Development of the Region's Creative Network Within the Framework of the Ecosystem Approach

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ABSTRACT

The relevance of this study lies in the necessity to discover methods for fostering entrepreneurial growth in regional contexts, operating within a particular framework. One example of such a business organization is the complex of creative industries, in which the relationship between companies that form a creative product and promote its dissemination is based on sustainable networking. The purpose of the article is to study the dependence of the development of nodes and the tightness of communication of the creative network, as well as factors stimulating the development of creative industries in regional localisation. The research methodology is based on the principles of the theory of regional ecosystems. Methods of the study are statistical data processing, comparative and correlation analysis. As a recommendation, it is noted that the use of an ecosystem approach in developing a mechanism for the development of a creative network requires additional justification for the list of results of the development of a creative network in regional localization with a detailed description of the effects received by the population of the region, government bodies, municipalities and other stakeholders.

Keywords: creative industries; creative product formation; entrepreneurial networks; business-ecosystem; regional localization

INTRODUCTION

The traditional approach to the development of creative industries as sectors of small and medium-sized businesses in the regional economy includes the creation of favorable conditions for the functioning of such organizations. Improving the working conditions for small and medium-sized enterprises is a fundamental method in entrepreneurship theory, supported by the works of domestic [1–3] and foreign scholars [4–6]. Perceiving the functioning of the creative industries complex as a networked structure localized within a territorial entity changes the traditional methods of entrepreneurship development stimulation by state and municipal authorities. Therefore, it is appropriate to test the hypothesis regarding the relationship between the development of the creative industries complex (with an assessment of the quality characteristics of the established nodes and the tightness of connections) and the implementation of entrepreneurial initiatives in regional localization. The obtained information will help determine the level of regional ecosystems regarding creative industries and identify directions for their stimulation by creating the necessary conditions.

MATERIALS AND METHODS

Summarizing the list of factors that stimulate the formation of creative industries, we can highlight areas such as the creation of infrastructure and institutional conditions for the functioning of organizations, providing entrepreneurs with financial, consulting, and organizational support.

The model for intensifying the development of creative industries in the region assumes a direct relationship between the increase in the number of entrepreneurs demonstrating sustainable growth in turnover and assets and the selection of factors specific to these industries. Accordingly, the task of state and mu-

nicipal authorities is to identify these factors and accumulate resources for their use in the region. In this context, it is worth mentioning the Regional Standard for the Development of Creative Industries,[1] which includes 12 steps and was prepared by the Agency for Strategic Initiatives in 2023 (*Fig.* 1).

As seen in *Fig. 1*, the authors of the standard perceive the organizations within the creative industries as self-sufficient units that create a product ready to search for a consumer within market relationships. This fact is confirmed by, for example, Step 5: "Determining the priority creative industries for forming the creative specialization of the Russian Federation entity," i.e., individual sectors should compete for priority. However, the clear detailing of industries that create the creative product and facilitate its distribution is not taken into account. The activities referred to as part of the creative industries complement each other, and abandoning the common development of the region's creative complex will not allow the stimulation of these activities or the realization of the desired effects. Solving this methodological problem must start with perceiving creative industries as a branching network structure, a "creative network," where some nodes (organizations) are responsible for creating the creative product, while others contribute to its distribution and perform an infrastructural role.

Accordingly, the stages of auditing and analysis should be supplemented with research to identify the region's creative network and define the status of organizations in terms of the tasks they perform within this network. Next, it is necessary to identify the nodes — those responsible for creating the creative product, facilitating its distribution, and performing infrastructural functions. Support directions, in addition to economic and institutional stimulation, should include ac-
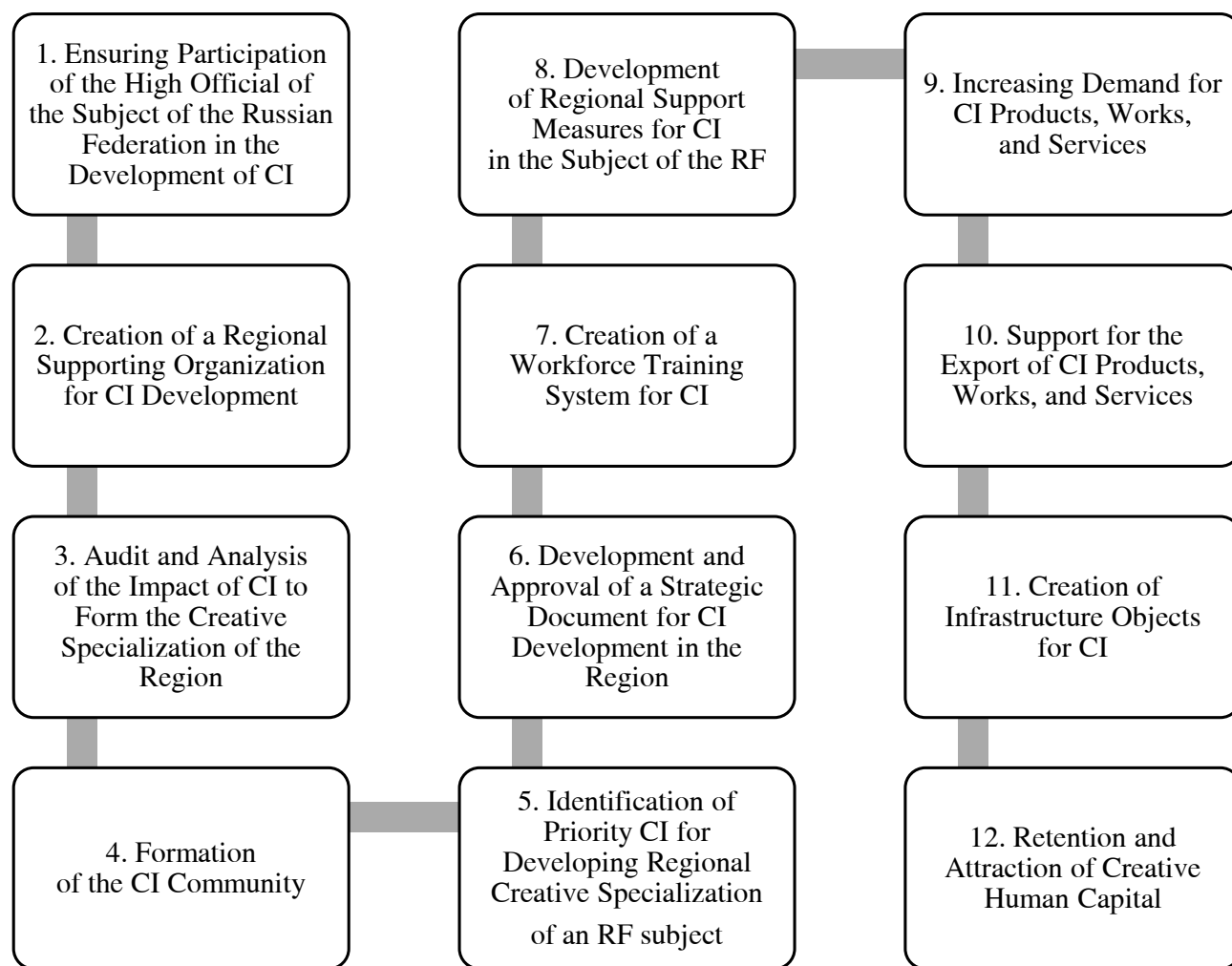
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[1] URL: https://asi.ru/library/main/197563/

1. Ensuring Participation of the High Official of the Subject of the Russian Federation in the Development of CI	8. Development of Regional Support Measures for CI in the Subject of the RF	9. Increasing Demand for CI Products, Works, and Services
2. Creation of a Regional Supporting Organization for CI Development	7. Creation of a Workforce Training System for CI	10. Support for the Export of CI Products, Works, and Services
3. Audit and Analysis of the Impact of CI to Form the Creative Specialization of the Region	6. Development and Approval of a Strategic Document for CI Development in the Region	11. Creation of Infrastructure Objects for CI
4. Formation of the CI Community	5. Identification of Priority CI for Developing Regional Creative Specialization of an RF subject	12. Retention and Attraction of Creative Human Capital

Fig 1. **Twelve steps for the development of creative industries in the subjects of the Russian Federation**

Source: compiled by the authors in the base of URL: https://asi.ru/library/main/197563/

tivities that enable effective distribution of the creative product.

The methodology for developing network entrepreneurial structures in the region's space is less developed than the methodology for determining factors that stimulate entrepreneurship development. Some theoretical and methodological foundations within the framework of regional and sectoral economics are laid out in cluster theory and in the evolving theory of regional ecosystems.

In some studies, the cluster form of organization is mentioned as a priority method for stimulating the development of creative industries [7–9]. This fact confirms that the complex of creative industries has a network structure, and ignoring this feature when forming directions and development models is not advisable. The analysis of research [10–12] shows that the formation of regional clusters in the Russian Federation is based on an initiative model, implemented by development institutions since the early 21st century. A similar experience is applied to the clustering of creative industries.

Ecosystem theory expands the understanding of the functioning and development of the creative network by including a significant number of external participants as objects. In this case, the analysis of the role of partici-

Table 1

The procedure for testing hypotheses about the dependence of node development and the tightness of connections in a creative network, and the factors stimulating its development, in regional localisation

Correlation Coefficient	Hypothesis	Result Interpretation (Chedok's Scale)
U 1…n n — number of factors stimulating the development of creative industries in regional localization	Testing the presence of connectivity between the development of creative network nodes and the factors stimulating the development of creative industries in regional localization	Range 0.9–1 — very high 0.7–0.9 — high 0.3–0.7 — medium 0–0.3 — low
T1…n n — number of factors stimulating the development of creative industries in regional localization	Testing the presence of the strength of connection between the creative network and the factors stimulating the development of creative industries in regional localization	

Source: compiled by the authors.

pants is somewhat different from the cluster approach, as it is necessary to consider the effects that directly impact the entire regional ecosystem. While in the cluster approach "development institutions in the most common understanding are generally equated with special organizations that differ from others in that they facilitate the allocation of resources in favor of projects that realize new economic growth potential for the industry, region, or country as a whole" [13], for ecosystems, it is possible to use a ranking system that shows the progress of development institutions in a specific region due to the high effectiveness of the support provided. Thus, when developing the creative industry, the list of network effects should include those necessary for the organizations within the ecosystem [14, 15].

METHODOLOGICAL APPROACHES TO RESEARCH

The formation of development directions for the creative network within the ecosystem approach involves a continuous assessment of the impact of a set of stimulating factors on the development of creative network nodes and maintaining the strength of connections within the range of "average" and above in regional localization. A paired correlation analysis is proposed as the evaluation method. The research process includes hypothesis testing (*Table 1*).

The indicator of the development of regional creative network nodes is determined by comparing it with a similar network within the national economy (*Fig.* 2): a score of 10 points is given for full alignment with the regional network, and the points are reduced proportionally for partial alignment.

The strength of the connection in the creative network is measured using correlation coefficients $K_1 - K_6$:

$$K_n = \frac{\Sigma \left(X_i - \bar{X} \right) \left(Y_i - \bar{Y} \right)}{\sqrt{\Sigma \left(X_i - \bar{X} \right)^2 \Sigma \left(Y_i - \bar{Y} \right)^2}},$$

where the values of variables *X* and *Y* are presented in *Table* 2.
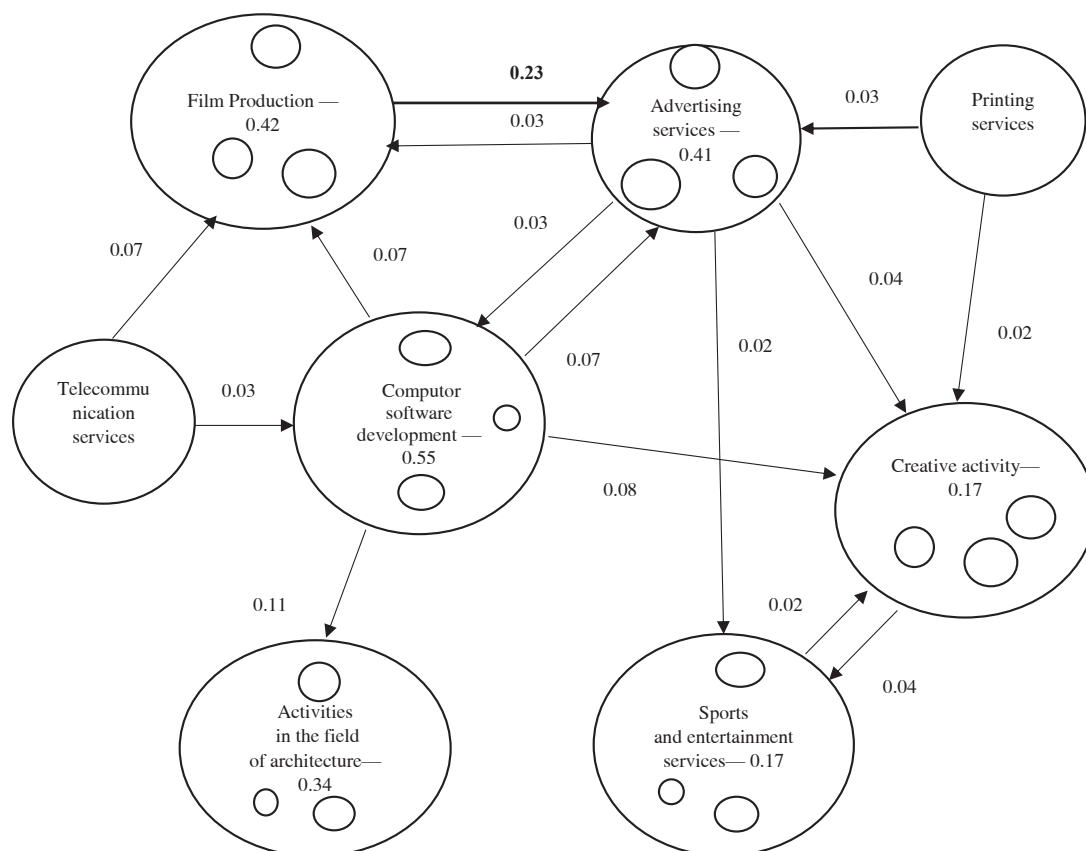
Fig 2. **Configuration of the Creative Industries network**

Source: [16].

Table 2

Values of *X* and *Y* in the calculation of indicators characterizing the closeness of communication in the creative network

Correlation Coefficient	X	Y
K_1	Total assets of organizations forming creative products	Number of organizations working in the promotion and distribution of creative products
K_2	Profit of organizations forming creative products	Number of organizations working in the promotion and distribution of creative products
K_3	Revenue of organizations forming creative products	Number of organizations working in the promotion and distribution of creative products
K_4	Total assets of organizations promoting and distributing creative products	Number of organizations working in the formation of creative products
K_5	Profit of organizations promoting and distributing creative products	Number of organizations working in the formation of creative products
K_6	Revenue of organizations promoting and distributing creative products	Number of organizations working in the formation of creative products

Source: compiled by the authors.

The justification of the stimulating factors is carried out in accordance with the analysis of scientific works and program documents dedicated to the development of creative industries in the Russian Federation (*Fig. 3*).

RESULTS AND DISCUSSIONS

When assessing the development of nodes and the strength of the connection within the creative network for the production and distribution of film products across the regions of the
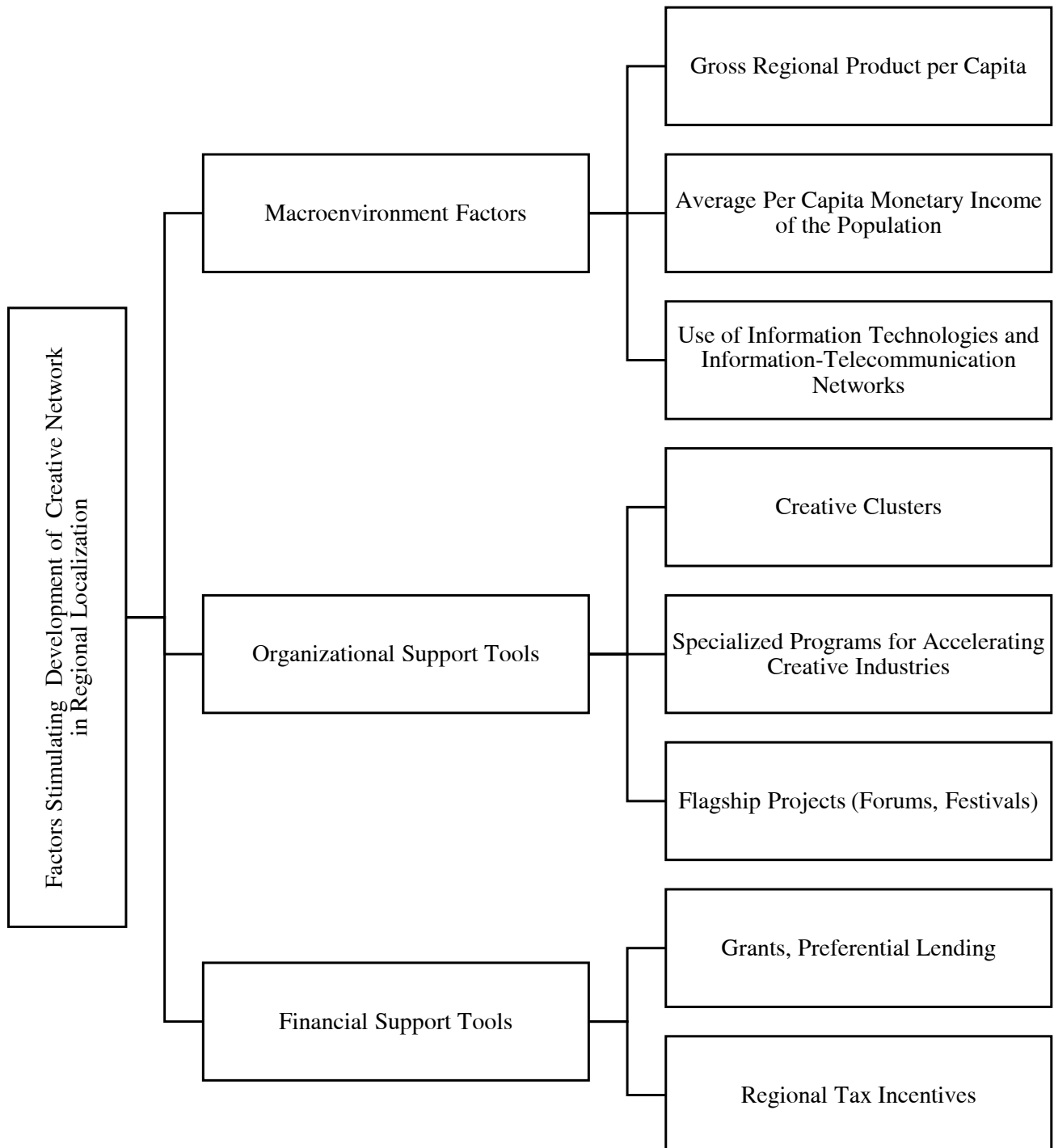

Fig. 3. **Factors stimulating the development of a creative network in regional localisation**

Source: compiled by the authors.

Table 3

Indicators of the development of nodes and the tightness of communication of the creative network of production and distribution of film products in the context of the regions of the Russian Federation with the presence of organisations forming a creative product

Region	Net's node	K_1	K_2	K_3	K_4	K_5	K_6
Moscow	10	0.724752	0.752475	0.722772	0.544554	0.673267	0.39604
Irkutsk region	10	0.633663	0.455446	0.742574	0.415842	0.732673	0.712871
Altai region	7.5	0.579208	0.564356	0.393564	0.534653	0.415842	0.534653
Moscow region	7.5	0.579208	0.556931	0.408416	0.304455	0.549505	0.386139
Perm region	7.5	0.534653	0.445545	0.341584	0.386139	0.50495	0.467822
Bashkortostan (Republic)	7.5	0.50495	0.586634	0.542079	0.45297	0.594059	0.304455
Amur region	7.5	0.475248	0.534653	0.40099	0.50495	0.467822	0.341584
Orenburg region	7.5	0.475248	0.482673	0.556931	0.29703	0.534653	0.549505
Rostov region	7.5	0.467822	0.534653	0.571782	0.519802	0.423267	0.579208
Nizhny Novgorod region	7.5	0.467822	0.334158	0.356436	0.34901	0.423267	0.40099
Voronezh region	7.5	0.45297	0.386139	0.40099	0.527228	0.594059	0.438119
Yaroslavl region	7.5	0.415842	0.45297	0.430693	0.564356	0.50495	0.430693
Kaliningrad region	7.5	0.408416	0.586634	0.371287	0.304455	0.378713	0.527228
Krasnodar region	7.5	0.408416	0.319307	0.371287	0.363861	0.556931	0.408416
Saratov region	7.5	0.386139	0.594059	0.40099	0.490099	0.34901	0.564356
Sverdlovsk region	7.5	0.386139	0.363861	0.475248	0.556931	0.571782	0.29703
Saint Petersburg	7.5	0.378713	0.34901	0.527228	0.326733	0.45297	0.571782
Samara region	7.5	0.363861	0.482673	0.594059	0.549505	0.311881	0.460396
Volgograd region	7.5	0.363861	0.29703	0.571782	0.393564	0.40099	0.527228
Tyumen region	7.5	0.356436	0.519802	0.586634	0.386139	0.386139	0.334158
Chelyabinsk region	7.5	0.356436	0.50495	0.482673	0.415842	0.564356	0.519802
Stavropol Krai	7.5	0.334158	0.363861	0.45297	0.34901	0.371287	0.430693
Krasnoyarsk region	7.5	0.326733	0.579208	0.415842	0.571782	0.519802	0.534653
Mari El (Republic)	7.5	0.319307	0.423267	0.467822	0.430693	0.490099	0.490099
Chuvash Republic-Chuvashia	5	0.326733	0.361386	0.247525	0.391089	0.366337	0.341584
Republic of Crimea	5	0.30198	0.336634	0.39604	0.222772	0.311881	0.267327
Ryazan region	5	0.242574	0.341584	0.287129	0.356436	0.386139	0.287129
Sevastopol	5	0.222772	0.242574	0.311881	0.207921	0.237624	0.356436
Arkhangelsk region	5	0.207921	0.252475	0.272277	0.381188	0.232673	0.30198

Source: compiled by the authors on the basis of data from the SPARK Interfax analytical database.

Russian Federation, the following results were obtained (*Table 3*).

According to *Table 3*, a fully developed creative network is only present in Moscow and the Irkutsk region; organizations involved in the production of creative products (films, video films, and television programs) are present in only 29 regions. Infrastructure organizations providing telecommunications and advertising services are found in almost all regions of the Russian Federation.

The strength of the connection between the nodes of the creative network for the production and distribution of films can be described as "average," although for the entire country, without regional detail, it is considered "strong"

[17]. This observation leads to the conclusion about **the interregional nature of the activities within the creative network for the production and distribution of films**. Organizations interact without strict regional localization, which indicates the futility of various organizational activities aimed at developing creative industries based on physical presence, and highlights the benefit of digital tools that support remote interaction.

Next, we will present the results of the correlation analysis of the development of nodes and the strength of the connection within the creative network and the factors stimulating the development of creative industries in regional localization (*Table 4*).

Table 4

The results of the correlation analysis of the development of the nodes and the tightness of the communication of the creative network, as well as the factors that stimulate the development of creative industries in regional localization

Indicator	Gross regional product per capita	Average per capita monetary income of the population	Use of information technologies and information and telecommunication networks	Creative clusters	Specialized acceleration programs for creative industries	Mainline projects (forums, festivals)	Grants, preferential lending	Regional tax breaks
Net's node	0.531	0.434	0.458	0.388	0.458	0.427	0.202	0.384
K_1	0.382	0.263	0.430	0.313	0.256	0.213	0.352	0.352
K_2	0.373	0.219	0.512	0.254	0.217	0.325	0.355	0.284
K_3	0.398	0.202	0.408	0.296	0.395	0.279	0.311	0.244
K_4	0.239	0.312	0.406	0.299	0.203	0.236	0.264	0.292
K_5	0.202	0.302	0.527	0.391	0.240	0.350	0.228	0.302
K_6	0.246	0.328	0.499	0.262	0.275	0.363	0.309	0.362

Source: compiled by the authors.

The obtained data indicate the absence of a developed model for the regional ecosystem of the creative network for the production and distribution of films and a clear correlation between the presence of creative network nodes, the characteristics of the strength of connections, and the factors present in the regional business development ecosystem. The most significant factor for the development of the creative network in a region is the "Use of information technologies and information-telecommunication networks": the correlation coefficient with the parameter of the creative network's development in terms of the number of nodes is 0.458; the correlation coefficients $K_1 - K_6$, which characterize the strength of connections in the creative network for the production and distribution of films in regional localization, range from 0.406 to 0.527. The least influential factors are the availability of grants and preferential credit programs for representatives of creative industries and tax benefits: the correlation coefficients with the parameter of the creative network's development in terms of the number of nodes are 0.202 and 0.384, respectively; the correlation coefficients $K_1 - K_6$ range from 0.228 to 0.362. The main reason for this situation is the lack of such support measures specifically for creative network organizations or their limited coverage.

Organizational factors (the presence of creative clusters, specialized acceleration programs, and major projects in the creative field) show moderate correlation with the parameters of the creative network for the production and distribution of films; they are primarily connected with the formation of creative network nodes but have little effect on the strength of the connections.

CONCLUSION AND RECOMMENDATIONS

Based on the conducted research, the following conclusions can be drawn:

Firstly, the results indicate that the development of the creative network in regional localization occurs in a rather fragmented manner.

Secondly, there is an evident absence of a developed model for the regional ecosystem of the creative network for the production and distribution of films.

Thirdly, to implement an ecosystem approach when developing the mechanism for the creative network's development, further justification is required regarding the list of results in regional localization, with a detailed description of the effects received by the region's population, government authorities, municipalities, and other stakeholders.

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