

## DEVELOPMENT OF INNOVATIONS MONITORING SYSTEM AND ITS IMPLEMENTATION IN PRACTICE OF COMMERCIAL COMPANIES

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**Abstract:** The article submits the development of an innovations monitoring system. The aim of its creation is in increase of competitiveness of commercial organizations. The proposed innovations monitoring system consists of eleven main units, each of the units performs its own role, starting from searching information and ending with correction of production processes. Implementation of the innovations monitoring system in practice of a commercial organization can become a new instrument in generation unique ideas, finding out new key factors and advantages for development in competitive environment, taking decisions and actions regarding how to allocate or develop resources. Implementation of such system can facilitate the process of generating competitive new products and services; it can help in automation and formalization of processes, reducing time for introduction of innovations, finding modern trends on the market, managing the impact upon the environment.

**Keywords:** innovative development, monitoring of innovations, innovative infrastructure, decision making management, innovative process, commercial companies.

### 1 Introduction

Identification of innovations suitable for implementation in a particular organization is a complex task. Competitiveness of commercial companies depends on prompt introduction of innovations. Presently vast amount of useful but not used information is available, new competitive products and technologies keep appearing on the market every day. The digital economy breaks the usual patterns of industry markets [1]. The emergence of innovation in one area can also be used effectively in other areas. Prompt analysis, comprehending and implementation of innovations can become significant competitive advantages for commercial companies. As people, business, and equipment are becoming more closely linked in a single digital space, digitalization offers broad opportunities for new decision-making models [2].

Systematic work on development of innovations monitoring system for innovations search can significantly increase effectiveness of a commercial company.

Active development of information technologies and their application in various fields of activity create prerequisites for further growth of the companies. But the fact is that innovations derived from new knowledge are accompanied with high costs and risks, which may significantly hamper the production of knowledge and reduce level of satisfaction with innovation of economic agents [3]. Since the process of introduction of new knowledge in practice is a risky arrangement, each decision about introduction of an innovation should be based on detailed analysis of a particular environment and situation. Besides, search for information about new developments, decisions connected with their expediency for introduction, and their introduction in practice take a long period of time. The rate of diffusion is also dependent on the cost-effectiveness of the new technology [4]. The model presented in this article is aimed at solving these problems. Its usage allows planning work within the predetermined framework of projects, managing a variety of tasks at the same time. Prompt choice and introduction of innovations is a difficult task even for huge companies with

numerous employees. Introduction of automated systems can significantly facilitate the decision-making process. Automation is not limited to automating obviously repetitive processes, like in the case of manufacturing companies. It also covers the areas of marketing, recording, reporting, and even product testing and evaluation [5]. Algorithmic processes can be applied to mine a large volume of digital data to find patterns and correlations within that data, distilling the patterns into predictive analytics, and applying the analytics to new data [6].

The present article describes the model for search and elaboration of efficient innovations.

The introduction of such a model in practice creates conditions for the development of new ideas, the active spread of innovations in the market and, as a result, improvement the efficiency of the economy. It is expediently for innovations monitoring system to perform on a regular basis. It can strengthen positions of a company on the market, maintain its sustainability, and facilitate adaption to market changes. It allows tracing immediate and long-term impacts of the company's activity on the environment. Development and implementation of continuously functioning system for search of innovations can be of help for many companies both in development of new products and services and in finding innovative ways for environmental protection.

### 2 Methods

The active development of a modern commercial company depends on the velocity of innovation process. As organizations move towards the global and more dynamic environment, they face specific challenges that inevitably need to cope with for their survival and progress [7]. Systematic work on development of a system of innovation search can significantly improve efficiency of enterprises, influence positively on their competitiveness.

Competitiveness of an enterprise can be considered as an integral system, which includes the following elements: structural construction of the enterprise; specific forms of management, which includes all the functional subsystems of the enterprise; legal norms; applied management methods; features of the management system based on economic methods of management [8]. Development and introduction of the innovations monitoring system has a practical orientation, it can be changed under the influence of factors in the external environment.

Innovative activity is a constantly renewed innovation process [9]. Business structures, in comparison with state institutions, have great mobility, efficiency in decision-making, they are characterized by a large initiative in the generation of innovations [10].

In the field of creation of effective searching systems huge amount works are fulfilled, but nevertheless the elaboration of new techniques is still required.

The introduction of innovations is the result of a long preliminary analysis and its implementation requires considerable resources.

In order to save them, it is possible to develop and implement a system that facilitates the search for potentially useful information for the company. To obtain such information it is necessary to define the criteria on the basis of which the search can be carried out.

The definition of these criteria depends on the specifics of the production processes of the organization. The criteria can be determined on the basis of cyclical operations features in the

production process, specific production methods, specific conditions in which the processes are carried out, methods for creating these conditions and so on.

The required information may be related to the field of activity of the company both directly and indirectly. The area of the interest in this field is quite extensive. It can include innovations that use similar technical elements, technologies, materials, etc.

The theme of development of formalized systems for their usage in management of commercial companies attracted attention of many scientists. Significant contribution in development of search technologies was made by such researchers as Gerard Salton, Vannevar Bush, Marc Lowell Andreessen, Larry Page, Sergey Brin, and Tim Berners-Lee.

The problems of development of control systems and search systems were studied by Ansoff I., Fedorova G. N., V. M. Glushkov.

The specifics in creating of monitoring systems was researched by Sharco E. E., Ivanova I. A., Eroshina S. E., Trushkin E. V.

A target problem of the present period of our country development is supply of high growth rates of the gross domestic product, the further accumulation of production efficiency and achievement on the basis of this high level and quality of life of the population [11]. Development of innovation monitoring system improves competitive positions of companies on the market; it contributes into acceleration of business activity, and creates conditions for increase in income of the population.

The introduction of innovations is impossible without extensive tentative analysis. The directions of improvement can be made in different directions, for example, they can be connected with simplification of procedures in implementation of new knowledge, innovations introduction, decrease in volume of performed work, increase the quality of product or process.

Development and introduction of formalized system of information search is able to facilitate fulfillment of decision making processes, it can be used as the tool for tracking environmental data for a company.

### 3 Results

The process of innovation introduction is influenced with a number of factors. They are connected with diffusion of innovations, improvement of technological processes, the development and implementation of new information technologies.

The result of the operation of the proposed innovations monitoring system is in simplification of the procedure of finding and implementing new knowledge, accelerating the procedure of innovation, reducing the amount of the performed work, improvement the accuracy of modeling by improving the used methods.

Implementation of innovations monitoring system can be used for intelligent resource management, pollution control, and waste minimization.

Generating and finding ideas is a complex task. In order to simplify the process of search and implementation of innovations in practice, the model of a system for monitoring innovations has been developed.

In the process of fulfilling the present research the materials of a number of patents on related topics and the data of statistics have been studied. It helped to make conclusions regarding the improvement of the methods of finding the information which is necessary for the development of commercial companies.

The functioning of such system is assumed on a permanent basis. Most of society's innovation systems are "open" in the

sense that they are designed to facilitate knowledge disclosure among innovators [12]. The search for new knowledge is carried out continuously in open sources.

The system consists of eleven main blocks. The process of functioning of the innovations monitoring system is schematically shown on the Figure 1.

The first one is an input unit which includes unit of search for information in open sources, a data processing unit, an information storage unit, and an analytical unit. The setting unit includes the unit for setup of the system and the unit for correction of information search processes.

This function can be fulfilled with the special processing software that adjusts the information retrieval processes. The production process unit consists of the unit for identifying cycles and the unit for determining requiring improvement areas.

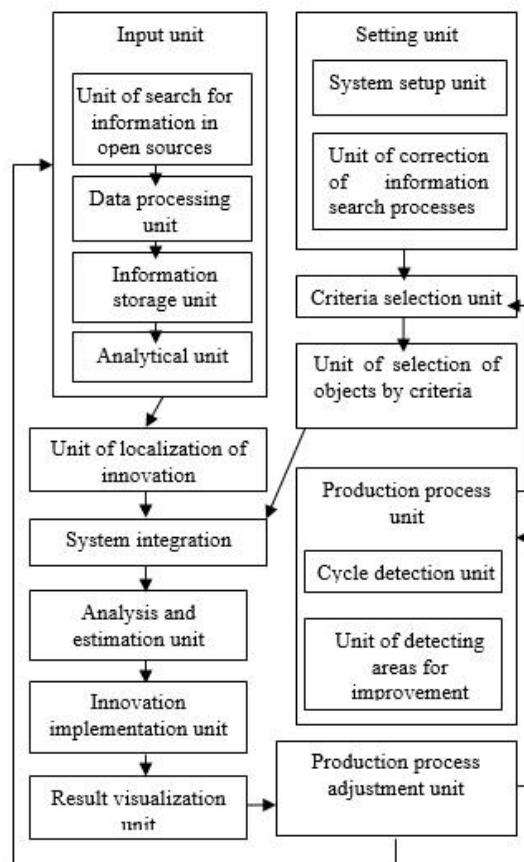


Figure 1 – The model of innovations monitoring system.

The setting unit and the production process unit transfer the information to the criteria selection unit, which in turn sends it to the unit of selection of objects by criteria. The system integration unit combines the results received from the unit of localization of innovation and the unit of selection of objects by criteria. Then the data are analyzed, estimated and sent to the innovation implementation unit. The proposed changes are drawn and visualized in the model of a new or improved product or a business process. If the results of proposed changes are positive the necessary adjustments of the production process are provided. The innovations monitoring system is to perform permanently, the described cycle is to be repeated in similar way within the production process. Management should continuously monitor and test the system [13].

Thus, the whole system is a closed cycle and can operate continuously.

#### 4 Discussion

Nowadays the implementation of information technology is opening up vast vistas for business development and helping boost the efficiency of activities [14]. The active use of various communication tools can significantly improve the management processes in a company.

Implementation of innovations monitoring system in practice of commercial companies creates basis for active development, rapid adaptation to dynamically changing environment, helps in finding new methods of intelligent resource management.

To obtain the information that can be useful for strengthening the competitive position of a commercial company in the market it is necessary to pay more attention to the processes of search, analysis, processing, and implementation of existing innovations in the market.

Continual search of potentially useful information creates conditions for sustainable development of a commercial company. The use of innovative technologies allows reducing consumption of resources and improving the quality of the implemented processes [15, 16].

Introduction of innovations monitoring system does not completely exclude the analytical work of experts, but the process can be significantly simplified with usage of formalized systems.

Generation of new ideas is a creative process with limited potential for automation and formalization. The proposed system helps in finding information which can become the basis for development of unique ideas. It consists of combination of hardware, software, and human resources.

#### 5. Conclusion

In modern conditions it is crucial for commercial companies to find new ways to increase their competitive advantages. The development of innovations monitoring system and its implementation in practice can help in finding new opportunities.

Innovations monitoring system is a long-term or constantly functioning system. Its usage in practice of a commercial organization can be of help in generating new ideas, finding out new key factors and advantages for development in conditions of competitive environment, searching new methods of waste reduction, tracking environmental data.

Implementation of innovations monitoring system can facilitate the process of creating competitive new products and services, finding new prosperous techniques, reducing time for introduction of innovations.

The described innovations monitoring system consists of eleven main units. Each unit performs its own role.

In the input unit the information is searched from open sources, processed, stored, and tentatively analyzed. The results of the analysis are adapted to the interests and specifics of the enterprise in the unit of localization of innovation. Setting unit is responsible for the system setup and correction of information search processes. This function is fulfilled with the special processing software. The function of production process unit consists in detection of cycles and detecting areas for improvement. The results received on the level of production process unit and setting unit are processed in the criteria selection unit, and then in the unit of selection of objects by criteria. The system integration unit combines the results received from the unit of localization of innovation and the unit of selection of objects by criteria. Then the data are analyzed, estimated and sent to the innovation implementation unit. The possible changes are formed and visualized in the model of future product or a business process. If the results of proposed

changes are expedient the necessary adjustments of the production process are provided. The innovations monitoring system is to perform constantly, and the described cycle is to repeat in similar steps within the production process.

Implementation of new technologies for prompt information search and revision influences positively on competitiveness of commercial organizations.

Usage by companies of data processing techniques such as implementation of innovations monitoring system can help in finding modern trends on the market and reducing negative influence on the environment.

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**Primary Paper Section: A**

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