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ЦИФРОВОЕ УПРАВЛЕНИЕ И МЕЖРЕГИОНАЛЬНОЕ ИТ-СОТРУДНИЧЕСТВО В АРКТИЧЕСКИХ РЕГИОНАХ: МЕЖДУНАРОДНАЯ ЭКСПЕРТНАЯ ГРУППА СЕВЕРНОГО ФОРУМА ПО РЕГИОНАЛЬНОЙ ПОВЕСТКЕ В ОБЛАСТИ ИНФОРМАЦИОННЫХ ТЕХНОЛОГИЙ

КЛЮЧЕВЫЕ СЛОВА

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DIGITAL GOVERNANCE AND INTERREGIONAL IT COOPERATION IN ARCTIC REGIONS: THE NORTHERN FORUM'S INTERNATIONAL EXPERT GROUP ON REGIONAL IT AGENDA

KEY WORDS

Arctic digital governance; Northern Forum; interregional IT cooperation; India-Russia cooperation; digital transformation; DAIM framework

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АННОТАЦИЯ

Арктический регион сталкивается с уникальными вызовами в сфере цифрового управления, которые до настоящего времени остаются недостаточно изученными. В статье анализируется Международная экспертная группа по региональной повестке в области информационных технологий, созданная в июле 2023 года в рамках Северного Форума. Данный механизм представляет собой институциональный инструмент межрегионального цифрового сотрудничества, который пока не получил должного освещения в академической литературе. В статье проводится сопоставление девяти цифровых показателей в 11 регионах — членах Северного Форума на основе данных НИУ ВШЭ, материалов Северного Форума и теории адаптивного управления. Результаты исследования выявляют расхождения, которые не могут быть устранены исключительно посредством национальной политики в области широкополосного доступа к интернету. Для оценки потенциала управления информационными технологиями в экстремальных условиях предложен пример математической модели, а также разработана концептуальная модель DAIM (Define, Analyze, Innovate, Materialize — определить, проанализировать, внедрить инновации, реализовать). В современном сложном геополитическом контексте экспертная группа представляется перспективным механизмом для содействия содержательному межрегиональному цифровому сотрудничеству.

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ABSTRACT

The Arctic region poses unique challenges for digital governance, which remain underresearched. The article analyzes the International Expert Group on Regional IT Agenda established in July 2023 in the framework of the Northern Forum, which is an institutional mechanism of interregional digital cooperation that has not yet been studied in academic literature. The article compares nine digital indicators in the eleven member regions of the Northern Forum based on data from the HSE, records of the Northern Forum, and adaptive governance theory. The article finds discrepancies that cannot be eliminated by national broadband policy. An example of a mathematical model was proposed to evaluate IT governance capacity in extreme environments and a conceptual framework of DAIM (Define, Analyze, Innovate, Materialize) was proposed. In today's complex geopolitical landscape, the Expert Group seems well-placed to support meaningful interregional digital cooperation.

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Introduction

Managing digital transformation in Arctic and northern regions poses unique challenges. Extreme cold, geographic isolation, scattered and often indigenous populations, along with a heavy reliance on the energy sector, create situations where traditional digital policy frameworks are ineffective or lead to results that do not match local needs [1, 2].

The International Expert Group on Regional IT Agenda was established by the Northern Forum at the 15th General Assembly (Khanty-Mansiysk, July 2023). The first meeting took place on June 19, 2024, during the XV International IT Forum (3,000+ participants, 47 countries) within the framework of the Chairmanship of Russia in BRICS [3]. The Expert Group has since grown through events in Yakutsk (September 2024), St. Petersburg (December 2024) and New Delhi (March 2025) [4, 5]. This development, from a single inaugural session to a thriving multi-country cooperation platform within two years, sets the context for this article.

The article has three research objectives: (1) to describe the institutional design of the Expert Group, (2) to evaluate digital inequalities among the Northern Forum members, and (3) to present the DAIM framework as an analytical tool. The research questions

Managing digital transformation in Arctic and northern regions poses unique challenges

guiding the research are: RQ1 — What are the institutional features that differentiate the Expert Group from existing mechanisms? RQ2 — What are the patterns of digital inequality and the gaps therein? RQ3 — What can DAIM tell us about policy responses?

«Arctic regions» shall mean areas in or partly in the Arctic Circle (AMAP definition). The «Arctic Zone of the Russian Federation» is a formally defined category (Presidential Decree No. 296 of 2 May 2014). «Northern / Sub-Arctic regions» are those that are not officially in the Arctic Zone but facing similar challenges and active Northern Forum membership. The sample comprises 11 Northern Forum members. For institutional and analytical reasons, KhMAO-Yugra (host of the 15th General Assembly), Kamchatka, Khabarovsk (host of the Northern Forum Secretariat), and Magadan are included, although they are not formal territories of the Arctic Zone. The findings are generalizable primarily to subnational, forum-based cooperation among Northern Forum members, not to all Arctic territories.

The article makes three contributions. First, it provides the first published overview of the Expert Group's mission, structure, and activities. Second, it uses verified data from HSE and Rosstat to illustrate digital disparities in Russian Arctic regions. Third, it introduces the DAIM (Define, Analyze, Innovate, Materialize) framework as a practical tool for evaluating digital governance in harsh environments. The article targets policymakers, regional administrators, and researchers involved in Arctic governance and digital progress.

The Northern Forum and the International Expert Group on Regional IT Agenda

INSTITUTIONAL BACKGROUND

The Northern Forum brings together subnational governments from Arctic and northern regions. It acts as a practical platform for regional cooperation, unlike the Arctic Council, which functions at the national level.

Russia's 2020 Arctic Strategy highlighted digital connectivity and technological modernization as priorities through 2035 [6, 7], emphasizing the need for digital policies specific to the Arctic. Following the 15th General Assembly, the Expert Group was formed on the initiative of Governor Natalia Komarova. Its framework was reinforced by two Gubernatorial Decrees issued in December 2024 (Nos. 136 and 137), which outlined responsibilities for digital policy, cybersecurity, and digital transformation across sectors.

MANDATE AND FUNCTIONAL ROLES

The Expert Group is part of the Northern Forum and supports the governance of digital transformation processes in the Arctic. Its responsibilities include IT policy, evaluating artificial intelligence, 5G technology, cloud storage, and cyber safety; assisting in the development of regional capabilities; fostering innovation and networks; task alignment with the UN Sustainable Development Goals; and linking regional initiatives with global financing mechanisms.

The Expert Group's activities have grown exponentially since the first meeting, held on 19 June 2024 at the XV International IT Forum in Khanty-Mansiysk (3,000+ participants from 47 countries), with representatives from China, Iceland and India discussing data sovereignty, Arctic connectivity and AI in governance [8]. The following events were the Northern Sustainable Development Forum in Yakutsk (September 2024), the meeting of the Regional Coordinators Committee in St. Petersburg (December 2024), and the Northern Forum-India Business and Scientific Forum in New Delhi (March 2025) co-chaired by Arvind Gupta (VIF Director) and Vladimir Vasilev (Northern Forum Executive Director) [9, 10, 11]. At the XVI General Assembly (July 2025), the Khanty-Mansiysk Declaration was adopted, defining the priorities up to 2027 and transferring the chairmanship to the Nenets Autonomous Okrug, thereby integrating the Expert Group's digital agenda into the Forum's strategic direction [12].

Digital Development Challenges in Arctic Regions

REGIONAL DATA OVERVIEW

The study uses the regional data of the HSE ISSEK 2021 [13] and the socio-economic indicators for 2023 and 2024 released by Rosstat [14, 15] to examine enterprise ICT adoption across the selected regions.

TABLE 1. DIGITAL ECONOMY INDICATORS FOR SELECTED RUSSIAN ARCTIC REGIONS: LONGITUDINAL COMPARISON (2021–2023)

Region	Fixed BB / 100 (2021 / 2022 / 2023)	Mobile BB / 100 (2021 / 2022 / 2023)	HH BB %	E-com %	Cloud %	ERP %	IoT %	GIS %	AI %
Chukotka AO	11.0	104.4	92.0	43.6	19.1	5.2	13.4	10.6 / 6.9 / 7.1	4.9
Kamchatka Krai	16.3 / 18.5 / 19.2	112.1 / 117.8 / 120.0	88.0 / 89.3 / 95.1	56.0 / 48.3	20.7 / 22.1 / 20.4	6.5 / 48.3 / 48.9	12.5 / 10.0 / 9.3	12.1	3.6 / 6.8 / 4.4
KhMAO-Yugra	24.4 / 25.0 / 25.2	115.4 / 114.7 / 117.2	94.2 / 93.6 / 96.3	64.5 / 44.8	25.5 / 27.6 / 24.7	15.6 / 45.1 / 44.8	16.3 / 11.9 / 12.5	15.4	5.9 / 4.3 / 4.3
Yamal-Nenets AO	23.5 / 25.4 / 25.0	137.5 / 143.4 / 143.0	98.4 / 97.9 / 98.6	80.9 / 42.3	23.2 / 26.0 / 22.5	15.0 / 42.3 / 42.2	13.7 / 12.0 / 10.8	15.4	4.6 / 3.3 / 3.4
Sakha Republic	18.6 / 19.3 / 20.4	96.7 / 95.9 / 97.9	85.6 / 94.8 / 92.3	41.0 / 45.7	26.0 / 32.6 / 28.6	7.8 / 45.7 / 46.8	14.6 / 12.0 / 12.9	13.2	3.3 / 2.4 / 2.2
Krasnoyarsk Krai	16.4 / 16.4 / 15.9	102.4 / 103.8 / 108.2	74.2 / 82.8 / 81.2	36.3 / 44.7	23.1 / 24.0 / 23.1	11.5 / 44.7 / 45.1	10.6	13.0	3.8 / 4.3 / 2.6
Nenets AO	21.1 / 23.5 / 24.0	n/a	81.5 / 85.4 / 87.4	51.2 / 43.4	18.7 / 20.8 / 21.1	8.4 / 43.4 / 42.7	9.5 / 7.8 / 7.6	11.1	2.4 / 2.4 / 1.9
Magadan Oblast	20.1 / 23.6 / 24.5	110.9 / 109.2 / 109.2	93.1 / 99.1 / 94.3	47.4 / 49.3	23.8 / 27.1 / 24.5	9.1 / 49.3 / 49.5	16.4 / 12.3 / 12.2	14.2	4.8 / 6.9 / 5.9
Khabarovsk Krai	26.7 / 27.3 / 28.4	107.4 / 115.9 / 139.6	80.8 / 84.2 / 81.9	39.2 / 48.1	22.6 / 23.4 / 21.2	12.4 / 48.1 / 47.8	12.4	12.8	4.1 / 2.7 / 2.0
Primorsky Krai	17.9 / 17.0 / 17.2	114.5 / 114.8 / 120.6	84.2 / 86.8 / 87.9	43.8 / 42.3 / 43.2	25.6 / 25.5 / 20.4	n/a	13.0 / 10.2 / 9.8	n/a	4.3 / 6.2 / 3.8
Jewish AO	17.4 / 17.6 / 18.2	90.0 / 96.4 / 106.0	70.9 / 72.7 / 79.5	39.1 / 40.0 / 44.1	17.1 / 22.1 / 21.7	n/a	12.8 / 8.3 / 10.9	n/a	4.4 / 6.2 / 5.4
Moscow	38.4 / 36.1 / 35.8	138.7 / 133.0 / 142.5	94.4 / 96.7 / 96.0	71.4 / 44.6	29.4 / 30.3 / 29.5	13.3 / 44.6 / 45.8	11.8 / 9.7 / 9.6	7.2	3.9 / 5.6 / 4.2
Russia Nat. Avg.	23.7 / 24.3 / 25.1	107.5 / 109.2 / 115.9	82.6 / 86.6 / 87.9	46.6 / 45.6	27.1 / 28.9 / 26.7	13.8 / 45.6 / 46.5	13.7 / 10.0 / 11.2	12.6	5.7 / 6.6 / 4.9

Sources: ISSEK HSE Digital Economy Indicators in the Russian Federation: 2021 [16]; Rosstat, Regions of Russia: Socio-Economic Indicators 2023 [17] and 2024 [18]. HH BB = household broadband access; Cloud, IoT, AI = share of enterprises using respective technology. National average row highlighted in blue and «n/a» indicates the indicator was not reported for that region in the respective year.

Table 1 presents data over time on key digital indicators for 11 Arctic and near-Arctic regions, comparing them to the national average. The indicators include fixed and mobile broadband subscriptions per 100 inhabitants, household broadband access, enterprise cloud computing adoption, IoT deployment, and AI adoption.

Enterprise technology adoption in the Arctic shows sector concentration rather than widespread digitalization

PRINCIPAL FINDINGS

The data reveal three main patterns. Connectivity in energy-hub areas can be deceptive. Although KhMAO-Yugra's household broadband access (94.2%) is similar to that of Moscow (94.4%), remote communities depend on VSAT satellite links which have a latency exceeding 600ms, making real-time IoT, cloud services, and telemedicine almost impossible to use [19]. Therefore, overall statistics tend to overestimate the true level of connectivity in Arctic regions.

Second, enterprise technology adoption in the Arctic shows sector concentration rather than widespread digitalization. KhMAO's relatively high rates of ERP and IoT adoption result from the oil and gas sector's needs, not from a diverse digital economy. Cloud adoption at 25.5% and AI at 5.9% in 2021 remain slightly above the national average, indicating that energy-sector digitalization does not automatically create transferable governance capacity [20].

Third, there is a substantial gap between leading and lagging Arctic regions. Chukotka AO's fixed broadband penetration of 11.0 per 100 is less than half the 2021 national average of 23.7%. Krasnoyarsk Krai's household broadband rate of 74.2% is much lower than Moscow's 94.4% and KhMAO's 94.2%. These statistics show that the digital divide in Russia's Arctic operates on two levels: between Arctic and non-Arctic Russia, and within the Arctic itself, separating energy-rich hub regions from more remote areas [21, p. 231–236].

STRUCTURAL GAPS REQUIRING INSTITUTIONAL RESPONSE

The following four gaps can be identified: first, a deficit in the AI ecosystem due to the absence of research facilities and the outflow of skilled workers [22, 23]; second, the existence of data silos caused by Federal Law No. 242-FZ and the interests of commercial organisations which are preventing industrial data from being used; third, the difference between the quality and the extent of connectivity, since the statistics hide the fact that the situation is dependent on satellite links; and fourth, a mismatch between digital skills and governance requirements, since the levels of expertise in advanced AI, data science, and cybersecurity are insufficient [24].

These gaps outline the specific institutional work that the Expert Group can address: not broad ICT promotion, but targeted coordination on the structural issues that regional governments cannot solve on their own.

Practical Importance of Interregional IT Cooperation: the DAIM Approach

For effective IT collaboration in the Arctic, it is necessary to go beyond simply sharing information since a common vocabulary is needed for identifying gaps in governance and a shared framework for coordinating responses should be established.

The DAIM (Define, Analyze, Innovate, Materialize) framework is a four-stage conceptual methodology which was developed in consultation with the Northern Forum's Expert Group. It was first made public at the Northern Forum — India Business and Scientific Forum in New Delhi on March 20, 2025 [25]. DAIM converts well-established theories — such as adaptive governance [26], socio-technical systems [27], and the diffusion of innovations [28] — into a practical heuristic that can be used by regional policymakers. Rather than aiming to be a quantitative optimization model, it offers a structured way of analysing the situation in order to identify priorities, diagnose constraints, and determine the sequence of interventions. Set clear objectives in the areas of digital access, healthcare, education, monitoring, and data sovereignty. Analyse and assess the challenges by making use of data, maps, and skills evaluations, differentiating between obvious issues such as low broadband availability and deeper-rooted problems like latency, data localisation, and gaps in skills. Develop innovative technological solutions suitable for the conditions in the Arctic, such as those involving LEO satellites, edge computing, AI applications tailored to local needs, infrastructure powered by renewable energy, blockchain for the governance of indigenous data, IoT systems for environmental monitoring, and the use of AI for preserving languages. Put these innovations into practice by creating relevant policies, including regulatory frameworks, public-private partnerships, funding mechanisms,

A fundamental aspect of the DAIM framework is that connectivity functions as a non-compensable requirement in Arctic governance

and implementation strategies that are led by the communities themselves. A fundamental aspect of the DAIM framework is that connectivity functions as a non-compensable requirement in Arctic governance. Although a region may perform well on other indicators, advanced digital governance can never be achieved in the absence of basic connectivity. This is what sets DAIM apart from straightforward additive scoring models: instead of combining the different indicators into a single composite index, DAIM regards connectivity as a binding constraint which must be overcome before any other improvements in digital governance can occur. A mathematical example is given. The framework can be represented in quantitative terms as a diagnostic tool by means of two connected equations. The overall impact score is defined as:

$$I = \alpha 1G + \alpha 2P + \alpha 3T + \alpha 4R, \text{ with } \sum \alpha i = 1, \alpha i \geq 0$$

The values of G (goal clarity), P (problem diagnosis), T (technology fit), and R (resource deployment) are normalized on a scale from 0 to 1. In order to take into account the infrastructure constraints specific to the Arctic, a geometric-mean optimization is used:

$$\max I\text{Arctic} = (C \cdot F \cdot E \cdot R)1/4, \text{ subject to: } C \geq 0.30, E \geq 0.35, R \geq 0.40$$

Here, C stands for connectivity, F for technological feasibility, E for energy viability, and R for resilience. The geometric mean implies that if the score in any one of the areas is very low — for example, C ≈ 0.29 in the case of the Chukotka AO — the overall score will tend towards zero, which illustrates the fact that connectivity in Arctic governance is not compensable — a point that additive models fail to capture. When this approach is applied to the 11 regions of the Northern Forum, it shows that the Chukotka AO is the most constrained case, since its connectivity score (C ≈ 0.29) is below the 0.30 limit and thus no improvements in the other areas can make up for this shortcoming without first tackling the issue of connectivity. This justifies the priority being given to the deployment of LEO satellites in remote areas. Nevertheless, the framework is mainly intended as a conceptual diagnostic tool, the threshold values (0.30, 0.35, 0.40) being based on the HSE data (Table 1) and needing to be refined empirically as a result of the Expert Group's continuing regional evaluations.

India-Russia and International Collaboration

INDIA'S ARCTIC POLICY ARCHITECTURE

There are six sections of India's 2022 Arctic Policy: scientific research, economic and social development, transport, governance, environmental protection and Arctic experience [29]. As the world's third largest energy consumer (83% imported) [30], India has strategic interests in the natural resources of the Arctic and the Northern Sea Route.

India's involvement in the Arctic has evolved from policy statements to structured scientific collaboration. The BRICS Working Group on Polar and Ocean Science and Technology held its seventh meeting in May 2025, with participants from both India and Russia. This confirms that India's Arctic science efforts are now part of ongoing international processes [31]. The Expert Group's focus on India-Russia digital collaboration aligns with this broader goal of strengthening Arctic ties.

HISTORICAL FOUNDATIONS OF BILATERAL TECHNOLOGY COOPERATION

India and Russia's digital partnership stems from decades of tech collaboration, starting with Soviet support for IIT Bombay in 1958 [32]. This history of joint work in space and materials science built the trust needed for today's digital cooperation.

The focus has now shifted to AI, quantum tech, and computational science, as seen in a 2024 joint research call. Russia's 2024 AI Alliance Network with BRICS countries also shows that this bilateral tie is part of a growing multilateral digital framework.

THE EXPERT GROUP AS A SOUTH-NORTH KNOWLEDGE TRANSFER MECHANISM

The Expert Group can serve as a medium for South-North exchange of experience, including digital public service provision: India's Aadhaar / UPI projects [33], China's Ocean University expertise [34], and Iceland's experience with the Arctic Portal. Formalized in the New Delhi forum [35], this collaboration has yielded Russia-India

agreements [35]. This «South-North» model makes the Expert Group more than just a Russian initiative. It allows the Global South to share its experience in scaling digital services with limited resources, while Arctic experts provide insights on governance in extreme environments and indigenous data sovereignty.

GEOPOLITICAL CONTEXT AND INSTITUTIONAL RESILIENCE

Many Arctic cooperation forums have been suspended since 2022 [36], and researchers point to a shrinking space for international organizations alongside increasingly fragmented digital governance frameworks [37, 38, 39, 40]. The Expert Group has proven more resilient, likely because of its subnational status, narrow technical focus, and diverse membership — qualities that let it keep collaborating without needing consensus at the state level. The Belfer Center notes that practical, technical cooperation is the best way to maintain Arctic engagement today. It describes informal «Track 2» expert exchanges as the best mechanism for keeping Arctic governance functional. The Expert Group fits this model well: it is subnational, focused on technical issues, includes multiple countries, and is shielded from the political instability affecting intergovernmental Arctic institutions. The Northern Forum operates subnationally, in contrast to the intergovernmental Arctic Council, which has been suspended since 2022 [41]. Within this structure, the Expert Group brings a level of functional specialization to digital governance. It is not quite pure Track II diplomacy, since officials are involved, but more a form of subnational technical cooperation — a hybrid that combines the flexibility of non-state actors with the capacity of government involvement.

CONCLUSION AND POLICY RECOMMENDATIONS

> The International Expert Group on Regional IT Agenda marks a genuine innovation in Arctic governance

The International Expert Group on Regional IT Agenda marks a genuine innovation in Arctic governance. Established in July 2023 and active across several countries within two years, it addresses a gap identified in the academic literature and regional data: no dedicated interregional mechanism existed to coordinate digital transformation strategies across the different governance settings of Arctic and northern territories.

Three key findings emerge from this analysis. The regional data shows that the digital development gaps within Russia's Arctic zone are significant, complex, and resistant to solutions through national broadband policy alone. The four structural gaps identified — an AI ecosystem deficit, data silos, issues with connectivity quality versus coverage, and a mismatch in digital skills — each require targeted institutional coordination that the Expert Group can provide. Its multinational structure — bringing together Russian northern regions with participants from India, China, and Iceland — offers one model of subnational Arctic cooperation. Such arrangements may prove more institutionally resilient to geopolitical disruption than intergovernmental forums, though this is a hypothesis, not a finding, and would need to be tested through longitudinal comparison. The DAIM framework, grounded in established governance theories and socio-technical systems, gives a practical tool for assessing digital maturity in the region, emphasizing that connectivity is a prerequisite in Arctic governance rather than a compensable factor. To operationalize institutional resilience, we propose four criteria: whether meetings continue despite shocks, how diverse the membership is across geopolitical divides, whether concrete outputs are generated without requiring state-level consensus, and whether functional specialization helps insulate cooperation from politics. The Expert Group's performance against these criteria looks promising so far, but its short history makes any conclusion premature; a systematic comparison remains a priority for future research.

POLICY RECOMMENDATIONS

Four priorities stand out going forward. First, formalize DAIM. Second, expand membership to include all Northern Forum regions — especially Nenets AO — and bring in Iceland, Alaska, and Nordic partners. Third, develop shared open-data frameworks. Fourth, prioritize LEO satellite investment in Chukotka, Nenets, and remote parts of Sakha.

Regional governments, for their part, should create AI sandboxes, establish data-sharing arrangements with energy operators, and invest in AI, data science, and cybersecurity skills.

The Expert Group is still in its early phases. Its record is limited, and the analytical tools it uses, including the DAIM framework's parameters, need ongoing calibration through regional assessment work. However, its clear mandate, multinational membership structure, active engagement with key policy partners in India, Russia, and other nations, and growing formal ties within the Northern Forum framework provide a solid foundation. In a time when state-level circumpolar cooperation faces unprecedented constraints, the Expert Group demonstrates what subnational technical cooperation can achieve.

References

1. Kuersten A. The Arctic Digital Divide // Arctic Summer College Yearbook / ed. by B. O'Donnell, M. Gruenig, A. Riedel. Cham: Springer, 2018. P. 93–105. DOI: https://doi.org/10.1007/978-3-319-66459-0_8
2. Delaunay M., Landriault M. Connectivity and Infrastructure — The Arctic Digital Divide // Handbook on Geopolitics and Security in the Arctic / ed. by J. Weber. Cham: Springer, 2020. P. 231–248. DOI: https://doi.org/10.1007/978-3-030-45005-2_14
3. TV BRICS / ANI. Participants of XV International IT Forum from BRICS, SCO, Africa and Latin America share their impressions // TV BRICS. 21.06.2024. URL: https://tvbrics.com/en/news/participants-of-xv-international-it-forum-from-brics-sco-africa-and-latin-america-share-their-impres/ (accessed: 10.05.2026).
4. Business and Scientific Forum «Northern Forum — India: Uniting North and South for Sustainable Development», New Delhi // The Northern Forum: official website. 03.2025. URL: https://www.northernforum.org/en/news/northern-forum-news/1227 (accessed: 10.05.2026).
5. Announcements: Regional Coordinators Committee Meeting, St. Petersburg, December 13, 2024 // The Northern Forum: official website. URL: https://www.northernforum.org/en/news/announcements (accessed: 10.05.2026).
6. Decree of the President of the Russian Federation No. 645 of October 26, 2020, «On the Strategy for the Development of the Arctic Zone of the Russian Federation and Ensuring National Security for the Period up to 2035» // Official Internet Portal of Legal Information. October 26, 2020. URL: http://publication.pravo.gov.ru/Document/View/0001202010260033 (accessed: 10.05.2026) (In Russian).
7. Osipova E. et al. Digital Transformation as a Modern Strategy for Sustainable Socio-Economic Development of the Arctic Zone // E3S Web of Conferences. 2024. Vol. 535. DOI: https://doi.org/10.1051/e3sconf/202453505007
8. TV BRICS / ANI. Participants of XV International IT Forum from BRICS, SCO, Africa and Latin America share their impressions // TV BRICS. 21.06.2024. URL: https://tvbrics.com/en/news/participants-of-xv-international-it-forum-from-brics-sco-africa-and-latin-america-share-their-impres/ (accessed: 10.05.2026).
9. Business and Scientific Forum «Northern Forum — India: Uniting North and South for Sustainable Development», New Delhi // The Northern Forum: official website. 03.2025. URL: https://www.northernforum.org/en/news/northern-forum-news/1227 (accessed: 10.05.2026).
10. Announcements: Regional Coordinators Committee Meeting, St. Petersburg, December 13, 2024 // The Northern Forum: official website. URL: https://www.northernforum.org/en/news/announcements (accessed: 10.05.2026).
11. About Us // Vivekananda International Foundation: official website. URL: https://www.vifindia.org/aboutus (accessed: 10.05.2026).
12. XVI General Assembly of the Northern Forum, Khanty-Mansiysk, 28 July 2025 // The Northern Forum: official website. URL: https://www.northernforum.org/en/news/1243-xvi-general-assembly-of-the-northern-forum (accessed: 10.05.2026).
13. Indicators of the Digital Economy: 2021: Statistical Collection / Institute for Statistical Studies and Economics of Knowledge, HSE University. Moscow: HSE University, 2022. URL: https://www.hse.ru/en/primarydata/ice2021 (accessed: 10.05.2026) (In Russian).
14. Regions of Russia. Socio-Economic Indicators. 2023: Statistical Yearbook. Section 18 / Rosstat. Moscow: Rosstat, 2023. URL: https://rosstat.gov.ru (accessed: 10.05.2026) (In Russian).
15. Regions of Russia. Socio-Economic Indicators. 2024: Statistical Yearbook. Section 18 / Rosstat. Moscow: Rosstat, 2024. URL: https://rosstat.gov.ru (accessed: 10.05.2026) (In Russian).
16. Indicators of the Digital Economy: 2021: Statistical Collection / Institute for Statistical Studies and Economics of Knowledge, HSE University. Moscow: HSE University, 2022. URL: https://www.hse.ru/en/primarydata/ice2021 (accessed: 10.05.2026) (In Russian).
17. Regions of Russia. Socio-Economic Indicators. 2023: Statistical Yearbook. Section 18 / Rosstat. Moscow: Rosstat, 2023. URL: https://rosstat.gov.ru (accessed: 10.05.2026) (In Russian).
18. Regions of Russia. Socio-Economic Indicators. 2024: Statistical Yearbook. Section 18 / Rosstat. Moscow: Rosstat, 2024. URL: https://rosstat.gov.ru (accessed: 10.05.2026) (In Russian).
19. Delaunay M., Landriault M. Connectivity and Infrastructure — The Arctic Digital Divide // Handbook on Geopolitics and Security in the Arctic / ed. by J. Weber. Cham: Springer, 2020. P. 231–248. DOI: https://doi.org/10.1007/978-3-030-45005-2_14
20. Gladkikh E. G., Romanova I. Features of Digitalization of the Arctic Regions of Russia //

Journal of Volgograd State University. Economics. 2024. Vol. 26, No. 1. P. 45–59. DOI: https://doi.org/10.15688/ek.jvolsu.2024.1.4
21. Delaunay M., Landriault M. Connectivity and Infrastructure — The Arctic Digital Divide // Handbook on Geopolitics and Security in the Arctic / ed. by J. Weber. Cham: Springer, 2020. P. 231–248. DOI: https://doi.org/10.1007/978-3-030-45005-2_14
22. Gladkikh E. G., Romanova I. Features of Digitalization of the Arctic Regions of Russia // Journal of Volgograd State University. Economics. 2024. Vol. 26, No. 1. P. 45–59. DOI: https://doi.org/10.15688/ek.jvolsu.2024.1.4
23. Saunavaara J. et al. Collaboration between Arctic and Northern Subnational Governments Disrupted by the Russian Invasion of Ukraine // Polar Record. 2025. DOI: https://doi.org/10.1016/j.polar.2025.101172
24. Highway to North: Digital Transformation of the Arctic. Internet Governance Forum 2025 // Digital Watch Observatory. URL: https://dig.watch/event/internet-governance-forum-2025/lightning-talk-148-highway-to-north-digital-transformation-of-the-arctic (accessed: 10.05.2026).
25. Business and Scientific Forum «Northern Forum — India: Uniting North and South for Sustainable Development», New Delhi // The Northern Forum: official website. 03.2025. URL: https://www.northernforum.org/en/news/northern-forum-news/1227 (accessed: 10.05.2026).
26. Folke C., Hahn T., Olsson P., Norberg J. Adaptive Governance of Social-Ecological Systems // Annual Review of Environment and Resources. 2005. Vol. 30. P. 441–473. DOI: https://doi.org/10.1146/annurev.energy.30.050504.144511
27. Geels F. W. From Sectoral Systems of Innovation to Socio-Technical Systems // Research Policy. 2004. Vol. 33, No. 6–7. P. 897–920. DOI: https://doi.org/10.1016/j.respol.2004.01.015
28. Rogers E. M. Diffusion of Innovations. 5th ed. New York: Free Press, 2003. 551 p.
29. India and the Arctic: Building a Partnership for Sustainable Development / Government of India, Ministry of Earth Sciences. New Delhi, 2022. URL: https://www.moes.gov.in/sites/default/files/India_Arctic_Policy_English.pdf (accessed: 10.05.2026).
30. India in the Arctic: Advancing a Path for Strategic Autonomy Beyond Russia // The Arctic Institute. 02.2026. URL: https://www.thearcticinstitute.org (accessed: 10.05.2026).
31. India-Russia Arctic Security Dialogue 2025 // IMPRI Impact and Policy Research Institute. 11.2025. URL: https://www.impriindia.com/india-russia-arctic-security-dialogue-2025/ (accessed: 10.05.2026).
32. Indo-Russian Science and Technology Cooperation // Embassy of India in Moscow. URL: https://indianembassy-moscow.gov.in/ru/index.php (accessed: 10.05.2026).
33. India and the Arctic: Building a Partnership for Sustainable Development / Government of India, Ministry of Earth Sciences. New Delhi, 2022. URL: https://www.moes.gov.in/sites/default/files/India_Arctic_Policy_English.pdf (accessed: 10.05.2026).
34. TV BRICS / ANI. Participants of XV International IT Forum from BRICS, SCO, Africa and Latin America share their impressions // TV BRICS. 21.06.2024. URL: https://tvbrics.com/en/news/participants-of-xv-international-it-forum-from-brics-sco-africa-and-latin-america-share-their-impres/ (accessed: 10.05.2026).
35. Uniting North and South for Sustainable Development // TV BRICS. URL: https://tvbrics.com/en/news/maksim-dankin-general-director-of-project-office-for-arctic-development-region-needs-international-r/ (accessed: 10.05.2026).
36. Saunavaara J. et al. Collaboration between Arctic and Northern Subnational Governments Disrupted by the Russian Invasion of Ukraine // Polar Record. 2025. DOI: https://doi.org/10.1016/j.polar.2025.101172
37. Digitalisation as a Tool for Sustainable Nordic Regional Development: Research Programme // Nordregio. 2018. URL: https://www.nordregio.org/publications/digitalisation-as-a-tool-for-sustainable-nordic-regional-development/ (accessed: 10.05.2026).
38. Navigating Global Transitions in European Arctic Regions: Lessons from 14 Northern Sparsely Populated Areas / OECD. Paris: OECD Publishing, 2025. DOI: https://doi.org/10.1787/a2de0bf6-en
39. Balton D., Haig S. Revitalizing the Arctic Council // Belfer Center for Science and International Affairs, Harvard Kennedy School. 24.02.2026. URL: https://www.belfercenter.org/publication/revitalizing-arctic-council (accessed: 10.05.2026).
40. The Trump Administration's Fixation on Greenland Reinforces That Climate Change Is a Threat to Americans // Center for American Progress. 02.02.2026. URL: https://www.americanprogress.org (accessed: 10.05.2026).
41. Saunavaara J. et al. Collaboration between Arctic and Northern Subnational Governments Disrupted by the Russian Invasion of Ukraine // Polar Record. 2025. DOI: https://doi.org/10.1016/j.polar.2025.101172