

Development of Business Support Institutions in the Digital Economy

Ekaterina Khomenko
*Department of Finance,
 Accounting and Mathematical
 Methods in Economics
 Udmurt State University
 Izhevsk, Russia*
 ORCID: 0000-0001-6699-1394

Inna Matveeva
*Department of Economics and
 Finance
 Kalashnikov Izhevsk State
 Technical University
 Izhevsk, Russia*
 ORCID: 0000-0002-5022-5887

Larisa Vatutina
*Department of Public
 Administration and Law
 Moscow Polytechnical
 University
 Moscow, Russia*
 larisa_vatutina@mail.ru

Elena Panteleeva
*Department of Economics and
 Finance
 Kalashnikov Izhevsk State
 Technical University
 Izhevsk, Russia*
 pantpant@mail.ru

Abstract—The modern phase of development of the digital economy in the Russian Federation is determined by the formation of a federal-regional information system in all spheres of human activity, which is also accompanied by the massive introduction of information and communication technologies in business. Informatization of enterprise is characterized by the extensive use of information resources and technologies, the growth of employment in the information and communication sector and the improvement of infrastructure instruments to ensure business processes. Currently informatization infrastructure support becomes the basis for the development of entrepreneurial activities of small businesses. In this regard, the formation of new and modified existing SME support institutions. One of the most effective institutions of infrastructural support of small business at the present stage of transition of the Russian economy to digital is a business incubator. This is due to the fact that the business incubator, firstly, creates favorable conditions for the generation of small businesses, and secondly, helps to strengthen the positions of already functioning enterprises and, thirdly, to contribute to the solution of urgent social and economic problems at the regional level. The purpose of this article is a theoretical substantiation and development of practical recommendations to improve the existing system infrastructure to support small businesses with technologies of the digital economy.

Keywords—*entrepreneurship, digital economy, informatisation of economy, business infrastructure, business support institutions.*

I. INTRODUCTION

In the context of the need to use advanced digital technology in the economy of the dominant trend is computerization of business activity, which is manifested through the creation of databases in many fields of knowledge using information and communication systems, as well as the increasing use of the Internet. The result of informatization of enterprise activity are structural changes in business practices [1].

Currently, the Russian economy is accompanied by the formation of digitalization federal-regional society of information systems, the massive introduction of digital technologies in various spheres of human activity, including enterprise system, the creation and use of standardized information systems, an increase in the number of employees in the information sector. These changes also affected the enterprise system, which is reflected in the transformation of its support institutions [2].

The purpose of the study is the theoretical basis and development of practical recommendations to improve the system of infrastructural support of small enterprises in the digital economy in the process of business incubation.

II. LITERATURE REVIEW

Theoretical bases of development of infrastructure in economic science laid such foreign scholars as A. Lewis, R. Nurkse, A. Pesenti, P. Rosenstein-Rodan, P. Samuelson, A. Hirschman, A. Yangson and others.

Questions of formation and development of infrastructural support of small businesses are widely covered in the works of domestic and foreign scientists. Significant contribution to the study of laws and business system development trends have F. Knight, F. Hayek, Jo. Schumpeter, A. Asaul, A. Tatarin and others.

A study of information and analytical component of the infrastructural support of small business is represented in the works of A. Afanakin, V. I Vagizova, D. Isayev, M. Luzhetsky and others.

Issues of development of business incubation theory covered in the works G. Albort-Morant, E. Baraldi, B. Clarysse, A. Fayolle, M. Ingemansson Havensvid, W.-H. Lai, W. Lamine, C.-C. Lin, S. Mian, B. Mrkajic, C. Pauwels, D. Ribeiro-Soriano, M. Wright, J. Van Hove, A. Kozzyrev, M. Chirkina and others [3-5].

The analysis of scientific literature suggests the existence of a number of unresolved problems in the information and analytical support of small businesses, as well as in the evaluation of its effectiveness.

III. RESEARCH METHODOLOGY

The methodological basis of the study made a systematic and evolutionary approaches, scientific methods of research, including history, logic, analysis and synthesis, induction and deduction, comparison method, mathematical methods of research, including hierarchy analysis method, the method of expert estimations, grouping method.

As an information and empirical basis of research used data published by the Federal State Statistics Service; legal documents of federal and regional level; monographs and dissertations; statistical material published in the scientific literature and periodicals; articles foreign and domestic scientists; Internet resources; materials provided by the business incubator of the Udmurt Republic.

In today's economy informatization of business is the dominant trend. This is manifested in the creation of databases on all branches of knowledge with the use of information and communication systems in the development of Internet

technology and artificial intelligence. Such an economy can characterize as an information. Scientists are five basic stages of formation of the information economy (table 1) [6].

TABLE I. STAGES OF FORMATION OF INFORMATION ECONOMY

The name of stage	Characteristic	Constraints
1. Forming of regulatory support	- development and adoption of federal regulatory documents in the field of economics of information, informatization of society and the development of information and communication technologies.	- fragmentary development of the regions of society informatization; - inconsistency of the institutional culture of the needs of the information society.
2. Commencement of information and communication technology	- the emergence of information and communication technology in the communications industry; - a small percentage of employees in the information sector; - informatization of public authorities in some areas.	- the lag of the production infrastructure of the business development needs; - «catching character» of the information and communication technology sector; - insufficient level of computer literacy.
3. Mass adoption of information and communication technology	- development of regional legislation in the field of information; - the implementation of standardized information products; - increase in the number of workers employed in the information and communication technology sector; - increase the share of the cost of information resources.	- shortage of skilled IT professionals; - insufficiently developed information support of business infrastructure; - «the digital divide» regions.
4. The dynamic growth of the information and communication technology sector	- the establishment of a federal-regional system of informatization of society; - enhancing the role of information and communication technology in the economy; - increase in the number of people employed in the field of work with information; - increase in the share of R&D costs.	- outstripping production growth in the information and communication technology sector; - lag of innovation infrastructure of business development needs; - poor information interaction between the actors in the business infrastructure.
5. Advanced development of the sector of information and knowledge production	- development of intellectual entrepreneurship; - the prevalence of high-tech products in the production structure; - increase in the number of people employed in R&D economy; - erasing «the digital divide» on a geographical basis.	- intervention in the personal freedom of citizens; - the development of Internet crime; - the monopoly of the growth of large business organizations in certain segments of the information sector of the economy.

The Russian Federation is currently the 3rd and 4th stages of the development of the information economy, which can be defined as digital.

The digital economy is characterized by the progressive development and implementation of information and communication technology in all spheres of life, as well as increased research and development costs and commercialization of innovations. But fragmentary development of the IT sector in the Russian regions causes many problems in doing business. This is primarily connected with «the digital divide» and the lack of human and financial resources.

Address these issues are designed to promote the institutions of infrastructure support business (figure 1).

Currently, under the institutions of support of small business often refers to support institutions within a narrow approach. This business incubators, technology parks, venture capital funds, technology development zones, science parks, technology commercialization offices, technology centers, export-oriented areas; educational institutions, research institutes; industrial parks and others. In practice, the types of small business support infrastructure is much more.

IV. RESULTS

The most developed institution to support small business in Russia is a business incubator. However, the development of business incubation is facing a number of challenges [2], part of which is shown in figure 2.

As part of the development of information and analytical support to small businesses and solve these problems, we can

formulate the following main tasks aimed at the integrated use of information and analytical instruments:

1) the development of information interaction of business incubators with educational institutions and other institutions, infrastructure support for more complex (methodical and scientific) support, access to research results and specialized equipment, as well as attracting professional experts (research institutes employees, university professors, employees of state institutions and organizations, financial organizations of experts);

2) the development of a positive image of business incubators through the promotion of services (advertising, inviting potential participants of exhibitions, organization of thematic conferences, seminars, webinars, workshops and corporate identity);

3) expanding the thematic areas of consulting support to small businesses, increasing the number of training programs in all subject areas, as well as implementation expertise of entrepreneurial projects with a view to an early start;

4) establishment of remoting, incl feedback establishment between resident and business incubators by applying the information and analytical instruments in the complex, for example in the form of an information portal, an Internet incubator;

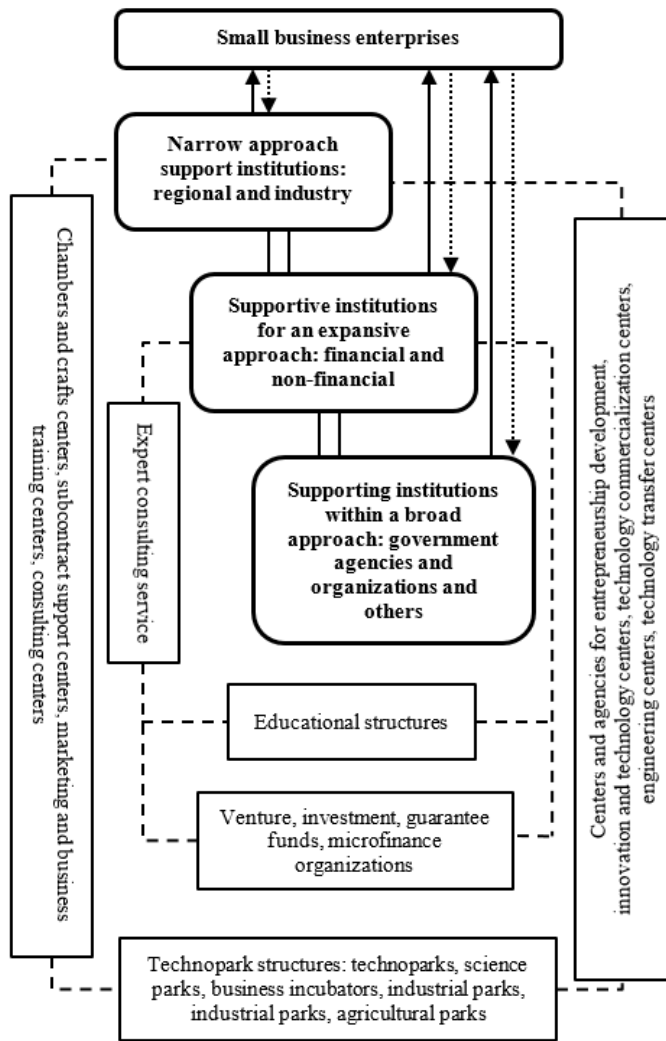


Fig. 1. Classification of the infrastructure of support of business institutions in the digital economy.

5) the use of new forms of support institutions to provide highly specialized assistance in the implementation of business projects. With the development of the digital economy, new forms of SME support institutions. These include a business accelerator, technology transfer centers, coaching centers, coworking centers and others.

Thus, the main objective of improving the infrastructure of support of small business is the use of information and analytical instruments integrated and remotely. Integrated and remote use of information and analytical instruments, infrastructure support will help increase the number of hatching small businesses to promote their successful development in the conditions of the digital economy [7,8].

V. PRACTICAL SIGNIFICANCE

The practical significance of the work proposed in the recommendations on improving the information and analytical support for small businesses is to use them in the activities of the business incubator of the Udmurt Republic. The authors have developed information and analytical program of interaction between small businesses and the business incubator program and performance evaluation of information and analytical support of small enterprises. The proposed guidelines take into account the Ministry of Economy of the Republic of Udmurtia in the development of regional programs for the development of small business and the development of its infrastructure support.

VI. CONCLUSION

Formation of the digital economy at the present time involves the development of all spheres of human activity, including entrepreneurship, with the use of information and communication technologies. In such circumstances, one of the main problems for the small business sector is becoming discrepancy in traditional forms and methods of implementation of the infrastructure support needs of modern business [8-10].

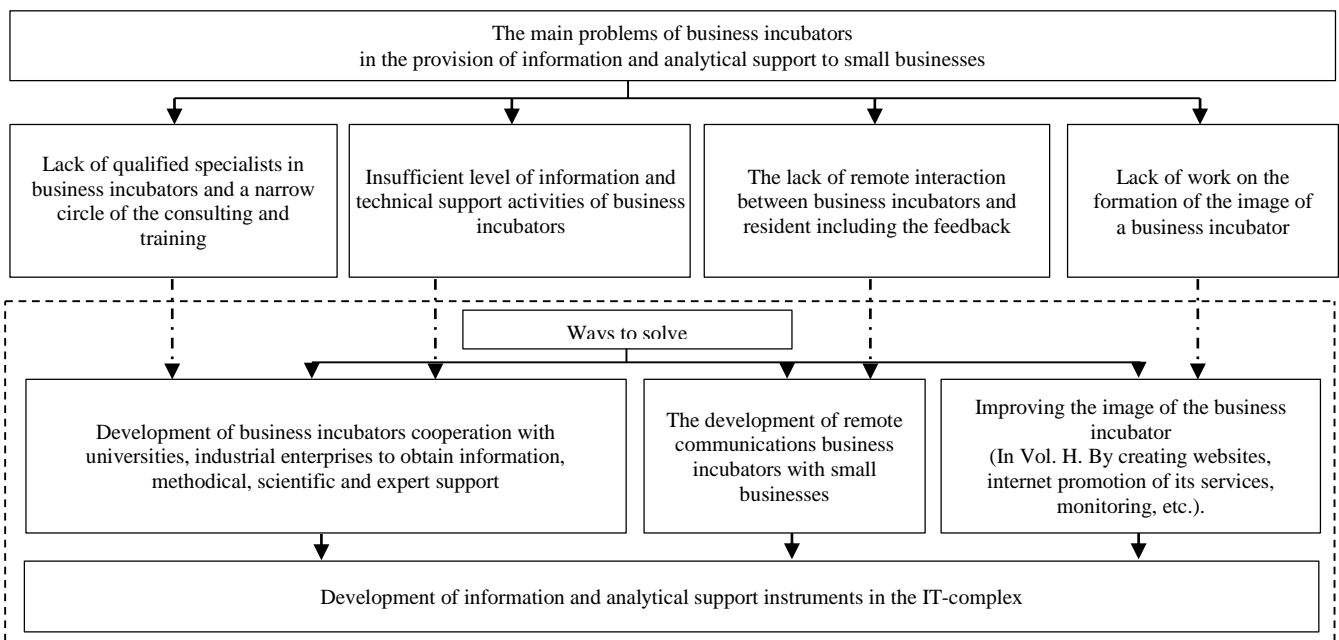


Fig. 2. - Main problems of infrastructural support of small enterprises in the system of business incubation.

Current direction of development of infrastructure to support small businesses in the digital economy can be defined as an information and analytical. Informatization infrastructure support business involves the use of information and analytical instruments that can be represented as a single IT industry. Its task is the comprehensive and remote provision of information and analytical support instruments to small enterprises in the most convenient way for them: territorial or functional [8,11,12].

Proposed by the authors of IT complex is aimed at simplifying the procedures for obtaining information and analytical support for small businesses from the business incubator by virtualizing their interaction. This IT complex is proposed for implementation in the work of the Federal portal for small and medium enterprises in the section «SMEs support in the region».

Currently, the complex is registered as a current affairs program of interaction between small businesses and the business incubator (registration number of the computer program by the Federal Service for Intellectual Property 2018619538 from 8/7/2018) and is embedded in the activities of the business incubator of the Udmurt Republic: Autonomous Institution of Udmurt Republic «Republican Business incubator» and the Business incubator at Kalashnikov Izhevsk State Technical University.

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