ABSTRACTS OF SCIENTIFIC PAPERS

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36 publications are submitted for review in this competition (for the fulfillment of the minimum national requirements under Art. 2b, paras. 2 and 3, respectively the requirements under Art. 2b, para. 5 of the DEVELOPMENT OF ACADEMIC STAFF IN THE REPUBLIC OF BULGARIA ACT (DASRBA), defined in the REGULATIONS ON THE IMPLEMENTATION OF THE DEVELOPMENT OF ACADEMIC STAFF IN THE REPUBLIC OF BULGARIA ACT (RIDASRBA), including 1 monograph as a habilitation thesis, 2 publications, published in scientific publications, referenced and indexed in world-famous scientific information databases (Scopus) and 33 scientific publications in non-refereed peer-reviewed journals or in edited collective volumes.

These publications do not repeat those presented for the acquisition of Doctoral degree and academic position “Assoc Professor".

The arrangement of the publications and their summaries are made according to the presented list of publications on the competition and the numbering therein.

B. 3.1: Tanya Panayotova (2023). Study of the impact of intellectual capital on the value of the industrial enterprise, ISBN 978-619-184-063-2, Publisher Gea-print - Varna, Reviewers: Prof. PhD. Eng Svetlana Raycheva Dimitrakieva, Assoc. Prof. PhD. Eng. Krasimira Atanasova Dimitrova, (208 p).

Abstract: In modern conditions, business is faced with new and greater challenges, connected with growing globalization and the development of scientific and technical progress. In the world of constant changes, there is a need for new approaches to analysis and evaluation of economic activity, through which to assist investors and managers in making decisions about the real potential of the industrial enterprise, in the context of its development.

The need and relevance of the research is determined by the fact that industrial enterprises in Bulgaria have many problems, but also a great unused potential for increasing their competitiveness. The realization of this potential can be realized through systemic activities on the part of the enterprise that help create additional value for the firm from the use of intellectual capital.

The main thesis of the research is that the value of the intellectual resources possessed by the organizations in the form of intellectual capital allows for the analysis of their contribution to the creation of economic benefits, by assessing their impact on the economic results in creating value for the companies.

The object of the study is the value of business in industrial enterprises.

The subject of the study are the main theoretical and methodological questions concerning the application of the value approach, taking into account the influence of the intellectual capital of the enterprise.

The author's scientific goal is to investigate and refine the theoretical-methodological basis of the value approach, taking into account the influence of the enterprise's intellectual capital. The results of the research are aimed at the interdisciplinary nature of company management, which necessitates the use of modern diverse tools for value management.

The scientific objective thus formulated is consistent with the needs of practice, setting a number of tasks, limited within the framework of the research to the following three:

1. Clarification of the conceptual apparatus and terminology of the value management concept;

2. Development of a model for increasing the value of the company, taking into account the influence of intellectual capital;

3. Development of a methodology for applying the model in order to implement it in the management of the industrial enterprise.

In this study, it is argued that the company as a center of interests must satisfy the requirements of multiple groups of interested parties and from this point of view balance between short-term and long-term goals. The assessment of value is essential not only for the development of the individual enterprise, but also for the directions and growth rates of each industry and the economy as a whole. The main components to be managed are growth and return on invested capital. In the second part of the study, it is established that there are multiple metrics for measuring value and it was proven that the Economic Value Added (EVA) is the most appropriate measure according to the goals set in this study. The influence of the intellectual capital on the value has been caunted, and a suitable measure has been proposed - the value added by the intellectual capital (Value added intellectual coefficient - VAIC). In the study, it is caunted that the interaction of EVA and VAIC is insufficiently studied. On this basis, a conceptual model of the interaction matrix between the two models is proposed - the eVAic matrix.

Based on the theoretical statements from the second chapter, a methodology for applying the value approach in enterprise management has been developed, which includes:

1) Systematization of the necessary source information to define the situation in which the enterprise is located. The calculation procedures and the method of displaying the results in the situation matrix are described.

2) Establishing the current state in relation to the observed indicators. The obtained results are integrated into an eVAic interaction matrix

3) Analysis of possible situations and determination of the necessary degree of value creation

4) Identifying the drivers with the greatest weight to maximize value and opportunities to influence them.

In general, the results of the research are focused on the interdisciplinary nature of company management, which necessitates the use of modern diverse tools for value management.

Г. 7.1: Mladen Velev, Ognyan Andreev, **Tanya Panayotova,** (2011**).** Using AHM Approach to Position CODP, First International Symposium on Business Modeling and Software Design, Proceeding of BMSD 2011, ISBN: 978-989-8425-68-3, printed in Portugal, 2011, Indexed in SCOPUS, (pp 80-88).

Abstract: The Customer Order Decoupling Point (CODP) is a popular approach to increasing end product variety that benefits from the standardization/unification of increased repeatability of component and/or subassemblies manufacturing operations. CODP defines the place (operation, process phase, etc.) where the customer's intervention takes place to form the final appearance of the end item (product or service) according to his wishes. The main problem is to make an economically motivated decision about the exact position of CODP among the

various end products of the company's product mix within a particular product line. Within the production process before CODP, forecasts (Make-To-Stock) are usually used, and after CODP - Make-To-Order production. Therefore, opportunities to achieve economies of scale as well as optimization of total operating costs are different before and after CODP. According to the CODP position, the customer is "allowed to break through" the operational process through his order by using various selection options in the CODP itself. In this way, the customer can define one or more specific subassemblies/components of the final product to be used in the final assembly, or the components of each specific subassemblies, or some combination of the two, as well as define specific components and so on – upstream to the beginning of the process.

As a result of summarizing the different approaches and existing methods for solving the problem, some gaps in the literature were identified, which allowed to give a different perspective on how to solve it. The publication proposes the use of the Analytic Hierarchy Planning (AHP) method in solving such a problem. Examples are presented of selecting criteria to determine the reasons for and against during the decision-making process regarding the CODP position. The proposed approach requires the decision to be made in two stages: (1) to build a complete system of decision criteria regarding the CODP position and (2) to use AHP as a method/toolkit from which the decision will be based on a large number of criteria and sub-criteria. To illustrate the approach, a hypothetical example is developed based on the assumption that there are three alternatives for the CODP position. First, a system of criteria and sub-criteria is presented, which reflects the specific circumstances and conditions influencing the hypothetical object under consideration. Second, by using AHP, these three alternative positions are evaluated against the entire set of criteria and sub-criteria, resulting in the position that best meets the criteria being selected.

Г. 7.2. Tanya Panayotova, Krasimira Dimitrova, Neli Veleva., (2023). Study of the key factors influencing the effective planning and utilization of production facilities in the industrial enterprise, Strategies for Policy in Science and Education, Volume 31, Number 6s, Special Issue, Sofia-2023, ISSN 1310-0270 (Print), ISSN 1314-8575 (Online), (pp 80-93).

Abstract: In the modern world, the development of technology, machinery and equipment follows a rapid upward trend of constant innovative solutions. The problem of effective planning and utilization of production capacity takes on new dimensions. The issue of knowing the factors influencing the development of production, closely related to the optimization of processes and activities and the more efficient use of basic means such as machines, equipment, information technology, etc., is increasingly relevant. The relevance of this problem is also determined by the increased integration of production technologies and the search for ways to apply flexible organizational forms for more efficient use of equipment capacity. The changes introduced in the era of Industry 4.0 are now irreversible and the time has come to transition to Industry 5.0. Behind Industry 5.0 are technologies representing a set of complex systems, and each of the categories can realize its potential only if it is combined with the others. Industry 5.0 can be seen as a new philosophy of business, according to which technology should work for the benefit of people and society. Business organizations must further adapt to use the capabilities of technology and combine them with those of people to develop efficiently, sustainably and safely. New business models are needed that require investing less funds and resources to obtain greater benefits. Industry 5.0 means optimizing human productivity and efficiency.

Taking into account these new trends that are rapidly emerging in the global business environment, this study aims to develop a research model of the key factors influencing the effective planning and utilization of production facilities in the industrial enterprise, based on the results of a previous study . A model is proposed to investigate the relationship between the identified key factors and capacity management based on interpretive structural modeling.

Г. 8.1: Dimitrova, K., **Panayotova, T**., Veleva, N., (2021). Model for Research into the Factors Influencing the Effective Planning and Management of Production Capacity. Annual Journal of Technical University of Varna, Bulgaria, 5(1), ISSN 2603-316X (Online), Published: 2021-06-11 (pp 65-75).

Abstract: Solving modern problems related to the planning and management of production capacity is vital for any industrial organization. In the conditions of dynamic and intensified competition, growing globalization and the rapid implementation of new technologies, the continuous development and improvement of production management is extremely important for the normal course of production processes and the increase of economic efficiency of industrial companies. This gives rise to the need to identify, analyze and evaluate those key factors that have a strong influence on the processes of planning and management of production capacity, their interrelationship and potential consequences.

The purpose of the present study is to develop a structural model for identifying and classifying the key factors that can have a significant impact on the production management of a given enterprise. The main tasks related to the achievement of the goal are: 1). Definition and analysis of the essence of the concept of "production capacity" in the industrial enterprise; 2). Determination of the main characteristics and fundamental principles of effective planning and management of production capacity in the industrial enterprise; 3). Identifying key factors influencing effective planning and management of production capacity. 4). Study of the relationship between the identified key factors and capacity management, based on the method of interpretive structural modeling (ISM) and the organizational-coordination model of Competitive Engineering; 5). Analysis of the relationships between the studied key factors using a structural interaction matrix (SSIM) and their classification into 4 main categories: independent, dependent, interdependent and governing; 6). Development of a structural model of the interaction of these key factors.

Based on an in-depth literature analysis, conducted interviews and surveys, 18 key factors have been identified that have a significant impact on the effective planning and management of the capacity of the manufacturing enterprise. The relationship between each of these factors and capacity management has been investigated by applying the Interpretive Structural Modeling (ISM) method. In addition, the interrelationships between the key factors studied are analyzed using a structural interaction matrix (SSIM).

The proposed methodology for the study of the key factors that have a significant impact on the effective planning and management of the production capacity shows the relationship between the individual factors and their classification into 4 main groups such as independent, dependent, interdependent and driving, therefore their analysis becomes easier. Structural equation modeling, also known as the linear approach to structural relationship, can be applied to test the validity of such a hypothesized model and is a subject for future research.

Г. 8.2: Krasimira Dimitrova, **Tanya Panayotova**, Neli Veleva., (2020). Model for Assessment of The Competence of Production Managers. 6th International Scientific-Business Conference – LIMEN 2020 – Leadership, Innovation, Management and Economics: Integrated Politics of Research – Conference Proceedings, November 26, 2020, Online/virtual, published by the Association of Economists and Managers of the Balkans, Belgrade; Printed by: SKRIPTA International, Belgrade, ISBN 978-86-80194-39-4, ISSN 2683-6149, (pp 245- 252).

Abstract: The publication presents an experimental model for evaluating the competence of production managers, which refers to classical management and modern mathematical tools. The research was done in response to a real practical need, set as a research task by the business. As a result, a model for the selection of specialists and experts for solving complex problems related to production management in industrial enterprises and an algorithm

for applying this model are proposed. Based on an in-depth literature review and personal interviews with various functional managers from industrial enterprises, the need to determine the competence index of experts in the field of production management is established. In order to obtain real and objective results of the research, 15 managers from 10 production and scientific organizations are attracted, who proposed evaluation criteria to the experts who should form a team to solve complex problems in the field of production management. The study is carried out in three stages using the Delphi method.

Stage 1: Determination of the primary indicators for assessing the competence of specialists to be included in the team for solving production problems. At the first level, nine main indicators are defined: 1. Professional skills; 2. Prevention of production risks; 3. Management skills and skills for collecting and processing information; 4. Professional knowledge and lifelong learning ability; 5. Interpersonal communication skills; 6. Team work skills; 7. Opportunities for research; 8. Basic values of managers; 9. Professionalism of managers. The determined primary indicators are decomposed into secondary ones, which will guarantee objectivity in the assessment and selection of specialists in the future team. Secondary indicators are the further development of primary indicators. The goal is to select the really important criteria and indicators for assessing the competence of the experts who will be selected to solve the management tasks and problems. A different number of secondary indicators are defined for each main indicator.

Stage 2: After the systematization of the primary and secondary indicators, a system for overall assessment of their importance and severity is developed. The evaluation is carried out in three aspects: importance, feasibility and sensitivity, using a scale of 1 to 10. The ability of the particular expert to solve problems and problematic situations is also evaluated on a scale of 1 to 5, where 1 is the minimum rating and 5 is the maximum. The assessment of the ability of experts is developed in four aspects: practical experience, theoretical analysis ability, logical thinking and ability to understand the situation, ability to objectively evaluate and intuition. A scale of 1 to 3 is used for these scores, with 1 being the lowest score and 3 being the highest. As a result, a scientifically based and working system of indicators is formed, so as to build a model for assessing the competence of production managers, which will ensure the formation of an objective expert opinion when making decisions related to production management.

Stage 3. A model for assessing the competence of each expert and an algorithm for applying the model are developed.

The model proposed in this publication is tested in real-world settings and can be successfully applied to other functional areas of management by modifying the key metrics to be applicable in those areas.

Г. 8.3. Panayotova, T., Dimitrova, K., (2019). A Strategic Vision for Development of Flexible Industrial Enterprise, Chapter 11 in DAAAM International Scientific Book 2019, B. Katalinic (Ed.), Published by DAAAM International, ISBN 978-3-902734-24-2, ISSN 1726-9687, Vienna, Austria, (pp 143-158), Included in EBSCO and Gale Cengage bibliographic databases

Abstract: The flexibility of the modern enterprise finds expression in business strategies for fragmenting mass markets into niche markets, gaining competitive advantages based on customer perceiving value, producing multiple products and services in different market quantities, designing solutions interactively with customers, organizing change and rapid response, management through leadership, motivation, support and trust, full use of information and communication technologies, capabilities, resources and assets, regardless of their location, working through entrepreneurial teams, partnership with other companies.
The flexibility of an industrial enterprise can be defined as strategic, organizational, financial, production flexibility, information systems flexibility, marketing flexibility, operational flexibility, technology management flexibility, etc.

In this research, the measurement of the flexibility of the industrial enterprise is related to the dependence on the management of intellectual capital (IC).

To analyze the flexibility of industrial enterprises in Bulgaria through the resources of intellectual capital, statistical information from the NSI for 2018 was studied and analyzed. From the analyzed quantitative data, it can be concluded that they need support and specific measures to improve IC management.

The main challenges facing industrial enterprises in Bulgaria on their way to flexibility and adaptability are outlined:

• increasing the qualifications of the workforce,

• the shortage of staff in sectors that are crucial for the development of the digital economy,

• the low share of expenses in education and R&D,

• the lack of successful cooperation between the educational system and business.

To remain competitive, companies must embrace an open technology architecture and collaborate with partners who benefit from modern solutions to problems. According to many researchers and analysts, teams should be open to accepting external experts to manage specific internal functions. Also, companies must be ready to integrate and exchange data across ecosystems in a way that few do today. At the same time, flexible teams with multifunctional skills should be built within the organizations themselves, in which intra-company mobility and the development of individual skills are encouraged.

The management of intellectual capital activities requires that available information be systematized into an orderly perspective. Intellectual assets can be considered in three categories: Human capital, Structural capital, Customer capital.

One of the main problems related to the accounting and measurement of intellectual capital is the fact that its basic elements are difficult to formalize and measure. They can be described by a set of specific characteristics that are rather qualitative in nature.

The publication presents a practical application of the analytical hierarchy process to determine the degree of flexibility and to develop a strategic vision for the development of the industrial enterprise. A model has been tested for the formation of a complete system of criteria supporting the decision-making for choosing a strategy to increase the flexibility and adaptability of an industrial enterprise, taking into account the impact of intellectual capital.

Г. 8.4. Dimitrova K. **Panayotova T**. Veleva N., (2019). Study of the Opportunities for Building and Management of Flexible Small and Medium Enterprises in Bulgaria, International Scientific Journal "Machines. Technologies. Materials", Vol XIII, Issue 8, 2019, Web ISSN 1314-507X; print ISSN 1313-0226, (pp. 354-357).

Abstract: The publication presents a study of the problems and challenges faced by industrial enterprises in the era of Industry 4.0, implemented within the research project NP14/2019 of Department of Industrial Management at Technical University of Varna. The main objective is dedicated at analyzing the radical changes occurring in 21st century that affect every aspect of business, including how goods and services are produced. With the rapid development of information and communication technology, and especially Internet technology and high-speed communication, the market has become increasingly global and fragmented. Traditional manufacturing, with its broad approach and static organizational style, can no longer compete in global markets. Customers are now looking for more flexibility, shorter delivery times and more variety of products and services. The flexibility of an enterprise allows not only to adapt to the rapidly changing environment, but also to the opportunities that it provides. An agile enterprise is able to rapidly reorganize its people, management, technology, equipment, and operating philosophy to produce products and services tailored to customer needs or new

markets. Flexibility is a strategic decision to survive in today's market conditions. Small and medium-sized enterprises are doomed to work flexibly.

In the modern world, there is more and more talk about the huge impact of digitization, which is developing at an extraordinary speed, its advantages and challenges. The process itself can be called a "megatrend" that makes the world look towards new, more complex levels of productivity. More and more organizations are reorienting and refining their strategies and goals towards the introduction of new generations of digital technologies. The goal is to achieve higher levels of productivity, quality, efficiency, search for favorable opportunities for their further sustainable development and competitiveness.

Г. 8.5. Panayotova, Т., (2019). Opportunities for Research The Impact of Intellectual Capital on Creating Value in Industrial Enterprises, International Conference „Applied Computer Technologies", 19 – 21 September, Varna, Bulgaria, Proceedings Computer Science and Technologies, Year XVII, Number 1/2019, ISSN 1312-3335, (pp. 81-89).

Abstract: Development patterns in modern economic conditions show that in order to achieve prosperity and competitive advantage, companies increasingly rely on the creation and use of intellectual resources. The thesis is also supported by the data on the sources of value creation in developed economies, where they have shifted from tangible to intangible assets. The amount of intangible assets used in companies is constantly increasing, and in recent years 87% of the value of public companies forming the S&P index is due to intangible assets. This finding should be considered in dynamics, since the share of intangible assets in the market value of companies in 1985 was only 32%, which means that in 30 years the market has increased the role and importance of intangible assets almost 3 times.

The purpose of the publication is to investigate the impact of intellectual capital on value creation in industrial enterprises and, on this basis, to propose a model for analysis and evaluation. The methodology of the present study is subordinate to the set goal. On this basis, a review of the definition of intellectual capital (IC) as an expression of the non-property advantages of business has been made.

From the studied literary sources, it turns out that there are different variations in the definitions. In general terms, it can be assumed that it is a complex, dynamically changing component of the generation of economic value and has an intangible character. In order to generate added value for the company, it is important that the main elements of IC are in continuous interaction. It follows that the creation of wealth for the organization is based on a chain of transfers, i.e. individual knowledge and skills (human capital) into organizational knowledge and practices (structural capital), which subsequently impacts customer capital by providing new products and services. It has been found that multiple methods exist to estimate IC. However, these methods do not characterize the added value that is generated by intellectual capital. The publication states that the VAIC TM - Value added intellectual coefficient model gives the best insight into the effectiveness of intellectual capital, which takes into account the effectiveness of tangible and intangible assets through the value generated by them when they are used together. The VAICTM coefficient can be considered as the first step in the process of defining the participation of intellectual capital in the creation of value for the company.

In this publication, defining the situation in which the enterprise finds itself, in terms of its intellectual capacity and its overall efficiency, requires tracking the change in ΔVAIC between two comparable periods. On the basis of the obtained results, an analysis and assessment of the reached level of the value creation process and determination of the necessary level for the enterprise is made. The VAIC gauge is rather diagnostic in nature, which necessitates its use with other systems and models for evaluating the company's intellectual capital. In the study, it is suggested that the potential application of VAICTM is related to its

use in conjunction with Tobin's Q ratio. It represents the ratio between the market value of the company's shares to their book value.

A formal model for the measurement of IC and its impact on value in the enterprise is proposed, which contains several stages: First stage: Defining the situation in which the enterprise is located; Second stage: Analysis and assessment of the situation; Third stage: The creation of an Intellectual capital navigator (ICN).

For the successful presentation of the ICN creation process, the model proposed in 2005 by Roos, Pike and Fernstrom has been used with some modification and adaptation. The choice is mainly justified by the fact that the model best reflects the influence of IC and, in the opinion of the author, corresponds to the greatest extent to the specifics of value creation. Evaluating the impact of IC provides an opportunity to rethink the hidden resources that help turn value into profit for the company.

Г. 8.6. Panayotova, T., (2019). Development of a Formal Model for The Implementation of Business Network Reengineering, International Scientific Journal "Innovations", Year VII, Issue 1/2019, Sofia, ISSN Print 2603-3763, ISSN Web 2603-3771, (pp.31-35).

Abstract: The dynamics of the environment in which companies operate also determines the need for new management engineering tools and approaches. In recent years, interest in comprehensive solutions for business management in our country has been growing. The orientation towards the customer is becoming more and more obvious, and the competition is taking on a new look dictated by the fact that the competition is not between individual enterprises, but between entire chains of manufacturers and suppliers. Today, the new network economy gives a new and expanded scale to the activities of enterprises. The research is aimed at the need for new solutions in the engineering of company management processes. The main hypothesis is that reengineering does not necessarily have to be limited between the walls of an office or enterprise, but must also affect processes taking place between the company and its users, suppliers and partners.

The network approach is proposed as an opportunity to apply reengineering of external processes (X-engineering). The main argument is the fact that modern companies deploy their activities in space, united in different types of business networks (Businessnetwork-BN). According to the network approach, there are two critical problems in achieving business goals: 1) how to mobilize the various counterparties of a company and, subsequently, 2) how to develop mechanisms for joint behavior and coordination in order to solve problems.

In this publication, a formal model for BN improvement (reengineering) is proposed, which includes three stages. The model of the effective business network contains one or more business organizations which relationships with others (in the absence of a control center) form the basis (backbone) of the system, and in such a way that from the small single competitive advantages of each partner, through mutual complementarity, a new competitiveness of the network as a whole is formed.

The model focuses on building an effective BN that will enable participants:

- to make better use of their production capabilities (minimum stocks, shortening the production cycle, etc.) and realize regular income and stable relationships;
- to release financial resources that can be directed in other strategic directions of activity;
- to acquire strategic competitive advantages derived from the existence and growth of the network such as securing activities, developing economic potential, acquiring habits for joint teamwork, increasing the technological and technical level of production, etc.

Г. 8.7. Panayotova, T., Angelova T., (2018). Information-Technological Decisions in Engineering of Company Management Processes, The 1st International Conference “Applied Computer Technologies” ACT 2018, Publisher: University of Information Science and Technology “St. Paul the Apostle” – Ohrid, Macedonia, (21-23 June 2018), ISBN 978-608-66225-0-3, (pp.54-59).

Abstract: The publication discusses the need for new information technology solutions in the engineering of company management processes in a dynamic environment. The interest shown in business process reengineering (BPR) is not accidental, it is motivated not only by technological, but also by purely economic prerequisites. A characteristic feature of traditional reengineering is that it is aimed exclusively at the internal processes of the company and is carried out within the organizational boundaries of the enterprise. But it is already running out, and attention should be directed to its improvement in the form of a new type - called X-engineering (reengineering of external processes). The business process reengineering methodology should be perceived as an advanced management tool, which requires the introduction of a new concept that foresees drastic changes in the team and the structure of economic processes. The publication examines activities related to X-engineering under the changes initiated from the position of the "Four Ps" ("4Rs"):

- Process - includes methods and technologies for interaction with all interested parties, such as users, suppliers, distributors, shareholders, etc.;

- Proposition - represents a formulation of the composition of the production and services, as well as the conditions for their acquisition, maximally corresponding to the client's needs;

- Participation - represents an expansion of cooperation between different independent business entities based on the creation of common, integrated processes. The company must look for and find partners, cooperation with which will lead to truly mutually beneficial results;

- Place - this aspect embodies the future, target positioning of the company. It is traditional enough from the point of view of both organizational-management engineering and strategic management. The only difference within X-engineering consists in the fact that the target positioning implies its achievement not only by the company itself, but also by all its partners.

The study presents basic information technology solutions used within X-engineering. Emphasis is placed on the standard methodology of implementing ERP systems. As a single, integrated software solution for the entire company, the EnterpriseOne® system is proposed, which is not organized as a simple collection of individual modules. However, in order to make it as clear as possible what solution the system offers and what the results of its implementation are, it is divided into basic functional subsystems and applications, as well as by different departments in a manufacturing, trading or distribution company.

As a result of the research, the direct benefits of the application of X-engineering in the management of the organization were established, such as: a complex review and reassessment of the company organization, policy and practice; establishment of interrelationships in the actions of all employees, optimization of all work processes - production, commercial, management; improving the quality of management decisions as a result of informed decision-making and the reliability of the data used; quick and adequate response to changes in market, technological and financial conditions; strong reduction to elimination of the negative consequences of delays, overstocking, shortages, deviations from standards, lack of consideration of trends, etc.; improving debt collection and return on investment; reducing the cost of products; professional growth of the staff by redirecting from routine to creative activity - analyses, forecasts, decision-making; full control of all processes in the enterprise, etc.

Г. 8.8. Tanya Panayotova, Tanya Angelova, Petya Georgieva (2018). Possibilities for developing an innovative strategy for smart specialization of the Municipality of Varna, Eleventh International Scientific and Applied Conference "Digital Economy and Blockchain Technologies" 2018, ISBN 978-619-7026-28-3, (pp. 192-202).

Abstract: The publication presents the results of the project "Possibilities for developing an Innovation Strategy for Smart Specialization of Varna". The Innovation Strategy for Smart Specialization (RIS3, ISSS) as a concept is the result of a new generation EU policy in research, innovation and development. ISSS requires a clear view of the strengths and weaknesses of a country or region, which must be combined with strong leadership and a shared vision of innovation stakeholders. The key to identifying the areas of a country or region that have the potential to be different and more competitive than others is the entrepreneurial discovery process (EDP). EDP consists of developing creative solutions to problems by combining strengths and exploiting opportunities such as new partners, taking risks, experimenting, seeking new ideas along the value chain or participating in new value chains, and ultimately new products on the market, new business models, generating growth and jobs.

Business/entrepreneurs have the best sense of new opportunities that will help discover what to produce and sell best, where and how to innovate. The question is how to attract them involved in the process of creating the ISSS.

In relation with this, the following research objectives are formulated:

- Outlining indicative opportunities for improving planning and accelerating regional innovation development. It is considered that Varna, as an innovation center of the North-East region, can and should develop its regional ISSS, according to its specifics and according to the maritime component of the region.

- Carrying out preliminary studies to identify competitive advantages and prepare recommendations for strategic priorities and smart policies to maximize the potential for economic development based on scientific research and innovation.

- Development of a toolkit supporting the development of cooperation between public administration, scientific circles, business and civil society and enabling all interested persons and organizations to obtain knowledge about the results and impacts of the implementation of the innovation strategy for smart specialization.

A preliminary analysis of regional competitiveness and regional potential for innovation is carried out on the basis of a theoretical overview and interviews with interested parties; An interaction model is developed in order to provide an environment and opportunities for intelligent specialization in Varna; sample proposals for strategic directions of smart specialization of Varna are presented.

Г. 8.9. Panayotova, Т., (2018). The Role of Concurrent Engineering in Development and Digitalization of Industrial Activities, International Scientific Journal Innovations, Year VI, ISSUE 1 / 2018, Publishers: Scientific Technical Union of Mechanical Engineering “Industry-4.0”, National Scientific Technical Society Automation In Discrete Productions, ISSN (PRINT) 1314-8907, ISSN (WEB) 2534-8469, (pp 12-14).

Abstract: The modern stage of development is associated with increasing requirements for products and the need for sustainable growth, as well as with a desire for highly efficient application of technical achievements, especially high industrial and information technologies. New production concepts require fundamentally new ways of technological construction. The application of global information networks allows the intensification of production and a significant improvement in the quality of the manufactured products.

The present article traces the development of Concurent Engineering (CE) and systematizes its development guidelines as a whole complex integrated process. Following the

development of CE, it can be noted that it is characterized not only by the general features of the complex digitization of design and production activities in the industrial enterprise, but also by the specific features related to the engineering essence of the problem. This is manifested in the latest versions of software products and their adaptation to new production conditions, such as digitization, artificial intelligence and virtual reality. Therefore, the role of CE in real-time resource optimization and engineering process flexibility needs are intertwined with the capabilities of Totally Integrated Automation (TIA). TIA unites the following areas:

- Industrial communication;
- Industrial Data Management;
- Industrial Security;
- Integrated Engineering;
- Integrated Security.

The implementation of the listed directions creates an opportunity for flexible organization of production, shorter deadlines for project implementation, avoidance of duplication of efforts, overall control of processes, consistent data on the quality of documentation, integration of mechanics, electrical systems and automation.

The publication clarified and defined the place of CE at the stage of the general digitalization of design and production activities in an industrial enterprise. Horizontal integration has been found to be directly related to engineering. Special attention is paid to new software products and their compatibility with the requirements of modern production realities, such as digitization, artificial intelligence and virtual reality. The solution of the Siemens company for the implementation of TIA is presented, based on which a concept for the implementation of PLM (Product Lifecycle Management) is proposed, allowing effective management of the product life cycle from the idea, design, production, maintenance and recycling, as well as for creation and optimization of new products.

The place and role of CE in the new world of smart technology is not only the subject of scientific research, but also a huge challenge for its practical utility.

Г. 8.10. Panayotova, T., (2017). Possibilities for Implementation of the Real-Time Enterprise Concept in Production, Scientific journal «Economics and Finance», Coventry, United Kingdom, Agenda Publishing House, WORLD SCIENTIFIC EXTENT, 2017, **Science Index; eLIBRARY.RU, ISBN 978-0-9955865-3-6, (**pp 288-295).

Abstract. The modern stage of development is characterized by increased requirements for manufacturing enterprises. In addition, factors such as quality and cost, time and innovative capabilities have become critical to the success of companies in global markets. Enterprises must respond immediately to changing market conditions that arise during the execution of value creation processes. Depending on the context of the processes, the goal is to significantly reduce lead time, response time and time to market. The main objective is to realize closed-loop controls by using feedback between process objectives (eg quality, cost, quantity) set by managers and the actual performance of the production process at shop floor level. It has been found that in many cases vertical integration at enterprise levels is inadequately implemented, therefore Manufacturing Execution Systems (MES) attempt to mitigate the gap in vertical integration by introducing feedback between enterprise levels. However, data exchange is manual or semi-automatic due to inflexible and proprietary interfaces. Additionally, process data from automation devices is often not adequately incorporated in real time.

A "real-time enterprise" means a well-organized company that is freed from the constraints of slow-moving data environments. This means that the enterprise reacts immediately to the changing market conditions in order to maintain its competitive positions by giving the decision makers immediate access to the right information at the right time. Real-

time is defined as "getting the right data about the right processes to the right people at the right time to create and sustain a competitive advantage."

The present study proposes a model for realizing the concept of real-time enterprise (RTE) in the field of manufacturing, which provides a comprehensive framework for the control of manufacturing processes. The framework closes the vertical integration gap and creates real-time feedback between enterprise levels. The vision of RTE in an industrial enterprise requires monitoring the process and controlling the creation of additional value by coordinating external and internal events. The application of the RTE concept places new requirements on management, engineering and computer science.

Г. 8.11. Dobreva Sv., **Tanya Panayotova**., (2017). Analysis of the Current Status and Indicators for Assessing Corporate Attractiveness, Scientific journal „Economics and Finance“, Coventry, United Kingdom, Agenda Publishing House, WORLD SCIENTIFIC EXTENT, 2017, **Science Index; eLIBRARY.RU**, ISBN 978-0-9955865-3-6, (pp. 280-287)

Abstract: The globalization of the markets, the growing dynamics and the uncertainty of the external environment in which companies operate require significant adjustments to be made in corporate governance. From the researched literary sources and studies of world experience, it was found that business performance can no longer be assessed only on the basis of financial statements, but there must be another focus, other measures of financial analysis to determine corporate attractiveness. In this publication, a business model and a framework for assessing corporate attractiveness are proposed in the following logical sequence: 1. Determining the boundaries of the system and analyzing the attractiveness of the strategic business area; 2. Defining the value creation model; 3. Definition of business success indicators; 4. Audit and transformation of the corporate culture.

For the analysis of the attractiveness of a strategic business area, it is proposed to use the SHELL/DPM model, considering its advantages over the widely popular BCG and GE/McKinsey models. The main part of the study is focused on the second step of the model and the development of a value navigator, in which many factors must be taken into account in their dependence and interdependence. The creation of value in the company is presented in the form of a pyramid, the top of which is the value center, responsible for creating economic added value by finding the factors affecting shareholder wealth and the operational management of key performance indicators. In the present study, the value center stated in Young & O'Byrne's basic model is modified by proposing to link the Economic Value Added (EVA) model with the Coefficient of Value Added by Intellectual Capital (VAIC). EVA evaluates business performance based on economic profit, which is a function of investment, risk and cash flow. The period that provides a positive spread between actual and required capital returns is defined as a period of competitive advantage. During this period, fundamental value is created, which in the long run determines the market value of the equity capital. Unlike EVA, VAIC aims to measure the added value created by intellectual capital components. VAIC determines the efficiency of the use of the three main resources of a company - the value added of capital employed (CE), the value added of human capital (HC) and the value added of structural capital (SC). Their aggregate gives importance to the VAIC coefficient. The higher the value of the coefficient, the higher the potential of a company and its ability to create added value is estimated, which actually represents a new way of understanding organizational effectiveness. It is accepted that the value components according to EVA and VAIC to be reduced to ROIC - return on invested capital, WACC - weighted average cost of capital, HC, SC and CE. These components most accurately represent the influence of value factors, which can be divided into three groups: efficiency of operational, investment and financial activity.

To assess the sustainability of growth in the company, the basic growth quality matrix proposed by AT Kearney experts was considered. Some weaknesses in the base and type are

caunted and it is found that to assess the sustainable growth it is necessary to analyze the economic profit climate. Its increase is achieved, firstly, by increasing the spread of the return on invested capital and, secondly, by increasing the constant of invested capital, therefore it is proposed as a suitable option to use the second version of the growth quality matrix, not based on the market capitalization, but of economic profit (residual income, RI).

In conclusion, it is found that in the development of the value navigator, it is necessary to consider many factors in their interdependence and interconnectedness.

Г. 8.12. Tanya Panayotova, Mariana Murzova., (2017). The Impact of Globalization and Internationalization on Quality of Bulgarian Higher Education, Journal of Business and Economics, 10 October 2017, ISSN 2155-7950, USA, Volume 8, No. 10, Academic Star Publishing Company, (pp. 857-866).

Abstract: As the processes of globalization and internationalization of the economy and business progress, higher education faces a new goal - the training of professionals capable of working effectively in changing market conditions. Today's era of global knowledge and technology requires graduates to have the skills to interact in a global environment. Thus, globalization becomes a catalyst for increasing competition in education. The internationalization of education in its various forms is a factor that helps students to receive high-quality education and academic institutions to successfully respond to the challenges of globalization. The article examines the concepts of globalization and internationalization in the context of their impact on the quality of Bulgarian higher education using the example of the Technical University of Varna, Bulgaria. Globalization is the most fundamental challenge facing universities throughout their history. It is also related to the creation of not only economic, but also educational transnational universities through the use of information technologies for distance learning and international virtual networks.

The term internationalization is used more and more in European countries due to the increased interest in introducing an international dimension in higher education. On the one hand, it can be assumed that internationalization is becoming an increasingly important and desirable characteristic for universities. On the other hand, the term has an ambiguous understanding from different educational circles and, as a result, interpretations of this idea are observed. One of the significant challenges facing the international academic community is navigating the conflicting ideas about the internationalization of higher education and the relationship with the equally conflicting attitude to globalization.

In the present study, the following working definition is accepted as the most appropriate: "The internationalization of higher education is a process of integrating an international/intercultural dimension in teaching, research and other services offered by the institution".

The publication examines the Bulgarian context of globalization and Europeanization in the practice of Technical University of Varna. Bulgarian higher education is part of the common European Higher Education Area. Although with a certain lag and catch-up, it tolerates the influence of globalization and adapts to European requirements. Research by international organizations indicates a definite trend for a significant increase in the number of students worldwide, as well as in their demands for higher education institutions. Students increasingly take for granted the choice of what, how and where to study according to their needs and interests. This dynamically changing picture requires a change in the way Europe's 4,000 universities operate – not only internationally, but also in terms of how they deliver education to European students in their home countries. In order to increase its competitiveness and attractiveness, Bulgarian higher education must find its own unique way to deal with the challenges posed by globalization in the field of education.

In conclusion, the main directions for improving the activity of Technical University of

Varna are outlined:

• Further promotion and development of partnership with universities abroad to increase bilateral exchange, with an emphasis on universities in Western Europe.

• Intensification of cooperation with international companies and corporations for participation in projects and other joint initiatives, as well as ensuring successful professional realization of Technical University of Varna graduates;

• Ensuring publicity of the results of all ERASMUS activities, increasing the awareness of all teachers and students at Technical University of Varna about the opportunities for study and specialization abroad.

Г. 8.13. Panayotova T., (2016). Creating value in the industrial enterprises of the North-East region through the resources of intellectual capital, Annual Journal of Technical University of Varna, 2016, ISNN 1311-896X, Vol. 1, (pp. 52-57).

Abstract: The publication analyzes the opportunities for value creation in the industrial enterprises of the North-Eastern region, through the resources of intellectual capital and the place of the region among others in the country. The main thesis of the study is that intellectual capital (IC) is a concept reflecting the specifics and patterns in society and the knowledge economy, in which the processes of globalization and the spread of digital technologies bring to the fore the economic importance of intangible assets.

Increasing the competitiveness of the Bulgarian economy, including of the North-Eastern Region (NER), is extremely important for the growth of the Bulgarian and regional economy and coping with the competitive pressure of market forces in EU. The drive to build competitive advantages of a new order is relevant for industrial enterprises, and this is expressed in the replacement of cheap labor and low-tech orientation with highly qualified human resources and opportunities to create and absorb new technological knowledge.

To form a conceptual framework of the study, publications in the field of economic development and scientific research and development (R&D) were studied and systematized. Based on this, summaries of R&D at a national level, R&D intensity (measured as a percentage of R&D expenditure of GDP) and registered rights of IC sites at a national level are made.

In order to analyze the possibilities of creating value in the industrial enterprises of NER, through the resources of the IC and the place of the region among the others in the country, statistical information from NSI was studied and analyzed, regarding R&D expenditures by statistical regions and sectors for the year. The management of IC activities requires that the available information to be systematized into an orderly perspective.

The contribution of IC to the company is expressed in revenues from products and services, reputation and image, providing access to the technology of others, protection against infringement of foreign intellectual property (IP) rights, freedom to design, cost reduction, barriers to competition, building customer loyalty, protecting innovation. On this basis, the main processes of improving IC management are presented in a logical sequence.

Some of the main findings in the publication indicate that:

• The majority of the fastest growing and most prosperous enterprises owe the majority of their market value mainly to the IP objects they own in the form of intangible assets. For this type of organization, the possession of the rights to a trademark, copyright, patent, know-how or group of IP objects in the form of technologies is of much greater importance from the point of view of value creation processes than the possession of other types assets;

• There are potential opportunities for using the main functions of IC in the business cycle of NER enterprises;

• The level of expenses for R&D and for the implementation of high-tech productions is unsatisfactory, despite the relatively high scientific and engineering potential of NER which should be directed towards more effective implementation and relation with business needs;

• The relative share of issued patents for inventions, issued certificates for registration of utility models, registered trademarks, registered industrial designs and other objects of IP for enterprises from SIR is relatively small, which does not stimulate the dynamics of innovation processes.

• Enterprises from NER continue to be an important part of the Bulgarian economy;

• Industrial enterprises from NER need support and specific measures as a strategy for creating IC;

• The use in production activities and the management of intellectual resources as intangible assets, the processes of transfer, licensing or their sale are the basis of the activity of this type of enterprises. Therefore, the creation of intellectual assets from the available in the organization and acquired knowledge, turning these assets into IP through their legal protection and including them as intangible assets in the economic activity is of vital importance for companies.

Г. 8.14. Georgiev, K., **Panayotova, T**., P. Georgieva., (2016). Cross-Model for Creativity Strategic Management, Chapter 21 in DAAAM International Scientific Book 2016, B. Katalinic (Ed.), Published by DAAAM International, ISBN 978-3-902734-09-9, ISSN 1726-9687, Vienna, Austria, (pp. 225-238), Included in EBSCO and Gale Cengage bibliographic databases.

Abstract: Creativity, innovation and effective use of knowledge are the basis of business survival. Without innovative ideas and an entrepreneurial spirit, it is impossible to secure and maintain a competitive advantage. Creativity is a precondition for a successful organizational strategy. It can only be achieved if the innovation processes are extended beyond the organization's management.

Organizations survive on their creative outcomes, which must include creative staff, creative customers and management expertise. To ensure that all aspects are taken into account, it is suggested to use as a tool the strategy map developed by Kaplan and Norton to document the main strategic objectives pursued by the organization.

The contribution of the study is the development of a cross model based on different concepts of strategic mapping of creativity: Strategic Map, "The Four P's of Creativity", Crowdsourcing, Personalities and Collective Intelligence. In this way, in-depth analysis is provided in multiple perspectives.

The model is applicable to enterprises that are able to provide the necessary financial resources and human staff and wich business is based on production with intensive generation of new ideas.

The potential benefits of the model are:

- building a set of ideas and involving the client in the development of a new product;
- reduction of costs and time for new product development;
- early recognition of customer dissatisfaction;
- increasing customer loyalty by taking into account their opinions and advice;
- building strong public relations.

Г. 8.15. Tanya Panayotova, Mariana Murzova., (2016). Value Relevance of Brand Strength, Proceedings of University of Ruse - 2016, volume 55, book 12, ISSN 1311-3321 (print) ISSN 2535-1028 (CD-ROM), ISSN 2603-4123 (on-line), (pp. 8-15).

Abstract: Determining brand value is a complex process dependent on many criteria. Brand value can be defined as an estimate of the value of a particular object at a particular point in time. Strong brands improve business performance primarily through their influence on three key stakeholder groups: customers (current and future), employees and investors. The influence of brands on current and future customers is a particularly important driver of economic value.

In an economic aspect, the value of the brand is a market expression of the benefit that the owner (or investor) of a specific object has at the time of evaluation. The term "value" is often used in economic practice and has many interpretations. Clarifying definitions of the various interpretations are made in the publication.

Depending on the situation, the circumstances and the need to determine the value of the brand, different standards of value may be used. In the publication, the authors propose to use one of the main standards of value, namely the market value, as a basis for evaluation. There are many approaches and methods that can be used for economic analysis and brand valuation. When considering the main similarities and differences between the procedures, it can be found that they are logically grouped into three categories: Cost, Income and Market approach.

Each of the approaches applies specific methods, techniques and procedures. The income approach is widely used in the valuation of intangible assets and intellectual property. Underlying the preference for the income approach is the requirement for a fair calculation of the necessary parameters used in the valuation methodology. An analysis was made of the existing methods applicable in the income approach. Two of the valuation methods are considered in the present study, namely the "License Fee" method and the "Excess Profit Quota" method. A key parameter for them is the amount of the license rate (royalties). This rate is often expressed as a percentage of revenue from sales of products under a given brand. The calculation of the amount of remuneration as a percentage of revenue is based on the so-called standard remuneration rates, determined on the basis of an analysis of concluded license deals in world practice for the relevant industry.

To determine the range of royalty value, the authors propose a modified version of the T. Forbes model for evaluating brand strength (Brand Strength Analysis). Ten key factors of brand strength are taken into account. Three of them characterize the market, and seven factors are related to the brand itself. Values are assigned to each factor, according to the presented methodology. The greater the strength of the brand according to the given factor, the more value it has. The final result obtained from the brand strength analysis allows the license fee to be positioned at the appropriate place within the permissible limits of fluctuation.

Г. 8.16. Tanya Panayotova, Mariana Murzova., (2016). Strategic Benefits of Branding in Social Media, Proceedings of University of Ruse - 2016, volume 55, book 12, ISSN 1311-3321 (print) ISSN 2535-1028 (CD-ROM), ISSN 2603-4123 (on-line), (pp. 20-28).

Abstract: Social media has become an essential part of consumers' lives. The emergence of consumer- driven brand stories in social media is one of the most obvious proofs that the paradigm shift towards postmodern marketing has already reached a significant practical significance that cannot be dismissed.

As a result of the research, it was established that in order to increase the value of the brand through social media marketing, first of all, the added value for the user must be increased through adequate marketing communication of the brand, aimed at achieving the main signs of its added value - image, loyalty , familiarity, perceived quality and brand associations. These are the factors that help maintain the brand and favor sales, which in turn increase the company's revenue and, as a result, the market value of the brand. There is a positive relationship between brand awareness and its value; between consumer attitudes towards the brand and its value; between consumer perceptions of brand quality and value; between the positive reputation of the brand and its value; between consumer loyalty to the brand and its value. A change in the direction of the perceived consumer value of the brand makes it possible to manage the power of the brand in favor of business organizations;

The authors prove that the power of the brand can be treated as a variable with a mediating role when considering the relationship between the consumer value of the brand, the profits for

the company and, hence, the market value of the brand. Optimizing brand marketing communications through tools that create satisfied, loyal, repeat customers is critical to the long-term success of organizations and increasing the market value of their brands.

In conclusion, it is argued that digital marketing communications are the easiest, fastest and most effective tool to create a connection between the brand and the consumers. Social media helps to better understand consumer reactions during and after purchase, which provides the necessary feedback to evaluate the effectiveness of digital marketing communications.

Г. 8.17. Panayotova, T., (2015). Modern Challenges in Industrial Engineering and Management Mechanical Engineering and Mechanical Science Year X Book 2, ISSN 1312-8612, Technical University of Varna, (pp. 16-21).

Abstract: In modern theory and practice, engineering has an increasingly decisive role in increasing business efficiency. Its essence is expressed in the provision of services in the research, design and construction, calculation-analytical and production areas, including the preparation of investment justification for projects, recommendations in the field of organization and management of production, as well as in the realization of production. Industrial engineering and management are two scientific fields, closely related and complementary to each other. The synergistic effect of their interaction appears in the so-called organizational-management engineering.

In the current publication, the idea is to implement the engineering of the management processes in two main phases. The first is related to the analysis of the existing system of management processes, and the second to the design of new management processes. In this way, the analysis of the existing system of management processes and the design of new management processes are combined.

In the publication, it is suggested that the general approach to modeling the processes consists in their sequential decomposition - from the general to the particular in the following sequence:

- identifying the mission and breaking it down into goals, sub-goals and activities;
- the combined activities are broken down into the processes that make them up;
- processes are decomposed into sub-processes and separate specific tasks attached to concrete performers.

The result of this decomposition is a complex model of all management processes of the company with a level of detail corresponding to the tasks of organizational-management engineering.

The use of various methods and tools of organizational-management engineering are based on certain principles, ensuring the development of rational organizational-management decisions from setting the general goal of development or reorganization of the company to its organizational management structure.

Methodical approaches for the implementation of organizational-management engineering are proposed and analyzed: Reengineering of business processes; Knowledge Engineering; A system of balanced indicators; Reengineering of external processes (X-engineering).

The change in economic processes must be carried out according to a problematic or crisis situation. This makes it necessary to take into account the peculiarities of the processes and to design a structure that corresponds to the trends in a dynamic business environment.

Г. 8.18. Panayotova, T., (2015). Modeling the Design Process of Industrial Enterprises, Mechanical Engineering and Mechanical Science, Year X, Book 2, ISSN 1312-8612, Technical University of Varna, (pp. 11-16).

Abstract: Modeling methods are an important tool in the design process of industrial enterprises. The subject of research in this publication are the problems related to the analysis, calculation parameters, optimization and verification of the correct functioning of the production system and the system of movement of material flows. By developing a suitable model, the utility of a solution can be evaluated and verified.

The design of industrial enterprises is of great importance to the economy. The developed projects must provide high technical and economic indicators related to the highest possible level of technique, technology and organization of production, low cost of manufactured products, low cost of construction or reconstruction.

Depending on the time factor, modeling techniques of a static or dynamic nature can be used. Dynamic modeling (also known as simulation) is a software representation of a system's dynamics and involves many iterations. Through it, it is possible to predict the outcome of possible actions and calculate the effects of influencing factors, while at the same time taking into account their random nature.

Static models do not take into account the change of variables over time. They refer to the extrapolation of analytical data and do not take into account the synergy of the components of a system, i.e. when the action of the elements may have a different effect on the total system than the sum of their individual effects would indicate. That is why their application is very limited in the design of industrial enterprises.

The publication presents the design process through the six-stage model and classifies the types of project works, from which it is clear that the formulation of the problem related to the modeling of the design process can be significantly different for the individual stages, depending on the difference in the data base, the degree of their generalization, the time horizon, as well as the information provision of the research.

In the study and design of production systems, their adequate description in the form of a corresponding simulation model is of particular importance. This determines the accuracy of the system parameter estimates, and ultimately the result of the overall analyzed process. A model of the design process using Queuing Theory is proposed. What is special about the optimization of the model is the influence of the queue on the behavior of the system, which can be evaluated through three indicators:

1. time distribution – downtime, transportation time, waiting time in warehouses, duration of production cycle;

2. quantitative parameters – length of the queue, amount of production capacity, amount of stock;

3. compliance with deadlines - compliance / non-compliance with deadlines

The indicators caunting the behavior of the system are dependent on the complex interactions of influencing parameters during the production process: (A) material flow; (B) production system; (C) control system; (D) disruptions - accidents, delays, progress, change in operational management.

The design of an industrial enterprise is a complex task that includes a large number of organically interconnected multidisciplinary tasks from the fields of economics, technology and production organization. This necessitates gathering enough information to build an appropriate model to evaluate and verify the usefulness of a given solution. Modeling is a cost-effective process because testing the solution itself (and not the model) is too expensive, time-consuming, and consumes a lot of materials and energy. After the model is prepared, the project undergoes testing and calculation of its performance characteristics to obtain an assessment of its ability to satisfy the task. Despite the fact that the first solutions usually give unsatisfactory results,

they help to get an idea in which direction to look for a better solution. Using this initial information, the project iterates through the cycle of model building and exploration until the best possible solution is obtained.

Г. 8.19. Panayotova, Т., К. Georgiev, (2014). Intelligent specialization - challenges towards development of the north-east region , Association of Lecturers in Economics and Management in the Industry and University of Ruse "Angel Kanchev", ISBN 978-954-8675-82-6, 11-13 April 2014, Ruse, Stara Zagora, (pp. 281-290)

Abstract: The innovation strategy for smart specialization is essential to stimulate the competitiveness of the economy based on new knowledge and ideas. Smart specialization is a strategic approach to economic development through targeted support of research and innovation (R&I).

A review of Bulgarian innovation system has been carried out, which reports that there is a large disparity between the regions in Bulgaria. The analysis covers 216 economic activities, the third level of aggregation of all business activities, excluding financial services and agricultural production.

The authors of this publication emphasize the possibilities of reducing the established disparity between regions through intelligent industrialization in certain directions. Other questions also arise, namely, what specialization of innovative economic activities by regions and areas can be recommended, what are the strengths and weaknesses of the sectors by region, how each region, based on its own strengths, should direct the setting of priorities in strategies for innovation at the national and regional level.

In the publication, the authors find that the existing research (mainly at the national level) and the general recommendations made do not sufficiently take into account some specific features of the economy of the NER such as:

(1) The manufacture, repair and maintenance of floating vessels. This activity in terms of complexity and innovation is average, and sometimes high-tech, because, for example, in the repair of ships, the most modern means and methods of non-contact diagnostics are used, promising environmentally friendly technologies for cleaning, for welding and cutting, for painting, for replacing metal constructions with plastic or composites, for the repair of complex engines, compressors, turbines, etc. These activities, together with other traditional "sea" activities, give for about 8-9% of the GDP of the NER.

(2) The cultivation, extraction and processing of food (mussels, fish, etc.) and other resources (gas, oil, etc. mineral products) in marine (currently coastal) conditions. These activities of innovation and the use of a lot of knowledge also fall under the medium and even partially high-tech activities and have a very large perspective.

(3) The transshipment/logistics activity related to the organization of the collection, storage, processing and distribution of various cargoes, including dangerous chemical cargoes, liquid cargoes, the organization of multimodal transports with the Varna center around the world can be considered as a service, but from point of view of complexity and innovativeness it falls under medium-technological activities.

(4) The production of electricity from the wind (in the area of Kavarna, Kaliakra, Shabla, Suvorovo, etc.). There are over 600 MW of capacity installed in the region. In practice, this activity, as well as its service (distribution, maintenance and repair), is a medium-tech, and even a high-tech activity.

(5) The technical maintenance of the infrastructure and the service of marine and health (SPA, etc.) tourism. Although these are services, they are essentially a medium-tech activity in nature. It should be taken into account that tourism creates about 12-13% of the GDP of the region.

The main conclusions are drawn on:

- leading innovation activities for Bulgaria;
- innovative activities creating maximum employment in the country.

Based on the conclusions drawn, strategic guidelines for the development of the innovation policy have been proposed regarding:

- highly and medium-innovative activities;
- less innovative activities, but with maximum employment in the country;
- other innovative activities

Г. 8. 20. Panayotova, Т. M. Murzova., (2013). Conceptual model for selection of key performance indicators, XI International Scientific Conference "Management and Engineering '13", June 2013, Sozopol, Year XXI, Vol. I, ISSN 1310-3946, (pp. 273-280)

Abstract. The selection of key performance indicators (KPI) is one of the biggest challenges for companies and helps managers to make informed decisions, maintaining a constant business rhythm, greater accountability, comprehensive evaluation of people, processes and overall production. They should be easily collectable, reliable, measurable and specific.

In many cases of implementation of KPI management, too many indicators are used, and this prevents the contractors from understanding their importance for the final results and to comply with them in their work. Key indicators are used to quantitatively measure progress towards a previously set goal. There should not be too many indicators to achieve the set goals, so as not to lose focus and blur responsibility. Nor should there be too few, which will create difficulties in measuring and taking effective action to solve the problem. It is recommended to monitor only a few basic ones, which are called key performance indicators, with the help of which the progress towards the set goals is determined.

In this publication, a conceptual model of the formulation of the task of selection of KPI is proposed. The model refers to revealing the dependence of the relationships between the indicators. The authors accept the assumption that indicators that are mutually dependent are key, dependent ones should be subject to additional analysis, and independent ones will be considered insignificant in the performance analysis. Acceptance of these assumptions is argued by examining the provided information needed to compile the values of each indicator. As a useful tool for identifying the independent, dependent and interdependent information flows inherent in complex tasks, a project structure matrix DSM proposed by Steward is used.

Г. 8.21. Ognyan D. Andreev, **Tanya P. Panayotova.**, (2013). Customer Order Decoupling Point Issues In a Project Environment, Serbian Journal of Management 8 (2) (2013), University of Belgrade, Technical Faculty in Bor, Indexed in EBSCO, DOAJ, ISSN: 2217-7159, (pp. 243 – 253).

Abstract: Nowadays, one of the most dynamically developing fields of science is that of project management (Project Management -PM) - both in the field of business and in the field of public administration. Business organizations cannot afford not to offer their product/service in the manner expected by the customer. In this regard, new concepts and approaches are emerging that ensure an increasing participation of customers in the creation of added value. Among them are: "Mass Customization", "Co-Creation", "Customer Order Decoupling Point / CODP", "Prosumer 7" and others, thanks to which the competitiveness of business organizations increases significantly. The concept of CODP, which is widely used in production management, offers a combination of economies of scale with greater variety in the product mix, determined by the customer himself using his order. This is true, in part, due to the ever-increasing customization of products and services and the way to successfully handle the fulfillment of customer orders, whether they are individual, industrial or government. On the

other hand, the concept of customer order contact point (CODP) is a popular approach to increase the variety of end items while benefiting from standardization due to the increased repeatability of operations in the production of components and/or assemblies. This approach is widely used in operations management, but can also be applied at a "secondary" level during the project implementation process, thereby achieving increased customer customization.

According to the CODP position, the customer is "allowed to penetrate" through the operational process using different options to choose within the CODP itself.CODP itself. Thus, it may define one or more particular subassemblies (components of the enditem) to be used in the final assembly, or the components of any particular subassembly, or a given combination of both, as well as to define certain component parts, and so on – upstream to the beginning of the process.

The present paper proposes the use of methods and techniques such as the Design Structure Matrix (DSM) with improvements made to the approach in terms of the interpretation of task types and the Analytical Hierarchy Process (AHP) in developing a model that helps identify locations in the process of implementation of the project, which must be implemented together with the client. The model makes recommendations for defining boundaries of client intervention based on interdependencies between project activities during the study of project processes.

Г. 8.22. Andreev, O., T. **Panayotova.,** (2012). Development of organizational forms of virtual design of industrial products, Innovations in discrete production, Scientific notices, year XX, issue 9/138, ISSN:1310-3946, National House of Science and Technology Sofia, 2012, (pp. 9-15).

Abstract: The scientific report examines the development of organizational forms that are used in the virtual design of industrial products. The organization of virtual design of industrial products requires high levels of interaction between designers. These levels must ensure the efficient functioning of the virtual design system. This is made possible by building collaborating systems that can, if necessary, exchange information related to various product development tasks.

The report provides an overview of the development of organizational forms used in virtual design. The modern tools and trends in the development of virtual design are examined. Special attention is paid to the organizational forms of functioning of the virtual design system. It has been found that, in addition to communication and information technologies, the development of organizational forms is strongly influenced by the development of markets, globalization, increased requirements for products, the implementation of new technologies and innovations, etc.

From the analysis of the development of virtual organizational forms in the design of industrial products, the following conclusions are drawn:

1. The application of communication and information technologies in virtual organizational forms creates prerequisites for competitive advantages of companies.

2. The improvement of virtual organizational forms in the design of industrial products increasingly contributes to shortening the time from the idea generating to the realization of the product on the market, which has a favorable effect on the business organization and guarantees a high market share and profit.

Г. 8.23. Panayotova, Т., N. Koleva., Influence of the point of contact with the customer's order in the formation of the operational strategy, ISBN 978-954-635-008-4, 9th International Scientific and Applied Conference "Innovation Management - Enterprises, Banks, Universities", Associacion of Lecturers in Economics and Management in the Industry, June 2012, (pp. 175-180)

Abstract: Changes in the world economy significantly affect the market situation in which manufacturing enterprises operate. The modern market is seen not so much as a place to compare products, but as an opportunity to compete on the potential of enterprises to satisfy the specific needs of customers. This potential is laid down and is formed even when determining the content of the operational strategy, which is responsible for and determines the extent to which the overall business strategy of the enterprise will be realized. In the process of forming the content of the operational strategy, the "rules of conduct" of the production-operational subsystem of the enterprise are laid down and defined for its functioning in a tactical and operational aspect. It is a kind of collection of policies, plans and styles of behavior that the enterprise has decided to follow. The international markets of demand and supply have already entered into a very clear rivalry, which requires a radical change in production and sales strategies. In other words, companies cannot afford to remain passive observers of the market situation in order to maintain a competitive advantage.

In this context, the idea of integrating the customer into the process of creating the final appearance of the final product is a promising strategy through which enterprises can respond to the ever-increasing individualization of demand. One of the main tools for determining the degree of customer participation in the production/operational process is the so-called "Customer Order Decoupling Point" (CODP).

The purpose of the present work is to analyze how the characteristics of the main parameters of the operating system, determining the operating strategy, are changing depending on the location of the CODP.

Some basic aspects of the influence of customization in the formation of the operational strategy are considered. The parameters of the operating system determining the content of the operating strategy are specified. In summary, it is stated that the presented parameters of the operating system, which determine the operating strategy, have a varying degree of influence on the individual target indicators for evaluating the functioning of the production/operational processes carried out in the enterprise. In the context of the "Order Winners/Order Qualifiers" concept, the target performance indicators of the production/operational process functioning are presented depending on CODP location.

Г. 8.24. Panayotova, Т., D. Dimitrov., (2012). Analysis of the working environment characteristics connected with “innovative working place” concept, ISBN 978-954-20-0555-1 Vol.6, Third International Scientific Congress Technical University of Varna, 04-06 October, 2012, (pp. 195-199).

Abstract: The national economy needs productivity growth in all sectors. Innovations that take place in the workplaces have the potential to integrate the ideas, skills and experiential based knowledge of all groups of employees. There are empirical evidences that the likelihood of innovation in the workplace is enhanced by good working relations, working environment and working conditions. According to various studies, this brings a number of advantages and has a positive impact on the profit of enterprises in general. One of the positive side effects is increased job satisfaction and a decrease in sickness absence. The innovation activity that takes place in the workplace can be a source of effective solutions for saving energy and resources, as well as for improving the functioning of the physical work environment. This publication examines areas for improvement including, the physical work environment and related factors

creating risk to workers' health. The company's occupational health and safety policy requires the creation of a system for permanent detection and analysis of the causes of perceived deficiencies in work and the application of effective approaches to achieve the specifically defined goals. The relevance of the issue is related to the need for productivity growth in all sectors of the economy. Achieving this goal in a sustainable way can stimulate innovation and create more quality jobs. In the next years, professional life will undergo a radical change. This is due to factors such as: changes in the amount of the workforce as a result of demographic trends, higher education level of employees, impact of research advances on life expectancy, working life expectancy, etc. A key issue in relation to the future of national and European competitiveness is how work will be organized and how employees will be managed in their workplace. Progress in technology has an important impact on the work environment and work tools. Workplaces are increasingly changing their appearance and becoming a place for collaboration, innovation and social contacts.

Г. 8.25. Panayotova, T., (2012). An approach for realizing modular principles in production systems, Third International Scientific Congress Technical University of Varna, ISBN 978-954-20-0555-1, Vol.6, 04-06 October 2012, (pp. 189-194)

Abstract: At the basis of this publication is the proposal for the use of an approach based on the principles of modularity, which can be used for successful implement the concept Customer Synchronized Resource Planning - CSRP. By using the time-tested integration functionality of ERP, CSRP extends the concept of planning from manufacturing to the consumer. This approach is based on the method known as Modular Network Design - MND. Most of the decisions made by people are more or less individual or organizational and are related to research findings and selection of optimal alternatives. The considered MND-method focuses attention on making auxiliary decisions and solving organizational problems. This is done through a Decision Support System (DSS). The MND-method and DSS serve the process of searching for the best alternative.

In this publication, a solution is looking for the more complete satisfaction of customer requirements and the achievement of stable resistance against competitive pressure.

The proposed method appears as an upgrade of Hoogeweegen's MND-method and its application leads to:

1. Cost reduction: in the sense of general operating costs and transaction costs. In this context – general averaging of the sum of all expenses for all parts of the business network;

2. Revenue generation: increase sales revenue or customer revenue and increased number of customers;

3. Increased flexibility: by increasing "agility" (the speed of business network connectivity) and greater versatility (the ability to handle a wider variety of products).

Г. 8.26. Panayotova, T, D. Dimitrov., (2012). Relationship “workplace - productivity and competitiveness” - basic factor in production system engineering, Jbilee 10th International Scientific Conference "Management and Engineering"12, ISSN 1310-3946, ISSN 1314-6327, Sozopol, 2012, (pp. 120-128).

Abstract. The design of industrial enterprises is a complex problem that covers a large number of organically related tasks from different fields. Legislation obliges employers to protect workers from exposure to harmful effects at the workplace, which predetermines the design of an effective system for working conditions and the necessary organization and infrastructure to carry out occupational health protection activities at all levels, i.e. comprehensive binding of production organization and labor relations with safety and health requirements.

A number of European studies on working conditions show that many workers in Europe still perceive their work as a threat to their health or safety.

Referring to the conducted researches, in this publication an attempt has been made to analyze and systematize the main activities and events, taking into account the relationship workplace - productivity and competitiveness, which must be taken into account already at the stage of designing the industrial enterprise. Production activity in industrial enterprises is carried out in its production units - workshops, sections and workplaces. The importance of the workplace is determined by the fact that it is the smallest production unit, which is the basis of the production and labor process and is directly related to its spatial organization.

The requirements for the design of production enterprises, regarding the implementation of high-performance methods of work, ensuring greater uniformity of the movements and actions of the worker, the avoidance of unnecessary and irrational movements, as well as the possibilities for this achievement, are considered. The factors influencing the rational design of workplaces and their service are caunted. One of the most important moments in the project related to the organization of the workplace is the right selection of the main equipment and its placement in the workplaces. The selection of the main means of production is carried out in accordance with the nature and content of the work that will be performed at the workplace and the way of its execution. Especially important when choosing machines, equipment, etc. have their economic and ergonomic characteristics. Organizational and technical means for furnishing workplaces in industrial enterprises are classified. The influence of the layout of workplaces and their components on the achievement of high productivity work and safe working conditions are investigated.

Г. 8.27. Panayotova, Т., (2011). Application of methods for investments selection in project proposals comparing, International Scientific Conference "Project Management", ISSN 1314-345X, Associacion of Lecturers in Economics and Management in the Industry 2011, (pp. 208-214).

Abstract: The great dynamics in business in recent years, as well as globalization and the mass entry of communication and information technologies, created a prerequisite for more and more activities to be managed as projects. Project management has taken hold in fields such as engineering, construction, development, consulting, IT etc. The analysis in this publication is supported by the use of one of the structured project management methods PRINCE2, which provides control over finances, tasks, resources, information, quality and risk, and ensures that every project is brought to a successful conclusion. One of the main components of the methodology, namely the business case component, which provides a measurement of the business benefits for the sponsoring organization, is commented on.

The business case refers to the pre-project activities, those of development and modifications, the delivery of the products for use, the operating costs and the benefits of the final product. This component is considered the "driving force" of any PRINCE2 project, the general contours of which are outlined in the processes Project Start (a process related to defining the objectives and project approach) and Project Initiation (a process related to planning the entire project in terms of its products, activities, resource use and quality). The benefits of the business case can be determined by evaluating the benefits to the business that the final outcome of the project would bring.

The analysis is extended with the application of investment selection methods from the practice of business valuation. Visualizing the various options with examples prove the need to clarify the cases of multi-period cash flow. This is of extreme importance in valuation practice, when the proposed options are applied not only to determine the economic efficiency of a given project, but also in cases where the maximum offer to invest in an asset with an undisclosed

value that may come to light in certain cases whem it is determined capital investments for its development. In business valuation, this technique is known as the Residual Method.

The publication examines the conditions for comparability of project variants.

An investment variant for which NPV, IRR, AM, BCR is maximum and PBP is minimum is defined as economically the most profitable.

In case of inconsistency between the conclusions of the different methods, the NPV method is taken as the leading one. Only with limited funds for investment with a bank loan as a source, the IRR indicator is decisive.

Investment valuation can be used to support decisions. In this aspect, it is also necessary to carry out a Sensitivity Analysis to identify the areas on which the business benefits are highly dependent. The technique requires that all elements in the investment valuation be held constant except the element being tested. Key benefits identified as particularly sensitive are subject to intensive management through the usual planning, control and risk management structures.

Г. 8.28. Yankova, V., **T. Panayotova.**, (2010). Stimulation of innovativeness through the TRIZ method, Proceedings of "Rousse University", volume 49, series 5.1, "Economics and Management", 2010, ISSN 1311-3321, 2010, (pp. 58-62),

Abstract: The publication presents the TRIZ method as an alternative to other decision-making methods. The method is based on logic and information rather than intuition, accelerating the work team's ability to solve problems creatively. TRIZ also provides repeatability, predictability and reliability due to its structure and algorithm.

Commonly accepted creative tools are limited to brainstorming and other similar methods that rely mainly on the intuition, agreement and knowledge of team members. These methods are usually described as psychological and having unpredictable and unrepeatable results. The essence of these techniques is to increase the intensity of generating ideas and the possibilities of sorting them. Despite the fact that it saves time to generate ideas, the main problem with using them is that it takes a lot of time to review them and to choose the best option. TRIZ-related researches begin with the hypothesis that there are universal principles of creativity that underlie creative innovation leading to technological advancement. If these principles can be identified and systematized, they can help people by making the process more predictable.

The report indicates the main steps and tools for working with TRIZ. The main concepts for finding the best solution are considered, namely - overcoming contradictions, using free, easily accessible resources, so called "ideal end result". Special attention is paid to the criteria for evaluating the effectiveness of the solution to a given problem, based on 40 principles for the elimination of contradictions, which are the most popular tool of TRIZ.

Г. 8.29. Panayotova, T., (2010). Choosing a knowledge management strategy through knowledge engineering, Proceedings of "Rousse University", vol.49, series 5.1, "Economics and Management", 2010, Ruse, ISSN 1311-3321, 2010, (pp. 70-74)

Abstract: This publication examines the possibilities of formulating a concrete strategy for effective knowledge management by applying knowledge engineering. Knowledge engineering is an increasingly widely applied approach. Within this approach, processes and solutions are developed and implemented related to how the organization acquires knowledge from the experience, skills of employees and other sources and uses the accumulated intellectual potential to increase the efficiency of the company's activities.

In doing so, information technology, organizational structure, and business processes come together to create the conditions in which knowledge (experience, skills, information, and data relevant to the business) are manifested, collected, disseminated, and used. Knowledge

management can formally be defined as a set of strategic and operational efforts aimed at increasing the usefulness of using the company's intellectual capital in order to improve performance (profit). Increasing the effectiveness of knowledge management largely depends on engineering knowledge, which covers the design, development and implementation of structural and technological solutions.

Solutions are presented related to how the organization acquires knowledge from the experience, skills of associates and other sources, and the accumulated intellectual potential is used to increase the efficiency and adaptability of the company. The sequence of implementation of the results of knowledge engineering is part of the general concept of organizational-management engineering and appears as a basic technology of modern management.

On the basis of the performed analysis, it is proven that the knowledge management strategy should be included in the general strategy of the company and in other more private, functional strategies, such as personnel, financial, organizational, etc.

Г. 8.30. Makedonska, D., **T. Panayotova.**, (2010). Optimization procedures for planning of calendar schedule, VIII International Scientific Conference "Management and Engineering", ISSN 1310-3946, ISSN 1314-6327, Sosopol, 2010. (pp. 161-170).

Abstract: One of the management tasks that the head of any unit in production or other areas of activity working with a non-fixed working week must periodically solve is the preparation of a schedule for the working and rest days of the staff. One of the calendar planning methods is based on the use of an optimization mathematical model using the resources of discrete programming.

In this publication, the most popular program product EXCEL and more specifically its extension SOLVER is proposed. The Microsoft Excel Solver tool uses the nonlinear optimization program General Reduced Gradient (GRG2) developed by Leon Lasdon, University of Texas, Austin, and Allan Waren, Cleveland State University.

The advantages of this approach lie in the fact that every personal computer with the Windows operating system has the Microsoft Office package installed, which contains the EXCEL application. A disadvantage of SOLVER is the relatively small dimension of the solved optimization model – up to 200 variables (unknown, adjustable), two constraints for each variable and another 200 additional constraints. However, SOLVER can be used to optimize linear, non-linear, dynamic, integer and discrete (binary) mathematical models. The publication solves a concrete task of preparing an optimal schedule of the staff's working and rest days for a certain period of time. The process of finding an optimal solution can finish in two ways - successfully, with finding an optimal solution, or unsuccessfully, when no solution satisfying the set constraints is found after the set maximum time or maximum number of iterations. Basically, SOLVER optimizes the values of the unknown variables according to the set objective function and the set constraints, treating the variables as fractional numbers (regardless of the set BINARY or INTEGER constraints set for them). But if the objective function involves only integer data, then SOLVER generates only binary or integer numbers for the unknown variables as well.

Regardless of the limitations of the dimensionality of the task, the proposed way of calendar planning using the SOLVER tool of the EXCEL product allows solving such tasks with a larger dimension by decomposition.

Г. 8.31. Panayotova, T., D. Makedonska., (2010). Elaboration of logistic concept in projection of industrial enterprise, VIII International Scientific Conference "Management and Engineering", ISSN 1310-3946, Sosopol, 2010 (pp. 126-132)

Abstract: The modern design of industrial enterprises requires even at its earliest stage, i.e. in the course of the development of the concepts of the industrial enterprise, to determine the logistical goals related to the purchase of raw materials and materials, production, placement, and also with the utilization of waste. At the same time, special attention should be paid to such principles of logistics, which have a direct impact on the configuration and organizational solution of the designed object. Solving logistical problems is a mandatory condition that must be considered in the design process. In the present publication, an analysis is made and an algorithm is proposed for the development of a logistics concept in the design of an industrial enterprise. Determining the parameters of production logistics, such characteristics of the enterprise as the location and structuring of the stages of the production process and the warehouse storage system, logistics costs, flexibility and readiness for deliveries, the need to use the production planning system (PPS) etc. can be predetermined. The set logistical parameters significantly influence the concept of the industrial enterprise, the investment costs and the economy of the designed object and thus predetermine the principle itself of solving the problem that should be applied. The established logistic parameters are relevant for the project. This means that only the previously established parameters of the desired logistics concept guarantee its purposeful implementation within the framework of the concept of the industrial enterprise (or when making a principled decision).

The development of the logistics concept is supported by the completion of the sketch design (sub-stage configuration) and the transition to a detailed design in the six-stage model of the system approach to the design of an industrial enterprise.

Г. 8.32. Yankova V., **T. Panayotova**, Sv. Dimitrakieva**,** Internet-based manufacturing, Mechanical engineering and mechanical engineering, vol. 8 ISSN1312-8612, Technical University of Varna, 2009, (pp. 34-43)

Abstract: Global competition and rapidly changing consumer requirements require significant changes in production methods and the configuration of production enterprises. Traditional centralized production systems are unable to meet these requirements. Internet has become a global information platform for sharing information and data. Information processing is an important challenge in an Internet-based manufacturing environment and should facilitate and support distribution, heterogeneity, autonomy and collaboration.

Modern production technologies are based on various information techniques to ensure higher productivity, higher quality and lower production costs. In the 1950s, the manufacturing industry experienced some significant changes related to information technology, production automation and information systems management. The competitive pressures of the global market have led to the emergence of new manufacturing philosophies and new forms of organization, such as Computer Integrated Manufacturing Systems (CIMS), Concurrent engineering, virtual organizations, remote manufacturing and Internet-based manufacturing. This publication examines the supporting technologies and ways to implement Internet-based manufacturing. CAD/CAM systems, Computer Integrated Manufacturing System (CIMS), Concurrent engineering (CE). A model for Internet-based manufacturing is proposed. Some basic categories related to distributed information management based on the development of computer integrated manufacturing is identified. As a result of the research, it is established that with the explosive growth of information sources in Internet-based production, it becomes increasingly necessary for users to find, retrieve, select, filter and evaluate information. The available tools should be further explored and improved in order to create an environment that

supports Internet-based manufacturing. The future of manufacturing enterprises will have to be information-driven, knowledge-driven, and most of the daily operations will be automated around the global information network that connects everyone. This will enable engineers and scientists to explore data efficiency, use information and exchange knowledge via the Internet and access globally distributed.

Г. 8.33. Panayotova, T., K. Dimitrova., (2008). Comparative analysis of hazard identification and risk assessment methods in a manufacturing, ISBN-978-954-20-0426-4, Seventh international scientific - applied conference
„Strategic trends in business in 21th century and the quality of higher education", Technical University of Varna, 2008, (pp. 96-100).

Abstract: Risk management occupies a central position in the strategic management of any company. It is a process in which the organization methodically seeks to examine the risks associated with activities in order to achieve a sustainable positive effect in each activity as well as in the entire portfolio of activities. Its purpose is to create maximum value for each of the organization's activities. The policy of risk management is driven by the striving to know every growth or decline potentially contained in all factors that can affect the organization. Risk management increases the probability of success and simultaneously reduces the probability of failure and uncertainty regarding the achievement of the organization's goals. It is a continuous and evolving process, an integral part of organizational strategy and its direct application. The goal is a consistent study of the risks associated with the organization's activities through its past, present and, above all, future. Risk management must transform the organization's strategic goals into specific tactical and operational tasks, allocating responsibilities to all managers and employees who participate through their duties in risk management. It supports better reporting and evaluation of performance and rewards within the organization, thus improving operational efficiency at all levels.

This publication aims to provide a brief overview of some of the main methods used to identify hazards and dangerous situations regarding technology and production equipment, work environment parameters, work process and fire occurrence. The study is designed to analyze the nature and application of the methods as a toolkit in risk assessment, but not in the depth necessary for its direct use in practice, since this area is regulated by numerous standards, rules and regulations, which are voluminous and specific.

As a result of this research, the following generalizations and conclusions can be made: The risk management policy of a given company should provide information on the adopted approaches to risk, tolerance to risk and methods of its management. The policy should also allocate risk management responsibilities within the company. In addition, it must reflect all the necessary regulatory requirements, for example the norms for health and safety at work. The policy provides the necessary techniques and tools for use in the various stages of the business process. Business unit management must integrate risk management principles into all projects from the initial phase as well as throughout the duration of the project.

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