a successful shopping experience was stated in cooperation with a metropolitan digital seller, and an unsuccessful one — with a regional one. This illustrates that the capital region of Latvia, unlike the rest of the country, is at a higher—and, crucially, qualitatively different—stage of economic development, characterized by distinct driving forces and business culture. This fact has been deeply studied in the works of researchers from Daugavpils University [34; 35], but is usually not considered both in economic research and in economic policy.

Most likely, the results of this study can be explained in the conceptual paradigm of the resource approach based on the theory of social fields [20] or the resource-asset-capital approach [21], which assumes that resources (including technological ones, i. e. motivational and material access to the online market and even skills in handling it) available to the resident / enterprise can be turned into his / her / its assets, which, in turn, can become the capital of the resident / enterprise. Thus, technological (like any other) resources do not always become assets, much less capital (which is what happened in the second case, presented in Table 2). In an economy based on social capital (and this is precisely the economy of the peripheral regions of Latvia — as opposed to the capital region), a key role is given to social connections that promote cooperation between individuals and groups, and in such an economy the conversion of social and administrative capital into economic capital is most pronounced [22]. Considering the very low (about 2 %) level of participation of Latgale residents in public organizations and political parties, revealed by researchers at Daugavpils University [22], the peripheral regions of Latvia are characterized by a rather 'closed] type of social capital (according to M. Olson), in which interests of closed groups may conflict with general public interest and lead to social and economic inefficiency [36].

In a practical sense, this means that for participants in the online market of digital marketing promoting a product or service, it is not enough to have a website of your enterprise on the Internet — you must also be able to use this website to completely fulfil the client's order (for example, help him/her to figure out if the completed and paid order for food delivery 'hangs' in standby mode for almost a week). As for the target audience, it is not enough to have access to the website and the ability to use it — you also need to use existing social connections or try to establish new ones (if there is no administrative capital), calling physical participants in the supply chain and finding out when the owner will be

back from vacation to deal with an order stuck on the website. In such conditions, models and theories developed for an economy at the innovation stage of development (in Latvia, only Riga is close to this stage [35]) practically do not work.

The results of this study are consistent with the results of other studies that digital marketing is a strong equalizer for residents and enterprises when used effectively to reach target audiences, attract customers and measure results.[1]

Conclusions

Based on the results of this study, the following conclusions can be drawn about the digital inequality among residents and enterprises and the development of the Latvian online market of digital marketing:

(1) The development of digital marketing in Latvia has progressed rapidly, with the COVID-19 pandemic serving as a major catalyst, forcing an increased use of ICT in everyday life, work, and education. However, the potential for further growth remains substantial, as, despite 90 % of Latvian residents regularly using the Internet (at least once a week), more than 30 % have never made a purchase or order online;

(2) Between 2013 and 2022, digital inequality among Latvian residents, in terms of access to and participation in the online market, saw a significant reduction. There was a rapid convergence of shopping activity indicators across nearly all key characteristics — age, education, economic activity, and region of residence;

(3) However, despite this notable progress, digital inequality remains widespread among Latvian residents and enterprises. Large enterprises, especially those in information and communication services, continue to lead by a considerable margin. Among residents, the most active participants are still economically engaged individuals from Riga, aged 25 — 34, with higher education.

Thus, digital marketing is a strong 'equalizer' for residents and enterprises, when it is used effectively and not just by providing equal physical access to ICT. Otherwise, the digital gap between residents and enterprises that are more successful (for various reasons) in capitalizing their technological and other resources in the online market of digital marketing, and those that are not, could become even larger than it was in the offline market. Today, the development of digital marketing in Latvia reduces inequality among various socio-demographic and geographical groups of residents and enterprises in the online market in relation to the 'digital inequality of input' (access to the online market), but in relation to the 'digital inequality of output' (return on this access) the equalizing opportunities of digital marketing in Latvia (especially in its regions) are limited by the specifics of the functioning of the economy, which is based on social capital.

[1] Zwilling, M. 2014, Digital marketing is a great equalizer for startups, *Forbes,* 25.11, URL: https://www.forbes.com/sites/martinzwilling/2014/11/25/digital-marketing-is-a-great-equalizer-for-startups/?sh=486eddc96bd4 (accessed 20.03.2024).

The main limitation of this study is the non-exhaustive set of analyzed statistical indicators, which gives an idea of the general background and dynamics of the development of the Latvian online market of digital marketing in the context of digital inequality among residents and enterprises but does not cover many more detailed aspects related to the use of various digital marketing tools. Regarding future research directions on the development of Latvia's online digital marketing market, a useful starting point could be our case analysis comparing two enterprises in the Latvian online market for food and essential goods delivery. From this foundation, we can conduct a comprehensive study of the technological, organizational, economic, and social aspects of the digital marketing market, as well as the barriers that prevent digital marketing from more effectively reducing digital — and consequently socio-economic — inequality in Latvia.

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SPATIAL CHARACTERISTICS OF ETHNIC GROUP LOCALISATION IN ST. PETERSBURG

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Amid ongoing globalisation, large cities are becoming increasingly attractive to migrants, resulting in a more multiethnic population composition, which underscores the growing importance of studying interethnic relations in metropolises. This work aims to explore the spatial localisation of ten ethnic groups residing in St. Petersburg: Ukrainians, Belarusians, Tatars, Jews, Georgians, Armenians, Azerbaijanis, Uzbeks, Tajiks and Moldovans. Using the ethnic concentration coefficient, the study examines the territorial heterogeneity of settlement among the city's largest ethnic diasporas to identify patterns in residential choice. The data on national composition are derived from all-Russian population censuses. Most national minorities are distributed rather evenly across the city, but the Jewish and Georgian communities are notably concentrated in the central district of St. Petersburg. At the same time, the migration restrictions imposed due to the COVID-19 pandemic not only decreased the size of the Uzbek and Tajik diasporas, thereby normalising their gender and age distribution but also led to a more even dispersion of these ethnic groups across the city. Currently, there is no evident correlation between the spatial concentration of most ethnic groups in St. Petersburg and their level of social well-being.

Keywords:
ethnic group, concentration, spatial features, social well-being, municipality, St. Petersburg

Introduction and problem-setting

Despite ongoing and accelerating globalisation, the issues of interethnic relations remain highly relevant and are gaining increasing prominence. Interactions among representatives of different nationalities are coming to the forefront in large cities, which, due to their diverse ethnic composition, serve as meeting points for different cultural traditions. In multiethnic Russia, the question of the peaceful coexistence of various ethnic groups has historically been central to domestic policy, providing the foundation for successful state-building.

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Today, similarly to many other cities around the globe, Russia's metropolises are marked by a diverse ethnic composition, with polyethnicity growing due to ongoing migration. A diversified labour market, high living standards and greater social mobility opportunities make large cities attractive to internal and external migrants. Yet, the appeal of major urban agglomerations to migrants leads to the inevitable spatial segregation, manifesting along ethnic, religious and racial lines. This phenomenon is vividly illustrated by the 'ghettoisation' observed in the largest metropolises across Europe and North America.

Although the interaction of various ethnic groups has been recognised for millennia, fewer studies look at the specifics of their coexistence in urban environments than one might expect. Several factors contribute to this issue being ignored.

Firstly, there is no single approach to defining the concepts of 'ethnos' and 'ethnicity'. Constructivist approaches, prevalent in both Western and Russian scholarship, either replace the essence of the ethnos phenomenon with geographical ethnonyms or treat it as a simulacrum.

Secondly, in many countries of the world, censuses do not include questions on ethnic self-identification, with most European nations avoiding it deliberately. Neither Germany, Italy, the UK, nor other major European states keep official records of ethnic composition since such practices are considered intolerant and xenophobic. Moreover, the French Law on Data Processing, Data Files and Individual Liberties of 6 January 1978 explicitly prohibits the collection and processing of information on citizens' race and ethnicity. Most Western European publications on ethnic issues focus on immigrants, categorising them according to their place of origin.

In this context, a publication of note is Aleksandr Kapralov's doctoral thesis dedicated to the patterns of immigrant settlement in Europe's leading urban agglomerations. He examines the factors and models of immigrants' spatial behaviour along with the general consequences of immigration to the Paris, London, Madrid and Rome agglomerations and ensuing socioeconomic problems [1]. But, similarly to many other studies on ethnic issues in European countries [2; 3], this research concentrates on immigrant communities, which do not always align with the ethnic groups within the population.

Thirdly, even in countries where ethnic self-identification is officially recognised, relevant data are only collected during censuses, which are typically taken once every decade. Although the multinational Russian Federation falls into this category of states, its vital and resident registration records, including marriages, births and deaths, have not included nationality entries since the mid-1990s.

These circumstances hinder the study of interethnic interactions, limiting most research in the field to interpreting data obtained through sample surveys.

State of research

Most of the recent international studies on ethnic issues use materials collected by statistical agencies in countries exploring the immigration origin of their nations. The works by Dr. Joe T. Darden of Michigan State University, who examines the spatial segregation of various ethnic and racial groups in urban agglomerations in the US and Canada, are a case in point [4—6].

The contribution by Stephen Matthews, Chad Farrell et al. [7] explores the operation of ethnogeographic methods in urban studies. The use of cartographic and statistical techniques in studying interactions among different racial groups has been discussed by Joanna Pinto-Coelho and Tukufu Zuberi [8], as well as Michael Reibel and Moira Regelson [9]. A comparative analysis of immigrant ethnic enclaves in New York and Los Angeles has been the focus of research by a group of scholars from the University at Albany [10].

As for Russian works on ethnic issues in the US, a notable contribution is the doctoral dissertation by Yulia Kelman, which explores the ethnic and cultural variety of American cities' population [11]. Other studies by Russian authors have examined the assimilation of various ethnogeographic groups within the US [12] and their socio-spatial inequality [13].

The North American approach to studying ethnic diversity has been adopted by other countries pursuing 'soft' immigration policies. For example, an article co-authored by Australian and British scholars examines the settlement patterns of Asians and Muslims in Australia's 11 major cities from the perspective of spatial segregation [14]. Much in line with the American tradition, the authors of the contribution substitute ethnic characteristics with ethnogeographic and denominational ones, interpreting the assimilation of immigrant descendants as a change in their country of origin [15]. Analogous studies on ethnic segregation processes have been conducted in Auckland, New Zealand's largest city [16; 17].

Noteworthy Russian studies on the settlement patterns of various nationalities include works by Andrei Manakov, Aleksandr Orlov and Sergey Sushchy, which view the transformation of the ethnic space of Russia, its regions, and neighbouring countries from a historical perspective [18—21]. Most studies on interactions among different national groups in Russian cities are essentially localised sociological research and thus do not examine spatial patterns of ethnic segregation. Among geographical studies on interethnic contacts in major cities, it is worth mentioning the research conducted by Olga Vendina, Alexander Panin and Vladimir Tikunov into Moscow's social space [22]. Using census data, they consider the ethnic aspects of social segregation, employing, in particular, the ethnic patchiness index.

Most recent works on ethnic issues are sociological, typically relying on an analysis of local surveys and expert interviews [23—25], with authors seldom relying on statistical data, particularly that collected at the local level. A rare exception is Vendina's contribution, which tracks the concentration of selected ethnic groups across Moscow municipalities, based on vital records and a survey

of 3,500 respondents. It monitors the 'embeddedness' of ethnic diasporas in the Moscow landscape at the beginning of the 2000s [26]. Relevant research on the ethnic geography of Russia at regional and federal levels is, however, lacking, as are studies on issues related to interethnic relations in urban environments.

The recent decades of upsurge in migration to Russia's major cities has brought about changes in their ethnosocial structure and settlement patterns. Lately, similar processes taking place in urban agglomerations in Europe and North America have led to the development of segregated ethnic areas, which are often socioeconomically disadvantaged and viewed as negative outcomes of segregation.

The question this study will strive to answer is whether the intra-city isolation of national communities is an inevitable consequence of ongoing migratory and assimilation processes, and to what extent this phenomenon is characteristic of Russian cities. To achieve this, the study will examine the case of St. Petersburg to identify spatial patterns in the settlement of different nationalities residing in the city at the beginning of the 21st century. This research aims to analyse these patterns and determine whether they reveal selectivity in the residential choices of the largest ethnic diasporas in St. Petersburg.

Materials and methods

Unfortunately, as is the case with most Russian research in ethnic geography, the spatial analysis of the study phenomenon is complicated by several factors. Firstly, this is the incompleteness and discrete nature of available statistical information, particularly at the lowest territorial level. As mentioned earlier, data on ethnic composition, based on respondents' self-identification, is collected in Russia only during national censuses. The smallest territorial taxon that can be matched to open-access ethnic composition data is level 1 rural settlements and urban districts. In this context, the hundredfold variation in the municipalities' population size — from a few hundred people to tens of thousands of individuals — is not the sole problem. The historical ephemerality of the existing level 1 municipal entities, which were only established in the early 2000s, prevents the examination of ethnic composition changes over an extended period.

Another important factor complicating the analysis of ethnic composition data for territorial entities is the incompleteness of census information. For instance, during the 2010 census, 3.9 % of Russians did not provide their ethnicity, and this figure rose to 11.6 % in 2021[1]. A similar percentage of Russians not responding to questions about education level, field of employment, place of birth or sources

[1] All-Russian Population Census 2010. Vol. 4: National composition and language proficiency, citizenship, All-Russian Population Census 2010, URL: https://rosstat.gov.ru/free_doc/new_site/perepis2010/croc/perepis_itogi1612.htm (accessed 21.12.2023); Results of the VPN 2020. Vol. 5: National composition and language proficiency, Rosstat, URL: https://rosstat.gov.ru/vpn/2020/Tom5_Nacionalnyj_sostav_i_vladenie_yazykami (accessed 21.12.2023).

of livelihood in 2021 indicates that these people did not participate in the census. In St. Petersburg, this 'census absenteeism' is even more pronounced: 15.8 % of residents did not indicate their nationality in 2021[1].

Currently, no reliable data indicates that the census provided more accurate information for some ethnic groups compared to others. One may assume that migrants are less likely to participate in such nationwide events as censuses, leading to a higher proportion of non-participants than the 'native' Russian population. But one should bear in mind that a significant proportion of labour migrants are citizens of other countries with permanent residence outside Russia, and are not counted in the country's total population by definition. Moreover, immigrants who have obtained Russian citizenship or permanent residence permits generally do not avoid participating in censuses, viewing it as an important step towards intended integration into society. Thus, there is currently no general agreement as to the extent to which members of various ethnic groups in Russia, and specifically in St. Petersburg, participate in censuses. For this study, however, data on the spatial distribution of national groups holds greater value than their overall numbers. Therefore, it can be assumed that the completeness of census data for a particular ethnic group does not affect their spatial distribution within the city.

Since its foundation in the 18th century, St. Petersburg has been a multinational city with the sheer prevalence of Russians. Despite the influx of migrants, including those from outside the country, the proportion of Russians in the city's population has not diminished but, on the contrary, slightly increased. At the same time, both the number and proportion of major ethnic minorities in St. Petersburg have considerably changed during the post-Soviet period (see Table 1).

Table 1

Dynamics of the number and proportion of the most numerous ethnic groups of the population of St. Petersburg (1897—2021)

Ethnic group	1897	1926	1939	1959	1970	1979	1989	2002	2010	2021
	Population, thousand people									
Total	1264.9	1609.8	3191.3	3321.2	3949.5	4568.5	4990.7	4661.2	4879.6	5601.9
including those who indicated their nationality, of which:	1264.8	1609.8	3190.6	3321.2	3947.6	4568.5	4986.9	4293.2	4226.7	4717.2
Russians	1094.0	1386.9	2776.0	2951.3	3514.3	4097.6	4448.9	3949.6	3908.8	4275.1
Ukrainians	5.2	10.8	54.7	68.3	97.1	117.4	151.0	87.1	64.4	29.4
Belarusians	2.9	14.6	32.4	47.0	63.8	81.6	93.6	54.5	38.1	15.5
Tatars	4.9	9.8	31.5	27.2	32.9	39.4	44.0	35.6	30.9	20.3
Jews	16.9	84.5	201.5	168.6	162.5	142.7	106.1	36.6	24.1	9.2
Moldovans	0.1	0.2	0.6	1.0	2.5	2.9	5.4	3.4	7.2	2.9
Georgians	0.2	0.6	1.6	1.9	3.8	4.4	7.8	10.1	8.3	6.5
Armenians	0.8	1.7	4.6	4.9	6.6	8.0	12.1	19.2	20.0	14.7
Azerbaijanis	0.1	0.1	0.4	0.9	1.6	3.2	11.8	16.6	17.7	16.4

[1] Results of the All-Russian Population Census 2020. St. Petersburg. Vol. 5: National composition and language proficiency St. Petersburg, Petrostat, URL: https://78.rosstat.gov.ru/folder/192787 (accessed 21.12.2023).

The end of Table 1

Ethnic group	1897	1926	1939	1959	1970	1979	1989	2002	2010	2021
	Population, thousand people									
Total	1264.9	1609.8	3191.3	3321.2	3949.5	4568.5	4990.7	4661.2	4879.6	5601.9
Uzbeks	—	0.1	0.2	—	1.7	1.9	7.9	3.0	20.3	12.2
Tajiks	—	0.0	0.1	—	0.4	0.5	1.9	2.4	12.1	9.6
Share of the city's population, %										
Total	100	100	100	100	100	100	100	100	100	100
including those who indicated their nationality, of which:	100	100	100	100	100	100	99.9	92.1	86.6	84.2
Russians	86.5	86.2	87.0	88.9	89.0	89.7	89.2	92.0	92.5	90.6
Ukrainians	0.4	0.7	1.7	2.1	2.5	2.6	3.0	2.0	1.5	0.6
Belarusians	0.2	0.9	1.0	1.4	1.6	1.8	1.9	1.3	0.9	0.3
Tatars	0.4	0.6	1.0	0.8	0.8	0.9	0.9	0.8	0.7	0.4
Jews	1.3	5.3	6.3	5.1	4.1	3.1	2.1	0.9	0.6	0.2
Moldovans	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.1
Georgians	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1
Armenians	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.5	0.5	0.3
Azerbaijanis	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.4	0.4	0.4
Uzbeks	—	0.0	0.0	—	0.0	0.0	0.2	0.1	0.5	0.3
Tajiks	—	0.0	0.0	—	0.0	0.0	0.0	0.1	0.3	0.2

Source: compiled on the basis of data from Demoscope1 and Rosstat[2].

[1] The first general population census of the Russian Empire in 1897. Distribution of the population by native language and counties of 50 provinces of European Russia, Demoscope, URL: https://www.demoscope.ru/weekly/ssp/rus_lan_97_uezd.php?reg=1293 (accessed 21.12.2023) ; All-Union Population Census of 1926. National composition of the population by regions of the RSFSR, Demoscope, URL: https://www.demoscope.ru/weekly/ssp/rus_nac_26.php?reg=66 (accessed 21.12.2023) ; All-Union Population Census of 1939. National composition of the population by regions of Russia, Demoscope, URL: https://www.demoscope.ru/weekly/ssp/rus_nac_39.php?reg=36 (accessed 21.12.2023) ; All-Union Population Census of 1959. National composition of the population by regions of Russia, Demoscope, URL: https://www.demoscope.ru/weekly/ssp/rus_nac_59.php?reg=40 (accessed 21.12.2023) ; All-Union Population Census of 1970. National composition of the population by regions of Russia, Demoscope, URL: https://www.demoscope.ru/weekly/ssp/rus_nac_70.php?reg=9 (accessed 21.12.2023) ; All-Union Population Census of 1979. National composition of the population by regions of Russia, Demoscope, URL: https://www.demoscope.ru/weekly/ssp/rus_nac_79.php?reg=9 (accessed 21.12.2023) ; All-Union Population Census of 1989. National composition of the population by regions of Russia, Demoscope, URL: https://www.demoscope.ru/weekly/ssp/rus_nac_89.php?reg=8 (accessed 21.12.2023) ; All-Russian Population Census of 2002. National composition of the population by regions of Russia, Demoscope, URL: https://www.demoscope.ru/weekly/ssp/rus_nac_02.php?reg=29 (accessed 21.12.2023) ; All-Russian Population Census of 2010. Population by nationality, gender and subjects of the Russian Federation, Demoscope, URL: https://www.demoscope.ru/weekly/ssp/rus_etn_10.php?reg=30 (accessed 21.12.2023).

[2] Results of the All-Russian Population Census 2020. St. Petersburg. Vol. 5: National composition and language proficiency St. Petersburg, Petrostat, URL: https://78.rosstat.gov.ru/folder/192787 (accessed 21.12.2023).

Let us now turn to the spatial features of national minority settlement in St. Petersburg. The basic unit considered in this study is a municipality. Out of the city's 111 administrative units, three — the villages of Serovo, Ushkovo and Smolchyakovo, all located in the Kurortny district — have populations of fewer than 1,000; they were, therefore, excluded from the examination.

Currently, alongside Russians, St. Petersburg's largest ethnic groups include Ukrainians, Tatars, Azerbaijanis, Belarusians, Armenians, Uzbeks, Tajiks, Jews and Georgians. This study will examine the spatial settlement patterns of these nationalities. Additionally, it will address the settlement patterns of the Moldovan diaspora, the tenth-largest ethnic community in the city according to the 2010 census.

The ethnic concentration coefficient (Ecc) will be used to assess the territorial heterogeneity of settlement for a given nationality, as it has been done in earlier works [27]. This coefficient is calculated as a ratio between a given ethnicity in the population of an administrative unit and the share of this ethnicity in the city's total population:

$$Ecc_i = (P_i/N_i)/(P/N),$$

where P_i is the number of the study nationality in the i^{th} municipality; N_i is the number of all residents in the i^{th} municipality who have reported their nationality; P is the total number of members of the study nationality in St. Petersburg; N is the number of the city's residents who have reported their nationality.

When Ecc = 1, the proportion of the ethnic group in the given municipality equals the city average. Ecc = 0 means that the ethnic group does not reside in the area. A value greater than 1 signifies that the concentration of the ethnic group in the territory exceeds the city average by a factor equal to the coefficient value.

Given the possibility of random ethnic settlement combinations, Ecc ranging from 0.5 to 2.0 indicates the absence of territorial settlement preferences among the ethnic group. Values outside this range — more than twice the average concentration across the city — suggest selectivity in the choice of residence. Based on this assumption, the study will examine changes in the concentration of the largest ethnic diasporas in St. Petersburg and how their settlement patterns have shifted over the last intercensal period, from 2010 to 2021.

Results and discussion

Ukrainians. Since the late 1930s, Ukrainians have been the third-largest ethnic group in St. Petersburg, surpassed only by Russians and Jews. By 1989, the number of the Ukrainian diaspora had reached its peak at 151,000 people; this ethnic group became the city's most populous national minority, comprising 3.0 % of the total population. As was the case with most ethnic groups in Russia's 'northern capital,' the growth of the Ukrainian diaspora was driven by migratory influx occurring at a rate exceeding that of assimilation. Yet, in the post-Soviet period,

the number and proportion of Ukrainian residents of St. Petersburg started to diminish, with the 2021 census reporting fewer than 30,000 Ukrainians or 0.6 % of the Petersburgians. Out of the 108 study municipalities, only seven have a proportion of Ukrainians twice or more than the city average (Table 2), and only in the village of Shushary, the relative amount of this ethnic group was greater than the St. Petersburg average by a factor of more than two. The fact that the standard deviation of the ethnic concentration coefficient (Ecc) for Ukrainians across the city's municipalities in 2021 (0.39) was the lowest among similar measures for the study ethnic groups (Table 2) clearly points to the lack of selectivity in Ukrainian settlement across St. Petersburg.

Table 2

Concentration of ethnic groups' settlement on the territory of St. Petersburg, 2010—2021

Ethnic group	Year	Number of St. Petersburg municipalities with a level of ethnicity concentration relative to the city average (St. Petersburg average = 1)					Standard deviation of the ethnic concentration coefficient (ECC)
		Less than 0.2	0.2—0.5	0.5—2.0	2.0—5.0	Over 5.0	
Ukrainians	2010	0	2	103	3	0	0.42
	2021	1	5	101	1	0	0.39
Belarusians	2010	0	2	105	1	0	0.36
	2021	0	4	104	0	0	0.48
Tatars	2010	0	1	104	3	0	0.33
	2021	0	2	103	3	0	0.43
Jews	2010	10	19	70	9	0	1.74
	2021	6	14	75	12	1	1.24
Uzbeks	2010	6	26	61	9	6	3.01
	2021	2	14	88	4	0	0.74
Tajiks	2010	12	35	49	7	5	2.72
	2021	6	15	81	5	1	1.13
Armenians	2010	0	4	97	6	1	0.75
	2021	1	3	100	1	3	1.19
Azerbaijanis	2010	3	10	92	3	0	0.98
	2021	5	21	75	7	0	1.35
Georgians	2010	2	15	77	14	0	0.64
	2021	8	11	78	11	0	1.45
Moldovans	2010	2	22	70	9	5	1.39
	2021	7	9	87	4	1	1.31

Source: calculated based on Rosstat data.[1]

[1] Results of the All-Russian Population Census 2010. National composition and language proficiency, citizenship of the population of St. Petersburg, Part 1, Petrostat, St. Petersburg, 2013; Results of the All-Russian Population Census 2020. St. Petersburg. Vol. 5: National composition and language proficiency, St. Petersburg, Petrostat, URL: https://78.rosstat.gov.ru/folder/192787 (accessed 21.12.2023).

Belarusians. The history of the city's Belarusian diaspora is very similar to that of the Ukrainian one: a rapid growth during the Soviet period followed by an even faster decline in the post-Soviet era. Between 1989 and 2021, the number of Belarusians in St. Petersburg reduced sixfold, compared to a fivefold decrease for Ukrainians. Like Ukrainians, Belarusians settlement is distributed very evenly: only in four municipalities, the ethnic concentration coefficient (Ecc) falls outside the central range ($0.5 \leqslant Ecc \leqslant 2$), with values being less than 0.5 in all of them. The degree of spatial concentration of Belarusians in the northern capital changed only slightly during the last intercensal period, with the standard deviation of Ecc values increasing from 0.36 in 2010 to 0.48 in 2021.

Tatars. The Tatar community in St. Petersburg is considered 'long-established,' with its presence dating back to the beginning of the 18th century — the early period of the city's development. For the first two centuries, it was a small and insular diaspora due to its denominational distinctiveness, as most of the Petersburgian Tatars were Muslim. During this period, the Petrograd Side district was the main residential area for the Tatars. Many of them were employed in the carpet trade, leather and bread sales, inexpensive food services, and transport, working as coachmen and stable hands. After 1917, the community rapidly integrated into the broader city society, while an influx of fellow Tatars from the Volga regions continued. Throughout most of the Soviet period, Tatars comprised one of the largest ethnic groups in St. Petersburg, surpassed only by Russians, Ukrainians, Belarusians and Jews. Although the Tatar population gradually declined from 44,000 in 1989 to 20,300 in 2021, it is the second-largest ethnic minority in the city to this day, second only to Ukrainians. Similarly to Ukrainians and Belarusians, Tatars are distributed evenly across St. Petersburg: only in five out of the 108 municipalities, their ethnic concentration coefficient is twice the city average. Over the last intercensal period, the standard deviation of Ecc for Tatars has slightly increased, from 0.33 to 0.43, remaining relatively small.

With few exceptions, these ethnic groups have small populations in areas where the Ecc deviates significantly from 1. Typically, these are industrial or suburban municipalities on the outskirts of St. Petersburg, such as Petro-Slavyanka, Saperny, Ust-Izhora (Kolpino district), Levashovo (Vyborg district), Solnechnoe, Komarovo (Kurortny district), Lisiy Nos (Primorsky district) and Tyarlevo (Pushkin district). Overall, Ecc deviation from the central range tends to grow as the population of the municipality decreases.

Jews. Although the Jewish community emerged in St. Petersburg in the late 18th century, its numbers in the capital did not surpass a few hundred until the mid-19th century, as Jewish residence in the Russian Empire was largely restrict-

ed to the so-called Pale of Settlement. Only after Alexander II's reforms did the Jewish population in St. Petersburg start to increase: there were 6,600 Jews in 1869, 14,200 in 1881 and 16,900 in 1897. An even faster growth in the Jewish community occurred after 1917, when the influx of settlers from today's Belarus and Ukraine replaced the noble and bureaucratic population of central Petrograd, which had diminished amid the revolutionary repressions. For most of the 20th century, Jews were the largest ethnic group in Leningrad after Russians. The Jewish community reached its peak before the Great Patriotic War, with 202,000 individuals, or 6.3 % of Leningrad's population, according to the 1939 census. In the post-war period, both the number and proportion of Jews declined, with the rate of decrease accelerating from the late 1980s onwards. Between 1989 and 2021, the city's Jewish population decreased almost twelvefold, and today only 9,200 individuals of this ethnicity reside in St. Petersburg. The age structure of the city's Jewish community is skewed: over 42 % of this ethnic group are over 65 years old, while only 5.6 % are children aged from 0 to 14. The median age of St. Petersburg 's Jewish community is the highest of any ethnic group in the city, exceeding 60 years1.

Unlike that of Eastern Slavic ethnic groups and Tatars, the pattern of Jewish settlement in St. Petersburg shows a marked spatial heterogeneity: in 13 municipalities, the Ecc is over twice the average concentration, with the value reaching 8.4 in the village of Solnechnoe (Kurortny district). Just as in previous historical periods, a higher proportion of the Jewish population is recorded in the city's central municipalities — the Admiralteysky, Petrogradsky and Central districts (see Fig. 1). In 2021, the Ecc for Jews was below 0.5 in 20 municipalities, including six where it did not exceed 0.2. The lowest concentration of Jews in the overall population is found in municipalities located in the city's peripheral southern parts — Kolpino, Krasnoselsky, Petrodvorets, Pushkin and Kronstadt. The standard deviation of the Ecc for Jews across St. Petersburg 's municipalities is considerably higher than that for the ethnic groups discussed above, standing at 1.24 in 2021. Compared to 2010, there has been a slight decrease in the level of spatial unevenness in the settlement of the city's Jewish community. The main area of Jewish settlement in St. Petersburg (Leningrad) appears to have taken shape before the mass housing construction that took place between the 1960s and 1980s. This circumstance explains the higher concentration of the Jewish population in the central districts of the city, compared to the residential areas of the late Soviet period.

[1] According to the 2021 census, the share of persons 65 years and older in the population of St. Petersburg was 15.1 %, and in the age group 0—14 years — 11.3 %, the median age of the city's population is 41.8 years.

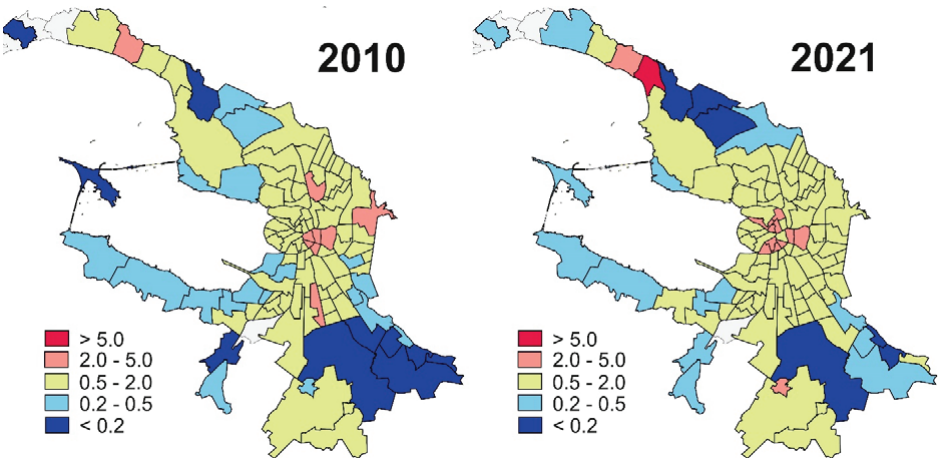

Fig. 1. Coefficient of ethnic concentration (ECC)
of Jews in the municipalities of St. Petersburg in 2010 and 2021

Source: compiled based on Rosstat data.[1]

Georgians. Historically, the city's Georgian community was not populous, only gaining prominence between the 1960s and 1980s. The highest number of Georgians in the northern capital, 10,100 people, was recorded in the 2002 census. This peak was a result of the migratory influx of the 1990s driven by the economic crisis in Georgia and the armed conflicts in Abkhazia and Southern Ossetia. Similar to St. Petersburg's Jewish community, the Georgians' settlement pattern shows a high degree of unevenness. In 30 out of the 108 study municipalities, the Ecc for Georgians falls outside the central range; in 11, the value is over twice the city average (Fig. 2). All municipalities with a high level of ethnic concentration of Georgians are located in the historical centre of St. Petersburg, largely mirroring the settlement pattern of the city's Jewish community. In terms of negative selectivity, the settlement patterns of the Georgian and Jewish communities exhibit less overlap: among 19 municipalities with minimal Ecc values for Georgians, only nine show low Ecc values for Jews as well. The spatial structure of the Georgian community's settlement in the city is exceptionally stable: the correlation coefficient between the Ecc values for Georgians in St. Petersburg municipalities in 2010 and 2021 was 0.65, despite a 22 % decrease in this ethnic group between the censuses.

[1] Results of the All-Russian Population Census 2010. National composition and language proficiency, citizenship of the population of St. Petersburg, Part 1, Petrostat, St. Petersburg, 2013 ; Results of the All-Russian Population Census 2020. St. Petersburg. Vol. 5: National composition and language proficiency, St. Petersburg, Petrostat, URL: https://78.rosstat.gov.ru/folder/192787 (accessed 21.12.2023).

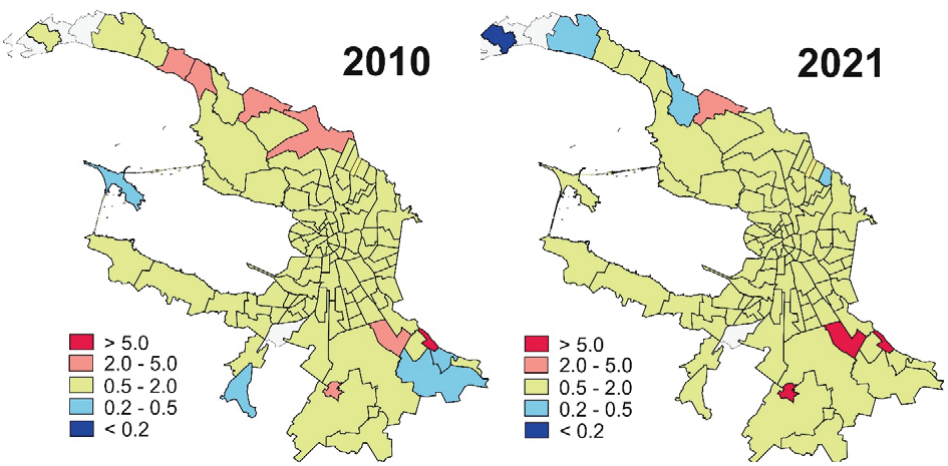

Fig. 2.Coefficient of ethnic concentration (ECC)
of Georgians in the municipalities of St. Petersburg
in 2010 and 2021

Source: compiled based on Rosstat data.[1]

Armenians. The Armenian community is the most established and, until recently, the largest among the Caucasian diasporas in St. Petersburg. In 2010, the number of Armenians permanently residing in the city reached its historical peak of 20,000 individuals, although it has since decreased to 14,700. Unlike the Georgians, the Armenians are distributed fairly evenly across the city: only in eight peripheral municipalities does the concentration of Armenians fall outside the central range. In four less populous municipalities, the Ecc for this ethnic group exceeds 2, whereas in four other municipalities, it is below 0.5. Remarkably, all the city's municipalities where both positive and negative selectivity in Armenian settlement are observed are situated on the outskirts. Among all the prominent ethnic groups in St. Petersburg, the spatial distribution of Armenians has experienced the fewest changes over the past decade, with the Ecc across the city's municipalities remaining unchanged at 0.88 in 2010 and 2021 (see Fig. 3).

[1] Results of the All-Russian Population Census 2010. National composition and language proficiency, citizenship of the population of St. Petersburg, Part 1, Petrostat, St. Petersburg, 2013 ; Results of the All-Russian Population Census 2020. St. Petersburg. Vol. 5: National composition and language proficiency, St. Petersburg, Petrostat, URL: https://78.rosstat.gov.ru/folder/192787 (accessed 21.12.2023).

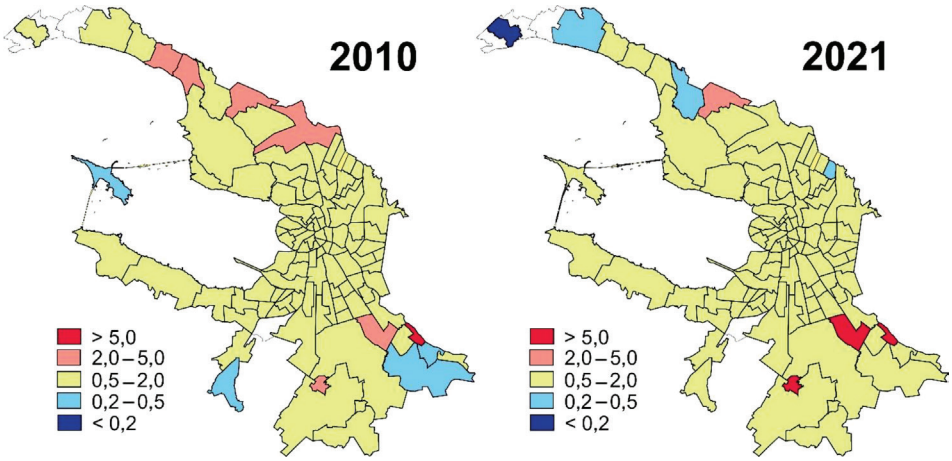

Fig. 3. Coefficient of ethnic concentration (ECC)
of Armenians in the municipalities of St. Petersburg in 2010 and 2021

Source: compiled based on Rosstat data.[1]

Azerbaijanis. Until the 1980s, the Azerbaijani community in St. Petersburg was small, only starting to grow towards the end of the Soviet era. Over the past 20 years, the number of this ethnic group has remained virtually unchanged, ranging from 16,000 to 18,000 individuals. Today, Azerbaijanis are distributed very unevenly across St. Petersburg: in one-third of the city's municipalities, the Ecc for this ethnic group lies beyond the central range. Positive selectivity (Ecc ⩾ 2) in Azerbaijani settlement is observed in seven municipalities, while negative selectivity (Ecc ⩽ 0.5) is noted in 26 municipalities. Areas with a high concentration of the Azerbaijani diaspora are mainly found in late Soviet-built residential districts in the Nevsky and Frunzensky districts and at the interface of the Kirovsky and Admiralteysky districts (the Narvsky and Ekateringofsky municipalities, respectively). The geography of negative selectivity in Azerbaijani settlement in St. Petersburg is more extensive. The Ecc values below 0.5 are observed in most municipalities of the Kurortny, Primorsky, and Petrodvortsovy districts, as well as in Kronstadt. Compared to 2010, the settlement of Azerbaijanis across the city has become more polarised, which distinguishes this diaspora from most of the other study ethnic groups (Fig. 4).

[1] Results of the All-Russian Population Census 2010. National composition and language proficiency, citizenship of the population of St. Petersburg, Part 1, Petrostat, St. Petersburg, 2013 ; Results of the All-Russian Population Census 2020. St. Petersburg. Vol. 5: National composition and language proficiency, St. Petersburg, Petrostat, URL: https://78.rosstat.gov.ru/folder/192787 (accessed 21.12.2023).

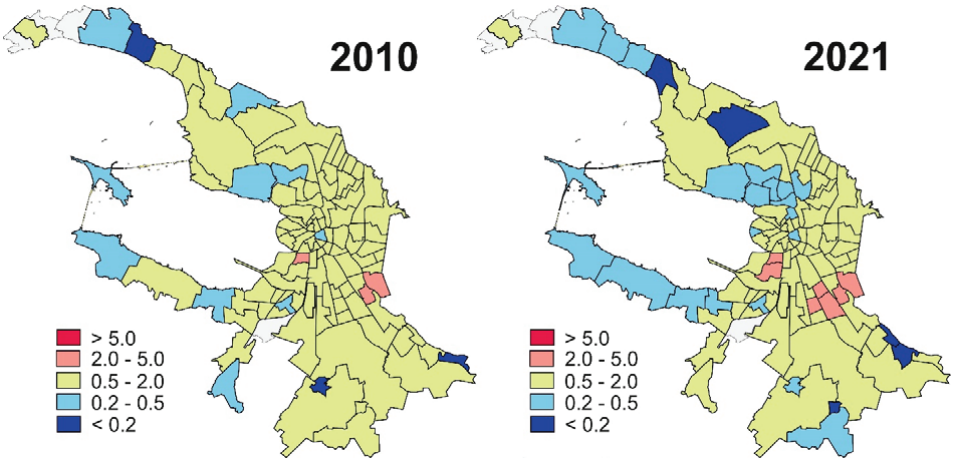

Fig. 4. Coefficient of ethnic concentration (ECC)
of Azerbaijanis in the municipalities of St. Petersburg in 2010 and 2021

Source: compiled based on Rosstat data.[1]

Uzbeks. The most significant increase in St. Petersburg's Uzbek diaspora occurred during the first decade of the 2000s when a massive wave of foreign labour headed for Russia's major cities to support the rapid economic growth. However, hundreds of thousands of labour migrants from Uzbekistan and other former Soviet republics are not counted in the census as permanent residents[2], unlike the foreigners who have obtained residency permits[3]. This explains why, despite tens of thousands of guest workers from Uzbekistan residing in St. Petersburg, the official total number of Uzbeks in 2021 was only 12,200, including both Russian citizens and foreign nationals with residency permits[4]. Yet, compared to 2010, the number of Uzbeks permanently residing in St. Petersburg has decreased by 40 %

[1] Results of the All-Russian Population Census 2010. National composition and language proficiency, citizenship of the population of St. Petersburg, Part 1, Petrostat, St. Petersburg, 2013 ; Results of the All-Russian Population Census 2020. St. Petersburg. Vol. 5: National composition and language proficiency, St. Petersburg, Petrostat, URL: https://78.rosstat.gov.ru/folder/192787 (accessed 21.12.2023).

[2] Under Russian law, foreign labour migrants are considered to be persons temporarily staying on the territory of the Russian Federation and are not counted in the census as permanent residents.

[3] In addition to the indefinitely issued residence permit, foreigners can initially obtain a temporary residence permit for a period of 3 years (i.e. a temporary residence permit). Such foreigners are also counted by the census as permanent population.

[4] The 2021 census recorded 3.1 thousand citizens of Uzbekistan with residence permits in St. Petersburg.

(see Table 1), and their distribution across the city has become more even. While at the beginning of the last decade, the Ecc for Uzbeks fell outside the central range in nearly half (47) of all the city's municipalities, by 2021 this number had further decreased to 20 (see Table 2). Today, the highest Ecc values for Uzbeks in St. Petersburg are observed in four municipalities across different parts of the city, with only one municipality, Narodny in the Nevsky district, exhibiting a value exceeding 3. Municipalities with low concentrations of Uzbeks are found throughout the city, with no distinct spatial pattern. This sharply contrasts with the situation in 2010, when there was a pronounced concentration of the Uzbek population in the north-western districts of St. Petersburg, and a negative selectivity regarding the southern parts of the city was noticeable (see Fig. 5). The decrease in the concentration of Uzbeks, particularly in the north-western part of the city, seems to be not so much the result of a reduction in the overall number of Central Asian guest workers caused by the pandemic-related migration restrictions of 2020 and 2021, as the consequence of the distinctly localised construction boom of the early 2000s shifting to the suburban areas of the Leningrad region beyond the city's administrative boundaries.

It is worth noting that, during the last intercensal period, from 2010 to 2021, the demographic profile of the city's Uzbek diaspora changed dramatically. In 2010, the proportion of children under 15 among the Uzbeks in St. Petersburg was a mere 6.6 %, and of those over 65 years old only 1.1 %. By 2021, the number of these age groups had increased to 13.9 % and 5.5 %, respectively. The share of women in the city's Uzbek diaspora grew from 26 % to 40 % during this period. Of course, these figures differ significantly from the St. Petersburg averages, where children under 15 comprise 13.1 % of the population, those over 65, 17.1 %, and women, 55 %. It is undeniable that alongside spatial deconcentration, there is a trend towards the 'normalisation' of age and sex distribution within the city's Uzbek community.

Tajiks. The dynamics of the size and spatial distribution of the Tajik diaspora in St. Petersburg largely mirror those of the Uzbek community. Like the Uzbeks, the Tajiks became a prominent ethnic group in the northern capital only in the early 2000s. Again, as with the Uzbek population, the number of the city's permanent residents of Tajik origin is significantly smaller than the number of temporary labour migrants representing this nationality. The COVID migration restrictions in place in 2020 and 2021 led to a reduction in the number of all categories of foreign nationals living in the city. In 2010, the census recorded 69,600 foreign nationals, including 15,200 from Uzbekistan and 8,300 from Tajikistan. By October 2021, the number of foreigners living permanently in the city had decreased to 25,500, with 3,100 originating from Uzbekistan and 1,800 from Tajikistan. St. Petersburg's census-registered Tajik diaspora declined as a result by 20 % — from 12,100 to 9,600 between 2010 and 2021.

Just as with the Uzbek community, this has led to a partial 'normalisation' of the Tajik diaspora's age and sex structure, which previously had a notably low proportion of children and older persons compared to the city's overall population. The number of municipalities where the Ecc for the Tajiks falls outside the central range ($2 \geqslant Ecc \geqslant 0.5$) has more than halved: from 59 in 2010 to 27 (see Fig. 6). Today, more than twice the average concentration of the Tajik population is observed in six of the city's municipalities, with only one — Saperny in the Kolpinsky district — surpassing the average by a factor of five. Areas with high concentrations of the Tajik population do not form a unified settlement area, being spread across different districts. Interestingly, an Ecc for the Tajiks of above 2 is observed in two out of five municipalities (Semyonovsky and Sennoy) in the historical Admiralteysky district. In contrast, the historical Petrogradsky and the coastal Kurortny districts, the latter bordering on the Gulf of Finland, have the lowest concentration of the Tajiks.

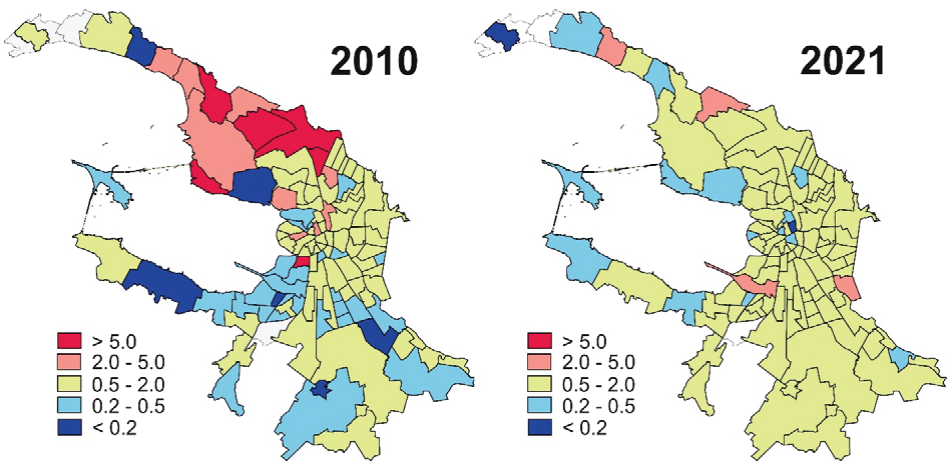

Fig. 5. Coefficient of ethnic concentration (ECC)
of Uzbeks in the municipalities of St. Petersburg in 2010 and 2021

Source: compiled based on Rosstat data.[1]

Since 2010, the number of municipalities with similar levels of ethnic concentration of the Uzbeks and the Tajiks has decreased in the city. While 15 years ago, the correlation coefficient between Uzbek and Tajik settlements across St. Petersburg was 0.89, in 2021, it did not exceed 0.44. A spatial analysis of settlement patterns and the age and sex distribution indicates that the Tajik diaspora is integrated into the city's society to a lesser degree than the Uzbek community.

[1] Results of the All-Russian Population Census 2010. National composition and language proficiency, citizenship of the population of St. Petersburg, Part 1, Petrostat, St. Petersburg, 2013 ; Results of the All-Russian Population Census 2020. St. Petersburg. Vol. 5: National composition and language proficiency, St. Petersburg, Petrostat, URL: https://78.rosstat.gov.ru/folder/192787 (accessed 21.12.2023).

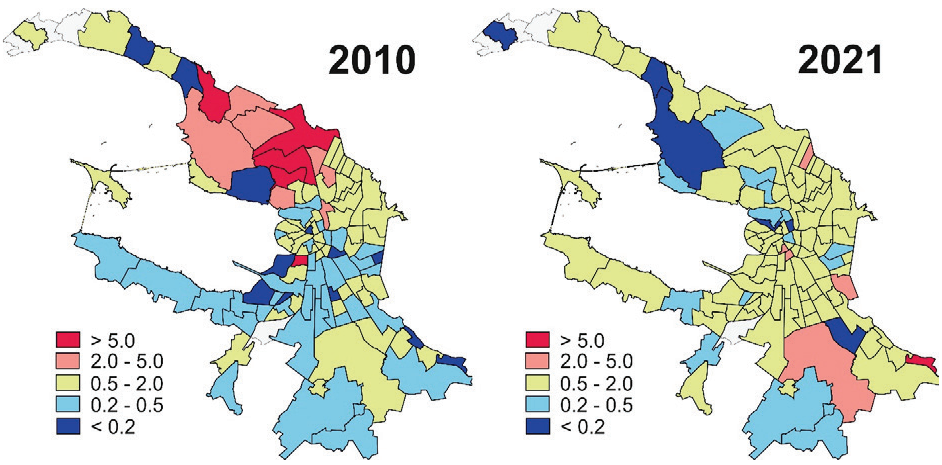

Fig. 6. Coefficient of ethnic concentration (ECC)
of Tajiks in the municipalities of St. Petersburg in 2010 and 2021

Source: compiled based on Rosstat data.[1]

Moldovans. Today, St. Petersburg's Moldovan community is the smallest among the ethnic groups examined in this study. It emerged between the 1950s and 1970s when migration within the USSR led to significant population mixing, particularly in metropolises. However, the most rapid growth in the city's Moldovan community occurred in the early 2000s, during the peak of labour migration from Moldova to Russia. The 2010 census recorded 7,200 members of this ethnic group living in the northern capital, most of whom were Moldovan citizens. The reduction in the number of foreign nationals in Russia during the COVID-19 pandemic led to a decrease in the Moldovan community to 500 individuals in 2021, down from 4,500 in 2010, with the total number of the diaspora members falling to 2,900. Today, the settlement pattern of Moldovans in St. Petersburg is characterised by high spatial unevenness, which, although reduced compared to 2010, remains among the highest of all the study nationalities. For example, in 21 of the city's municipalities, the Ecc for the Moldovans lies beyond the central range (compared to 38 municipalities in 2010), with a standard deviation of 1.31, only surpassed by the Ecc for the Georgians and the Azerbaijanis.

A comparison of the spatial concentration of national diaspora members in St. Petersburg with the local municipalities' social well-being rankings [28]

[1] Results of the All-Russian Population Census 2010. National composition and language proficiency, citizenship of the population of St. Petersburg, Part 1, Petrostat, St. Petersburg, 2013; Results of the All-Russian Population Census 2020. St. Petersburg. Vol. 5: National composition and language proficiency, St. Petersburg, Petrostat, URL: https://78.rosstat.gov.ru/folder/192787 (accessed 21.12.2023).

shows no clear correlation between these indicators. The correlation analysis suggests that for most of the ethnic groups considered, the relationship between the Ecc and measures such as housing prices, paid property tax, education level and the proportion of entrepreneurs and rentiers is insignificant, not exceeding 0.3 (see Table 3). Only the Jewish and, to some extent, Georgian communities in St. Petersburg show a noticeable correlation between their percentage in municipal populations and social well-being indicators.

Currently, the city's Uzbek and Tajik diasporas, formed primarily by post-Soviet migration, show no signs of social segregation at the spatial level: in most cases, both high and low Ecc values for these communities are observed outside either the affluent or most impoverished city areas. This phenomenon may be explained by this study examining spatial distribution at the level of municipal districts, whereas the city's municipalities are internally highly polarised, with wealth and poverty coexisting within the same residential quarters. This situation is characteristic of the city's central districts, such as Admiralteysky, Petrogradsky and Central, where 20 to 30 % of the households still live in communal flats.1 In addition, a relatively small number of Uzbeks and Tajiks recorded in the 2021 census indicates that our calculations pertain to the most integrated and socially advantaged segments of these ethnic communities.

Table 3

Correlation coefficients of social well-being indicators and ethnic concentration coefficients (ECC) by municipalities of St. Petersburg

Indicator	Ethnic concentration coefficient (ECC), 2021									
	Ukrainians	Belarusians	Tatars	Jews	Uzbeks	Tajiks	Armenians	Azerbaijanis	Georgians	Moldovans
Housing cost, April 2020, CIAN, m^2	–0.10	–0.27	–0.04	0.59	–0.15	–0.24	–0.02	–0.05	0.56	–0.03
Share of persons with academic degrees (among residents over 25 years old), 2021, %	0.02	–0.23	0.04	0.42	–0.08	–0.13	0.09	–0.19	0.24	0.29

[1] Results of the All-Russian Population Census 2020. St. Petersburg. Vol. 8: Number and Composition of Households, St. Petersburg, Petrostat, URL: https://78.rosstat.gov.ru/folder/192787 (accessed 24.12.2023).

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Indicator	Ethnic concentration coefficient (ECC), 2021									
	Ukrainians	Belarusians	Tatars	Jews	Uzbeks	Tajiks	Armenians	Azerbaijanis	Georgians	Moldovans
Share of persons with main income from entrepreneurship (among residents over 20 years old), 2021, %	0.05	–0.18	0.18	0.44	0.00	–0.06	0.52	–0.14	0.15	0.70
Average amount of personal property tax paid, in 2016	–0.12	–0.04	0.36	0.56	–0.23	–0.26	0.00	–0.15	0.31	0.00
Index of social well-being of the territory, 2020	–0.08	–0.30	0.19	0.55	–0.16	–0.28	0.03	–0.27	0.47	0.02

Source: calculated based on Rosstat data[1] and [28].

With few exceptions, the other diasporas considered in this study also exhibit a low correlation between spatial concentration and the social well-being of the corresponding residential areas. The exceptions include the strong correlation between the Ecc for the Moldovans and the Armenians and the proportion of the municipality's residents deriving their primary income from entrepreneurial activities, dividends from financial investments, patents, copyrights and interest.[2] This specific case is explained by the appreciable proportion of individual entrepreneurs among the city's Armenian and Moldovan communities. According to the 2021 census data, in the Armenian community, the proportion of individuals earning from entrepreneurial activities was four times the city average.

When examining the stability of the spatial concentration of national diasporas in St. Petersburg from 2010 to 2021, it is important to emphasise that only some ethnic groups show consistent Ecc values. For example, the correlation

[1] Results of the All-Russian Population Census 2010. National composition and language proficiency, citizenship of the population of St. Petersburg, Part 1, Petrostat, St. Petersburg, 2013; Results of the All-Russian Population Census 2020. St. Petersburg. Vol. 5: National composition and language proficiency, St. Petersburg, Petrostat, URL: https://78.rosstat.gov.ru/folder/192787 (accessed 21.12.2023).

[2] Results of the All-Russian Population Census 2020. St. Petersburg. Vol. 7: Sources of livelihood, St. Petersburg, Petrostat, URL: https://78.rosstat.gov.ru/folder/192787 (accessed 24.12.2023).

coefficient between the 2010 and 2021 Ecc values across the city's municipalities was 0.59 for Azerbaijanis, 0.65 for Georgians and 0.88 for Armenians (Table 4). Meanwhile, the areas of maximum and minimum concentration for the Uzbek and Tajik diasporas in the city radically changed over the last intercensal period.

Table 4

Correlation of ethnic concentration coefficients (ECC) of some ethnic groups by municipalities of St. Petersburg, 2021

Ethnic group	Ukrainians	Belarusians	Tatars	Jews	Uzbeks	Tajiks	Armenians	Azerbaijanis	Georgians	Moldovans	Correlation coefficient of ethnic group settlement in 2010 and 2021
Ukrainians		0.57	–0.12	–0.21	0.11	0.32	–0.12	0.16	0.20	0.27	0.32
Belarusians			–0.07	–0.35	0.00	0.30	–0.21	0.05	–0.16	0.03	0.27
Tatars				0.55	0.05	0.15	0.13	–0.06	0.09	0.06	0.43
Jews					–0.07	–0.11	0.14	–0.04	0.40	0.23	0.38
Uzbeks						0.44	0.15	0.30	0.08	0.10	0.03
Tajiks							0.00	0.25	0.02	0.14	0.01
Armenians								–0.10	–0.05	0.47	0.88
Azerbaijanis									0.22	0.07	0.59
Georgians										–0.07	0.65
Moldovans											0.43

Source: calculated based on Rosstat data.[1]

Conclusions

The following conclusions can be drawn from the present study:

1. Despite the continuing predominance of the Russian ethnic group, St. Petersburg's population has seen considerable changes in its ethnic composition over recent decades. The number of Moldovans, Tatars and some other Volga peoples diminished by two to four times, Ukrainians five times, Belarusians six

[1] Results of the All-Russian Population Census 2010. National composition and language proficiency, citizenship of the population of St. Petersburg, Part 1, Petrostat, St. Petersburg, 2013 ; Results of the All-Russian Population Census 2020. St. Petersburg. Vol. 5: National composition and language proficiency, St. Petersburg, Petrostat, URL: https://78.rosstat.gov.ru/folder/192787 (accessed 21.12.2023).

times and Jews 11 times from 1989 to 2021.1 In contrast, the representation of various Caucasian and Central Asian peoples rose by 1.5 to 2 times, with the number of Tajiks increasing fivefold. Although Ekkel's ethnic patchiness index for St. Petersburg slightly declined between 1989 and 2021 — from 0.202 to 0.179 — the cultural and historical distance between the city's dominant ethnic group and its largest national diasporas has markedly grown.

2. The ethnic concentration of St. Petersburg's most populous national communities remains limited in scope, and it seems premature to speak of the formation of ethnic districts within the city. While at the beginning of the last decade, the large-scale migration from Uzbekistan, Tajikistan and Moldova led to high concentrations of members of these ethnic groups in several St. Petersburg municipalities, the pandemic-induced changes in migration patterns and intensity not only reduced the absolute numbers of Uzbeks, Tajiks, Armenians and Moldovans among the city's permanent residents but also contributed to a more spatially uniform distribution of their settlement.

3. Some of the ten ethnic communities covered in this research exhibit positive complementarity in their settlement patterns across St. Petersburg. For example, the correlation coefficient between the Ecc values across the city's municipalities

[1] First general census of the population of the Russian Empire in 1897. Distribution of the population by native language and uyezd of 50 provinces of European Russia, Demoscope, URL: https://www.demoscope.ru/weekly/ssp/rus_lan_97_uezd.php?reg=1293 (accessed 21.12.2023) ; All-Union Census of Population 1926. National composition of population by regions of RSFSR, Demoscope, URL: https://www.demoscope.ru/weekly/ssp/rus_nac_26.php?reg=66 (date of address: 21.12.2023) ; All-Union census of population 1939. National composition of the population by regions of Russia, Demoscope, URL: https://www.demoscope.ru/weekly/ssp/rus_nac_39.php?reg=36 (accessed 21.12.2023) ; All-Union Population Census of 1959. National composition of the population by regions of Russia, Demoscope, URL: https://www.demoscope.ru/weekly/ssp/rus_nac_59.php?reg=40 (accessed 21.12.2023) ; All-Union Population Census 1970. National composition of the population by regions of Russia, Demoscope, URL: https://www.demoscope.ru/weekly/ssp/rus_nac_70.php?reg=9 (accessed 21.12.2023) ; All-Union Population Census 1979. National composition of the population by regions of Russia, Demoscope, URL: https://www.demoscope.ru/weekly/ssp/rus_nac_79.php?reg=9 (accessed 21.12.2023) ; All-Union Population Census 1989. National composition of the population by regions of Russia, Demoscope, URL: https://www.demoscope.ru/weekly/ssp/rus_nac_89.php?reg=8 (accessed 21.12.2023) ; All-Russian Population Census 2002. National composition of the population by regions of Russia, Demoscope, URL: https://www.demoscope.ru/weekly/ssp/rus_nac_02.php?reg=29 (accessed 21.12.2023) ; All-Russian Population Census 2010. Population by nationality, sex and subjects of the Russian Federation, Demoscope, URL: https://www.demoscope.ru/weekly/ssp/rus_etn_10.php?reg=30 (accessed 21.12.2023) ; Results of the All-Russian Population Census 2010. National composition and language proficiency, citizenship of the population of St. Petersburg, Part 1, Petrostat, St. Petersburg, 2013 ; Results of the All-Russian Population Census 2020. St. Petersburg. Vol. 5: National composition and language proficiency, St. Petersburg, Petrostat, URL: https://78.rosstat.gov.ru/folder/192787 (accessed 21.12.2023).

is 0.40 for Georgians and Jews, 0.44 for Uzbeks and Tajiks, 0.47 for Armenians and Moldovans, 0.55 for Tatars and Jews and 0.57 for Ukrainians and Belarusians (see Table 4). Avoidance of co-settlement, or negative complementarity, has not been found among the examined ethnic groups: the negative values of the Pearson correlation coefficient for these measures are defined on the Chaddock scale as extremely weak.

4. For the majority of St. Petersburg 's ethnic groups, there is no spatial dependence between ethnic concentration and the level of the area's social well-being. The municipal level shows no concentration of migrant communities from Central Asia and the Caucasus in socially disadvantaged areas. However, for several 'old' city diasporas, particularly the Jewish and Georgian communities, there is a significant dependence of spatial localisation on social characteristics: the highest concentration of these ethnic groups is observed in St. Petersburg 's prosperous central districts.

This analysis of the settlement patterns of the city's largest national diasporas is not comprehensive. As migration persists, the significance of interethnic relations will continue to increase, thereby enhancing the relevance of research into this question.

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