

## **Development of methodological aspects of mapping of geospatial knowledge about cultural heritage objects for spatial development of territories**

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**Abstract.** Currently, mapping geospatial knowledge on maps is a poorly developed and very promising area of cartographic science. To date, there are no methods of mapping objects of cultural heritage that allow displaying not only information, but also geospatial knowledge about them. The article deals with the problem of mapping geospatial knowledge about cultural heritage objects for the spatial development of territories. The purpose of the study is formulated, the analysis of existing methods for assessing the historical and cultural value of cultural heritage objects is given. The process of obtaining geospatial knowledge about cultural heritage objects has been developed and formalized. The structure and content of the base of geospatial knowledge of cultural heritage objects for the spatial development of territories are developed, the principles of displaying geospatial knowledge about cultural heritage objects on cartographic works are formulated. The proposed methodological foundations were tested by developing a prototype of the cartographic web service "Cultural Heritage of the Novosibirsk region".

**Keywords:** geospatial knowledge, thematic cartography, cultural heritage, mapping of cultural heritage objects

### **REFERENCES**

1. Karpik, A. P., Lisitsky, D. V., Osipov, A. G., & Savinykh, V. N. (2020). Geoinformation and cognitive representation of territorial resources. *Vestnik SGUGiT [Vestnik SSUGT]*, 25(4), 120–129[in Russian].
2. Yankelevich, S. S., & Antonov, Ye. S. (2019). Concept of a new kind of knowledge-based maps. *Vestnik SGUGiT [Vestnik SSUGT]*, 24(4), 188–196 [in Russian].
3. Antonov, E. S. (2020). Geocognitive maps and technologies – a new stage in cartography. *Vestnik SGUGiT [Vestnik SSUGT]*, 25(2), 140–150 [in Russian].
4. Antonov, E. S., Lisitsky, D. V., & Yankelevich, S. S. (2021). Theoretical and methodological representation of the direct transition from geoinformation to geoscience. *Vestnik SGUGiT [Vestnik SSUGT]*, 26(2), 82–90 [in Russian].
5. Lebzak, A. O., & Yankelevich, S. S. (2021). Modern directions of development of mapping of cultural heritage objects. *Vestnik SGUGiT [Vestnik SSUGT]*, 26(6), 78–85 [in Russian].
6. Slabukha, A. V. (2016). Establishing the historical and cultural value of architectural heritage objects (part 2): criteria and method in modern expert practice. *CHelovek i kul'tura [Man and Culture]*, 6, 9–22 [in Russian].
7. Kurashov, Yu. Yu. (2017). Criteria for assessing cultural heritage objects: cultural and historical aspect and legal solution. *Akademicheskij vestnik UralNIIproekt RAASN [Academic Bulletin of UralNIIproekt RAASN]*, 4, 40–44 [in Russian].
8. Berdyugina, Yu. M., & Kurashov, Yu. Yu. (2016). Development criterion status obekta cultural heritage. *Akademicheskij vestnik UralNIIproekt RAASN [Academic Bulletin of UralNIIproekt RAASN]*, 3, 36–43 [in Russian].
9. Saati, T. (1993). *Prinyatie reshenij. Metod analiza ierarhij* [Decision-making. Hierarchy Analysis method]. Moscow: Radio and communications Publ., 278 p. [in Russian].
10. Margolin, E. (2006). Methods of processing expert survey data. *Poligrafiya [Polygraphy]*, 5, 14–16 [in Russian].
11. Postnikov, V. M. (2012). Analysis of approaches to the formation of the composition of the expert group focused on preparation and decision-making. *Nauka i obrazovanie [Science and Education]*, 5, 333–346 [in Russian].
12. Zerny, Yu. V., Polyvanyy, A. G., & Yakushin, A. A. (2011). *Upravlenie kachestvom v priborostroenii* [Quality management in instrument engineering]. Moscow: New Center Publ., 479 p. [in Russian].
13. Zhukov, B. M. (2011). *Issledovanie sistem upravleniya* [Research of control systems]. Moscow: Dashkov and K Publ., 208 p. [in Russian].

14. Shabaeva, Yu. I. (2014). Group expert assessment of the significance of factors based on the use of the method of paired comparison. *Inzhenernyj Vestnik Dona [Engineering Vestnik of the Don]*, No. 4. Retrieved from <https://ivdon.ru/ru/magazine/archive/n4y2014/2691> [in Russian].
15. Tikhomirova, A. N., & Sidorenko, E. V. (2012). Modification of the method of analyzing hierarchies by T. Saati for calculating the weights of criteria for evaluating innovative projects. *Sovremennye problemy nauki i obrazovaniya [Modern Problems of Science and Education]*, No. 2. Retrieved from <https://science-education.ru/ru/article/view?id=6009> [in Russian].
16. Bonokhova, A. O. (2012). Research of expert survey data to fill in the knowledge base of the information expert system of the type of distribution of operational advertising. *Inzhenernyj Vestnik Dona [Engineering Vestnik of the Don]*, No. 2. Retrieved from <https://ivdon.ru/ru/magazine/archive/n2y2012/820> [in Russian].
17. Kornilov, Yu. N. (2013). Technology of processing paired comparisons during expert evaluation. *Zapiski Gornogo instituta. Sovremennye problemy osvoeniya territorij [Notes of the Mining Institute. Modern problems of Development of Territories]*, 204, 171–174 [in Russian].
18. Pavlov, A. N., & Sokolov, B. V. (2005). *Metody obrabotki ekspertnoj informacii [Methods of processing expert information]*, St. Petersburg: GUAP Publ., 42 p. [in Russian].

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