
Digital economy of the XXI century and agriculture: a view from the perspective of developed and developing countries

Alesya N. Anishchenko, Cand. of Sci. (Econ.)
e-mail: anishchenko-an@mail.ru

Abstract

Subject/topic. This article discusses the development of the digital economy in the agricultural sector in developed and developing countries. The subject of the study is the process of introduction of digital technologies in the agro-industrial sector in developed and developing countries; the object is the agro-industrial sector of agriculture. **Goals/objectives.** The purpose of this article is to determine the prospects for the development of digital technologies in the agricultural sector in developed and developing countries. **Methodology.** The methodological basis of this study is an interdisciplinary approach, which is implemented in the use of the principles of objectivity and consistency. The method of theoretical analysis and synthesis, classification, method of induction and deduction, comparison, etc. **Conclusions/significance.** In the article, the author determined that the main types of digital technologies used in the modern world agriculture are: computational decision-making tools; cloud technologies; surveillance equipment; micro-robots; digital communications (mobile, broadband, LPWAN); geolocation (GPS, RTK); geographic information system; yield monitors; accurate soil sampling; unmanned aerial vehicles (for example, drones); automatic control and guidance; variable speed technology; on-Board computers; radio frequency identifier; automated milking, feeding and monitoring systems, etc. It is noted that the penetration of advanced digital technologies in agriculture is rapidly developing in countries with developed economies and has an increasing impact on developing countries. It is proved that not only Russia, but also many countries in the process of globalization of the market should equally accept the challenges of digitalization. Mutual exchange, including at the international level, provides a great chance: to use the accumulated experience in your country and catch up, and thanks to this, in the long term, all participants in the digital transformation can benefit. Also, due to the specifics of agricultural production (involving its highly localized and volatile resources, poor connectivity in rural areas, gaps in education and research, support for business and global players), digital agriculture requires special attention from governments and industry leaders. For example, governments in developing countries should improve research regulations and training through the establishment and provision of an effective data infrastructure, through appropriate government financial support and staffing. It is revealed that currently there is a certain imbalance in the introduction of innovations in developed countries and in developing countries. In developed countries such as the United States, Canada and France, high levels of technological adoption and innovation can be noted, while in developing regions such as the middle East and Africa, Asia-Pacific and South America, there is a growing demand for innovation in agriculture. This factor also drives the market. Experts and scientists predict that developing countries (India, China, Brazil, Southeast Asia and Japan) will change the trends and dynamics of the market in the future as a whole. In conclusion, it is determined that the main key factors contributing to the digital transformation of APCC and the agricultural industry in both developed and developing countries are: the use of the Internet, mobile and social networks among farmers and agricultural extension workers, digital skills among the rural population and a culture that encourages digital technologies and innovations. **Practical significance.** The findings and results of the study are useful for specialists in the field of research problems of agriculture, digitalization.

The article is prepared within the framework of the state task of the IPR RAS, the theme of research «Socio-economic and scientific-technological development at different levels of management in industries, complexes and spheres of activity of the national economy of Russia».

Keywords: agro-industrial complex, agriculture, food security, digital economy, digital technologies, modernization, digitalization, developed and developing countries

References

1. Altukhov A.I., Dudin M.N., Anishchenko A.N. Global digitalization as an organizational and economic basis for innovative development of agriculture //Market Economy Problems. - 2019. - No. 2. - Pp. 17-27 (In Russian).

2. Altukhov A.I., Dudin M.N., Anishchenko A.N. Optimization of energy consumption in agricultural enterprises on the basis of technologies «smart production» (industrial Internet of things) //Market Economy Problems. - 2019. - No. 1. - Pp. 58-66 (In Russian).
3. Kravchenko V. Innovations and agribusiness: why such a Union is the future. [Electronic resource]. URL: <https://mind.ua/ru/publications/20202576-innovacii-i-apk-pochemu-za-takim-soyuzom-budushchee> (Access date: 01.11.2019, In Russian).
4. Przhikhachev S.M. Priorities of agriculture in the digital economy //Modern Economy Success. - 2019. - No. 3. - Pp. 63-68 (In Russian).
5. Soldatenko A.V., Razin A.F., Shatilov M.V., Ivanova M.I., Rossinskaya O.V., Razin O.A., Surikhina T.N. Digital economy in agriculture as a driver of industry growth. - 2019. - No. 3 (47). - Pp. 3-6 (In Russian).
6. Digitalization of agricultural production in Russia for the period 2018-2025. Study of the cooperation project «German-Russian agrarian-political dialogue». [Electronic resource]. URL: https://agrardialog.ru/files/prints/apd_studie_2018_russisch_fertig_formatiert.pdf (Access date: 01.11.2019, In Russian).
7. Arsenault C. Only 60 Years of Farming Left If Soil Degradation Continues, Scientific America. [Electronic resource]. URL: <https://www.scientificamerican.com/article/only-60-years-of-farming-left-if-soil-degradation-continues/> (Access date: 01.11.2019).
8. Baumüller H. Assessing the role of mobile phones in offering price information and market linkages: the case of m-farm in Kenya, *EJISDC*. - 2015 (68). - Pp. 1-16.
9. Digital technologies in agriculture and rural areas. Briefing paper. [Electronic resource]. URL: <https://fao.org>3/ca4887en/ca4887en.pdf> (Access date: 01.11.2019).
10. Downes L. The Laws of Disruption: Harnessing the New Forces that Govern Life and Business in the Digital Age. Basic Books. 2009.
11. The State of Food Security and Nutrition in the World: Building Resilience for Peace and Food Security. Rome: FAO, 2018. [Electronic resource]. URL: <http://www.fao.org/news/story/en/item/1152031/icode/> (Access date: 01.11.2019).
12. Woodard J.D., Shee A. and Mude A. A Spatial Econometric Approach to Designing and Rating Scalable Index Insurance in the Presence of Missing Data. The Geneva Papers on Risk and Insurance: Issues and Practice. - 2016. - No. 41 (2). - Pp. 259-79.

About author

Anishchenko Alesya Nikolaevna, Cand. of Sci. (Econ.), Head of Laboratory, Market Economy Institute of RAS, Moscow.

For citation

Anishchenko A.N. Digital economy of the XXI century and agriculture: a view from the perspective of developed and developing countries //Market Economy Problems. – 2019. – No. 4. – Pp. 28-38 (In Russian).

DOI: <https://doi.org/10.33051/2500-2325-2019-4-028-038>