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ABSTRACTS

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SECTION

“NATIONAL ECONOMY, ENTREPRENEURSHIP, SAFETY AND REAL ESTATE MANAGEMENT”

SUBSECTION

“Scientific Problems of Engineering Economics of Construction, Real Estate Management, Regions and Territories Development“

SOCIO-ECONOMIC, ENVIRONMENTAL AND INSTITUTIONAL DIMENSIONS OF VALUES AND PREFERENCES OF STAKEHOLDERS

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Abstract. Sustainability dimensions refer to the future-oriented changes, therefore, there appears a necessity to achieve in future what lacks or is not for some reasons available today, including positive changes in the minds of the people. Spatial/land-use planning and implementation of the plans should form the necessary preconditions for sustainable use of land-related resources, balancing spatial development interests on the one hand, and the interests of preservation and revive ability of natural resources on the other hand. These interests primarily concerned of those who are related to 'spatially allocated values' through various activities, e.g. dwelling, leisure and work. The main focus of the study is on challenges and approaches to identify, assess and discuss these values among involved stakeholders. The review of governance styles and institutional setting, sustainable development analysis and synthesis techniques as well as the logical-constructive method mainly employed for the study. The findings of the study show that not only economic values can be identified by experts and that different informal planning tools support the process of formal spatial planning in practice. Evidence-based knowledge is gained on collaborative planning approach, which supports binding decision-making in the way it largely promotes consensus building for the benefits of local society. Sustainable decisions based on harmonized values and preferences leads to sustainable communities. Finally, it is recommended that a values-led planning approach should be promoted as well as innovative assessment tools introduced to improve spatial planning and land-use management.

Keywords: *Sustainability Dimensions, Values and Preferences, Spatial Planning, Experts and Stakeholders, Values-Led Planning Approach, Sustainable Communities.*

JEL Classification: O21

RENTAL HOUSING MARKET IN RIGA: PRICE DETERMINANTS AND LESSONS FROM HELSINKI

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Abstract. The research focuses on rental housing market in Riga, and reveals that among factors that affect the rent level in neighborhoods of Riga the most are distance from the city center, neighborhood safety, quality of housing and transport infrastructure, access to shopping malls, and employment opportunities. Quantitative and qualitative research methods are used in the paper with the biggest contribution being extraction and analysis of data about more than 1800 rental apartments in Riga from the largest Latvian online real estate advertisement platform. Quantitative analysis is based on investigating relationships between average rent levels in different neighborhoods of Riga and index values of 23 urban environment factors. In addition, rental housing market in Helsinki is researched, emphasizing few guidelines for rental housing market improvements in Riga, such as introducing government subsidies.

Keywords: *Helsinki, Neighborhoods, Rent Determinants, Rental Housing Market, Riga*

JEL Classification: R000

RUSSIAN AND FOREIGN CONTEMPORARY EXPERIENCE OF INNOVATIVE DEVELOPMENT OF CONSTRUCTION BASED ON INFORMATION MODELING TECHNOLOGIES

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Abstract. Currently documents of strategic planning in Russia and abroad have determined the innovative path of economic development based on digital technologies. In construction, as a material and technical basis for development of other sectors of economy, digital methods (here building information modeling, BIM) implementation and application is the most urgent issue, thus it has determined the subject of this study. International, including Russian, experience of construction companies delivering projects with the use of information modeling technologies demonstrates the efficiency of BIM for real estate and facilities design and construction. Using analytical and comparative methods, the authors have summarized the current international experience of construction development in conditions of information modeling technologies application. Based on this, the main factors for formation of system of territorial and industry management of construction innovations in Russia have been revealed and indicated. Analyzing examples of designing and building unique objects of complex architectural forms in Russia, Latvia, China, South Korea and other countries, types of innovations being implemented in projects using information modeling have been suggested. As a result, the authors recommend unification, standardization and parameterization of innovative solutions for construction projects, creation of standard models database within the system of real estate assets lifecycle management and establishment of a self-regulatory association of BIM implementation participants.

Keywords: *Construction, Digital Technologies, Information Modeling Technologies, Innovative Development, Real Estate Asset*

JEL Classification: R000.

RESEARCH ON FACTORS AFFECTING REAL ESTATE VALUES BY DATA MINING

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Abstract. Construction sector, which served as the engine continues to rise in Turkey's economy for years. Along with this rise, it brings the concept of "purchasing cost for buyers in buildings". This concept, which we can define as the cost of real estate, is shaped by the light of certain factors. For the buyers, the building values are taken into consideration many factors together, with the main factors such as; m2, location, age of the order etc. In this study, the factors determining the value of the property are passed through the data mining filter and the effects on the property value are discussed and the results are interpreted. Classifier models are used under the data mining framework. The variables that affect most of the dependent variables (real estate value) were determined. Also, the best prediction model was established.

Keywords: *Construction Sector, Real Estate Valuation, Data Mining, Classification, Decision Tree, CHAID, CRT.*

JEL Classification: R3, C01

EFFECT OF THE GOVERNMENT INTERVENTION ON MARKET EFFICIENCY

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Abstract. Current research suggests that government¹ should intervene in the market if it has not achieved efficiency by the forces of demand and supply. There are several reasons identified which causes the market to fail to allocate resources efficiently: incomplete markets, information asymmetry, public goods, externalities etc. Thereby authors research how real-life government intervention correspond to their legitimacy to intervene arising from market failures.

Currently authors have investigated how one of government interventions – monetary easing policy performed by central banks of Eurozone – has affected risk profile of Latvian commercial banks. Risk increases in bank's balance sheet affect its profitability and subsequently stability in long run. Loss of bank's financial stability negatively affects efficiency of financial market.

Other researchers analyzing banks in Sweden, Germany, France, USA, Japan concluded that monetary easing policy increase risk profile of banks. Analyzing Latvian commercial banks authors have concluded that (a) their risk profile currently is not increased mainly due to bank's opportunity to lower costs of attracted financial resources, (b) cost optimization space is almost utilized thereby risk profile could increase in the future, (c) in post-economic-crisis era credit risk appetite of banks was medium-to-low thereby monetary policy's effect on increase of the efficiency of financial market was limited.

Research methods used: economic analysis, differential calculus, mathematical statistics (including regression analysis).

Keywords: *Government Intervention, Market Efficiency, Monetary Policy*

JEL Classification: D53, D61

¹ With termin "government" authors mean all authorities regulating market not depending on their legal status (central and local governments, central banks etc.)

DIFFERENCES IN TERRITORIAL DISTRIBUTIONS OF POPULATION AND DWELLINGS IN BULGARIA

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Abstract. The goal of research was studying the differences in territorial distributions between population and dwellings in Bulgaria. The tasks were to research these differences by statistical zones, by regions and by districts at level country and inner differences in statistical zones (NUTS 1), regions (NUTS 2) and districts (NUTS 3). The research covers two periods – 2008 year and 2016 year. The data was obtained by official public information of the National Statistical Institute of Bulgaria. The differences were estimated by using of the integral coefficient of comparative inequality of structures. The increasing in difference in territorial distributions of population and dwellings for all regions' levels in 2016 in compare of 2008 were found. The sizable inner differences in all regions' level were found too. The territorial units with the most differences were North and South-East Bulgaria (NUTS 1), the South-West region (NUTS 2) and Kyustendil district (NUT 3). The territorial units with the least differences were South-West and South Central Bulgaria (NUTS 1), North-East region (NUTS 2) and Sliven (NUTS 3). The relevance of the integral coefficient of comparative inequality of structures as a tool for territorial and real estate analysis was tested.

Keywords: *Comparative Inequality, Dwellings, Population, Regional Differences, Territorial Distribution*

JEL Classification: O18, R20, R23, R30.

IMPACT OF FOREIGN DIRECT INVESTMENT ON LATVIA'S ECONOMIC GROWTH

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Abstract. Economists have developed different FDI theories to explain why investors decide to invest in other countries and what impact investments have on national economies. FDI provide countries not only with capital but also with innovations and technological advances, higher labor productivity and qualification levels, new jobs and other positive effects. This, in turn, stimulates the growth of employment rates, consumption growth and GDP.

Research focuses on the investigation of the impact of the FDI on the Latvia's economic growth.

Research methods are: scientific (analysis, synthesis, deduction, monographic, graphic), mathematical methods of statistics (calculation of indicators, regression, data analysis, comparison, grouping).

The number and value of new investment projects in Latvia since 2008 is relatively low. The flow of FDI is limited by the lack of skilled labor, the underdeveloped R & D sector with a low level of funding, and the increase of the enterprise income tax rate from 15% to 20%.

On the basis of linear regression results, the greatest impact on economic growth have such factors like employment rate and total funding for research, but incoming FDI are also statistically significant factor for economic growth.

The multifactorial regression model for GDP growth rate forecast was developed. It used three factors that were statistically significant for economic growth - accrual rate, total factor productivity and incoming FDI. It is possible to use this model to demonstrate that favorable investment environment will foster economic growth in Latvia.

Keywords: *FDI (Foreign Direct Investment), Economic Growth, Multifactorial Regression Model*

JEL Classification: E22, E27

SURVEY OF GREEN INFRASTRUCTURE MANAGEMENT EXPERIENCE IN DIFFERENT COUNTRIES

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Abstract. Increasingly, the Green Infrastructure concept is given as an example of a sustainable approach to urban and suburban management that offers a smart, integrated way of managing natural capital. Investing in green infrastructure gives economic sense, providing environmental, economic and social benefits to society. This in turn facilitates adaptation to the changing climate and prevents the accompanying anomalies, floods and other environmental crashes.

Linking the already fragmented natural and semi-natural territories, restoring damaged habitats is one of the main priorities, as this leads to an increase and improvement of the goods and services provided. The most serious challenge is in linking the different land use activities such as construction, agriculture, transport and biodiversity. This requires the implementation of flexible and dynamic solutions that are sustainable, profitable and responsive to the needs of society. The experience gained and the results achieved by implemented projects and initiatives provide information on practices in green infrastructure management in different countries.

Keywords: *Experience, Green Infrastructure, Management*

JEL Classification: O18; O21

ADAPTATION OF TOOLS IN SPATIAL PLANNING

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Abstract. For years now, spatial planners have played a vital role in managing and balancing the different interests of wide ranged stakeholders of a specific region. With the help of formal and informal instruments the design of spatial plans is created, but sometimes there are either flaws or gap in the plans by which the stakeholders would have benefitted. It is important to track the changes being made in the pattern of planning and also analyse the suggestions being made by the intellectual involved. The purpose of this article is to study the spatial planning practices in Latvia and analyse the evolution, which in result shows the difference between the new and old planning modes. The overview of planning tools is an eccentric part of this analysis to understand the adaptation for formal and informal institutions. From best practices perspective few spatial plans from Europe can be used to add comparisons and later used for suggestions. The literature examined in this article is concerned with laws and artefacts, e.g. Spatial Development Planning Law, regional development guiding documents and local governmental spatial plans, as well as research papers related to tools applied to support spatial planning in Latvia. The outcome of this research shows the evolved planning system of Latvia and outlines the gap, which is yet to be filled. This study also puts some light on the formal planning tools and their support towards various informal tools to be exploited.

Keywords: *Spatial Planning, Formal and Informal Planning Tools, Latvia, Institutions, Planning System and Practices.*

JEL Classification: O20, O29, R58.

THE COMPARATIVE ANALYSIS OF THE GREEN BUILDINGS DEVELOPMENT TENDENCIES IN SCANDINAVIAN AND BALTIC STATES

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Abstract. The topicality of the research is to analyze the Green Building Councils of Baltic and Scandinavian Countries and about their goals to influence the development of the green buildings in their region. The aim of this article is to find out the tendencies of the development of Green Buildings in Scandinavian and Baltic countries by analyzing the number of certified Green Buildings in both regions. The literature review, comparative analysis, document analysis, and logical access methods have been used in the research. The challenge of this type of research is the diverse information which is available for research purpose as the countries are different from each other and their current and future priorities differ from each other as well. In the research process, it was important to lay some light on the several funds acquired by the regional green building councils and their usage. The research results showed that all the countries are working towards the development of Green Building but there are few countries which are better from one another. The current and future plans of the Green Building Councils are also summarized with comments.

Keywords: *Assessment Systems, Baltic, European Union, Green Building Councils (GBCs), Scandinavia, World Green Building Council (WGBC)*

JEL Classification: A10; R3.

DEVELOPING GREEN INVESTING IN UKRAINE: CHALLENGES AND OPPORTUNITIES

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Abstract. The paper deals with the analysis of the main preconditions for the development and support of green investments in Ukraine. The authors proved that green investing is one of the alternative financial mechanisms to achieve the sustainable development goals 2030. The authors systematised the main approaches to the define green investments. The results of the analysis showed that green investment is a complex definition, which involved the green and economic aspects. The main features, types, principles of green investments, as well as barriers that restrain the spread of green investments in Ukraine were highlighted by the authors. Thus, the results of analyses showed that the key factor which restrains the spreading of green investments is stereotyped thinking among the investors that green investments were non-effective from an economic point of view. In this case, the modern and traditional, national and foreign experiences to stimulate green investments were analysed by the authors. Besides, the authors indicated the main directions for green investing in Ukraine. It has been determined that renewable energy sources and securities are the most economically attractive sphere for green investing for Ukraine. The authors identified the main directions, perspectives and issues to develop the green investments market in Ukraine.

Keywords: *Investor, Green Investing, Green Growth, Sustainable Development Goals, Green Securities, Green Financing*

JEL Classification: Q01, Q50, Q56, Q58

SMART CITY AND CYBER CITY PERFORMANCE

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Abstract. Smart Cities nowadays are the most common approach for creating a vision for possible viable scenarios of urban development around the world. According to this concept, urban environment development is often linked and dependant by implementing and increased utilization of digital technologies. Technologies that enable real-time or close to real time monitoring and continuous analysis of events, which is assured by implementing different service and event indicators to control processes and improve service quality. Wide use of data transfer capabilities over the internet, which is considered an integral part of the Smart City, enables continuous monitoring and optimizing many domains like transportation, parking, lighting, security and even waste disposal processes, also monitoring can be used to initiate reaction on different incidents. The use of digital technologies is common approach of creating new solutions responding to the challenges of globalization in order to improve the quality of life and make cities competitive and sustainable. The authors use the literature review, overview and state-of-the-art review to identify in different Smart City models possible disadvantages and threats, and analyse reviewed concepts to identify possible solution for recognized problems. Cities are not only a mirror of the development of economics, cultural life and technology. The urban environment in many ways can also be viewed as a laboratory for biological and political processes and developments. The larger the city is, the greater the impact of the decisions and implementations on the environment in city, while neglecting certain aspects can be reflected with a negative synergy effects for the political, spatial, biological, economic, cultural, health, social and other dimensions. Smart cities should be controlled environments to certain degree to assure certain set processes and needed controls. The city management should be supported by relevant flows of information and technological processes. Technological processes perform the transformation of events to information (data), analyse and represents results of analysis. For more advanced implementations involves a direct manipulation of process by automated processes (like traffic regulation to reduce traffic jam). Still natural processes and people decisions introduces need for manual adjustments (decisions) what limits possibilities to be fully automate. Changing environments and degradation of environments challenges the urban environment management automation not only as information processes in single case, but can indicate significant higher impact due the negative synergies. The idea of Smart Cities as a fully automated and unmanned decision making solution to all urban problems have to be rejected at current capabilities for Artificial intelligence solutions. Innovative solutions to increase the sustainability of cities with support of human involvement to control the technology must be sought. Separately analysis should be carried out on cases of significant variances (potentially incidents induced by nature or human factor) from standard processes.

Keywords: *Cyber Cities, Ecology, Economics, Environment, Future, Smart Cities, Technologies*

JEL Classification: O18, P25, R51

ECONOMIC OBSTACLES FOR DEEP ENERGY RENOVATION OF PUBLIC SECTOR

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Abstract. The biggest challenge of our time is to make energy more secure, sustainable and affordable. The challenges we face are not only related with climate change, but is very sensitive to international political disputes as well. Building sector is the largest energy consumer in EU consuming around 40% of total energy. 12% of these buildings are public buildings and are considered very energy intensive since 30% of them are more than 50 years old and more than 75% of them are considered energy ineffective.

Feasibility studies have been done using both single house mathematical models and city wide models of deep energy renovation effects on energy consumption and economic effects.

Economic benefit of deep energy renovation ranges from less energy consumed to less load to national electricity grid and therefore less transmission losses. There is a need to empower decision making bodies to capitalize energy savings through innovative measures such as innovative financing schemes, ICT solutions and adaptive energy usage and monitoring systems.

Keywords: *Deep Energy Renovation, Energy Efficiency, Public Building Renovation, Smart Metering, Economic Benefits of Renovation*

JEL Classification: O13

THE PROBLEM OF DECIDING ON THE APPROPRIATENESS OF PROPERTY INSURANCE OF AN ENTERPRISE

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Abstract. The property is the main component of any enterprise, on which the success of its activity on the market depends. Exploitation of property entails certain risks and, therefore, is associated with losses. Instability of the market situation, on the one hand, and the presence of natural factors leading to loss of the enterprise's property, on the other, require the provision of effective risk management. The purpose of the research is to conduct an in-depth analysis of the company's ability to recover damages related to loss of property, taking into account the level of expenses related to insurance. To make a decision on property insurance of the enterprise the authors propose to apply the decision tree method. The issues of risk management of loss of property to enterprises are considered and the details of the stages of deciding on the expediency of its insurance are proposed. Authors suggested to identify the risk areas for possible losses for each type of enterprise property and then to allocate insurance objects. At the stage of developing the risk profile for risk minimization system, authors propose to compile a list of the company's property by type with an indication of the cost. Using this list, it will be possible to easily calculate the amount of possible property losses.

Keywords: *Risk, Insurance, Evaluation, Real estate.*

JEL Classification: C81, R51

ECONOMIC PROBLEMS OF THE DEVELOPMENT OF COMMERCIAL BUILDINGS: CASE OF LATVIA

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Abstract: At the moment, globally the economic problems in the construction industry and especially in the commercial buildings are being related to the problems of the economic development and sustainability. The topicality of the research is determined by the facts of the economic problems have impact on commercial buildings and real estate market in Latvia. The aim of the research is to analyse the economic problems of commercial buildings in Latvia, focusing on importance of economic issues in construction and its effects on commercial real estate development in Latvia. In the research the economic problems were identified and solved with intelligent research, survey and investment evaluation analysis methods. After financial and economic analysis in commercial sectors, the results of the research showed that construction industry in Latvia is developing and stable. Efficient integration of technology, depletion of skills and labour and investing in new talent in construction can solve the economic problems.

Keywords: *Commercial Property, Construction Technologies, Economic Problems, Financial and Economic Appraisal, Qualitative and Quantitative Methods, Real Estate Market, Research in Construction and Development, Sustainability*

JEL Classification: A10, C02, C83, R30

DIFFERENT FOREST MANAGEMENT SCENARIOS: AN EXAMPLE FROM BULGARIAN FORESTRY PRACTICE

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Abstract. In the context of accelerated industrial production, dynamic socio-economic development and economy globalization, modern society has higher requirements for more efficient use of all forest resources. The need to preserve the integrity of forest ecosystems and maintain a sustainable balance between their functions implies improvement of the forest management systems. In the forest planning process, it is expedient to prepare preliminary scenarios for better future forest management and development. The information system „Sibyla“, which serves to support decision-making, helps to imitated the forest dynamics, using the principles of forest ecosystem functioning by mathematical models and algorithms. This has served as the basis to model the development of forest stands for a period of 50 years. Developing scenarios in advance provides a good foundation for revealing the opportunities for achieving integrated forest management and sustainable forest development.

Keywords: *Integrated Forest Management, Modeling, Scenarios, Sibyla, Sustainable Development*

JEL Classification: Q01, Q23

DIGITAL METHODS OF REAL ESTATE ASSETS LIFECYCLE MANAGEMENT

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Abstract. Contemporary scientific research and practical experience in the field of investment and construction projects management prove advisability of planning management processes, including key directions such as scope, time and cost management, throughout the lifecycle of a real estate asset. In conditions of construction industry integration into digital environment and active search for innovative and high-tech ways of development, an urgent issue is to select effective digital methods and tools which correspond to each phase of real estate asset lifecycle and ensure interests of each participant of investment and construction project. Through methods of analysis and systematization authors of this article have identified that internationally known software producers as well as the scientific community and some representatives of construction industry acknowledge the efficiency of the currently relevant information modeling technologies (BIM), however full implementation of BIM technologies in Russia is mainly restrained by low interest from most participants of investment and construction projects. Therefore, by applying methods of comparative analysis and statistical assessments, reported effects of BIM implementation, according to the international experience, have been compared with actual results received by Russian companies which actively use information modeling technologies. In addition, systematization of modern digital methods and tools for real estate assets management in correspondence with aims of each phase of their lifecycle has been carried out in this article. As a result, factors for encouragement of BIM implementation based on the principles of public-private partnership have been formulated and, in conclusion, respective stimulation measures proposed.

Keywords: *Digital Methods, Digital Model of Building, Project Participants, Real Estate Asset Lifecycle*

JEL Classification: R000

SUSTAINABLE ENERGY

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Abstract. Scientists worldwide have brought more attention to global warming problem, which is directly linked to increasing consumption of accumulated energy with increasing pollution levels for components contributing to greenhouse effects. Specific aspect is that current use of the accumulated energy and with overall heat disseminated into environment by people or industrial processes are above the levels of natural processes of decomposition or disintegration of contributing factors. Discussed samples are the intense use of fossil energy sources together with challenges to limit atmospheric pollution with greenhouse gases. Thus, new solutions are needed to replace increasing demand with a sustainable energy sources for all population worldwide in the scale of countries, regions and cities. Authors use literature review and rapid review to reflect the challenges of the energy sector due to Climate Change aspects and increasing energy demand as the global population continuously increases. The research results indicate that environmentally friendly low carbon technologies need to be utilized in order to achieve sustainability goals. Renewable energy sources should be deployed and developed. Even if with current technology their potential is limited, implementing would reduce overall pressure on nature. More advanced energy storage systems may solve part of the problem of energy shortage while providing energy at times of increased demand (to even out day/night, seasonal cycles of natural resource energy generation) and support the integration of renewable energy sources into urban environment. It is important to have equable investments regarding the low carbon technologies all around the globe. Additionally, research and development studies should be carried out to raise the efficiency of low carbon technologies and provide sustainable energy.

Keywords: *Climate Change, Energy, Integration, Investment, Low Carbon Technologies, Renewable Energy Sources, Sustainable Development*

JEL Classification: A12, Q01, Q40, Q42, O13

SUBSECTION

**“BUSINESS ENGINEERING, ECONOMICS,
FINANCE AND MANAGEMENT“**

COMPARISON OF OECD COUNTRIES WITH DATA MINING CLUSTERING ALGORITHMS ACCORDING TO THE ECONOMIC FREEDOM INDEX

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Abstract. The economic freedom scores of all United Nations member countries are published annually by the Heritage Foundation under the "Economic Freedom Index". The concept of freedom is an important ideal for humanity. In terms of countries, economic freedom can be regarded as a sign of sustainable growth and prosperity. Countries in the index are scored and ranked by twelve independent variables that determine the economic freedom score. Data mining methods can be used to investigate relationships between variables. Data mining can reveal meaningful relationships from data clusters that seem meaningless. In this study; Data mining clustering models have been used to find relationships between variables that determine the economic freedom score of OECD member countries according to the 2018 Economic Freedom Index. OECD member countries have been identified with similar and non-similar countries according to selected indicators. As a result of the study, the best cluster selection was made by comparing the different clustering algorithms and the similarities and differences between the OECD countries in the literature are presented.

Keywords: *Data Mining, Economic Freedom Index, Hierarchical Cluster, K-Means, OECD Countries, Two Step Cluster.*

JEL Classification: C38, D60, O10, O57

AGRICULTURE AND FOOD SECTORS IN SLOVAKIA AND BALTIC COUNTRIES – A COMPARISON

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Abstract. Input- output analysis represent a form of macroeconomic analysis, based on studying direct and indirect linkages within each economy, as well as overall intersectoral interdependencies. It is also a relatively simple but rather useful tool to analyse the structure of various economies or undergoing structural changes. The information given by input output tables allow to evaluate the impacts of positive or negative shocks and their propagation throughout the national economy. The study of import and export relations helps to understand countries' international interactions. The aim of this paper is to present and compare the main characteristics of two selected sectors in Baltic countries and Slovakia. The focus is on the agriculture and food sectors. We compared various input-output coefficients, as well as multipliers, for the period of 2000-2014. We also tried to verify the overall stability of these two industries, the similarities in their development and the strength of their backward and forward linkages. The analysis enabled the verification of the key industries. We expect that in accordance with general trends, these two sectors would be also marked by a slowly decreasing trend over the observed period.

Keywords: *Agriculture, Coefficients, Food sector, Input-output analysis, Key sectors, Linkages, Multipliers.*

JEL Classification: C67, F62, L66

UNIVERSITIES ROLE OF THE YOUTH EMPLOYABILITY ON THE LABOUR MARKET. THE ADVANTAGES AND DISADVANTAGES

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Abstract. This article aims to conduct a survey of the determination factors of the collaboration advantages and disadvantages between universities and labour market, as well as – the role of state institutions in this process. For this purpose, were analysed: youth professional knowledge adequacy in business activities, level of professional training, insufficiency, importance of study programs and course contents – such as theoretical and practical parts. Our results suggest that in nowadays the collaboration between the universities and labour market will be developed and might be more effective for transformation a knowledge's/results of research to industry. Therefore, in this paper we present the perspectives of the labour market and universities cooperation and we focus on advantages and disadvantages for both parts.

Keywords: *University, Business, Labour Market, Collaboration, Pre-Diploma Practice, Professional Knowledge*

JEL Classification: M00, M1, M3

IDENTIFICATION OF CUSTOMER NEEDS. “MILZU” CASE STUDY

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Abstract. One of the approaches to the successful creation and launching of new products in the market is the prior study of consumer needs. This study on consumer needs' identification was carried out as a study case study of company “Milzu”Ltd. The task for the company was to create a child game-constructor, while the research task was to approbate and evaluate the methodology for identifying consumer needs.

The study uses a variety of mutually complementary research methods - observation, interviews, ideas generation, focus group research, scoring, screening.

The study was carried out in three stages. The first phase consisted of market research about the similat products available on the market, followed by the generation of new ideas, reation of the first prototyees, and ended with the first focus group to test the prototypes. In the second phase, additional market research and analysis were performed, idea generation and second prototyping were carried out, too. After the second prototype performance was evaluated, the third stage - the third prototype and the final focus group study - was implemented.

Main conclusions: the methodology works efficiently; the consumer demand process is not linear.

Keywords: *Customers, Focus Groups, Interviews, Needs Identification, New Product Development, Observations*

JEL Classification: O31, O32

The research has been carried out with support from the European Regional Development Fund within the framework of the project "Latvian Food Industry Competence Centre" in accordance with the contract No. 1.2.1.1/16/A/004 between the Latvian food competence centre Ltd. and the Central Finance and Contracting Agency (11th of October, 2016).

RESEARCH ON PRODUCT VALUE ADDED BASED ON VALUES AND INTERESTS OF STAKEHOLDERS

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Abstract. At a time when the tendency to consume organic products increases, the segment of breakfast cereals, particularly for children, mainly consists of over-sweet breakfast cereals which contain taste and aroma flavourings and colour additives. Subject of this research is to create value added to organic product. Objective of the study - to ascertain the most effective manner to address children.

In order to achieve the objective of the study, literature study and analysis are applied that one may find out theoretical aspects of the research subject. Both in-depth interviews are conducted to identify the interests and demand of stake holders, as well as quantitative surveys and focus groups organized within stake holders. Stake holders: children, their parents.

Scientific aim of the research is to determine the criteria that increases loyalty and value based stake holder retention in long term, while providing sensory education, education and promoting creative thinking.

Findings: Innovative constructor system is put forward as a solution for retention of stake holders in long term. The created prototypes provide possibility to start innovative constructor system development (Research “Research and development of children’s toy ecosystem in MILZU! cereal flakes packaging to increase the value added of food products”, project nr. 1.2.1.1/16/A/004).

The value added of the product attracts attention of additionally involved parties. Creating value added of a product, it is necessary to respond to values and on interests based involved parties needs and interests in order to encourage repeat purchase.

Keywords: *Loyalty Building, Marketing, Positioning, Re-purchase Strategy*

JEL Classification: M30, O22

ESTIMATION OF PACKAGE PRICE CHANGES IN THE FOOD INDUSTRY

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Abstract. It is important to predict the value of variables like prices of financial assets and values of indexes. Various model are developed continuously for this aim. In this study, the rates of price changes that could occur in corrugated cardboard boxes were estimated by linear regression analysis. The aim of the study is to estimate the rate of change in the corrugated board box industry, which has recently been experiencing price changes and to contribute to the company's evaluations on the subject.

Keywords: *Corrugated Board Box, Forecasting, Linear Regression*

JEL Classification: C1, O2.

IMPLEMENTATION OF DEMAND ESTIMATION METHODS IN DISTRIBUTION FIRM

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Abstract. Demand forecasting is the process by which consumers estimate the time or amount of product or service demand in the future. Demand forecasting is carried out using requests from past periods and various analyses.

In this study, the time series analysis, which is one of the most used methods, has been carried out while estimating the demand. The forecast of future requests for product requests is made at the a food and consumption metarials distribution company. The selected products were analysed with various demand forecasting methods and the demand forecasting errors were examined and the most suitable demand forecasting method was determined for the products.

Keywords: *Demand Forecasting, Forecasting Models, Production Planning, Time Series Analysis.*

JEL Classification: C13, C22, C53, D24

RESEARCH OF INDUSTRY 4.0 AWARENESS: A CASE STUDY IN TURKEY

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Abstract. Nowadays, the rapid development of technology, artificial intelligence technologies become the focal point, the concept of Industry 4.0 has been put forward. It is important that businesses become more aware of Industry 4.0 and be prepared for the challenges they may face in this transition process. In this study, measuring the level of knowledge about the business of Industry 4.0 process in Turkey and aimed to reveal the qualities they have in this context. For this purpose, 32 enterprises in Turkey's views were collected by a questionnaire and analyzed. As a result of the study, it has been seen that the Industry 4.0 awareness business differs according to the sector in which the industry operates, the given industry 4.0 training and the foreign partnership of the business.

Keywords: *Industry 4.0, Education, Awareness, Business*

JEL Classification: O0

PROCESS IMPROVEMENT IN FURNITURE MANUFACTURING: A CASE STUDY

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Abstract. With today's increasing competition, businesses are working with the aim of increasing the quality of products in order to meet customers' demands and increase their market share. The Six Sigma philosophy that emerged in the 1970s aimed to reduce the cost of poor quality in production and service. In this study, a Six Sigma approach was used to reduce the cycle time of a furniture product produced by a furniture operation and it was investigated with statistical quality control methods of the product. The production line SIPOC analysis method was applied, the process was examined in detail and the cycle times of the processes were collected by the chronometer method. In the study statistical methods such as Project identification document, Pareto diagram, Fish hat diagram were used and suggestions for operation were made. Control of the change in the cycle during the production of the diamond sofa was realized with the ARENA 9.0 simulation program.

Keywords: *DMAIC; Six Sigma; Simulation, Arena*

JEL Classification: O3

THEORY AND PRACTICE OF MANAGEMENT ACCOUNTING AND CONTROLLING IN RUSSIA

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Abstract. The article gives a description of the theory and practice of management (managerial) accounting and controlling in Russia after the beginning of the transition to a market economy. The results of research on the degree of influence of various factors on the promotion of managerial accounting and controlling in Russia are presented. The comparison of functions and tasks of managerial accounting and controlling in Russia is given. The questions of training and practical application of managerial accounting and controlling in large, medium and small enterprises of various sectors are briefly outlined.

Keywords: *Controlling, Management Accounting, Practice, Russia, Theory*

JEL Classification: M10; M40

RESULTS OF THE EXPLORATION OF AGRICULTURAL CROPS IN NORTH BULGARIA

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Abstract. A survey was conducted on the basis of statistics for the period 2005 - 2015 of the main agricultural crops in Northern Bulgaria. The main livelihood of people in the area is cereal, oil and technical crops. For a long time, the greatest tasks and challenges in forestry have been related to meeting the basic needs of people, including wood, water, food, bioenergy, biodiversity, and recreation. Nowadays forest resources are non-woody, food and others. In agro-forest reclamation, when resources of forest belts are evaluated, meliorative (increase of agricultural crop yield), productive (stand stock) and nature-oriented (oxygen production and carbon deposition by trees) resources are taken into consideration. Due to the limited use of natural resources, climate change and increased consumption, there is a great need for a study representing the level of influence into the crops. Forest protection fields are created in areas with prolonged summer droughts with the main purpose to reduce the wind power and to improve the microclimate, protecting the agricultural lands from destructive power of wind erosion. They also reduce the evaporation of water from the soil and so make more efficient use of agricultural crops and help to increase in yields from agricultural crops.

From an economic point of view, their protective function increases yields up to 30%, when we talk about wheat. The present article presents the study, providing information on the necessary future actions, as well as management of forest protection belts and management of the crops under consideration.

Keywords: *Management, Agricultural Crops, Forest Protection Belts.*

JEL Classification: Q01, Q23

THE IMPLEMENTATION OF KAIZEN BLITZ TO IMPROVE A PRODUCTION PROCESS IN A FACTORY

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Abstract. Reducing or Removing waste or Muda in the manufacturing process is crucial to the performance and cost effective process. There are seven types of wastes in the process, i.e., transport, inventory, motion, waiting, over-processing, overproduction, and defects. As a result, the effective waste reduction or remove will lead to the significant improvement in the manufacturing process. To demonstrate the rapid improvement, the method of Kaizen Blitz or Kaizen event was implemented in a factory where the doors of vehicles are assembled. For the first stage, Kaizen agenda was introduced to the people on the shop floor. Afterwards, spaghetti diagram was drawn to depict the department layout and the flow of process while the value stream mapping diagram were utilized to indicate material flow in the process. After the implementation of all tools of Kaizen Blitz, the non-value added step which creates waste (waiting time) in the process is identified. The result shows that the waste is reduced by 15 percent after the waste was removed from the process.

Keywords: *Kaizen Blitz, Spaghetti Diagram, Value Stream Mapping, Waiting Time, Waste*

JEL Classification: L6

DETERMINANTS OF EMPLOYMENT IN BULGARIA

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Abstract. The goal of current study is to investigate the relation between employment and its determinants in Bulgaria. On the basis of theoretical concept explaining the state of labour market as well as a review of related literature in current article are defined some determinants of employment: gross fixed capital formation; foreign direct investment; average annual wage of employed; interest rate on long-term loans for households; interest rate on long-term loans for non-financial enterprises. With these factors variables are specified regression models, in which dependent variable is number of employed persons. The regression models are based on time series for Bulgaria for the period 2000-2016. The sources of time series are the National Statistical Institute (NSI) and the Bulgarian National Bank (BNB).

Keywords: *Employment, Regression Models, Gross Capital Formation, Foreign Direct Investment (FDI), Interest Rate, Labour Costs*

JEL Classification: D4, D6, E1, E6, H3, H4

GREEN PROFITS AS A PROOF FOR BUSINESS SUSTAINABILITY AND INVESTMENT OPPORTUNITY

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Abstract. Corporate social responsibility (CSR) of companies has been discussed for decades in the scientific literature. Moreover, general impression that management as well as potential investors should look beyond traditional financial metrics, but include CSR-related factors in evaluation and investment process is widely recognized. Nevertheless, because several groups led by different motivations and expectations are engaged in the process, there is no common view regarding these issues. The author intends to look in details on the topic of green investing, while examining sustainability in the CSR as new opportunity both for company`s management and investors.

The goal of the following study is to verify and to measure positive effect from green revenues on financial attractiveness of companies in the form of its stock portfolio value growth as well as making use of diversification into green bonds market. To achieve the goal of the research, quantitative analysis is used by comparing performance of stock/bond portfolio with market index increment. The research methodology includes three-step approach: top-down analysis of the sectors to determine those providing green revenues; quantitative and qualitative analysis of selected companies; assessment of investment results against selected benchmark.

The results of the study highlight several positive trends gaining momentum in the coming periods, as for example, the mainstream of European green funds (over 80%) are equity funds, appearing since 2015, and the market is driven by the countries pioneered responsible investments, like France, Switzerland and the UK. In the middle and short-term equity portfolio constantly outperforms the benchmark, while up to now, only a few companies have issued green bonds, leaving sufficiently room for all the others to launch initial issues and to satisfy growing investors' appetite.

Keywords: *CSR (Corporate Social Responsibility), Green Investment, Green Revenues; Investment Strategy*

JEL Classification: G11, M14

AGILE LEGAL DEPARTMENT A MYTH OR KEY TO SUCCESS

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Abstract. The purpose of the article is to investigate and critically discuss the role, the level of involvement, the impact of legal department in the daily operation and how increase in agility affects the performance of the company. **Methodology:** literature review, case studies and personal interviews were conducted. To prove that increase in agility of the company and this of particular legal department has a direct positive effect on the whole corporate performance.

There were detected several factors of the positive effect of the agility on the corporate performance. The daily operations of the legal department of several large international companies that focus in other than legal field for their core business were analyzed and improve in agility was discussed. The works and papers of the following authors served as a basis and scientific support for the current research: A.G. Lafey, Roger L. Martin, Roger L. Martin, W. Ross Ashby, Jay R. Galbraith, Danny Ertel, Mark Gordon. The research's findings proved that agility has a direct impact on the corporate performance. It affects both the internal and external environments. The legal department has one of the leading roles of the companies' supportive activities that affects the core ones. It was determined that increase of the agility of legal department positively affects internal corporate atmosphere, improves communications, unites people from both within and outside the department by setting common goals and applying achievement oriented attitude. Combining formal legal actions protecting the interests of the company with the understanding of the corporate goals was determined as a key to success.

Keywords: *Corporate Agility, Legal Department, Agile Structure, Improve of Performance*

JEL Classification: L26, M14, M21, O31

DATA BASED DECISIONS IN LATVIAN ORGANIZATIONS

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Abstract. The goal of the research is to evaluate effectiveness of data based decisions in Latvian organizations with key focus on government, municipalities and commercial services. Research is based on literature review, interviews with key stakeholders and surveys. The research has resulted in an overview to what extent data based decisions are being used in Latvia, what are the constraints for wider adoption of data based decision in daily operations and management. It is visible that those institutions, that are using data based decisions` approach, solve problems more efficiently than others, as well gaining cost saving. Still there are several preconditions that need to be resolved before wider adoption of data based decisions, e.g., access to data, data quality, legislative changes, etc.

Keywords: *Big Data, Decision Making, Open Data, Smart*

JEL Classification: O

HARMONIZATION OF RATIONAL AND CREATIVE DECISIONS IN QUALITY MANAGEMENT USING AI TECHNOLOGIES

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Abstract. Artificial Intelligence (AI) systems are rapidly evolving and become common in management. Managers in business institutions are faced with the decision taking challenges and large amounts of data to be processed combining and harmonizing rational data with creative human experience in decision making.

The purpose of this study is to reveal the main obstacles of the harmonization of creative and rational decisions making in quality management using AI technologies in Quality Management System (QMS). The first section presents literature review of approaches and trends on AI technology usage in organizations for data processing and creative-rational decision making, rational and creative quality management decision and paradigms in decision harmonization.

Main results section presents practical analysis, presentation and testing experience of automated AI Quality Management System developed in Higher Education Institution. During the analysis interview method was applied to find out specific system implementation issues. In the last part main analysis results and further development possibilities are discussed. Main findings and conclusions disclose two main problematic areas which may be defined as obstacles for rational and creative management decisions in Quality Management, related with clear responsibility distribution and assignment between data inputters and experience interpreters and duplicated qualitative data which AI system is not capable of rationalizing at the present development stage, speech and language processing techniques used when data processing algorithms cannot cope with the dual data processing technique, because in the practice system interprets and rationalizes only one category of data either quantitative – based on rational defined indicators, or qualitative, based on language recognition and speech related data interpretation. Managers' experience in harmonizing creative human experience in organization's quality management was evaluated as positive. Data processed by tested AI system allows rationalization of creative experience with ready quantitative data output from QMS system and final harmonized strategic quality management decisions.

Keywords: *Artificial Intelligence (AI), Decision Making, Total Quality Management (TQM), Quality Management System (QMS)*

JEL Classification: M10, M15

MAIN PROBLEMS IN GEORGIAN LABOR MARKET

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Abstract. Unemployment rate is very important issue for each country. This problem is more acute for developing countries as for decreasing the unemployment rate they should increase development level of human capital, improve labor market situation and make changes in the policy by many angles. For reducing the unemployment rate, one of the crucial factors is to identify, evaluate and analyze challenges in labor market. Human capital development can solve many problems. Thus, finding the reasons and solving problems regarding human capital development should be one of the strategic aim for each government, as it promotes economic development. There are many challenges that Georgia faces nowadays in this directions. This article is review type, uses method of analyzing data from different surveys, labor market trends and gives recommendations. The main recommendation is that the state and business for improving human capital development must be based on the efficient state strategy of HR management. Not only should the government take all the responsibility. The main thing what they can do is to make good quality surveys. On the bases of that top management of the companies should make the appropriate decisions and policies. Only by the combining of both parties it is possible to make success and achieve not only human capital and labor market development, but the whole development of the country.

Keywords: *Development, Human Capital Development, Management, Unemployment*

JEL Classification: M540; M510

MANAGEMENT OF CREDIT DEFAULT INDICATORS IN PRIVATE REAL ESTATE FINANCING

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Abstract. Financing of real estates was a trigger of the biggest financial crisis after the “Great Depression”. One of the main causes for this 2007-started crisis was bad risk management of credit defaults in financing real estates. This paper examines the impact of interest rates and macroeconomic indicators on credit default rates. The research proposes a model that proves: how strong is the relationship between different predictor variables such as mortgage interest rates and macroeconomic indicators on the response variable of credit defaults. The method is doing descriptive and inferential experimental research by collecting secondary data in different markets and by analyzing these data for correlations and for bivariate and multivariate linear regressions. The research gives the evidence that the macroeconomic indicators have a higher impact on credit defaults than mortgage interest rates. The scientific research on this theme led to nearly the same result in different markets: The unemployment rate is the most responsible predictor variable for the credit defaults. It is very necessary for the involved stakeholders (borrowers and lenders) to keep the view on macroeconomic indicators but especially on the unemployment rate. The lenders can avoid credit defaults in times with increasing unemployment rates by not increasing interest rates at these times. The borrowers should use times with personally better circumstances for increasing their repayment rates. The financial markets need more regulation and control, and it needs a change of the market culture in the points of business ethics and morality.

Keywords: *Credit Defaults, Financial Crisis and Subprime Mortgage Crisis, Financing Private Residential Real Estates, Interest Rates, Mortgages, Risk Management*

JEL Classification: D12, E43, G21, H12, H63

CHANGES IN THE STRUCTURE OF SELECTED ECONOMIES

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Abstract. The divergent developments in productivity and employment over the past two decades, as well as the crisis and the measures taken at the time of the recovery, have led to significant changes in different parts of the economic structure in Slovakia and other EU countries. Changes in structure have affected the performance and stability of the economy. The aim of the article is to examine changes in the basic segments of the economic structure of several selected EU countries. The development of segments is assessed through the indicator of gross added value (in current prices) and employment in the period 1995 to 2016. Developments in the analysed countries are confronted with the development of the EU-15. The analysis showed that the structural gap between the EU15 and the selected countries is shrinking in the long run, but partial results have shown that the crisis has deepened the gap in the short term.

Keywords: *Employment, EU-15, Gross Value Added, Structural Deviation, Structural Gap*

JEL Classification: F61, F63

AUGSTSKOLAS UN INDUSTRIJAS SADARBĪBAS IESPĒJAS

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Abstract. Pēdējos gados Latvijas darba tirgū notiek diskusijas par atalgojuma straujāku pieaugumu nekā produktivitāti, turklāt aizvien vairāk iezīmējas kvalificētu darbinieku trūkums un pieaug konkurence par darba ņēmējiem. Latvijā izglītības iestādes, sagatavojot jaunus speciālistus, piedāvā labu teorētisko zināšanu bāzi, taču darba devēji norāda, ka jauna speciālistiem tūlīt pēc augstākās mācību iestādes absolvēšanas bieži pietrūkst praktisko zināšanu un izpratnes par veicamo darbu.

Pētījuma mērķis ir izpētīt augstskolas un industrijas sadarbības veidus, studentu, iesaisti sadarbībā, kā arī šo sadarbību ietekmējošos faktorus, izpētīt, kas ir visefektīvākais augstskolas, valsts pārvaldes un industrijas ilgtermiņa sadarbības modelis. Sadarbībai būtu jāatrisina vairāki uzdevumi, piemēram, kā atbalstīt un attīstīt nozari, piesaistīt tehniskajām universitātēm vairāk potenciālo studentu; piesaistīt studentus praktiskos darba projektos jau pašā studiju sākumā; palīdzēt studentiem izvēlēties profesionālu jomu, kas atbilst viņu interesēm un spējām; uzlabot komunikāciju un palielināt akadēmiskā personāla iesaistīšanos nozares stratēģiskajos un operatīvajos uzdevumos, palielināt konkrētās nozares konkurētspēju, piesaistīt vairāk investīciju gan zinātniskos pētījumos, gan attiecīgajā nozarē; risināt konkrētas tehniskas vai dizaina problēmas, veikt mērījumus, dažos gadījumos iegūstot jaunas idejas jaunu produktu izstrādei; uzlabot produktu kvalitāti, piekļūt jauniem pētījumiem, organizēt problēmu risināšanas darbnīcas, kā arī uzņēmumi varētu pieņemt darbā universitāšu absolventus, netērējot papildu resursus darbinieku atlasei un piesaistei.

Augstskolas un industrijas sadarbība pētīta, balstoties uz Etkoviča (Etzkowitz) Triple Helix (trīskāršās spirāles) modeli. Šo modeli pētījuši un tālāk attīstījuši vairāki pētnieki, (Leidesdorfu (Leydesdorff), Koks (Cooke), Fereira (Ferreira) u.c.), uzsverot pārmaiņu, dinamisku, aktīvu procesu pozitīvo ietekmi uz attīstību.

Pētījumā izmantotās metodes: monogrāfiskā (literatūras, datu bāzu, pārskatu analīze), kvantitatīvā (anketēšana un rezultātu interpretācija) un statistiskā datu apstrāde, tika apkopoti un analizēti kvalitatīvie un kvantitatīvie dati. Pētījuma veikšanai tika intervēti augstskolas un būvniecības industrijas pārstāvji, kā arī veikta industrijā strādājošo uzņēmumu darbinieku aptauja.

Atklātie trūkumi un rezultāti

Latvijā Latvijas Augstākās izglītības un augstskolu attīstības koncepcija 2014. – 2020. tiek balstīta uz Triple Helix modeļa ideju iedzīvināšanu, lai, veidojot valsts, industrijas un akadēmiskās vides sadarbību, nodrošinātu visu iesaistīto pušu konkurētspējīgu attīstību.

Triple Helix modelis ietver trīspusēju sadarbību starp augstskolu, industriju un valsti, lai veidotu jaunus sadarbības veidus konkurētspējas attīstībai un zināšanu nodošanai (pārnesi). Gan būvniecības nozare, gan universitātes vide ir ļoti reglamentētas, bet izmantojot Triple Helix modeli, iespējams veidot savstarpējo mijiedarbību, kas ļauj vai nu atrisināt vai mazināt galvenās problēmas, ar kurām saskaras būvniecības sektors un akadēmiskā personāla pārstāvji, kā arī uzlabo visu iesaistīto pušu konkurētspēju. Modelis piedāvā veidu, kā sadarboties, lai gūtu abpusēju labumu.

Secinājumi un ieteikumi

Pēdējo gadu gan darba tirgus, gan izglītības tirgus viens no lielākajiem izaicinājumiem ir motivēt jauniešus studēt eksaktās un inženierzinātnes. Liels brīvo darba vietu pieaugums Latvijā 2018.gadā vērojams īpaši kvalificētiem strādniekiem, piemēram, ēku celtnieks, būvnieks, elektriķis u.c. Arī visvairāk brīvo darba vietu skaits, salīdzinot ar 2017.gadu, pieaudzis būvniecībā. Nozares attīstības tendences pieprasa profesionāli kvalificētus speciālistus: arhitektus, celtniecības inženierus, kvalificētus strādniekus utt. Līdz ar to nepieciešami risinājumi, lai veicinātu augstskolu un industrijas sadarbību, kas ietekmē tautsaimniecības attīstību, kā arī būtu jāceļ gan izglītojamo, gan darba devēju apmierinātības līmeni ar apgūtajām prasmēm/kompetenci un apgūto prasmju izmantošanu darba vietā.

Universitātes pārstāvji uzskata, ka studentiem jāiegūst plaša spektra izglītība, zinātniskie un profesionālie pamati un spējas pielāgoties. Pamatizglītības otrā posma absolventiem pašiem jāattīsta nepieciešamās prasmes darba laikā, savukārt industrijas pārstāvji sagaida, lai studenti būtu gatavi strādāt reālos apstākļos, tie būtu ieguvuši nepieciešamās (specifiskās) zināšanas par izvēlēto profesiju, sagaida lai augstskolas absolvents būtu gatavs darbam, pie tam adaptēts jaunāko tehnoloģiju izmantošanai.

Būvniecības nozares uzņēmumi norāda uz būvspeciālistu un būvstrādnieku profesionālo zināšanu nepilnībām, kam priekšnosacījums ir mācību programmu sasaiste ar darba tirgus prasībām. Uzņēmumi, kam trūkst speciālistu, pieredzējušu nozares praktiķu, paši meklē risinājumu, gan rīkojot apmācības, gan veidojot iekšējos mācību centrus, kur jaunajiem speciālistiem māca tās prasmes un zināšanas, ar kurām viņi saskarsies ikdienas darbā. Ir darba devēji, kas veido sadarbību ar izglītības iestādēm, epizodiski piedaloties mācību procesā. Piemēram, ir celtniecības uzņēmumi, kas piedāvā augstākajām mācību iestādēm sadarbību jau no pirmā kursa, tā arī gūstot iespēju ietekmēt izglītības saturu, to maksimāli pielāgojot tirgus prasībām.

Akadēmiskajai videi un uzņēmējdarbības nozarēm jāsadarbojas augsti kvalificētu absolventu sagatavošanā, jo ikvienas nozares svarīgākais potenciāls ir augsti kvalificēti nozares speciālisti, kas ir prioritāte attīstībai un nepieciešamo pārmaiņu radīšanai. Augstskolas nav uzlūkojamas kā savrupas institūcijas, kuras izstrādā un nodod noteiktas zināšanas un pētījumus, bet gan dinamiska vide pārmaiņu radīšanai, sabiedrības izaugsmes resurss.

Triple Helix modeļa īstenošanā jāveic turpmāki pētījumi, jāveic attiecīgajai nozarei nepieciešamie pielāgojumi. Būvniecības nozares pārstāvju iesaistīšana nodrošinās viņiem iespēju motivēt studentus, nākamās darba ņēmējus, savukārt studenti labāk iepazīs izvēlēto profesiju, apmeklējot nozares uzņēmumus, praktiskās studijas apgūstot uzņēmumā, ātrāk adaptēsies darba tirgum, kā arī tiks realizēta studentu specializācija. Savukārt uzņēmuma pārvaldībā jāpildinveido mūsdienīgu personāla vadības instrumentu izmantošanu, kas palīdz motivēt, sasniegt un noturēt darbinieku uzņēmumā, līdzsvarot darba algu un produktivitāti.

Atslēgvārdi: Būvniecības nozare, Industrija, Personāls, Sadarbības modelis.

JEL Classification: M1, M5, O3

OPTIMIZATION OF THE EXISTING TALENTS IN THE COMPANY

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Abstract. The study focuses on the talent management within the companies and emphasizes the potential employee reevaluation in order to build high performance teams. Based on the scientific researches, theoretical base and personal observations authors describe how to differentiate talented employees, categorize the talents by different approaches and based on the findings, develop an action model for any type of the company's to use in order to optimize the existing talent pool within the company and also to identify what kind of the talents need to be attracted externally.

Keywords: *Talent Management, High Performing Teams, Competence Management, Future Workforce, Team Development*

JEL Classification: J82

WORK-RELATED PSYCHOSOCIAL RISK FACTORS AND CARE WORKERS MENTAL HEALTH IN ESTONIA NURSING HOMES

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Abstract. The global quick population aging has been influenced the health care system in Estonia. The nursing homes have many different problems in management and financing. The lack of resources put managers in the situation where they have to choose how many services they can provide, as they want to guarantee the qualitative care. This situation has an impact to the nursing professionals, where a lot of psychosocial risk factors influence on the care workers in their work. We aimed to explore the work-related psychosocial risk factors and their relationships with mental health problems (MHPs) amongst care workers in the Estonian nursing homes.

A cross-sectional survey was undertaken amongst care workers in 9 Estonian nursing homes. Psychosocial work factors and MHPs (stress, somatic symptoms, depressive symptoms, burnout, cognitive symptoms, and sleep disorders) were measured using the Copenhagen Psychosocial Questionnaire (COPSOQ II). Descriptive statistics and Pearson's correlation (r) were used to analyse the data.

The analysis is based on 340 nursing homes care workers (66.79% of the full-time working population of care workers). The highest mean scores recorded for the positive work-related psychosocial factors studied were: quantitative demands; influence; rewards; role conflicts; trust; insecurity and work-family balance. Low mean scores were recorded for the meaning of work; role clarity; social relationships at work. The lowest score was for burnout and the highest for the cognitive symptoms. The high mean score was also for the somatic symptoms.

There is a significant enough positive correlations between the following factors: quality of leadership and rewards, social support from management and quality of leadership, satisfaction with work and rewards, work and family balance and rewards, justice and respect and quality of leadership, social relationship at work and social support from colleagues, justice and respect and social support from management, justice, respect and social relationship at work. Most of the psychosocial factors correlated statistically significantly with burnout, cognitive symptoms and sleep disorders. Lower statistically significant correlations were found with depressive symptoms and stress. Psychosocial risk factor as work and family balance, showed positive correlation with all MHPs, while factors such as rewards and quality of leadership, showed negative correlations with all MHPs.

Work-related psychosocial risk factors such as quantitative demands (work load), emotional demands, work pace and role conflicts, had significant positive relationships with MHPs in nurses in Estonia, and may contribute to high levels of stress as well as burnout amongst nurses.

Keywords: *Psychosocial Risk Factors, Mental Health Problems, Stress, Burnout, Nursing*

JEL Classification: J14, J28

MULTITASKING AND ITS EFFECTS ON INDIVIDUAL AND ORGANISATIONAL PERFORMANCE

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Abstract. Nowadays, people multitask at work, in their cars, on the street, and while being at home. Multitasking is omnipresent in many work domains such as command and control, information and knowledge work, aviation, medicine, and others. Even though human multitasking has reached new heights these days, its effects on individual and organisational performance are still not clear. There is little detailed empirical evidence on multitasking and research findings are controversial.

The purpose of this research was to identify current beliefs regarding the effects of multitasking on individual and organisational performance, and to find out whether individual differences (e.g. time management orientation, Type-A (achievement-oriented individuals) personality) influence multitasking efforts. The current research study employed survey methodology. 138 valid questionnaires were received.

Four research questions were derived from a review of literature on multi-tasking: 1. What type and to what extent is multitasking present in organisations? 2. What are employees' perceptions about positive and negative effects of multitasking at the level of an individual and at the level of an organisation? 3. Do individual characteristics (e.g. time management orientation, Type-A personality) influence perception about multitasking? 4. What is the relationship between multi-tasking and productivity?

60% of respondents admitted that ability to multitask is considered a job requirement. 52% of respondents reported that they spent 15 minutes on average on a work task or activity uninterrupted. Most respondents (62%) perceived multitasking as having negative effects like psychological distress, frustration, anxiety, confusion and a higher error-rate. The respondents' opinion was divided on the question about multi-tasking and productivity. 49% agree that multitasking enables workers to complete more work per unit time and the company to complete projects in a shorter time, thus saving costs. The other 51% believe that multitasking is detrimental to work productivity. The survey confirmed that individual characteristics (Type-A personality and time management orientation) influence perception about multitasking.

The research study confirmed that multitasking is strongly present in nowadays organisations. The results do indicate to the potentially negative effects of multitasking on individuals' psychological well-being. At the same time employee's perception about the productivity of multitasking performance is divided in two opposing views.

More and deeper studies are needed to get additional understanding on whether personal traits and human factors can be used as predictors of individual's multitasking performance; if multitasking is a skill which can be trained and developed; if there are optimal levels of multi-tasking in different working environments.

Keywords: *Multi-Tasking, Productivity, Multi-Tasking Effects, Time Management*

JEL Classification: M12

DATA SCIENCE APPLICATIONS IN FINANCIAL INSTITUTIONS

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Abstract. Development of information technologies (IT) has contributed to widespread of such terms as “big data”, “machine learning”, “data mining” which can be referred all together as “data science”. However, understanding of what is “data science” significantly varies among and even within organizations. This article is aimed to identify applications of data science in financial institutions that can be identified in academic publications and reputable widespread publications by organizations from consulting, financial and IT industries. Classification of identified applications will help to describe potential differences in understanding of the topic among organizations. Research object is financial institutions, research subject is data science applications. Combination of three research methods are used in this research – literature meta-analysis, systematic literature overview and qualitative content analysis. Novelty of research is classification of data science applications in financial institutions. Authors limit financial institutions to banking institutions, non-bank lending institutions and organizations connected with payments and payment cards (retail oriented financial institutions).

Keywords: *Big Data, Data Mining, Data Science, Financial Institutions*

JEL Classification: O33, M15

SOCIAL BENEFIT MEASUREMENT IN MULTI-CRITERIA EVALUATION MODEL

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Abstract. The aim of public funding is to provide target-oriented alternative investment policy and tools with strong relation to social merits and development of society welfare. European Union increased investments in private sector due last decade raises challenge of long term modelling of social criteria model to be adapted within current goals and needs of society. Use of model for disseminating the investments with lowest rate of risk and highest gains balanced score. Unpredictability and limited quantitative methods leads to use of logic measurement systems as AHP (analytic-hierarchy process), BOCR and other in use of balancing social merits as. The research aims to explore social criteria balancing opportunities in complex system where mathematical equation is used for balancing multi-criteria evaluation system. The methods of economic analysis is used for interpretation of multi-criteria mathematical values in order to provide cost – benefit analysis evaluation result that is usable for further decision-making. Research results allow to transform social criteria into tangible values of criteria system and sub-systems and provides mathematically measurable values of each project within social gain evaluation. Research provides possibility to determine public funded investment impact evaluation to social targets and set the cost – benefit analysis in level of multiple project program. The results of the approved mathematical model with the newly developed methodology show that 29% of the total public funding granted has been used without direct impact to social benefits.

Keywords: *AHP (Analytic Hierarchy Process), BOCR, Mechanism Design, Multi-Criteria Model, Public Funding*

JEL Classification: C61, H59, M48

SUBSECTION

“INNOVATION AND QUALITY TECHNOLOGIES“

QUALITY OF HIGHER EDUCATION: WHAT DOES IT MEAN FOR STUDENTS AS STAKEHOLDERS?

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Abstract. The purpose of the research is to conduct theoretical analysis of scientific literature on the factors that influence students' as the stakeholders' perception of quality of higher education, to analyse their influence on resources in the area of higher education. Research methods are the literature overview, analysis and synthesis of scientific literature, Importance-Performance Analysis, logical and comparative analysis of documents. The paper shows that different stakeholders have different goals, needs and requirements. Students, faculty and staff are the main stakeholders with crucial impact on quality of higher education. The factors that significantly influence quality of higher education are quality of educational content, teachers' competence, quality of study materials, teaching methods, co-operation between the management and students taking into account students' needs, etc. In Latvia state and private capital support higher education in a joint effort. Both stakeholders have an influence on quality of higher education: the state acts as a legislative power, but students – as internal power.

Keywords: *Quality of Higher Education, Stakeholders, Factors of Quality of Higher Education, Resources, Influence on Quality of Higher Education*

JEL Classification: I210

ANALYSIS OF FACTORS INFLUENCING QUALITY CULTURE AND THEIR IMPACT ON CONTINUOUS IMPROVEMENT OF ORGANIZATION

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Abstract. The aim of the research is to characterize the theoretical aspects of the concept of “quality culture”, to study and analyse the quality culture factors that might influence the continuous improvement and development of the organization’s activities. The research is based on the study of the quality culture factors using literature review, qualitative content analysis, and the Cameron & Quinn’s Organizational Culture Assessment Instrument. On the basis of the results of qualitative content analysis, the frequency of the categories of quality culture parameters in the literature was determined; with the help of the logical analysis and comparative analysis methods the factors of quality culture corresponding to the parameters – dominant features, leadership in the organization (management), personnel management (management), organizational unity, strategic goals and success criteria – were identified.

Total quality management is an approach geared towards the organization’s efforts to continuously improve its ability to provide its customers with high quality products and services; therefore it is essential to maintain excellent quality. In order for the organization to be able to ensure efficient use of resources, increase productivity and maintain excellent quality, it is necessary to develop quality culture. Quality culture is a specific aspect of organizational culture which helps to unify the organization, improve the results and methods of daily activities.

On the basis of the study of theoretical aspects of quality culture and the analysis of factors, there is a need to continue research of the factors of interaction between “organizational culture” and “quality culture” that are important for the continuous improvement and development of the organization.

Keywords: *Quality Culture, Total Quality Management, Performance Improvement*

JEL Classification: M14

CYBER SECURITY FRAMEWORK: RELATIONSHIP BETWEEN QUALITY MANAGEMENT AND INFORMATION SECURITY GOVERNANCE

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Abstract. Nowadays interest about information security governance is growing up exponentially because of cyber security topicality. The cyber security framework is base for the information security governance. At the same time cyber security principles have similarities with quality management principles. Based on that it is possible to find relationship between quality management and information security governance. The aim of the paper is to analyse and evaluate relationship between quality management and information security governance. Research has been done by studying and evaluating each principle of quality management and information security governance, identifying the common activities to be done in each of them. During the study qualitative research methods have been used. As the result of authors elaborated relationship between quality management and information security governance and given practical proposals enterprises working in information technology sphere can better comprehend ways how to implement information security governance in the company and how to use quality management principles along with it.

Keywords: *Cyber Security, Information Security, Quality Management*

JEL Classification: D83, D85, K22, K24, M11, M15

ANALYSIS OF UNIVERSITY QUALITY SYSTEM DEVELOPMENT APPROACHES

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Abstract. Nowadays, universities are working in more and more competitive environment. Universities are searching for new ways to organize and optimize their processes to become more efficient and sustainable. The paper consists of a literature review of the quality system model and approach development trends in higher education institutions. For example, Key Performance Indicator analysis, EFQM Business Excellence model, ISO 9000 Standards and others are mentioned. The aim of the paper is to analyse, what, nowadays, could be the most appropriate approach for the development of a sustainable quality system at the university. How this approach combines the most suitable methods with university effective performance measurement? The results of the research show that the most popular are combined and integrated approaches, that include quality, sustainability, and university performance indicators. Defined key performance indicators in line with the right approaches enable to determine and measure the efficiency and sustainability of a university.

Keywords: *Higher Education, Process Approach, Sustainable Development, Key Performance Indicators, Quality*

JEL Classification: I200, I230, O310

REGULATION AND TECHNOLOGY DRIVEN ASPECTS OF REINDUSTIALIZATION OF ICT IN THE AREA OF INFORMATION SECURITY

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Abstract. Contemporary changes in the field of legislative regulations initiated on a national and EU level, as well as the progress in the field of providing security for digital assets, are slowly becoming a powerful stimulator for the development of an organisations' and economic entities' e-business system. Large organisations, which possess IT departments and relatively good financial resources, as well as startup companies regardless of their size, and also due to the fact that they will eventually incorporate a system for e-business, could have a considerably easier time to adapt to these changes. Adapting to the changes, from the point of small and medium-sized organisations and economic entities, especially those which have been developing their e-business system for an extended period of time, has to go through a serious process of reindustrialization of ICT. The present paper presents results from the conducted applied research, related to ICT reindustrialization, connected with the currently existing e-business system within The UF, with the aim to adjust new regulations, such as GDPR and national fiscal requirements in the context of ensuring a high level of informational and communicational security. The problems studied in this paper are related to site-to-site and remote access connections of locations and personnel, management of financial and accounting information, management of user access in the context of the information security policy. The studied approaches and solutions can be easily implemented to solve problems of ICT reindustrialization and development of an e-business system in different size organisations and economic entities.

Keywords: *E-Business, Reindustrialization, GDPR, Information Security*

JEL Classification: M15, O14, O21, O32

UNDERSTANDING THE ROLE OF SUPERVISION IN CONSTRUCTION INDUSTRY IN LATVIA

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Abstract. The aim of research is to promote scientific discussion and in-depth research of aspects related to supervision process in construction field from continuous improvement perspective in order to develop possible solutions for the improvement of process effectiveness and quality of construction. Research is focused on the construction supervision process performed by Latvian State Construction Control Bureau. The analysis was carried out by using several research methods, such as literature review, logical and comparative analysis and survey analysis.

Evaluation and analysis of the role of supervision in construction field provide a general notion of supervision process as strategically important activity in helping to ensure public safety by proactively determining non-compliances at the construction sites. In order to assess the quality and safety in the particular industry there is a need to ensure supervision of construction operations performed by the public administration as well as ensure supervision of professional competence assessment performed by certification bodies of constructors.

Collaboration with the parties involved, development of an internal control system based on risk management by using machine learning method in the supervision of construction are determined to be strategically important activities. On the basis of the conclusions made from the review of theoretical aspects and survey results, it is necessary to continue research with in-depth analysis of the complete construction process in accordance with the rules and regulations laid down in the construction industry by using lean methodology in turning possible continuous improvements into sustainable development of construction industry.

Keywords: Control, Conformity Assessment, Supervision, Construction, Safety

JEL Classification: L74

MANAGERIAL COMPETENCIES IN KNOWLEDGE-BASED ORGANIZATIONS

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Abstract. The research is dedicated to investigate whether knowledge intensive business organizations make and effect on a set of competencies of the managers who lead the enterprises. The investigation contains of three parts: initially the researchers explore the ways how managers' skills are acquired, then the authors put to use the Managers' competence groups developed by Lapina et al. (2015) to clarify how the discoveries correspond to modern knowledge intensive business organizaions. Finally, the authors integrate findings of both stages to identify how the groups of competencies and components of its acquisition are interrelated for managers in knowledge-based organizations as well as compare their findings with OECD set of skills.

Keywords: *Manager, Managerial Competences, Knowledge Intensive Business Service (KIBS), Business Administration, Management of Technological Innovation and R&D, Knowledge Economy*

JEL Classification: M1, J24, O15, D83, M54, M12

EMPLOYEE STRESS SURVEY RESULTS FOR LATVIA

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Abstract. The stress survey of employees was conducted by the members of research consortium of ERASMUS+ project **588315-EPP-1-2017-ES-EPPKA2-KA**) “Improving management competences on Excellence based Stress avoidance and working towards Sustainable organizational development in Europe / IMPRESS” in four EU countries – Germany, Spain, Ireland/England and Latvia. In the survey participated 286 respondents from Latvia.

Main results: High strain level (‘to a great degree’ & ‘to a very great degree’) was stated by 2.1% of the participants, High Engagement and satisfaction in the work was stated by 56.8% of the participants. Resource ‘Clarity and Control’ indicated higher frequency level than resource ‘Leadership and social support’; at the same time ‘Leadership and social support’ has more influence on ‘well-being and strain’. The Stressors, ‘Organizational climate and cooperation’, ‘Roles and responsibilities’, and ‘working conditions and workflows’ have the biggest influence on each, ‘well-being and strain’ as well as on ‘engagement and satisfaction’.

Keywords: *Employee Satisfaction, Engagement, Organizational Climate, Stressors, Well-Being, Working Conditions*

JEL Classification: I31

ADVANTAGES AND DISADVANTAGES OF TIME-SAVING INNOVATION “BYTEX FEASIBILITY ANALYZER V5.18” IN FEASIBILITY STUDY CONSULTING

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Abstract. This study focuses on identifying the advantages and disadvantages of the use of a time-saving innovation - the software “Bytex Feasibility Analyzer, version 5.18” - in feasibility study (FS) consulting in terms of speed, accuracy and convenience. The software was applied to 3 waste management consultancy projects in Mandaue City, Philippines. Durations in making FS components were compared between the software and commonly-used spreadsheet. Similarly, for both financial and economic analyses, the values of feasibility indicators NPV, IRR, BCR, ROI and payback period were compared. Results reveal that based on t-test statistical results, duration in making feasibility studies is highly shortened; FS excluding appendices completed in days when using the software. T-tests show that feasibility indicator values between software and spreadsheet are statistically insignificant. It was observed that using the software is highly convenient since it has pre-formatted data entry tables for costs and benefits, data consistency checking, automated data projection, automated sensitivity analysis, currency change, software-guided discussion writing, help, tutor, e-manual and employing International Accounting Standards (IAS). It was noted that it runs under Windows, runs in Unix through program interface but Macintosh version of the software is needed. It is concluded that the software is advantageous in terms of speed but disadvantageous when entering single investment in any currency having 1 billion value or more due to need of splitting it into parts. Use of the software for FS consulting, software revision to accommodate 10-digit value of single investment and creating a version for Macintosh are highly recommended.

Keywords: *Economic Analysis, Feasibility Study (FS), Financial Analysis, International Accounting Standards (IAS), International Financial Reporting Standards (IFRS), Sensitivity Analysis*

JEL Classification: 03

SUBSECTION

**“INTERNAL SECURITY AND CIVIL
PROTECTION“**

PRECONDITIONS OF CRIMINAL LAW PROTECTION OF THE INTERNATIONAL CIRCULATION OF ENDANGERED SPECIES OF WILD FAUNA AND FLORA

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Abstract. In the paper, the necessity of protection of legally correct international circulation of endangered species of wild fauna and flora is founded and the customs role in ensuring legally correct international circulation of them is clarified. Analysing international, regional (European Union) and local (the Criminal Law and the Administrative Violations Code of Latvia) legislation the preconditions of criminal liability of violations of the trading provisions of endangered species of wild fauna and flora are determined: (1) object of the criminal offence is specified, (2) term „trading provisions” is defined, (3) substantial harm as negative consequences caused by the criminal offence is characterised. It is concluded that section 115.¹ „Violation of the Trading Provisions of Specimens of Endangered Wild Animal and Plant Species” of the Criminal Law needs doctrinal explanation to increase the effectiveness of this rule of law. The constituent elements of the criminal offence described in the section 115.¹ of the Criminal Law is analysed to promote its application in accordance with its sense and purpose taking into account international obligations to raise the protection level of the endangered species of fauna and flora involved in the international trade.

Keywords: *Endangered Species of Fauna and Flora, CITES (The Convention On International Trade in Endangered Species of Wild Fauna and Flora), Criminal Liability, Customs, Illicit Trade, International Circulation of Goods, International Trade*

JEL Classification: K14

A RESEARCH – DRIVEN APPROACH TO MITIGATE FUTURE RISKS FOR SME IN A FAST – CHANGING ENVIRONMENT

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Abstract. In the business environment of the 21st century one of the driving factors of competitiveness is the ability to adapt, direct and accept innovative technology solutions. This paper presents a study of non-predicted scenarios of future development connected with technology and its impact on business and public safety. Paper characterizes the Riga International Coach Terminal safety management system and security risk-based decision-making approach.

The author has analyzed European and National level regulatory documents and trends in the field of passenger transport and transport infrastructure security. Coach terminal as an object of critical infrastructure should be in frame of resilient system. The paper provides recommendations for structuring the security and risk management process, which includes interfaces with internal and external bodies.

Keywords: *Innovative Technology Solutions, Resilient System, Technology, Technology*

JEL Classification: D8

NELAIMES GADĪJUMI, KURU CĒLONIS IR NEDROŠA CILVĒKA RĪCĪBA

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Abstract. Vairāk nekā tūkstošis nodarbināto ik gadu Latvijā cieš nelaimes gadījumos darbā, gūstot savā darba vietā savainojumus. Lai novērstu nelaimes gadījumus darbā, darba devējam ir nepieciešams iekārtot un uzturēt drošu un veselībai nekaitīgu darba vidi. Ir svarīgi atcerēties, ka nereti ir situācijas, kad darba devējs ir izpildījis visas prasības darba aizsardzības jomā, bet riska pakāpi darba vidē ietekmē pats nodarbinātais. Novērtējot darbā notikušo nelaimes gadījumu statistiku nākas secināt, ka nelaimes gadījumos darbā cieš nodarbinātie ar nelielu darba stāžu dotajā uzņēmumā.

Populārākais nelaimes gadījumu cēlonis, it sevišķi nodarbinātajiem ar nelielu darba stāžu uzņēmumā, ir netikai Latvijā, bet arī citās ES valstīs ir nedroša nodarbinātā rīcība. Katram nodarbinātajam savs darbs ir jāorganizēta, lai tas būtu drošs un veselībai nekaitīgs. Vairumā nelaimes gadījumi darbā notiek brīžos, kad netiek ievērotas darba aizsardzības instrukciju prasības. Līdz šim vidēji katrās 11 darba dienās viens nodarbinātais gājis bojā darba vietā. Katras 2 darba dienās viens nodarbinātais cieta nelaimes gadījumā darba ar smagām sekām. Ikkatras 5 stundās viens nodarbinātais cieta nelaimes gadījumā darbā.

Pētījumā rezultātā atklāts, ka cilveciskais faktors bieži tiek minēts kā svarīgākais nelaimes gadījumu cēlonis, bet patiesībā šīs kļūdas atspoguļo dziļākas darba aizsardzības sistēmas problēmas, jo tās veidojas, pieņemot nepareizus vai nepiemērotus lēmumus. Turklāt katra no lēmumiem iespējami vairāki cēloņi. Tas ir – izmeklējot nelaimes gadījumus, nepieņemami aprobežoties ar to, ka tiek noskaidrots, ka nodarbinātais neievēroja darba aizsardzības instrukcijās noteiktās prasības. Svarīgākais ir noskaidrot, kāpēc šīs prasības netika ievērotas, jo tikai tad var novērst patieso situācijas cēloni.

Keywords: *Nelaimes gadījumi, Cilveciskais faktors*

JEL Classification: I1

GANDRĪZ NOTIKUŠO NELAIMES GADĪJUMU IZMEKLĒŠANAS NOZĪMĪBA

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Abstract. Rādītājs, kas tradicionāli raksturo situāciju darba aizsardzības jomā jomā un darba aizsardzības normatīvo aktu prasību ieviešanas līmeni, ir darbā notikušie nelaimes gadījumi. Apkopojot Valsts darba inspekcijas statistiku par nelaimes gadījumos cietušo skaitu attiecībā uz 100000 nodarbinātajiem, sākot ar 2009. gadu ir vērojama tendence, kad pieaug nelaimes gadījumu skaits. Jāņem vērā, ka nelaimes gadījumu skaits, kurus reģistrē Valsts darba inspekcijā ir tikai daļa no valstī notikušajiem nelaimes gadījumiem. To nelaimes gadījumu kopskaitu kuros gūts ievainojums, bet nav izņemta darba nespējas lapa, ir daudz lielāks. Lai gan datu par to nav. Vairākos pētījumos minēts, ka uz katru nelaimes gadījumu, kas izraisa darba nespēju, ir liels skaits citu negadījumu un nedrošas darbinieku rīcības vai vides ietekmes. Lai gan šī proporcionālā attiecība ir atšķirīga, kopumā ir redzams cik svarīgi ir zināt nelaimes gadījumu skaitu uzņēmumos ar zemu preventīvo kultūru.

Pamatojoties uz datu analīzi par notikušajiem un gandrīz notikušajiem nelaimes gadījumiem, pārkāpumiem un neatbilstībām darba vietā, veicot kolerācijas aprēķinus, izpētot, kuri ir tie priekšnoteikumi, kas var izraisīt nelaimes gadījumu. Ņemot vērā iegūtos rezultātus, būtu nepieciešams regulējošos noteikumus papildināt vai izstrādāt jaunus noteikumus, kuri paredzētu obligātu gandrīz notikušo nelaimes gadījumu reģistrāciju un ziņošanas sistēmu, piemēram 6 mēnešu periodā.

Keywords: *Nelaimes gadījumi*

JEL Classification: I1

Developing comprehensive model for forthcoming reforms of university hospitals

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Abstract. This paper is devoted to develop scientifically-based model that is economically viable for forthcoming reforms of university hospitals in Latvia taking into account two major driving forces – national health policy and operational hospital management in the meaning of efficiency and quality concerns. The purpose of this article is to evaluate worldwide guidelines in a field of corporate governance of state owned hospitals, provide Latvian university hospital governance model, taking into consideration regulation for state owned enterprises, its relevance for public hospitals, identifying primary areas of improvement and providing practical suggestions for further actions, paying due consideration to relationships between public-sector decision-making and hospital-level organizational behaviour.

Common economic scientific quantitative and qualitative methods were used in the process of the re-search work including various methods of analysis to examine the elements of the problem and findings based on course of the research on relevant legislation, policy documents, OECD and WHO evaluation. Proposals for governance improvement and organizational forms are developed.

Keywords: *Governance, Healthcare System, Hospital Organizational Models, Public Hospitals, State-Owned Enterprises*

JEL Classification: I1

WORK-RELATED PSYCHOSOCIAL RISK FACTORS AND CARE WORKERS MENTAL HEALTH IN ESTONIA NURSING HOMES

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Abstract. The global quick population aging has been influenced the health care system in Estonia. The nursing homes have many different problems in management and financing. The lack of resources put managers in the situation where they have to choose how many services they can provide, as they want to guarantee the qualitative care. This situation has an impact to the nursing professionals, where a lot of psychosocial risk factors influence on the care workers in their work. We aimed to explore the work-related psychosocial risk factors and their relationships with mental health problems (MHPs) amongst care workers in the Estonian nursing homes.

A cross-sectional survey was undertaken amongst care workers in 9 Estonian nursing homes. Psychosocial work factors and MHPs (stress, somatic symptoms, depressive symptoms, burnout, cognitive symptoms, and sleep disorders) were measured using the Copenhagen Psychosocial Questionnaire (COPSOQ II). Descriptive statistics and Pearson's correlation (r) were used to analyse the data.

The analysis is based on 340 nursing homes care workers (66.79% of the full-time working population of care workers). The highest mean scores recorded for the positive work-related psychosocial factors studied were: quantitative demands; influence; rewards; role conflicts; trust; insecurity and work-family balance. Low mean scores were recorded for the meaning of work; role clarity; social relationships at work. The lowest score was for burnout and the highest for the cognitive symptoms. The high mean score was also for the somatic symptoms.

There is a significant enough positive correlations between the following factors: quality of leadership and rewards, social support from management and quality of leadership, satisfaction with work and rewards, work and family balance and rewards, justice and respect and quality of leadership, social relationship at work and social support from colleagues, justice and respect and social support from management, justice, respect and social relationship at work. Most of the psychosocial factors correlated statistically significantly with burnout, cognitive symptoms and sleep disorders. Lower statistically significant correlations were found with depressive symptoms and stress. Psychosocial risk factor as work and family balance, showed positive correlation with all MHPs, while factors such as rewards and quality of leadership, showed negative correlations with all MHPs.

Work-related psychosocial risk factors such as quantitative demands (work load), emotional demands, work pace and role conflicts, had significant positive relationships with MHPs in nurses in Estonia, and may contribute to high levels of stress as well as burnout amongst nurses.

Keywords: *Psychosocial Risk Factors, Mental Health Problems, Stress, Burnout, Nursing*

JEL Classification: J14, J28

BĪSTAMĪBAS MAZINAŠANA ATKRITUMU APSAIMNIEKOŠANAS UZŅĒMUMĀ

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Abstract. Atkritumu apsaimniekošana uzskatāma par aktuālu tēmu, jo tas, kādā veidā tiek apsaimniekoti atkritumi, tiešā veidā ir saistīts ar dažādu resursu samazināšanos, enerģijas cenu kāpumu, augsnes, gaisa un ūdens piesārņojumu visā pasaulē, kas ir risks ilgtspējīgai attīstībai. Atkritumu apsaimniekošanas ekonomikas pamatā ir resursu efektivitātes jeb produktivitātes ideja.

Pilnvērtīga darbinieku darba vides riska faktoru novērtēšana, uzraudzība un kontrole, veicina iespēju prognozēt, samazināt un novērst iespējamās ekonomiskās problēmas otrreizējo izejvielu pārstrādes uzņēmumā, tiek novērstas sekas uz darbinieku veselību, paaugstinās darba kvalitāte, paveiktā darba apjoms, produktivitāte un efektivitāte.

Otrreizējo izejvielu pārstrādes uzņēmumā darbinieki pakļauti dažādiem riska faktoriem – fiziska slodze, putekļi, ķīmiskās vielas, kas var izraisīt elpošanas sistēmas sasilšanas, nelaimes gadījumus, traumas, iegriezumus, ādas infekcijas u.c. Rezultātā cieš cilvēku veselība un samazinās darba apjoms, kas noved pie uzņēmuma ekonomiskās efektivitātes samazināšanās.

Ieviešot agrīnus preventīvus pasākumus, uzlabojas darba produktivitāte, samazinās izmaksas par darbinieku kavējumiem, palielinās darbinieku apmierinātība ar darbu, attālina darbiniekam arodsaslimšanu veidošanos.

Veicot uzņēmumā preventīvos pasākumus svarīgi apzināties un prognozēt ieviešanas procesa (ventilācijas izveide, apgaismojuma sistēmas uzlabošana utt.) atmaksāšanās periodu.

Ekonomiskie zaudējumi uzņēmumam, kas saistīti ar nelaimes gadījumiem, sastāda ievērojamas izmaksas, svarīgi veikt prognozējamos ikgadējos izmaksu aprēķinus notiekošajiem procesiem.

Darba apstākļu uzlabošana ir veids, kā palielināt ražošanas efektivitāti un dažkārt bez lielām investīcijām.

Sakārtota un droša darba vide veicina vispārējo un individuālo labklājības līmeņa paaugstināšanos, samazina ekonomiskos izdevumus, kas saistīti ar sociālajām garantijām, veselības aprūpi, nelaimes gadījumiem darbā un rehabilitāciju.

Keywords: *Atkritumi, Bīstamība.*

JEL Classification: Q0

THEORETICAL ANALYSIS OF APPLICATION OF TERMS IN TECHNOGENIC SAFETY FIELD

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Abstract. In the world and in Latvia, a special place in the technogenic environment is taken up by words denoting hazard. The study was performed to identify the words most commonly used in literature to denote the potential hazard. The definition of these terms is recognised to be a topical problem among safety specialists all over the world, because the terms differ very much and each scientist uses the most pleasurable, there exists no common interpretation of these terms. This is a long-existing complex problem, because high-risk objects are a combination of different complex systems, in one country different interpretation of terms may result in different summaries and conclusions on the situation. Technologies in high-risk objects are very different; their failures may affect the development of an enterprise, as well as affect the environment and society. The society also uses these words – terms – in its conclusions.

The theoretical analysis of the problem defines the study of the words – terms related to such term as „Safety level of high-risk object”. The analysis of scientific articles related to the study of these terms gave the opportunity to make conclusions about the most popular terms – the words with which scientists identify high-risk objects and potential hazards.

Publications in scientific articles during the period from 2012 to 2018 devoted to assurance of high-risk objects security were defined as research object. The selected period corresponds to studies carried out over the last six years related to the rapid industrialisation of the world's third countries and identified deficiencies in safety field. The total number of the articles chosen is 20 articles.

The study was carried out by means of quality-content analysis and processed with statistical data systematized by summarising article information.

Keywords: *Risk Managment, Risk Assessment, Hazard, Fire*

JEL Classification: R19, L89

SUBSECTION

“INTERNATIONAL BUSINESS AND LOGISTICS“

COMPETITIVENESS OF PRINCIPAL EXPORTS GOODS IN GLOBAL MARKET

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Abstract. Foreign trade of goods illustrates the actual export capacity and export competitiveness of products, region and country in global economy. Several data dimensions and corresponding classifications are applied to cover various aspects of export and import activity. Statistical data on principal goods in foreign trade are collected and published by the national statistical offices. In 2017, only ten principal export goods of Latvia were accounting for 43% of the total export value of Latvia. It indicated high export orientations and dependency on small number of industries and products that in certain economic conditions or fluctuations can have an impact on economic development and growth as well as global competitiveness. The research aim is to evaluate actual export competitiveness of principal export goods. In order to achieve the stated aim, the following research tasks are executed: detect the major export goods, evaluate the dynamics and tendencies on export value, volume and export price dynamics of selected goods, elaborate recommendations to policy makers and other interested parties. Export price indicator of principal export goods ($p_{exp_{i,t}}$) is elaborated and selected as basic indicator in the research, the computed values (for 2015-2017) are analyzed. The research results leads to the conclusions that to maintain the current export competitiveness the national producers should increase productivity by more efficient technologies and labour. Low-skilled labour force can be a short term solutions to withstand falling or stagnating export prices in certain sectors, but not a sustainable long term solutions.

Keywords: *Export Competitiveness, Export Price, Foreign Trade, International Competitiveness, Principal Exports*

JEL Classification: F14, F17, O47, O52

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THE IMPACT OF QUALITY MANAGEMENT SYSTEM ON THE COMPETITIVENESS OF LITHUANIAN TRANSPORT COMPANIES

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Abstract. At present, it has become a trend for many transport companies to employ students because they apply theoretical knowledge in their practical work activities and this way are becoming the main driving force of a company. They, as consumers, are forcing transport companies to pay more attention to competitiveness and analyses the factors influencing the solution of transport companies to use quality management systems.

The purpose and one of the most important tasks of the article was to investigate the competitiveness of transport companies, based on quality management systems.

To achieve this aim, 280 students of the study program "Transport Logistics" participated in a survey during their industrial practice. They were asked to fill in an electronic data form online and to evaluate the importance and attainability of the offered on a 5-point Likert scale. On a basis of the in-depth interviews with experts, factors encouraging transport companies to implement quality management systems were distinguished.

The results revealed that to increase the competitiveness of transport companies, the needs of the consumer must be taken into account. The study revealed that after the implementation of quality management systems, the advantage of Lithuanian Transport Companies were increased.

Keywords: *Transport Company, Competitiveness, Quality Management System, Student, Consume*

JEL Classification: L9

POSSIBLE OPTIONS FOR ENSURING OF TAX COMPLIANCE

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Abstract. Tax evasion is one of the biggest challenges for tax administrations around the world. Tax non-compliance leads to large tax debt to the state budgets. Part of tax debts is hopeless to recover, since debtors have no more neither property nor cash. How to find a balance between support of business (with no restrictions or tax payments guarantees for start-ups and other businesses) and risk of tax non-compliance. How to ensure tax compliance. The aim of the study is to evaluate feasible options for ensuring tax compliance. Solutions could be considered in two directions. In short-term should be considered how to reduce already incurred debts. It can be used the tax debtors' segmentation and appropriate actions with each segment, for example, enforcement or tax amnesty. In the long-term run could be used segmentation of taxpayers and preventive measures for each segment. Example, restrictions or additional guarantees are recommended for those with low equity or poor financial performance. In such cases, should not be allowed postponement of the payment of taxes, but taxpayer could be asked to ensure tax payment, for example, by requiring tax payment in an advance or otherwise ensure a tax compliance.

Keywords: *Tax, Evasion, Debts, Compliance, Segmentation*

JEL Classification: H26

MANAGEMENT OF RESOURCES AND INTERNAL PROCESSES IN THIRD PARTY LOGISTICS

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Abstract. Contemporary third party logistics (3PL) companies tend to broaden their competences in different fields and apart from traditional logistics services provide various value-added services to their customers. A systematic approach of 3PL resource management, as well as performance and quality indicator measurement is needed to forecast development of key performance indicators of a company. The purpose of this study is to discover contemporary tendencies of 3PL in scope of resources, performance and quality related issues, determine resources, processes and quality indicators of 3PL, and develop a system dynamics model for optimization of internal resources and processes of a company. In this paper a systematic review of literature related to management of 3PL resources, quality and performance measurement is conducted. A model of management and optimization of 3PL resources and internal processes is developed by applying System Dynamics. Developed model consists of six blocks, namely commercial activities, operations, procurement, administration, personnel management and quality management, representing different areas of internal activities of 3PL.

Keywords: *Third Party Logistics, System Dynamics, Resource Management*

JEL Classification: L90, M16, R40, C60

MULTINATIONAL RETAILERS EXPANSION: CASE STUDY OF IKEA AND LIDL IN LATVIA IN 2018

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Abstract. Despite the more than 20-year history of Latvia's integration into the EU, this process can not be considered fully completed. The process of full integration will be replaced by the process of levelling the living standards in Latvia and the EU. In 2018 two significant events took place on this way: two giants of retail trade IKEA and LIDL income into Latvian market. The research is connected with the definition of the market position of new players and the evaluation of their influence on the national economy of Latvia. During the research, the ranges of goods and prices of all market participants were considered. In the market aggregate level, there are analysed the costs, profitability, the amount of taxes paid, and other indicators. Based on the research, marketing strategies and models for the functioning of various market participants are highlighted, the consumer benefits from market development, the macroeconomic impact of the income of retail chains IKEA and LIDL in Latvia are estimated.

Keywords: *Data Science, Economic Impact, IKEA, Multinational Retailers, LIDL, Prices, Range of Goods*

JEL Classification: C55, F02, F40, M20, M30

TRANZĪTCEĻU IZVĒLES KRITĒRIJU NOVERTĒŠANAS IESPĒJAS BALTIJAS VALSTU REĢIONĀ

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Abstract. Baltijas valstīm savā starpā ir gandrīz vienādi konkurences apstākļi, līdz ar to izvēloties kādu no šajā reģionā esošajiem tranzītceļiem ar mērķi sasniegt tranzītpārvadājumu efektivitāti, ir jāņem vērā tranzītkravas veids un tranzīta apjoms, tā kā katram kravas veidam ir savi tranzītpārvadājumu tarifi, kurus pēc pušu vienošanās var mainīt, ja tranzītkravas plūsma ir liela un ilgstoša. Tas nozīmē, ka klientam, izejot no kravas rakstura un īpatnībām, katru reizi ir jāpieņem racionālā tranzītceļa izvēle, kas ir izdarāma tikai pēc visu to ietekmējošo kritēriju analīzes.

Balstoties uz analītiskās hierarhijas metodi autore izstrādāja Tranzītceļa Racionālās Izvēles Modeli, kuru uzdevums ir palīdzēt eksportētājam katrā atsevišķā gadījumā pieņemt lēmumu, apvienojot ekonomiskās analīzes rezultātus ar citiem subjektīviem kritērijiem, tādiem kā precizitāte, drošība un kvalitāte.

Atslēgas vārdi: Kritēriju analīze, Ostas, Tranzītceļu izvēle, Tranzītpārvadājumi

JEL Klasifikācija: R4

Challenges and opportunities for packaging recycling in Bulgaria

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Abstract. This research represent the condition of the recycled packaging in FMCG trade. Based on the amount from the biggest fast moving customer goods trader in Bulgaria. It is an overview to some questions related with waste management and circular economy. The main questions are: What is the connection between circular economy and FMCG sector? And is there such a connection? How can the circular economy be implemented in the modern trade ?And how much does it costs? What are the main problems and opportunities in packages waste management in Bulgaria? Recycling is one way to manage waste, but is it the only thing to do? Recycling is the connection between the reverse logistics and waste managment. Examples of implementing the concept of circular economy is industrial ecology, where there is a natural ecosystem without wastes but only products. Recycling of paper and plastic packaging is one method for reducing environmental impact and resource depletion. There are several things an eco-friendly company can do-reduction in use, reuse and repair or re-manufacturing overall. Recycling can therefore decrease energy and material usage per unit of output and so yield improved eco-efficiency. In this article is suggested strategic way for improvement. Recycling is the most important actions nowadays to reduce these impacts and represents one of the most dynamic areas in the plastics and paper industry today. Recycling provides opportunities to reduce usage, carbon dioxide emissions and the quantities of waste requiring disposal.

Keywords: *Fast Moving Customer Goods (FMCG), Life Cycle, Reduce Waste, Reverse Logistics, Trade*

JEL Classification: L73, Q01 Q23

SUBSECTION

“NATIONAL RESEARCH PROGRAM EKOSOC-LV:

**<<THE DEVELOPMENT OF INNOVATION AND
ENTREPRENEURSHIP IN LATVIA IN
COMPLIANCE WITH THE SMART
SPECIALIZATION STRATEGY>>**

&

**<<INVOLVEMENT OF THE SOCIETY IN SOCIAL
INNOVATION FOR PROVIDING SUSTAINABLE
DEVELOPMENT OF LATVIA>> “**

OPPORTUNITIES FOR FINANCING SOCIAL INNOVATION: ANALYSIS OF FOREIGN EXPERIENCE

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Abstract. This article presents the findings of the study on social innovation conducted by the research project 5.2.7. “Involvement of the Society in Social Innovation for Providing Sustainable Development of Latvia” within the National Research Programme EKOSOC-LV (“Transformation of Economy, Smart Growth, Governance and Legal Framework for Sustainable Development of the State and Society - New Approaches to Creating a Sustainable Knowledge Society”). Social innovation was initially considered as the application of new solutions involving both individuals and civil society in order to reach the public as widely as possible. In recent years, the demand for social innovation and social entrepreneurship has gained support and understanding in Latvia, despite the relatively short experience. To date, there are few studies and publications on the funding of social innovation. So far, the most used instruments for financing social innovation in Latvia are government funding (grants), subsidies and donations and tax rebates and there is a lack of experience and knowledge how to use private capital and how to create “return making” schemes for funding social innovation. The aim of the article is to assess the latest international developments in the area of attracting private capital for financing social innovation. The findings provide grounds for development of applicable tools that would assist for civil society and government authorities to introduce attractive financing instruments of social innovation.

Keywords: *Civil Society, Financing Instruments, Funding, Investment, Social Innovation*

JEL Classification: O35

FACTORS INFLUENCING THE POSSIBILITY OF COMMENCEMENT COOPERATION BETWEEN VENTURE CAPITALISTS AND ENTREPRENEURS. CASE OF THE CEE

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Abstract. The paper presents the content analysis regarding the factors influencing the possibility of commencement of cooperation between Venture Capitalists and entrepreneurs in Central and Eastern Europe (CEE).

Because of the European Union's support to small and medium enterprises a lot of public funding in form of Venture Capital (VC) is available in CEE. Studies show that public funding only partly reaches its goals. Instead of financing the earliest stages of the development Venture Capitalists (VCs) predominantly invest in later stages and instead of investment in equity provide mezzanine loans. VCs blame that there is not sufficient flow of projects for financing, but entrepreneurs complain about VCs unwillingness to finance seed and preseed stages.

The analysis suggests that factors influencing the issue under the study in CEE are different from those in the rest of the world. The lack of awareness about VC, both in general and in detail, is the most important factor in CEE. However, this factor has not been found at all elsewhere.

The factors identified provide directions on how the quality and amount of potentially interested in VC funding entrepreneurs could be improved. Also, the study provides hints for entrepreneurs to take into account if willing to receive VC.

Keywords: *Central and Eastern Europe, Entrepreneurs finances, Influencing factors, Venture Capital, Willingness to partner*

JEL Classification: G4; G11; M13

Acknowledgements

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EVALUATION AND MEASUREMENT OF COACHING SUPPORT PROGRAMME

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Abstract. Coaching programmes in organisations need to be aligned with the organisational context and environmental factors. The present paper seeks to answer the following research question: how the programme evaluation and measurement can contribute to enhancing the delivery of coaching support programme. Drawing on the extensive literature review, the paper presents the holistic system of evaluation and measurement methods for the coaching programme. The paper also presents the initial findings of the evaluation of the coaching support programme which was launched in June 2018. The programme is delivered in the organisation engaged in the wholesale trade. The organisation runs a direct sales model that allows working directly with the customers. The aim of the programme is to reinforce performance as well as to foster the creation of a more innovative organisational culture. The paper describes the methods, such as a pre-programme questionnaire, after-the-session feedback, a mid-programme group interview, used in the systematic collection of data during the programme delivery to evaluate the process and intermediate results. The present paper contributes to the literature by debating the impact of properly used evaluation and measurement methods to ensure the optimal delivery of the coaching support programme and thus accelerate and sustain organisation's growth and development.

Keywords: *Coaching Support Programme, Evaluation and Measurement Methods, Innovative Organisational Culture, Organisation's Growth and Development*

JEL Classification: M12, M14, M53