Analysis of information support for innovation development

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Abstract. The article studies the concept and methods of information support for innovation development. The disadvantages and problems of information support were identified. Monitoring of information support stages, cycles, and directions was carried out. The importance of information support for innovation development was emphasized. Innovation activities as any other activities need information flows. Information support for innovation development includes experimental, technical and scientific information for innovation development. At present, innovation activities are risky activities since they are based on new ideas, new methods, new scientific knowledge, production of new products and improvement of the old ones. They require application of information technology. The information support is data required for regulating economic processes. These data are included into the databases of information systems. It is necessary to identify the following components required for implementing new technologies: safety, project relevance, project purpose, and probability of frequent use. Information that minimizes ambiguity of innovation activities is required.

1 Introduction

Today, the concept and methods of information support are relevant, since there are a lot of sources of information on the issue of information support for innovation activities. They argue that information support is crucial.

First of all, it is necessary to define the term “innovation”. Innovation is a new development which is a result of human intellectual activities, inventions aimed at increasing the efficiency of processes or products.

It is obvious that innovation is the most important component of competitiveness.

The Russian Federation is transforming the economic structure. The national economy is becoming an innovative one using and developing new innovative projects and IT technologies. Despite this fact, innovation development in the Russian Federation as compared to foreign countries requires improvement of information support methods.

2 Materials and Methods

Table 1 presents results of the comparison of innovative development of BRICS, EEU and UIS countries using the scaling method.

Table 1. Innovation development indicators for BRICS, EEU, and UIS countries.
Table 2. Presents innovation development indicators for BRICS, EEU and UIC countries.

Let us calculate the innovation development indicator by formula

$$I = \frac{\beta - X_{\text{min}}}{X_{\text{min}} - X_{\text{max}}}$$

where I are innovation development indicators for the countries; $\beta$ is the innovation development indicator for each country; $X_{\text{min}}$ is the minimum value of the sum of innovation development indicators; $X_{\text{max}}$ is the maximum value of the sum of innovation development indicators.

Based on the minimum and maximum values, let us build a diagram of innovation development of the countries using the information support and IT-technologies.
Analysis of the data showed a significant lag of Russia (6%) by the level of innovation development. Azerbaijan is more developed (16%). It may take decades to eliminate differences between countries in order to improve information systems. Therefore, the analysis helps understand the need for improving the quality of innovation management. Russian enterprises have lower indicators of innovative development than enterprises of the BRICS, EEU, and UIS countries. However, there are countries which also need to improve innovative development using information systems.

In order to make decisions, improve or adjust something, an innovator needs to have relevant, timely and new information.

First of all, it is necessary to monitor information.

The purposes of the current study are as follows: analysis of innovation activities; taxing of information; monitoring of information resources.

The research object is the information support for innovative activities.

The research subject is methods for developing information activities.

One can identify six stages of implementation of the information support methods:

Figure 1. The diagram of innovation development of BRICS, EEU, and UIS countries using information support tools (%).

Figure 2. Stages of the information support for innovation activities.
3 Results

Innovation activities can be studied from theoretical and practical perspectives. The final innovative product which has a valuable potential can be studied as well.

In addition to the stages of information support, there is an information cycle:

![Information cycle of innovation development.](image)

These stages require specific data: scientific, technical, patent, commercial, marketing, statistical and demographic, legal information, data on competitors and potential consumers [6].

Innovation activities can be directed to the development of a final innovative product which will be valuable and profitable for the company [1].

The study on existing information resources show that they are aimed at supporting scientific and educational goals. As a rule, they provide companies with important information, but they are not structured; information is not relevant and does not reflect the innovation policy and methods for supporting innovation activities, the status of programs in other regions in various fields.

This, it can be concluded that most of the data on innovation activities have the following disadvantages: the resources are not systematized; they do not have a unified navigation system; there is no accurate industry information; periodical foreign publications are absent; there is no database of projects and partners.

It can be concluded that most of the information resources have the following results:

![Results](image)

![Figure 4. The results of analysis of information resources supported innovation development.](image)
Information that helps the manager make economic decisions in the conditions of limited resources is tactical. Strategic information helps track changes, reduce risks of management decisions and consider possibilities of innovation activities.

There are four subjects of innovative activities:

- **Figure 5. Subjects of innovation activity**

The efficiency of the innovation process is determined by the nature of work with the subject. Despite significant shortcomings in the information support for implementation of new technologies, a large number of private enterprises are interested in using databases for innovation activities. This indicates the development of this area, attention of companies and corporations to innovation activities.

### 4 Discussion

In studying information standards, subjects and objects of innovation processes are divided into three groups by the levels of economic significance and competitiveness: development, reduction, and reproduction.

The following conclusion can be drawn: information support is a subsystem of the microstructure of an information system. To characterize an object, you need information on its indicators. The information support system includes a classification system, information files and documentation options.

What is the purpose of the information support system? It provides the company with information that would meet any requirements of readers and follow the conditions of automated technologies. The information support system used for innovation development can be improved by solving the following problems: poor government information support, IT implementation, the lack of free access to R&D resources.

In the market economy, information is one of the most important types of goods. The information support for partners in the innovation process depends on financial resources. It is almost impossible to obtain information you need and find correct data. Currently, large-scale information technology systems are produced. Therefore, national research programs needed for their development are implemented.

Having analyzed the concept “information support” and its role in the market economy, it is possible to identify the following problems of innovation development of Russia:

1. High cost of information technology.
2. Slow development of the structure of information resources.
3. Lack of information for business development.
4. Use of irrelevant data.
5. Lack of access to data.
6. Quality, benefits and value of information.
7. Slow information accumulation
8. Few useful information sources.
9. The strategy of the Russian Federation does not specify means for achieving the goals and IT financing sources.

There are no legal norms aimed at stabilizing the turnover of electronic sources and relations in different public structures: customs operations, electronic commerce, money circulation.

To improve the efficiency of the information support system, it is necessary to accelerate generalization and systematization of data on innovative activities which can improve mechanisms of information exchange between subjects of innovation processes and change methods for turning information into knowledge or intellectual capital of the company.

Currently, the information support for innovation development is problematic. Several years ago, we could visit other enterprises, share skills and ideas, study technologies. Today, it is impossible. Experts of scientific research institutes are sometimes involved on a contractual basis. Some innovation activities are aimed at producing products which have foreign analogues. It does not acquire a license, a certificate and other documents as the innovation would be meaningless. The main goal of these activities is to reduce the cost of the product and improve competitiveness by reducing the price.

Many companies are interested in distributing information about their products and production capacities. For this purpose, they use various information sources: advertisement in the media, Internet, exhibitions, fairs, competitions, presentations and other public events which spread information about the company. Some enterprises hold special conferences involving potential consumers.

5 Conclusion

The information support for innovative activities involves accumulation of data on research results and potential capabilities of executors of scientific and technical programs and projects in priority areas; communication with remote information centers and databases, including foreign ones, using foreign telecommunication systems; ensuring access to information databases and information resources of the Internet; selection of innovative projects, proposals for the production of high technology products for potential investors; accumulation of data on properties of goods of leading companies.

In developing and implementing innovative projects, managers as well as individuals who carry out research and development have to make various decisions. They need data on the environment (scientific and technical, financial and economic, technological, market, etc.).

It is necessary to provide each participant with:
- general and specific (corresponding to the tasks to be solved) information.
- opportunities to accumulate information on the scientific and technical development (creation and storage of the history of the development).
- access to various sources of information required for making decisions or to potential counterparties who may have this information.
- information on potential partners at all stages of product implementation (from the innovation management to the use of new products by the end user).
- intellectual functions. If the databases lack objects with the parameters required for the participant, the following data can be provided:
  - Lists of objects that partially match the request (by individual parameters or their combinations).
  - List of objects with similar parameters.
• List of subjects that can develop these objects.

The need to create an effective information space for innovation development of enterprises is determined by globalization and internationalization of the global economic space, its networking and the need for unique competitive advantages based on transformation of innovation products into intangible assets which significantly increase the market value and investment attractiveness of the company.

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