

CONSTRUCTION OF FUNCTION OF INFLUENCE OF DIGITAL IMPACT ON SOCIO-ECONOMIC ECOSYSTEM OF THE REGION

Z.A. NAKHUSHEVA, I.V. ASHIKOVA, M.V. ALIKAEVA

Kabardino-Balkarian State University named after H. M. Berbekov
360004, Russia, Nalchik, 173 Chernyshevsky street

Annotation. The article analyzes indicators and identifiers reflecting the process of digitalization of the Russian economy, including the regional one. The concept of a digital impact is introduced, enhancing, by objective necessity, digital transformation. On the basis of a differential equation of fractional order, a mathematical model is built that reflects the dependence of the influence of the force of a digital impact on the socio-economic ecosystem of the region and the rate of its growth.

Keywords: digitalization, digital shock, socio-economic ecosystem, regional economy, fractional equations, Mittag-Leffler function, model

REFERENCES

1. Kozlov A.V., Teslya A.B., Ivaschenko A.A. Formation of a system of indicators for monitoring the processes of digitalization of the national economy. *Izvestiya vysshikh uchebnykh zavedeniy. Seriya: Ekonomika, finansy i upravleniye proizvodstvom* [News of higher educational institutions. Series: Economics, finance and production management]. 2021. No. 01 (47). Pp. 97–107. DOI 10.6060/ivecofin.20214701.522. (In Russian)
2. Fauzi T.H., Harits B. Adaptive Strategies of External Environmental Effects in Digital Entrepreneurship in the Strategic Management Perspective // *Academic Journal of Interdisciplinary Studies*. 2020. No. 9 (3). Pp. 38–45.
3. Decree of the President of the Russian Federation dated 09.05.2017 No. 203 "On the Strategy for the Development of the Information Society in the Russian Federation for 2017 - 2030". [Electronic resource]. URL: <http://static.kremlin.ru/media/acts/files/0001201705100002.pdf> (date accessed 10.17.2021). (In Russian)
4. Azarenko N.Yu., Mikheenko O.V. Assessment of the readiness of the regional infrastructure for the formation and development of the digital economy. *Vestnik Samarskogo gosudarstvennogo ekonomicheskogo universiteta. Regional'naya ekonomika* [Bulletin of the Samara State University of Economics. Regional economy]. 2018. No. 6 (164). Pp. 23–29. (In Russian)
5. Arkhipova M.Yu., Sirotin V.P. Determinants of digital development of the subjects of the Russian Federation. In the book. *Statistika v cifrovoj ekonomike. Obuchenie i ispol'zovanie* [Statistics in the digital economy. Learning and use]. 2018. Pp. 29–31. (In Russian)
6. Bakumenko L.P., Kostromina E.V. Statistical analysis of the readiness of regions to participate in the digital economy. In the book: *Statistika v cifrovoj ekonomike. Obuchenie i ispol'zovanie* [Statistics in the digital economy. Learning and use]. SPb.: Sankt-Peterburgskij gosudarstvennyj ekonomicheskij universitet [St.-Petersburg State Economics University] 2018. Pp. 18–20. (In Russian)
7. Kozlov A.V., Kankovskaya A.R., Teslya A.B. Digital infrastructure as the factor of economic and industrial development: case of Arctic regions of Russian North-West. IOP Conference Series: Earth and Environmental Science. IOP Publishing, 2020. Vol. 539. No. 1. C. 1–8.
8. Arkhipova M.Yu., Sirotin V.P. Regional aspects of the development of information, communication and digital technologies in Russia. *Ekonomika regiona* [Economy of the region]. 2019. Vol. 15. No. 3. Pp. 670–683. (In Russian)
9. Rosite K., Balina S., Freimane R. New Challenges of Economic and Business Development - 2019: Incentives for Sustainable Economic Growth. Proceedings of the 11th International Scientific Conference "New Challenges of Economic and Business Development. Incentives for Sustainable Economic Growth", Riga, Latvia, May 16-18, 2019. Pp. 701–708. (In Russian)

10. Malysheva T.A. *Chislennye metody i komp'yuternoe modelirovanie* [Numerical methods and computer modeling]. *Laboratornyj praktikum po approksimacii funkcij: ucheb.-metod. Posobie* [Laboratory practice on functions approximation. Tutorial]. SPb.: Universitet ITMO. [St-Petersburg, National Research University ITMO] 2016. 33 p. (In Russian)
11. Nakhushhev A.M. On the problem of mathematical modeling of regional socio-economic systems. *Cifrovaya transformaciya nauki i obrazovaniya* [Digital transformation of the science and education] Vestnik Sam STU. [Bulletin of Sam STU. Series Mathematical]. 2007. Vol. 6. No. 2. Pp. 4–15. (In Russian)
12. Nakhushhev A.M. *Drobnoe ischislenie i ego primenenie* [Fractional calculus and its application] Moscow: Fizmatlit, 2003. 272 p. (In Russian)
13. Nakhushcheva Z.A. On one single-sector macroeconomic model of long-term forecasting. *Izvestiya Kabardino-Balkarskogo nauchnogo centra RAN* [News of the Kabardino-Balkarian Scientific Center of RAS]. No. 4 (48). 2012. Pp. 35–38. (In Russian)
14. Abdrakhmanova G.I., Vishnevsky K.O., Gokhberg L.M. and others. *Indikatory cifrovoj ekonomiki: 2020: statisticheskij sbornik* [Indicators of the digital economy: 2020: statistical collection]. Moscow: NRU HSE, 2020. 360 p. (In Russian)

Information about the authors

Nakhushcheva Zarema Adamovna, Candidate of Physical and Mathematical sciences, Associate Professor, Director of the Center for New Educational Technologies, Kabardino-Balkarian State University named after H.M. Berbekov;

360004, Russia, Nalchik, 173 Chernyshevsky street;

z.nakhushcheva@mail.ru, ORCID: <https://orcid.org/0000-0001-8883-025X>

Ashinova Irina Viktorovna, Doctor of Philological Sciences, Scientific Secretary of the Academic Council of KBSU, Professor of the Department of Pedagogical Education, Kabardino-Balkarian State University named after H. M. Berbekov;

360004, Russia, Nalchik, 173 Chernyshevsky street;

asin07@mail.ru, ORCID: <https://orcid.org/0000-0003-2281-0269>

Alikaeva Madina Valentinovna, Doctor of Economical Sciences, Professor of the Department of Economics and Finance, Head of the Department for Training Highly Qualified Personnel, Kabardino-Balkarian State University named after H. M. Berbekov;

360004, KBR, Nalchik, 173 Chernyshevsky street;

Alika123@rambler.ru, ORCID: <https://orcid.org/0000-0003-1493-6320>