

**УНИВЕРЗИТЕТ „ГОЦЕ ДЕЛЧЕВ“ - ШТИП
ФАКУЛТЕТ ЗА ИНФОРМАТИКА**

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2012
YEARBOOK
2012**

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VOLUME I

**GOCE DELCEV UNIVERSITY - STIP
FACULTY OF COMPUTER SCIENCE**

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ECONOMIC VALUE OF INFORMATION SYSTEMS IN PRODUCTION PROCESSES

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Abstract

In this paper will be shown the application of information systems and technologies in production processes in modern conditions (production). The successful implementation of goals and objectives of the enterprise depends on its effective use of information resources. Information resources are the basis for their strategic success. Information support of the enterprise depends not only on the availability of information resources and opportunities and implementation of information innovation, streamline information flows of the company, the issues of its effective information interaction with market players. Information support of the enterprise depends not only on the availability of information resources and opportunities and implementation of information innovation, streamline information flows of the company, the issues of its effective information interaction with market players as Bulgaria, Macedonia, Serbia, Croatia.

Keywords: *information, resources, knowledge, data, providing, method, system, innovations, estimation, infrastructure, space, enterprise, product, forming, informative streams.*

Introduction

One of the basic concepts of normal business is management activities. Management as a philosophy of modern business, quality management and economic decision-making directly related to the presence of complete, timely and accurate information about market demand for goods, consumer tastes, market conditions, competitors' actions, etc., as well as the performance object management. Significant amounts of information associated with prompt payments, search and providing relevant information for managers making decisions requiring the need for new, modern information technology.

Information resources are the basis for activities of enterprises in EU, they define their strategic success. Background information support of business formed under the direct influence of factors of external and internal environment and focusing the company on growing information resources used for management.

Information support of the enterprise depends not only on the availability of information resources and opportunities and implementation of information innovation, streamline information flows of the company, the issues of its effective information interaction with market players. Information support of the enterprise depends not only on the availability of information resources and opportunities and implementation of information innovation, streamline information flows of the company.

Up to date, the characteristics of informational support of the enterprise paid insufficient attention both in theoretical and in practical aspects. The aim of the investigation is to develop theoretical, methodological and practical recommendations for activities of the enterprise. To achieve this goal have been resolved following objectives:

- The essence of information and for activities of industry in EU and the necessity for activities of the enterprise and its main objective;
- The possibility of development of information support on national and regional levels on the example of the Bulgarian company;
- Analyzed the structure and dynamics of market information products and services in EU;

Functional-based approach methods

Methodological basis of the paper is a collection of ways scientific knowledge, and general scientific principles, methods and techniques used in the study process. The theoretical basis of scientific work were EU scientists in the field of management and information support its activities.

This paper uses system-structural analysis (features and the role of information resources in modern enterprises, the analysis of market information products and services in EU), procedural and situational approaches (with the justification necessary for activities of the enterprise, while developing a coherent organization of information support enterprise development), functional-based approach (the development of fundamental approaches to the formation of enterprise information space), dynamic methods, theory, simulation and optimization method (the construction of information and control system, the formation of decision support systems),

graphical methods, methods for expert evaluation, system analysis and modeling (in developing ways to evaluate and select information innovations).

Scientific novelty of the results

The main scientific result of research is to develop fundamental approaches to building information-control system, formation of enterprise information space and the sequence evaluation and selection of information innovations that are based on the principles and methods of information theory and information systems and enterprise management. Scientific novelty of research results is as follows:

- proposed sequence of formation of information and control systems for industrial businesses, which allows you to build a hierarchical access to administrative information and optimize their management structure and its information flows;
- fundamental approaches to industrial enterprise information space based on his selection of functional and content structure and structural decomposition of the production process as an object of management;
- forms and directions for activities of industrial enterprises using the proposed decision support system based on the formation of information databases and complex simulation models for enterprises;
- methods and forms for activities of the enterprise;

The practical significance of the results

Developed in the paper approaches, methods and results are methodical base for activities on the basis of principles and methods of information resources management, information and innovation development. In results that are most practical importance, are:

- recommendations for the development of enterprise information infrastructure based on the proposed implementation of a regional information-analytical framework to support their development, thereby ensuring consistency and improvement of information exchange of the market of the Republic of Macedonia;
- Recommendations on the evaluation and selection of information innovations that can solve the problem of a multidimensional comparison of software products and evaluate risk factors for the decision on the choice of information innovation.

The special role of information and information resources of modern countries and enterprises due to their direct participation in any economic processes and the ever increasing level of information the market environment and society in general. The current stage of economic development requires the use of scientifically-based methods of data collection, analysis, processing and use of information and its interrelated forms, which should promote the potential of enterprise information resources and consistent implementation of its directions of development. Under the provision of business information refers to a set of forms, methods and tools of information resources needed to implement and suitable analytical and administrative procedures to ensure stable operation of the business, its sustainable development perspective.

Accordingly, in the work using an approach based on the idea of resource cycle, the main resource characteristics and specific features of functional information and resources provided by the scheme of their reproductive cycle (Fig. 1).

At the time, the primary role in this process are information and Internet technologies that are still classified as "high technology", but actually has a base that is essential for modern developed economies. The increase in turnover in foreign trade, particularly in the global fate of cumulative export is one of the main factors characterizing the sophistication and competitiveness of national economy, which necessitates the study of industrial development prospects of each country through use of new technologies in foreign offices and industrial centers abroad. It is proved that the search for answers to these and similar questions directly affecting the different aspects of evaluation and selection of information products or services offered and identify factors that determine the "quality system" of information resources. It should be noted that at present no methodology of quantitative and qualitative assessment of information resources, and forecasting needs of society in them. This reduces the efficiency of information as information resources, and increases the duration of the transition from an industrial to an information society.

The characteristics of the theoretical foundations for activities of the enterprise allows to determine the possibility of a synergistic effect of the interaction of information and production areas and increase their effectiveness and concluded that the impact of this process depends on the degree conditions and opportunities for activities of enterprises in countries.

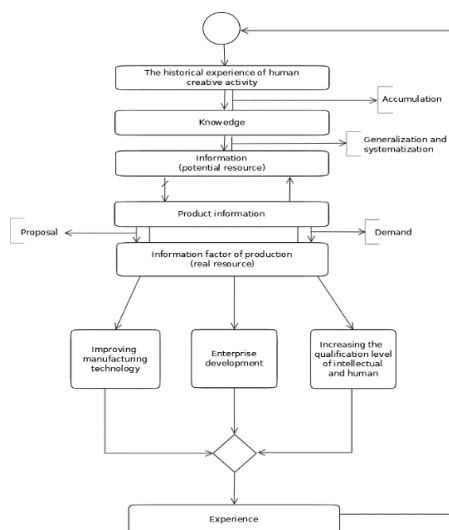


Fig. 1. Reproductive cycle of information resources

Building sustainable market information services in EU began in mid-50's were at this period the main suppliers of information services were entirely information services of academic, professional, scientific and technical societies, government agencies, educational institutions. In EU today is rapidly forming the market of information products and services. In recent years a much stronger technical and technological base of information is increasing sales volume of information, computers, and telecommunication equipment. Contribution of industries of information and communication technologies and the amount of information and communication services in the EU countries today is already about up to 10-25%. Market information and communication technologies, a major market segments and greatest information products and services in general has kept growth. Services market today is still not well developed, but its growth rates are large, as more consumers willing to pay high price for quality services and service.

In some EU countries, the first stage of deployment of a national WiMAX network based on Cisco Mobile WiMAX technology and architecture of IP NGN. Network is based on technology Cisco ® Mobile WIMAX and Cisco solutions for access and aggregation. By the end of 2009 Max Telecom plans to have coverage of its network in the home to 90 percent of the population.

The analysis of main directions of development of EU markets of information products and services, which allowed to identify the main components of their structure and features of this information products and services. It is determined the information needs of the market and level of

development of advanced information technologies. The proposed sequence of stages of development and implementation of regional development programs enterprise information infrastructure of some EU examples (Fig. 2), which is aimed at providing some of the important tasks of the effective interaction of market information, improving information support enterprise development in the region and the formation of their information infrastructure.

In Fig. 3. Definition of socio-economic impact of the structure and functioning of such effects increase for activities of enterprises of countries held by economic and mathematical tools and methods of simulation. The assessment showed that increasing information of the enterprise significantly changes the trajectory of its development at every stage of life cycle.

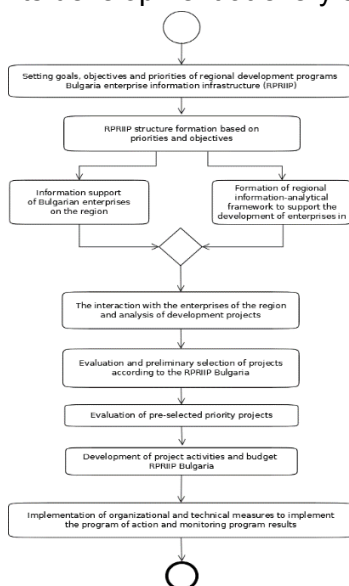
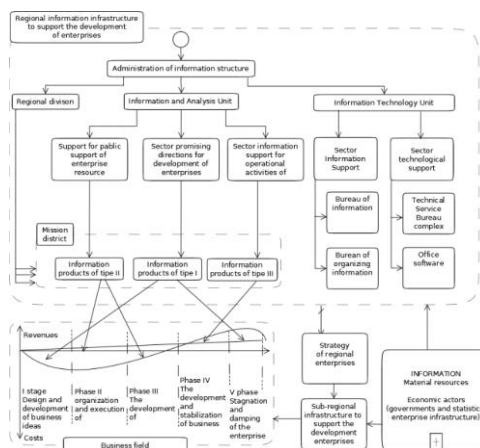


Fig. 2. Stages of formation and realization of regional development programs enterprise information infrastructure of Bulgaria

In the sense formalized integrated structure management, information transfer and management decisions is the basis of improvement of management and are based on structural decomposition of the production process as an object of management, functional management and structuring of formal documents.



Development and management decisions is a complex process, whose implementation should be based primarily on accurate and comprehensive information on all management levels. In this context it plays a special role of information management systems, effectiveness of which determines the ultimate effectiveness of the functioning of businesses. The task to enhance the process for activities on the basis of construction of its information-control system depends, first, of its objectives, functions and tasks, and second - on the content and consistency of information management systems. On the efficiency of the process aimed proposed decision support system, based on a formation of information databases and complex simulation models for enterprises. Fig. 4.

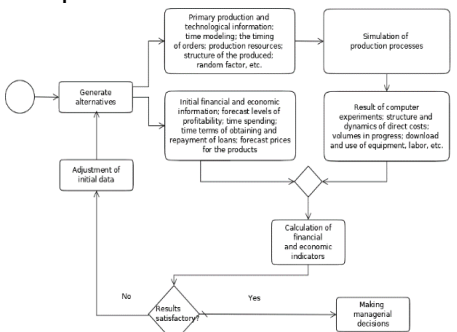


Fig. 4. Consistency management decisions with DSS

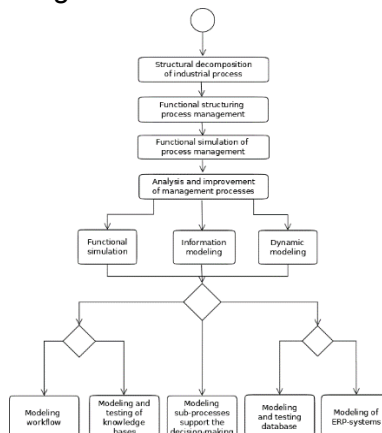


Fig. 5. The sequence of formation of information-control system of enterprise machines

Effective management decisions require processing large volumes of information and the collection, analysis and aggregation of information flows coming to the enterprise. (Fig. 5).

The problem of designing an efficient structure of information and control Systems Company in the proposed deal on the basis of the evolutionary method using genetic algorithms. The functioning of such a structure of information and control systems to optimize enterprise management and information flow and its standard processes. One of the main criteria optimization criterion defined time performance of typical data processing procedures.

To improve information support for enterprises in the paper suggested the main directions of assessment and selection of information innovation. Proved that the evaluation and selection of information innovations is a difficult task for multi commercial solution is selected in the basic classes of innovative information systems and provided their estimates based on the proposed principles and criteria.

Given sufficient diversity of modern market information products and services as of the assessment team identified the following information innovations, like software, and proposes a way to value them. A multiple comparison procedure involves the use of both quantitative estimates and qualitative expressed in descriptive categories, which enhances the analysis by obtaining estimates for criteria that cannot expose quantitative measurements. These estimates form the scale of measurement is the basis for decisions on selection of software. (Table 1).

Criteria	PP			PP-1			PP-2			PP-3			PP-4			PP-5			
	B	C	N	B	C	N	B	C	N	B	C	N	B	C	N	B	C	N	
1. Versatility																			
2. Integrating																			
3. Modularity																			
4. Sophistication																			
5. Reliability																			
6. Privacy policy																			
7. Compliance with technical standards																			
8. Qualification																			
9. Cost PP																			
10. Cost of service																			
11. Economic efficiency																			

Designation of priorities: B – high, C – average, N - is low.

According to the principles of multidimensional comparison for each pair of software products designed indicators match and inconsistencies by building a matrix of risk.

CONCLUSIONS

The paper on the basis of studies carried out theoretical studies and practical solution to current scientific and practical tasks to improve information of the enterprise. Key findings and results that were obtained during the research, are as such.

1. The special role of information and information resources in modern enterprises of the EU, due to their direct participation in economic processes and the ever increasing level of information the market environment and society in general.
2. Determined that information for the enterprise should be based on the complex use of potential and existing information resources.
3. Courtesy of the general characteristics of information resources and formed the basic approaches to evaluation using an information approach, theories of information resources and economic information and implementation of these approaches.
4. The organizational-economic model of a single regional information-analytical framework to support the development of industrial enterprises. Determined the effect of the functioning of this structure and the impact of information increase the activity of enterprises using economic and mathematical tools and methods of simulation.
5. A decision support system, which is forming the basis of information databases and complex simulation models for enterprises. On the basis of this system model of decision making in production by building a set of management information and use of industrial engineering resources.

The method of evaluation and selection of information innovation by building an appropriate model, evaluation and selection of software and the sequence information of this procedure in view of risk factor. The role of information and informative resources in activity of modern enterprises, conditioned by their direct participation in economic processes and constantly increasing level of informatization of market environment and society on the whole. It is definite, that the informative providing of activity of enterprise must be based on the complex use of informative resources potential and present taking into account their basic features of each EU country.

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