

Provision of geoinformation connectivity of the territory based on the spatial data infrastructure development

V. A. Avdeev¹, L. I. Yablonskiy^{1*}

¹ Scientific Geoinformation Center of the Russian Academy of Sciences, Moscow, Russian Federation

* e-mail: leonard52@mail.ru

Abstract. One of the directions of the Strategy of scientific and technological development of the Russian Federation, which ensures the connectivity of the territory through the creation of intelligent transport and telecommunication systems, is considered. It is proposed to introduce an integral part into the structure of this direction – geoinformation connectivity of the territory. The dependence of geoinformation connectivity on the level of spatial data provision of the country's territory is substantiated. It is stated that timely geoinformation provision can be achieved through the development of the state spatial data infrastructure. The problematic issues of geoinformation connectivity of the state territory and the formation of the state spatial data infrastructure to ensure the connectivity of the territory are identified. It is established that the most successful and systematic construction and development of spatial data infrastructure is carried out within the framework of defense activities with the constant improvement of the unified automated system for providing geospatial information (EASO GPI). In the conditions of sanction measures and technological isolation, in order to achieve a stable and complete geoinformation connectivity of the territory, the necessity of creating an independent state spatial data infrastructure based on the adaptation and development of a functioning EASO GPI is determined.

Keywords: connectivity, spatial data, geoinformation support, geoinformation connectivity, consumers

REFERENCES

1. Decree of the President of the Russian Federation of December 01, 2016 No. 642. On the Strategy of scientific and technological development of the Russian Federation. *Sobranie Zakonodatel'stva Rossiyskoy Federatsii [Assembly of the Russian Federation]*. (2016). No 49, Art. 6887 [in Russian].
2. Vladimirova, V., & Panasenko, E. (2018). Connectivity strategy. *Oblako [Cloud]*, 4(09), 15–19. Retrieved from <https://mai.ru/cloud/journals/09/pdf/Cloud.pdf> [in Russian].
3. Pogosyan, M. A., Strelets, D. Yu., & Vladimirova, V. G. (2019). Connectivity of the territory of the Russian Federation: from the formulation of complex tasks to the formation of complex scientific and technical projects. *Vestnik Rossiiskoi akademii nauk [Bulletin of the Russian Academy of Sciences]*, 89(5), 489–495 [in Russian].
4. Lutovinov, A. A., Lupyan, E. A., Pogosyan, M. A., & Shemyakov, A. O. (2019). Ensuring information connectivity of the territory of Russia using Earth remote sensing systems. *Vestnik Rossiiskoi akademii nauk [Bulletin of the Russian Academy of Sciences]*, 89(5), 502–508 [in Russian].
5. Decree of the Government of the Russian Federation of July 28, 2017 No. 1632-r. Digital Economy of the Russian Federation. *Sobranie Zakonodatel'stva Rossiyskoy Federatsii [Assembly of the Russian Federation]*. (2017). No 32YU, Art. 5138 [in Russian].
6. Blanutsa, V. I. (2018). Territorial structure of the digital economy of Russia: preliminary delimitation of "smart" urban agglomerations and regions. *Prostranstvennaia ekonomika [Spatial Economy]*, 2, 17–35. doi: 10.14530/se.2018.2.017-035 [in Russian].
7. Vladimirov, A. I. (n. d.). When the war is on the threshold. III. Retrieved from <http://www.segodnia.ru/content/237920> (accessed March 17, 2022) [in Russian].
8. Law of the Russian Federation of December 30, 2015 No. 431. On Geodesy, Cartography and spatial Data and on Amendments to Certain Legislative Acts of the Russian Federation. *Sobranie Zakonodatel'stva Rossiyskoy Federatsii [Assembly of the Russian Federation]*. (2016). No 1, Art. 51 [in Russian].
9. Fonvizin, D. I. (1959). *Nedorosl [Ignoramus]: 2 Vols.* – Moscow–Leningrad: GIHL [in Russian].
10. Resolution of the Government of the Russian Federation of December 01, 2021 No. 2148. On approval of the State program of the Russian Federation "National Spatial Data System". *Sobranie Zakonodatel'stva Rossiyskoy Federatsii [Assembly of the Russian Federation]*. (2021). No 50, Art. 8542 [in Russian].
11. The Law of the Russian Federation of December 30, 2021 No. 448-FZ. On the public law company "Roskadastr". *Sobranie Zakonodatel'stva Rossiyskoy Federatsii [Assembly of the Russian Federation]*. (2022). No 1, Art. 17 [in Russian].

12. Coordination of Surveying, Mapping, and related Spatial Data Activities: Circular A-16 Revised. (2002). Washington D.C.: OMB.
13. Borodin, A. V., & Yablonsky, L. I. (2020). On state policy in the field of geodesy and cartography. *Gosudarstvennaya sluzhba [State Service]*, 6, 23–27 [in Russian].
14. Decree of the Government of the Russian Federation of August 21, 2006 No. 1157-r. Concept of creation and development of spatial data infrastructure of the Russian Federation. *Sobranie Zakonodatel'stva Rossiyskoy Federatsii [Assembly of the Russian Federation]*. (2006). No 35, Art. 3775 [in Russian].
15. Standards Russian Federation. (2019). GOST R 58570-2019. Spatial data infrastructure. General requirements. Official publication. Moscow: Standartinform Publ. [in Russian].
16. Yablonskiy, L. I. (2019). Spatial Data Infrastructure (SPD): the emergence of the concept, the current state and the main directions of development. In *Sbornik materialov XV Obshcherossiyskoy nauchno-prakticheskoy konferentsii: Perspektivy razvitiya inzhenernykh izyskaniy v stroitel'stve v Rossiyskoy Federatsii [Proceedings of the XV All-Russian Scientific and Practical Conference: Prospects for the Development of Engineering Surveys in Construction in the Russian Federation]* (pp. 519–524). Moscow: Geomarketing LLC Publ. [in Russian].
17. Official website of the US Geological Survey (USGS). (2020). Retrieved from <https://www.usgs.gov> [in Russian] (accessed February 21, 2022).
18. GIS Geoinformation Portal-Association. (2022). Retrieved from http://www.gisa.ru/info_see.php?id=1886 [in Russian].
19. Zaliznyuk, A. N. (2021, February 08). A unified geoinformation space is being created. *Krasnaya Zvezda [Red Star]*, p. 6 [in Russian].
20. Zaliznyuk, A. N., Gomonov, D. E., & Fisich, B. A. (2018). Construction of the concept of geoinformation support of operations (combat operations). *Voennaya mysl': voenno-teoreticheskiy zhurnal [Military Thought: Military Theoretical Journal]*, 10, 39–47 [in Russian].
21. Official website of the Ministry of Defense of the Russian Federation. (n. d.). Topographic Service of the Armed Forces of the Russian Federation. Retrieved from https://www.structure.mil.ru/structure/ministry_of_defence/details.htm?id=9715%40egOrganization [in Russian].
22. Pobedinsky, G. G. (2019). Reforms of the national cartographic and geodetic service and the quality of state geospatial data. In *Sbornik materialov Interekspo GEO-Sibir'-2019: Mezhdunarodnoy nauchnoy konferentsii: T. 1, no. 1. Geodeziya, geoinformatika, kartografiya, marksheyderiya [Proceedings of Interexpo GEO-Siberia-2019: International Scientific Conference: Vol. 1, No. 1. Geodesy, Geoinformatics, Cartography, Mine Surveying]* (pp. 3–17). Novosibirsk: SSUGT Publ. [in Russian].
23. Karpik, A. P., & Lisitsky, D. V. (2020). Prospects for the development of geodetic and cartographic production and a new paradigm of geospatial activity. *Vestnik SGUGiT [Vestnik SSUGT]*, 25(2), 19–29 [in Russian].
24. Gorobtsov, S. R., & Obidenko, V. I. (2019). Geodetic methods for creating a single geoinformation space. In *Sbornik materialov Interekspo GEO-Sibir'-2019: Mezhdunarodnoy nauchnoy konferentsii: T. 1, no. 1. Geodeziya, geoinformatika, kartografiya, marksheyderiya [Proceedings of Interexpo GEO-Siberia-2019: International Scientific Conference: Vol. 1, No. 1. Geodesy, Geoinformatics, Cartography, Mine Surveying]* (pp. 173–183). Novosibirsk: SSUGT Publ. [in Russian].
25. Kopylova, N. S. (2021). Integration approach to the storage of cartographic materials in Russian practice: from analog to digital. *Vestnik SGUGiT [Vestnik SSUGT]*, 26(3), 100–107 [in Russian].
26. Chernykh, A. M. (2018). The main directions of integration of federal state information systems and spatial data. *Pravovaya informatika [Legal Informatics]*, 2, 47–56 [in Russian].

Author details

Vladimir A. Avdeev – Ph. D., Senior Researcher, Laboratory of Decoding Aerospace Survey Materials.
Leonard I. Yablonskiy – Ph. D., Senior Researcher, Deputy Director for Scientific Work.

Received 29.03.2022

© V. A. Avdeev, L. I. Yablonskiy, 2022