Optimization of energy consumption in the enterprises of the agro-industrial complex on the basis of «smart production» technologies (industrial Internet of Things)

Anatoly I. Altukhov, *Academician of RAS, Dr. of Sci. (Econ.), Professor*
e-mail: aashutkov@yandex.ru

Mikhail N. Dudin, *Dr. of Sci. (Econ.), Professor*
e-mail: *dudinmn@mail.ru*

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

Abstract

Subject/topic. In this article, we consider the organizational, managerial and technological aspects of the transition of agro-industrial enterprises to "smart production" technologies (Industrial Internet of Things / IoT in Industry 4.0). ***Goals/Objectives.*** The purpose of the study was to empirically assess the feasibility of introducing industrial Internet of Things technologies to reduce energy intensity and improve the environmental safety of agro-industrial production. Achievement of the goal was achieved through the solution of relevant tasks: a study of the theoretical foundations of using the technologies of Industry 4.0 (in general, and in particular the industrial Internet of Things); analysis of foreign experience in the implementation of industrial IoT in agro-industrial enterprises; the results obtained abroad and the possibility of their use in the Russian context. ***Methodology***. The article uses a set of research methods: content analysis of scientific sources, statistical analysis of data on the scientific and technological development of Russian agro-industrial regions, environmental friendliness and energy intensity of production in them. ***Conclusions/Relevance***. The obtained results suggest that in the short term we should expect a global change in the traditional trend in the agro-industrial production for science and intelligence-intensive trends in the organization of production processes in the agro-industrial complex using industrial IoT technologies. Foreign experience shows that the introduction of the Industrial Internet of Things in agricultural enterprises increases the rationality of energy consumption and the environmental safety of production, which is accompanied by an increase in the profitability of products. ***Application.*** The authors believe that the foreign experience of introducing industrial IoT technologies can be sufficiently effectively used in the Russian agro-industrial complex, whose enterprises objectively need to improve energy efficiency and reduce the environmental hazard of production activities.

The article was prepared in the framework of the state task of the MEI RAS, the theme of research "Socio-economic and scientific-technological development at different levels of management in the sectors, complexes and spheres of activity of the national economy of Russia».

Keywords*:* *Internet of Things, IoT, smart production, agro-industrial complex, energy consumption, agriculture, smart fabric*

About authors

Anatoly I. Altukhov, Academician of RAS, Dr. of Sci. (Econ.), Professor, All-Russian Research Institute of Agricultural Economics, Moscow.

Mikhail N. Dudin, Dr. of Sci. (Econ.), Professor, Deputy Director, Market Economy Institute of RAS, Moscow.

Alesya N. Anishchenko, Cand. of Sci. (Econ.), Senior Researcher, Market Economy Institute of RAS, Moscow.

For citation

Altukhov A.I., Dudin M.N., Anishchenko A.N. Optimization of energy consumption in the enterprises of the agro-industrial complex on the basis of «smart production» technologies (industrial Internet of Things) //Market economy problems. - 2019. - № 1. - P. 58-66 (In Russian).

DOI: https://doi.org/10.33051/2500-2325-2019-1-58-66