

Management model in the conditions of digitalization of business environment in the regional ecosystem

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Abstract. It is recognized that the role of business environment management in the regional ecosystem is paramount to ensure the balanced development of all ecosystem elements. This is made possible based on the prerequisites for digital transformation that have been created. There is a need for a management model that will bring the spontaneity of the region's entrepreneurial environment into line, strengthen its vector momentum in increasing the activity of the ecosphere of the territory, and allow choosing the best solutions. The study aims to formation of a model for establishing interaction between the state and business in the framework of the Russian model of digitalization based on the study and development of scientific theories and ideas, best practices, research of the state and trends of entrepreneurial activity of the region and its ecosphere. Methods: fundamental theories of entrepreneurship and approaches to modern theoretical research on business environment management, knowledge within the framework of business environment management theory, concepts of regional ecosystem theory, digitalization models, and tools of meso-ecological models of the business environment. The model of establishing the interaction between the state and business in the region proposed is based on the study of theories, methods and analysis of the role and performance trends of the business environment. An adapted management model in the conditions of digitalization of the business environment is presented concerning the regional ecosystem based on the materials of the Strategy of Digital Transformation of Stavropol Territory. In the recommended model on a new technological basis decomposition of factors, agents of the mesoecological model of the business environment and factors of their assessment, the interaction of the business environment and its communication activity between all subjects are given.

1 Introduction

The development of the region's ecosystems under conditions of digitalization necessitates the search for new management models to strengthen business activity and stabilize the state's national economy. The development of the management model in conditions of

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digitalization is provided by a deep theoretical study of concepts and methods, the best practical approaches that have been implemented in various national economic systems in connection with the processes of digital transformation, the results of the forecast analysis of the development of the business environment of the Stavropol Territory. The purpose of the research conducted by the authors is to propose a management model in the conditions of digitalization of the business environment in the regional ecosystem considering its state and trends of entrepreneurial activity in the Stavropol Territory ecosystem.

2 Materials and methods

The research is based on works that prioritize entrepreneurship going back to a new economic view focused on the territory environment with an emphasis on people, networks and institutions [1, 2], as well as the impact of business ecosystems on its development [3]. The organization of business agents into communities and institutions of various levels forms the basis of the territory's propulsiveness, which is noted in the works of domestic scientists on the theory of uneven development of the economy and spatial projections of business [4]. In their vision, the authors start from the concept of the interrelated influence of entrepreneurship and the development of its business environment within the territories through the ongoing transformations of territorial socio-economic systems, spontaneity of self-organization and development of small business communities. The analysis of the activity of the business environment of territories has been used to assess the institutional factor of economic systems development [5].

The application of the system method of scientific cognition within the framework of the management theory of business environment at the micro-, meso-, and macro-levels allows us to conduct a study considering ecosystem factors [6-8].

The study is based on conceptual approaches and theoretical research on the management of the business environment of the region, economic forecasts of changes in the business environment and models of construction and development of regional ecosystems [9] as the basis from the application in the conditions of digital transformation. The ways and methods of digitalization of entrepreneurship, marketing and inter-business ecosystems are studied by the works of foreign researchers in these fields [10-13]. However, it is impossible to fully adapt them due to the existing eco-needs and management models in the Russian practice of territorial management and the conditions of regional digitalization of the business environment.

The theory of business environment management in the regional ecosystem requires adaptation considering the ongoing evolutionary changes in the environment and the creation of management models of digitalization of the business environment of a particular territory. Digital transformation should not only improve the efficiency of business management in the regional ecosystem but also open up new opportunities for companies, interactions in the business environment, building predictive models and planning activities.

3 Results

To develop a modern model of business environment management, it is necessary to consider the trends of entrepreneurial activity in the region according to the highlighted eco-components of the region's digital transformation. The results of the analysis and forecast (by polynomial trends) of entrepreneurial activity in Stavropol Territory by the criterion of revenue generation (turnover) by SME agents are presented in Figure 1.

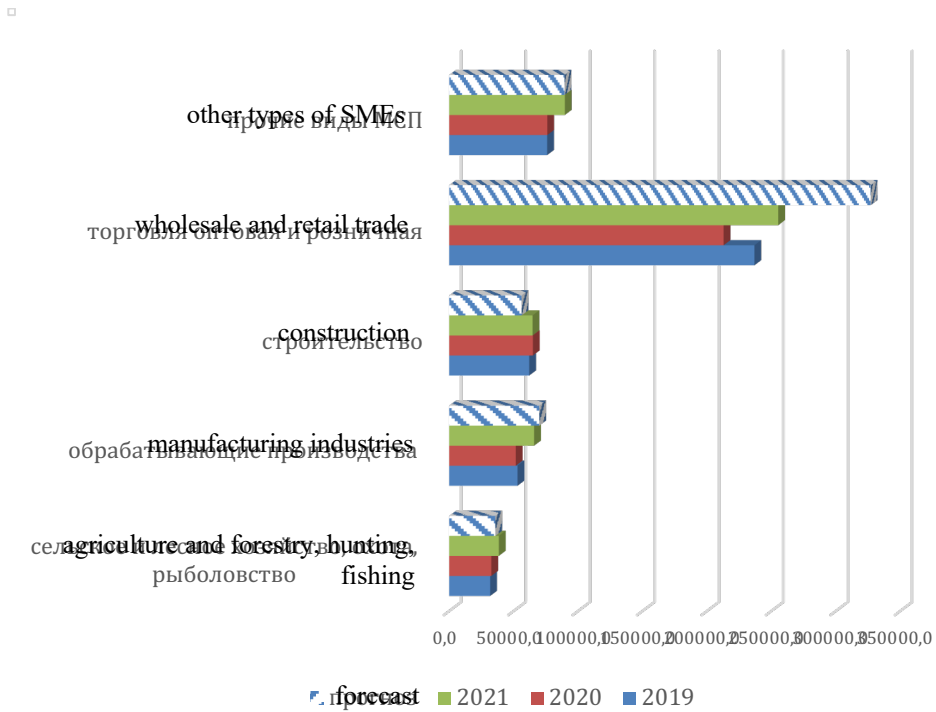


Fig. 1. Dynamics and forecast of entrepreneurial activity of small businesses in Stavropol Territory.
 Source: Compiled by the authors

Based on the results of this analysis, the key growth areas in revenue generation are as follows in 2021. “Wholesale and retail trade” (255318.2 RUB mln), construction (64677.6 RUB mln), manufacturing industries (65898.3 RUB mln). However, the generation of SMEs in other in Figure 1 is characterized to be at the same level over the three years, with a slight trend in 2021 and the forecast value. Their further development based on revenue (turnover) generation forecast is represented by polynomial trends in Figure 2. As we can see, SME revenue generation in culture, sports, leisure and entertainment, and education is declining annually, and forecast trends are declining. At the same time, these spheres’ role in developing eco-components of the territory can hardly be overestimated.

These trends demonstrate that the current management system can lead to the reduction and loss of SME activities in vital areas of the region’s ecosystem. The existing system of regional SME management is mostly characterized by a set of casual relationships of the business community, insufficient measures of state financial support, stimulation of small businesses in the field of culture, sports, leisure and entertainment, education, low use of progressive elements of the region’s ecosystem. In this area, the authors of the works [14] have developed conceptual aspects of the organization of management in the sphere of services in the regional market.

In the fundamental approaches of the mesoecology theory, the business environment of entrepreneurship is formed from the position of a set of relations of entrepreneurs with an emphasis on the thrifty attitude to the ecosphere and mutual partnership of subjects united by this idea. However, this approach is based on the spontaneity of emerging relations without a determining vector of management impact, which does not give the proper effect for developing all areas and spheres of the region’s ecosystem.

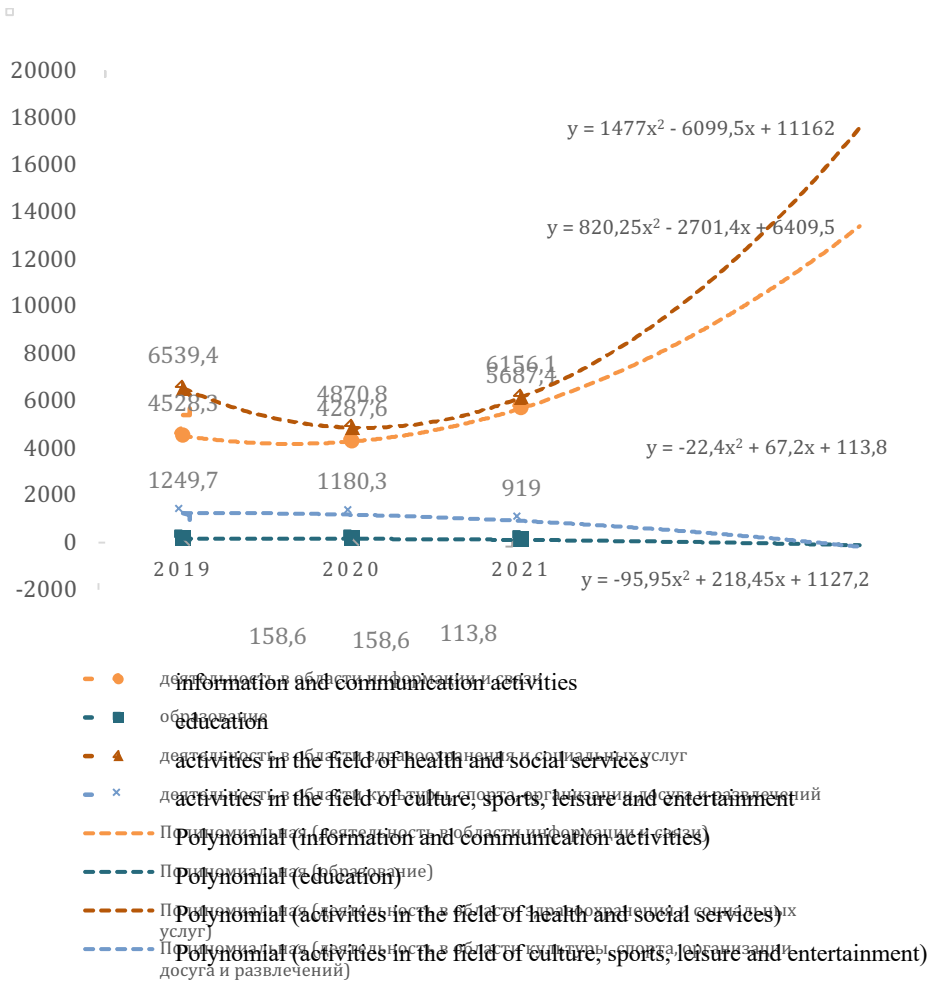


Fig. 2. Dynamics and forecast of entrepreneurial activity of SMEs of Stavropol Territory socio-cultural direction. *Source:* Compiled by the authors

At the present stage, the necessary objective conditions have been created for applying elements of this approach in the Russian practice of management for all regional factors by establishing interaction between the state and business in the region.

In the new model of business environment management, it is necessary to apply the positive foreign experience of selecting the criterion of state support for entrepreneurship, considering the priority selection of mesoecology factors [15]. Thus, if traditional management proceeds from the selection of support for competitive business entities, which does not give sufficient efficiency to the regional ecosphere, then the allocation of funds according to the criterion of increasing their contribution to the development of factors of the regional ecosphere will contribute to the expansion of business opportunities.

4 Discussion

The authors see the further development of the state-management ecosystem in its ability to ensure the maintenance of vital spheres of small business at the simultaneous interaction of a set of ecosystem elements based on the digital transformation of the region's eco-

components. This becomes possible under the conditions of digital transformation of the region's business environment and eco-environment within the framework of the Information Society state program of the Russian Federation and the adopted Digital Transformation Strategy of the Stavropol Territory. By 2024, cloud technologies and services, digital copy (digital twin), industrial internet of things, and big data will be implemented in the region. Digitalization should be carried out considering the identified eco-components of the Digital Transformation Strategy, which covers largely such areas of social, cultural, and financial orientation, along with industry and urban environment.

The management model in the conditions of digitalization of the business environment in the region's ecosystem can be represented by a set of digital characteristics according to the data components identified in Figure 3 on SME agents of the region, the government of Stavropol Territory and the directions of their interactions: support programs, subsidies, associations of groups of SME agents on the factors of the territory's ecosystem, communication of business environment subjects.

Initially, the model creates an environment for information-technical interaction of agents in the context of OKVED and other components (assortment, price, sales channels).

After the first stage of digitalizing the business environment in the Stavropol Territory ecosystem, an "entry" into the ecosystem meta-image is envisaged.

In the next stage, a digital footprint is generated to list and rank the entrepreneurs' business environment. A special place in the management model is given to audit and the formation of decisions based on its results on the allocation of subsidy aid and grants to support the balanced development of all components of vital spheres of the region's ecosystem in the field of culture, sports, leisure and entertainment, and education. Supporting regional programs requires openness and honesty, which is reflected in the digitalization of the region's business environment.

5 Conclusion

Digitalization of the business environment is represented by the organization of a closed-type entrepreneurial community system the four-component composition of the business environment presented in Figure 3 consists of the segments: communication (promotion), product, distribution, and innovative eco-environment. So, there is communication between the main agents of the territory: business and the state.

Thus, the model of business environment management in the region's ecosystem employing digital transformation presented by the authors will accelerate the processes of management and decision-making by the subjects of the territory on the part of state authorities and responses of the entrepreneurial community.

To elaborate further development, it is necessary to envisage options for involving the population and communities interested in cultural development in managing the region's ecological environment through creating a separate module in the digital model.

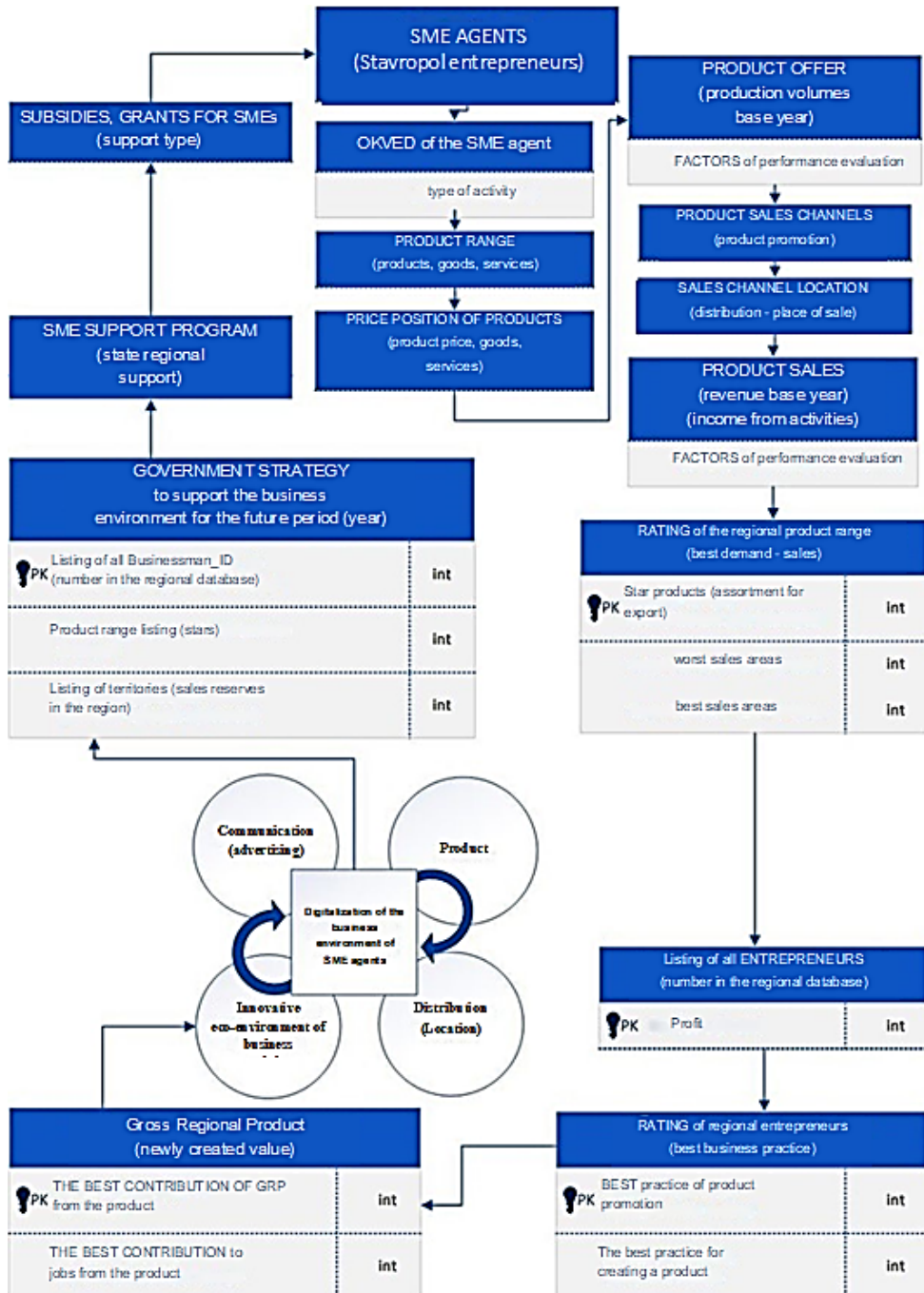


Fig. 3. The management model of digitalization of the business environment in the region's ecosystem

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