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ENVIRONMENTAL ACCOUNTING AS A CHALLENGE OF GLOBAL BUSINESSES

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Abstract

Nowadays companies spread the message of sustainability to all, including employees, suppliers and customers throughout the product and value chain. The main objective is to promote more sustainable products and business practices in the future.

In practice, managers are starting to focus on Sustainability Accounting research and practice that includes not only the economic and environmental components of Environmental Accounting, but also the social issues essential to overall sustainability and Life Cycle Assessment.

Environmental Accounting is a business approach that can be used to target sustainable development as it goes beyond short-term success and aims at long-term value creation. Global businesses are using it to reduce their products' carbon, water footprints, as well as progress the social and economic performance of their goods. These efforts improve company's performance, both on a local and global level.

This article presents the main goals, scopes and framework of Environmental Accounting and its role, position and impact on competitiveness of companies. This paper seeks to introduce a conceptual methodology of Environmental Accounting to support decisions on environmental systems. The author of the present paper aims to look into the contribution of external environmental cost statements to global sustainability and integrated reporting of enterprises. Research methodology includes a comprehensive literature review to identify issues, best practices, as well as the author's proposal and opinion.

Keywords: *environmental accounting, green accounting, management accounting, environmental life cycle costing, life cycle management, accounting*

Introduction

Environmental sustainability has attracted substantial competitive attention of small, medium, as well as large enterprises. Sustainable development is called, in popular approach, as economic action that meets the goods of the present generation without

compromising the ability of future generations to meet their goods. Companies are becoming increasingly aware that their choice regarding products, processes, services may have huge environmental implications opposite to competitiveness. Organizations see a problem in addressing the issues related to environmental friendliness, social awareness towards workers, consumers and at the same time ensure a reasonable return on investment and long-term viability to the stockholders. The objective of this paper is to focus on the impact of Environmental Accounting on managerial decisions and management facing organizations with a focus on competitiveness. The term 'Environmental Accounting' sometimes used as 'green accounting' has a lot of meanings. Speaking in simple terms, Environmental Accounting shall support national accounting, financial, cost and management accounting. The principal meaning is that the Environmental Accounting intends to be used as a managerial accounting instrument for internal business decisions. Furthermore, the term 'environmental cost' has at least two major dimensions linked with the Life Cycle Assessment and Environmental Life Cycle Costing. The main question – how can costs and environmental aspects be shared in a consistent way and help managers to run businesses in sustainable way? The application of this approach will be illustrated with a reference to an example of external environmental impact statements using a review of comprehensive literature and author's proposal and opinion.

Environmental Accounting

Environmental Accounting usually supports national income accounting, financial accounting, operation and strategic managerial accounting. 'Environmental Accounting' is a term used in different contexts. It has many applications, for example:

- "assessment and disclosure of environment-related information in the context of Environmental Financial Accounting and Reporting (EFAR) and Environmental Management Accounting (EMA);
- estimation of external environmental impacts and costs, often called as Full Cost Accounting (FCA);
- accounting for stocks and flows of natural resources in physical and monetary terms (Natural Resource Accounting – NRA);
- aggregation and reporting internal accounting information, natural resource accounting information for national accounting purposes;
- analysis of environment-related physical and monetary information in the wide context of sustainability accounting" (Volosin, 2008: 2–5).

Generally Accepted Accounting Principles (GAAP) defined it as the estimation and public reporting of environmental liabilities and financially material environmental costs.

In addition, the term ‘environmental cost’ has a few definitions as well. The two major definitions are as follows:

- referring only to costs which directly impact a company's bottom line sometimes called ‘private costs’;
- encompassing the costs to individuals, society, and the environment for which an enterprise is not accountable are called ‘societal costs’ (Russo, 1999: 243).

The environmental cost symbolizes economic cost incurred as a result of environmental use, such as eco-taxes, cost of waste emission and emission control, cost of eco-product marketing (Russo, 1999: 243).

It can be stressed that Environmental Accounting takes place in both management accounting (e.g. assessment of an organization’s expenditures on pollution control equipment) and financial accounting (e.g. reporting of the environment related liabilities) (IFAC, 2005: 14).

Table 1 shows a relationship of the environmental dimensions of financial and management accounting and a general reference to associated external reporting links.

Table 1

Organization-level: Accounting and Reporting

Organization level accounting	Organization-level Environmental Accounting	Associated mandatory external reporting	Other external reporting links
Financial Accounting: An organization’s development of standardized financial information for reporting to external parties (e.g. investors, tax authorities, creditors)	**Environmental Issues in Financial Accounting:** The inclusion in financial reports of environment related information, e.g., earnings and expenses of environment-related investments, environmental liability and other significant expenses related to the organization’s environmental performance	Financial reporting to external parties is regulated by national laws and international standards, which specify how different financial items should be treated. The financial reports issued by organizations increasingly include information related to their environmental and social performance. Some countries require such content in financial reports, while some organizations include such information voluntarily.	In addition, organizations use some of the environment-related information gathered for financial reporting purposes for environmental regulatory reporting, national reporting or voluntary corporate environmental and sustainability reporting.

Management accounting: An organization's development of both nonmonetary and monetary information to support routine and strategic decision-making by internal managers	**Environmental management accounting:** The management of environmental and economic performance via management accounting systems and practices that focus on both physical information on the flow of energy, water, materials, and wastes, as well as monetary information on related costs, earnings and savings	There are generally no external reporting requirements specifically associated with MA or EMA.	However, organizations use some of the information gathered under EMA for environmental regulatory reporting, national reporting or voluntary corporate environmental and sustainability reporting.

Source: (IFAC, 2005: 16)

Environmental Management Accounting, according to IFAC, is "the management of environmental and economic performance through the development and implementation of appropriate environment-related accounting systems and practices. While this may include reporting and auditing in some companies, environmental management accounting typically involves life-cycle costing, full-cost accounting, benefits assessment, and strategic planning for environmental management" (IFAC. 2005: 19).

The other definition is presented by the United Nations Expert Working Group: "EMA is broadly defined to be the identification, collection, analysis and use of two types of information for internal decision making:

- physical information on the use, flows and destinies of energy, water and materials (including wastes);
- monetary information on environment-related costs, earnings and savings" (IFAC, 2005: 19).

Reasons for Environmental Accounting

Environmental costs can be lowered or even eliminated as a result of business decisions by investment in *greener* process technology. Some of them may provide no value added to a process. Moreover, they may be missed in overhead accounts or otherwise overlooked and many companies have understood that environmental costs can be covered by generating revenues from selling waste by-products or transferable pollution allowances. By completely accepting the fact that the environmental costs and

performance of processes can promote more accurate costing and pricing of products, companies can design more environmentally preferable products.

Environmental Accounting can highly support a company's development and new advertisement as an environment-friendly institution. Green costs can be reduced or avoided by implementing practices such as product design changes, input materials substitution, process re-design, improved operation and maintenance practices. But there are no hard and fast rules and each stage of the methodology is associated with its own particular challenges. However, several companies are now running a consistent methodology and approach towards accounting for their external environmental impacts (Biernacki, 2012: 12–13).

The capture of environmentally related financial data can be a starting point for developing an Environmental Financial Statement. This information and additional data on the use of electricity, gas, captured and isolated within the accounting system delivers the basis for creating external cost.

The four key steps are required to develop a set of external cost accounts and statements:

- "The setting of system limits and subsequent confirmation of the firm's most significant environmental impacts to include within the accounts.
- The estimation of appropriate environmental targets.
- The estimation of identified influences on the basis of which it would cost to eliminate them in the first step.
- The development of a set of environmental accounts integrating the external green costs of the company's activities."

The relationship between the valued environmental performance data and the company's financial accounting system represents the main innovation in the methodology. The accounts in *Table 2* show how this can be achieved. The external environmental cost accounts should be published together with the main annual review and statements. The report can illustrate how to link company's financial and external environmental performance.

Some companies with operating and strategic environmental management systems decide to institutionalize Environmental Accounting or run new approaches where Environmental Accounting can play a significant part, for instance:

- Activity-Based Costing;
- Total Quality Environmental Management;
- Cost Reduction;
- Cost of Environmental Quality Model;
- Design for Environment;
- Life Cycle Assessment;
- Environmental Life Cycle Costing;
- Target Costing" (Kużdowicz, P., & Kużdowicz, D., 2012 : 170–174);

- All these systems are compatible with Environmental Accounting and can provide platforms for integrating environmental information into management tools and approaches.

Table 2

External Environmental Impact Statements (selected part – Impact to air)

Names	Emissions	Unit cost
Natural gas consumption		
CO_2	Yes	Yes
NO_X	Yes	Yes
SO_2	Yes	Yes
Total		Sum
Electricity consumption		
CO_2	Yes	Yes
NO_X	Yes	Yes
SO_2	Yes	Yes
Total		Sum

Conclusions

All the different types of Environmental Accounting are not standardized in practice and literature. The broad term 'Environmental Accounting' is often used to refer to different types of accounting. Even within a particular group of Environmental Accounting, such as Environmental Management Accounting, its name appears as follows: Environmental Accounting, Environmental Management Accounting, Environmental Cost Accounting, Full Cost Accounting and Total Cost Assessment. Therefore, it is of outmost importance to clarify the definitions. The economic and environmental issues considered together under Environmental Accounting efforts are two of the three pillars of Sustainable Development. The concept of sustainability, as has been described, needs a recognition that humankind must live together within the limits of our planet's overall resources and carrying capacity.

The valuation of corporate environmental image is an unmeasured thing, but can include the value of organizational goodwill, less regulatory pressure, and other profits of a good environmental image. The use of environmental considerations in business decision making is increasingly important. If it is absent, it may cause the loss of customers and suppliers due to poor environmental performance. Executive managers adopt and implement environmentally sustainable development together with Environmental Accounting. They must recognise how their company fits in the larger ecological and economic environment and identify the actions required for its survival and potential social and customer evaluation. Executives should be aware of organizational environmental implications, using a more complete total Environmental

Accounting approach. As noticed, it can link conventional, hidden, contingent costs, relationship and image costs together with something that can make their decisions more environmentally informed and friendly for customers. Many corporations have seen real reasons to report on their environmental impact and sustainability. The consumers are paying attention and the investors are worried about where they are investing and how environmental liabilities could impact their investments. Environmental Accounting is a valuable tool for management and is widely disclosed to shareholders, customers, and other valued associates (Biernacki, 2011: 41–43). Contemporary customers choose environmental products and companies. Environmental Accounting helps firms to adapt to new environment friendly world.

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THE FORMATION OF THE INSTITUTE OF PUBLIC-PRIVATE PARTNERSHIP IN THE REPUBLIC OF BELARUS IN THE CONTEXT OF GLOBALIZATION

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Abstract

This article deals with the formation of the institute of public-private partnership (PPP) in Belarus, as a form of cooperation and an effective mechanism to attract investment and infrastructure development in countries with developing economies. The paper considers the impact of globalization on the development of PPP. The article includes the analysis of the environment, the activities and guidelines for the development of PPP in the country. The author identifies the key problems hindering the development of PPPs in Belarus. The results of the surveys and studies proposed a package of measures aimed at creating a PPP in Belarus that should be based on international experience.

Keywords: *public-private partnership, globalization, public and private sectors, infrastructure gap, infrastructure financing.*

Impact of Globalization on the Development of PPP

The effective government activity in the economy of the country is the most important prerequisite for solving the contradictions of globalization and deepening regional economic integration. French governmental activist Fabius says that instead of the state as "the ruler" in the XXI century, comes time of the state as "the partner" – "comes the era of synthesis", thereby making the government more efficient and open. In view of cross-country integration, the interpenetration of international trade and financial flows, PPP became the important area of economic development.

The organization of work of the public service sectors based on market principles complies with the principles of the so-called *"new public management system*" (NPM), which considers the state as a special subject of economic relations, aimed at reducing government spending on public services. One of the most important features of the modern world is globalization of the world economy, which leads to greater

interdependence of national economies and the various processes in the world economy. The whole world becomes an arena of the leading transnational corporations (TNCs).

TNC, as an instrument for achieving global competitiveness, deals with such tools as: increasing innovation activity, modernization of production capacities, growth of the efficiency of available assets, optimal alignment of added value, a successful search for new markets, the introduction of modern technology, achieving world-class productivity and product quality, management improving, active promotion of PPPs, developing and realization of effective global competitive strategies.

It should be emphasized that public-private partnership plays an important role in providing the global competitiveness of multinational corporations as the main factor.

The theorists have two opposing views concerning the impact of globalization on the role of the state in the economy: globalization moves the centre of gravity of economic power from the government to the private sector; [1, p. 86.]; national states as the subject of economic diplomacy and an important element of the PPP on foreign markets, possess and use the instruments of influence, still staying the key players but their role is changing [4]. However, both globalization and markets can serve as an instrument to achieve development goals, leading to increased quality of life, but only if the actions of the state are part of the development strategy [5, p.3].

Major trends of PPP development in the context of globalization are: PPP promotes business abroad; privatization involving foreign investment begins to touch network industries; protectionism in the form of "economic patriotism" is a reaction to globalization; the massive growth of foreign direct investment in TNC public services: it was accounted for 2/3 of global accumulated direct investment in 2005 (compared to 49% in 1990) successful exit of TNC's – national monopolies – to foreign markets; transition to the practice of international technical cooperation (concession contract scheme PPPs) [3, pp. 69, 74].

Evaluating the PPP with the trends of globalization, one can distinguish two types of it: attraction of foreign capital in the country on the basis of PPP projects and public support to the national capital in foreign trade. In the process of forming the concept of public-private partnership in the Republic of Belarus, the first type of PPP will be used, namely the attraction of foreign capital to projects in the country, considering the fact that the Republic of Belarus, in terms of socio-economic development, belongs to the developing countries.

Development of Public-private Partnership in Belarus

The development of public-private partnership in Belarus will have its own unique characteristics and require solving of questions, connected with the transformation and

modernization of existing model of social-economic development in the Republic of Belarus. The formation of this institute is focused on serious transformation of social – economic relations in the country, establishment of an effective alliance of government and business, formation of modern forms of interaction between the market and the state. Partner countries of the Republic of Belarus for the Common Economic Space and Customs Union (Russia and Kazakhstan) are seriously working on the development of this mechanism to solve the infrastructure deficit, and Russia, for example, is actively working on developing the PPP mechanism even in innovation sphere.

At this stage of economic development of the Republic of Belarus we can identify the main factors that strengthen the role of partnership forms of management. Firstly, one of the most important areas of economic liberalization is the privatization of public assets, and the Republic of Belarus is declaring economic liberalization (Directive No. 4 "On the Development of Entrepreneurship and Stimulating Business Activity in Belarus", item No. 8, "The Need for Developing a Legal Base Stimulating Development of Public-private Partnership in Belarus"). Here PPPs can play one of the major roles because a public-private partnership means the partial privatization of public property and public services. Secondly, the government does not have sufficient financial resources to upgrade, maintain and expand its industrial and social infrastructure. The world experience shows that the involvement of business in the reproductive processes in infrastructure sectors has become a way out of this state and an effective instrument for solving infrastructure problems. Thirdly, business more than the government has the mobility, speed of decision-making, capacity for innovation, using technical and technological variations, but the level of development of large private businesses in the Republic of Belarus that are able to engage in large-scale projects is rather low.

We can also say that structural transformation of economic and social life in Belarus and many examples of successful PPPs abroad also led to increased interest in PPP in our country that was reflected in the discussion of this issue in the Government, development of legislation, emergence of publications on PPP (Morova, Tur [8], Nikitenko, Novikova [7], Voytov, Nekhorosheva [6], Yasheva, Borushko [2], Babosov), holding numerous discussions on various economic forums. The authors would like to mention some works by the Belarusian authors: Karyagin, Ivanov, Kirsanov and Tovstoles, Osmolovskaya, Fadeev, Konovalov, Philippova, Kudel, Temnitskaya, Sachek, etc. However, most Belarusian publications on this theme are on PPP in innovation sphere, while elucidation of the public-private partnership in infrastructure is not widespread in our publications. International experience shows that public-private partnerships in infrastructure have their own specific forms, models, financing and implementation mechanisms, which are extremely important for the Republic of Belarus under conditions of formation of the Common Economic Space. That's why it is very important to develop a PPP in infrastructure. Nowadays Belarus is only on the first stage of formation of PPP, but we are working on it.

The development of public infrastructure is a top priority to solve the existing problems of Belarus, regions and municipalities in the area of public services, which constrain economic growth and improve the quality of life.

Despite the fact that most countries of the world are successfully developing in circumstances of permanent deficit, attracting loans for infrastructure projects, Belarus, provinces and municipalities have significant limitations to participate in the market of borrowings that in the foreseeable future won't be removed.

Therefore, the governmental bodies are interested in attracting private investors who can solve infrastructural problems. Private investors are ready to implement investment infrastructure projects in case of obtaining government guarantees of return on investment, rate of return and obtain a fair distribution of risks. Taking into account the high capital intensity and long payback periods of infrastructure projects, private investors use their own and leveraging of funds from financial institutes for the implementation of these projects. Financial institutes are ready to provide debt financing for well-prepared projects with minimal risk. The only possible way to implement this approach to the development of public infrastructure is through the mechanism of public-private partnership (PPP).

PPP – a mobilization of private companies by public and local authorities for the performance of fee-based work on new construction, renovation, modernization, maintenance, operation of public infrastructure and provision of public services through such projects on a cost-sharing risks competences and responsibilities defined by the contract and set regulations in force at the time of signing.

PPPs require three basic components to the success. Firstly, it is the presence of public authorities, which: 1) are interested in solving problems related to the development of infrastructure using the PPP mechanism; 2) have the political will to achieve the stated goals, prepare their own PPP projects or with the assistance of experts, taking into account the interests of the authority, private sector, public, and financial organizations. Secondly, it is the presence of a competent private sector interested in cooperation with the authorities as customers of services, ready to undertake projects with a long payback period. Thirdly, a partnership that involves a balance of the contracting parties and cooperating in the rights attached to the resources, risk management and division of financial results.

The world experience in organizing PPPs shows that each country forms its sovereign PPP model, taking into account national realities. The main elements are:

- political will of the authorities to work on the organization of the PPP;
- presence of the decision-making centre and skills to develop the PPP project market;
- responsibility of the government and business for their obligations in the preparation and realization of projects;

- highly trained government officials who are involved in the organization of the PPP, therefore, the system of education in the field of PPP;
- advanced legislation governing the relationships formed within the PPP;
- various legitimate PPP models;
- consulting companies, which support the authorities in the field of preparing projects in case of lack of our own competencies;
- representatives of private business – competency projects;
- sources that provide financing for project preparation and long-term funding for their implementation.

The work on the creation and development of a national system of PPP is closely related with the preparation and implementation of PPP projects. For countries where PPP is at the initial stage, we can define the following approaches to the PPP development:

- an approach based on the principles of "top-down" and "from general to specific". The objective is to create a comprehensive national system required for the organization of the PPP, and the preparation and implementation of PPP projects is contingent upon the successful completion of the preparatory phase. The vulnerability of this approach is connected with the duration of the whole abstract activity, and therefore it can't be successfully completed because of changing priorities, critics from the top management about the lack of concrete results.
- the approach based on implementation of pilot projects in various spheres of public infrastructure with further spread of expertise to other projects, including those in other areas of public infrastructure, characterized by continuity and minor risk for the development of the PPP at the national level as a whole, however, it doesn't solve current significant infrastructure problems and, therefore is not politically attractive.

One of the first important steps in establishing the institute of PPP in Belarus was the traditional President's message to the people and the Parliament (April 20, 2010), which announced the need to develop new forms of cooperation between business and public sector. The President's message to the Belarusian people and the Parliament in 2011 has already announced the need to form a PPP institute in Belarus, "One of the most important goals today is the creation of effective PPP mechanisms and an appropriate legal framework. This is intended to provide a new format of relations between the government and business, which should be based on agreements for joint realization of projects that have special social significance".

If we consider the institutional environment, nowadays the Republic of Belarus is only at the first stage of forming this mechanism and it can be proved by some facts: development of PPP legislation, as evidenced by the steps taken by the Ministry of

Economy (the concept of the draft law "On Public-private Partnership"), the State Property Committee (draft law "On Concessions"). Some legal rules dealing with specific forms of PPP have already been available in the Belarusian legislation system: in the Investment Code (concessions), the Civil Code (construction contracts, leases, supplies for public use, etc.).

The draft law on PPPs can considerably enrich and modernize the existing legal framework in the field of investment, versatile specify the form and scope of PPP. In accordance with the President's orders, the country faces problems of conceptual, institutional, organizational, economic and legal plan for the establishment and development of the PPP mechanism. Not every interaction between the government and business is a public-private partnership. The problem of determining the PPP in Belarus is based on various meanings and understandings of its meaning, because the law does not define PPP. There is no need to mix PPP and mechanisms of public regulation of economy because these are different things (for example, public procurement, public credit, interest rate subsidies, tax breaks, etc.). The President of the Republic of Belarus Lukashenko noted, "...we often don't understand the purpose of public-private partnership. So I would like to say that Belarus will use this scheme of cooperation between the public sector and business for a long time. As an example – Tech Park, free economic zones, many other companies".

However, under the circumstances of declared liberalization, more and more manifested an objective need for active and effective participation of public organizations of entrepreneurs and consumers in the management of economic processes, creating a complete system of public-private partnership.

The Republic of Belarus has no global instruments to implement the PPP mechanism and it is not even on the list of countries, which develop a public-private partnership reported by the international organizations (even the Russian Federation, whose experience Belarus mainly uses in building a system of public-private partnership, is at the end of this list, and falls behind for institutional support and the number of PPP projects implemented by Hungary, the Czech Republic, Bulgaria, Croatia, Albania, China, India, Slovakia, Latvia).

Taking into account all this information in the preparation of proposals for PPP development in Belarus, it seems appropriate to conduct work in parallel both on the formation and implementation of the pilot PPP project, and on the creation of the institutional framework of PPP in Belarus.

The formation and implementation of pilot PPP projects in Belarus include:

- research of the legal framework regulating PPP;
- determination of the pilot PPP project;
- preparation, approval and adoption of the decision to implement the pilot PPP project;

- identification of the funding source for the project;
- preparation and approval of the statement of work;
- appointing of the performer;
- formation of relationships with the Project Contractor, acceptance of the results of the Customer;
- competition for the right to enter into an agreement on the implementation of the PPP project;
- nomination of the winner;
- conclusion of a PPP agreement;
- financial closing of a private investor;
- implementation of a pilot PPP project;
- advisory role in the formation of the PPP project.

The formation of the institutional PPP base in Belarus includes:

1) The feasibility study of large-scale development of PPP in the Republic of Belarus (desk study on the basis of the media), first of all, to identify areas of public infrastructure or individual projects, which are politically acceptable for potential investors, including the decision to confer the Russian institute a special status for operations in Belarus, the possibility of using the resources of Russia and the Union State to develop PPP in Belarus.
2) Conduct of a research on the state legislation affecting the development of PPP in Belarus, preparation of proposals to reduce its complexity, defining the source of funding of the work, preparation of the work statement, a particular artist.
3) Preparation of a "road map" for the development of PPP in the Republic of Belarus, containing a list of activities, people and organizations who will be responsible for it, goals for its implementation, the measures required to monitor the implementation of activities.
4) Preparation of a legal act required for the launch of the "road map".
5) Team building, team empowerment and resources of the team as part of the "road map" (of establishing a national centre PPP).

One of the problems is the shortage of qualified professionals in the country, who have the necessary knowledge and skills to initiate and use the potential of the private sector in the development of industrial and social infrastructure, expand size and quality of public services, as well as develop the innovation sphere. Separate directions, methods and PPP mechanisms are being explored as part of a variety of educational programs that are more general in nature in the system of retraining and advanced training of public servants. The Academy of Public Administration under the aegis of the President of the Republic of Belarus is the main institute of PPP theory in this

sphere. However, the public-private partnership is still not regarded as a recommended course of retraining and advanced training of civil servants. The lack of focus on the part of the authorities and, therefore, educational institutions to develop and implement educational products specialized in PPP can be explained by the relative novelty of the problem, so the creation of new educational programs and training courses is essential for improving the efficiency of implementation of PPP.

Capacity building in the area of PPP, as a rule, includes training and other measures to enhance the ability of governments to implement a working PPP programs by effective and direct way. In Spain, for example, there is a fully functional PPP program in which government officials and the private sector can take individual courses at the University of Madrid. Many other countries have PPP programs that also offer training for public officials, but such training is often done on the job, rather than in higher education institutions. Capacity building can also have other formats: Turkish international platform of PPP, for example, is organizing an effective communication and dialogue between the public and private sector on PPP policy [4].

PPP is not a magic instrument that can itself change the level of investment and the quality of infrastructure and innovation projects in the Republic of Belarus. At the same time, there are areas where PPPs can provide the expertise to attract the private sector and create a competitive environment through open and transparent bidding, consider the life cycle of projects, create the basis for long-term contractual relationships. It can also attract additional financial resources, provide the best quality of services to the public sector for the same money, create incentives for economic development and ensure higher efficiency and lower costs during construction and operation.

Conclusions

PPP development in Belarus is at its initial stage. The Belarusian legislation provides some forms of PPP for the use. In particular, the President's Decree No. 10 "On Creation of Additional Conditions for Investment Activity in the Republic of Belarus" defines the relationship between state and investors under investment agreements. Also Section 3, Ch. 11 of the Investment Code of Belarus describes “Features of investment activities on the basis of concessions”, although several examples of the practical use of this type of PPP are available. It is planned to adopt the law of the Republic of Belarus “On Concession Agreements” or “On Public-private Partnership” which is worked out by the Ministry of Economy.

The experience of many countries, which have used the PPP mechanism for infrastructure and innovation project development for a long time, shows that the rate of progress and success of PPP depends on many circumstances. Systematic approach to public-private partnership in Belarus should provide a complete solution to few basic tasks.

First, the creation of a sufficiently complete and closed legislation base, especially at the state level, legitimizes PPP in infrastructure sectors and in innovation area. Thereafter it should be complemented by regulatory and regional legislation.

Second, the creation of organizational and governance structure for PPP in the infrastructure of the relevant ministries and innovation sphere (for SCST). Moreover, the experience of other countries and of the Russian Federation, in particular, shows that the organization of advisory PPP councils within the ministries (for example, the Ministry of Transport) can't solve problems of creation of a full-fledged partnership between the government and business.

Third, training staff for the public sector in the specialty of "Public-private partnership". The public service system of the Republic of Belarus has a shortage of highly qualified experts in the preparation, execution, management and monitoring of PPP projects. There is no doubt that if private companies need qualified staff they can quickly find it in the country or abroad. But we can't say it about governmental body. For single pilot projects, they will be able to attract professionals who are capable of a high professional level to protect the interests of the state in the preparation of PPP projects.

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QUALITY MANAGEMENT SYSTEM AS A TOOL FOR CORPORATE DEVELOPMENT AND COMPETITIVENESS INCREASE

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Abstract

The purpose of the methodology is to evaluate and develop four main spheres of organization: resource management, document management, determination of management competence, efficiency and improvement management. Implementation of quality management systems or methodologies reduces corporate costs and ensures competitive operation.

Keywords: *quality, management, efficiency and competitiveness*

Introduction

In the modern globalized world, the concepts of quality and quality management have become an integral part of the business world and also a part of public administration. Corporate management does not have sufficient knowledge of the quality management system and understanding of benefits provided by corporate self-assessment. This study addresses the most popular quality management system standards and models. The models and standards have different evaluation criteria and principles, but they have a common goal – to support competitive, balanced and sustainable corporate development. The quality management system is focused on effective use of resources and increasing productivity per unit invested. Components of the system are not an ever completed process, but a tool for corporate development. There is no single standard or model in today's business environment to ensure corporate development and effective use of existing resources. There is a variety of corporate management support standards, models, systems in the world, but the criterion unifying the entire system is a satisfied customer and reduced corporate costs, which ensure competitiveness in the long-term.

A goal of a properly developed and implemented quality system is customer satisfaction; it is essential support to the corporate management and the institution's advantage in competition. It is not always necessary to introduce a system certified by ISO (International Organization of Standardization) standards, but to use the methodology of the quality management system.

The objective of this study is to assess the benefits of use of the quality management system in companies as an effective management tool to increase productivity, competitiveness and optimize financial and human resources, as well as rational use of the available corporate resources.

- The tasks to achieve the objective are to:
- analyze the quality management elements and their application potential within an institution;
- define the quality management system implementation trends in Latvia and in the world;
- define benefits from quality management system application in companies by interviewing the institution's management and surveying the employees' job satisfaction.

Scope of the study: to determine trends in Latvia and set the conditions for improving implementation and maintenance of the quality management system. The authors questioned managers and employees of the private sector companies engaged in the service provision. Due to specific and versatile nature of quality assurance and management aspects this particular study has the following limitations: quality problems are mainly studied from methodological and organizational point of view. The level of education, age, social status, gender of the respondents etc. was not taken into account in the study. Results of the managers' interviews and employee's surveys are presented all over the content of this thesis. Study Period: May 1, 2012 – August 30, 2012.

The following research methods are used herein: monographic or descriptive method, logical-construction method for comparison of the theoretical material with the empirical results, graphical method for visual display and analysis of the summary information, document analysis for study and compiling of the internal corporate documents and questionnaires – for research of the management's and employees' satisfaction. The aim of the survey was to find out how the quality management systems are used by enterprises. 100 managers and 100 employees were electronically questioned through open interviews with the aim to clarify if quality management systems operate in the enterprises.

Methodological basis of the study are works by foreign authors (Deming, Juran, Isikava etc.) and Latvian scientists (Pildavs, Putnis, Reinholde), works by modern authors and publications in magazine 'Quality', which provide an insight into the latest information on trends in the field of quality management and inform about innovations

in quality management, data and reports published by the Latvian Quality Association as well as studies and statistics by the International Committee for Standardization with respect to quality management system methodology and requirements.

TQM – Total Quality Management System in Corporate Management Development

Understanding of quality determines all quality expression forms and it is called the total quality. Customer satisfaction becomes the most important quality indicator and today no one doubts that the quality is the basis of healthy competition. Principles of total quality management (hereinafter referred to as TQM) were developed 50 years ago. The potential of small and medium-sized companies to survive decreases in the present environment of intense competition and economic and social depression. This means that attention should be paid to internal process arrangement, performance optimization, defining it as efficiency improvement. Efficiency is defined as, "Level whereto a system or its component carries out its functions with minimal resources consumption". (Latvian Quality Association, 2011)

TQM offers controls that are embedded in different quality management systems and standards. Before introducing a management system, self assessment should be carried out. Japanese companies were the first to show the world what can be achieved in a relatively short period of time by applying TQM to improve all business processes. Many Japanese companies outperformed the leading world competitors, thus encouraging them to implement a quality system in their organizations. The quality status is determined by a consumer and customer attitude towards offered products and services. The world still discusses the quality concept and implementation potential in companies. The concept and understanding of quality level in Latvia is unclear and ambiguously valued.

For the purpose of corporate self-assessment it is necessary to analyze the following elements of TQM:

1) Customer opinion. Quality begins with understanding of the client's needs and ends at satisfaction of these needs. Good communication between a customer and supplier is a key element to achieve the total quality. The institution has to set up a proper system for processing of customer feedbacks.
2) Quality, reliability and good name. Quality is proper fulfilment of customer requirements, and it is not limited to adequate reproduction of functional properties of a product or service Reliability is the ability of a product or service to meet continually customer expectations at the appropriate level.
3) Quality chains. An institution itself has a number of internal suppliers and customers. They form the so-called 'quality chain' – a framework for quality improvement in the entire institution. Quality is ensured by successful management of all chain links.

4) Design. Design and consistency are two separate, closely related aspects of the quality. Quality of design process is a characteristic of how well the product or service is designed according to the requirements. Conformity quality is the extent to which the product or service conforms to the design.
5) Processes and preventive measures. An object is a process that consists of successful transformation of initial (input) data to the desired result (output). Any institution carries out key processes that have to be successfully fulfilled in order to achieve the institution's mission and goals. A key element of an effective quality management is establishment of a sound preventive system, which supports the corporate processes.
6) Institution's and senior management's commitments. All employees within an institution should work together to implement the quality improvement initiatives because quality is not limited to, for example, service providers or senior management. Everyone is involved in optimization of corporate processes (Ministry of Economics, 2006).

TQM model that has been improved by quality analysts John Oakland and Les Porter includes all aspects of quality. Process in TQM model is the main link between all elements of the enterprise, from planning promoters (management guidelines, strategic partnerships and resource availability) and including the employees who work at creation of the end product or service provision. Four elements – employees, performance, process and planning are essential for creation of a high-quality product and service provision and are the basis for the improved TQM model structure. The basis of TQM model must be backed up by a commitment to meet customer demands, clarifying and communicating new strategies as well as modification of the institution's internal culture to achieve the total quality.

Summarizing the theoretical framework of quality, the authors conclude that philosophical meaning of quality management is a way of thinking that is based on three major components (see *Figure 1*). The main part of quality "mechanism" is the ethical and moral principles, whereon the corporate management is based. This means that institutions should be able to use the resources and employees should be trained and competent.

The authors conclude that if work of an institution is based on the above principles, it provides high performance and creates a quality product or service. In the current abundance of quality model approaches it is important to stick to the basics. TQM has been the basis of many approaches to quality, so it offers a reasonable and prudent way for institutions and enterprises how to operate in the 21st century.

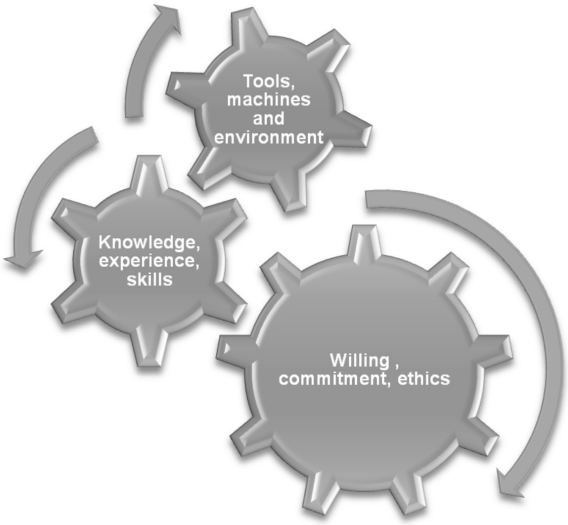

*Figure1.*Quality "mechanism**"** (Driņķe, 2009)

Characteristics of the Quality Management System in Latvia

A quality management system consists of four main corporate areas, which should be equivalent to efficient corporate management:

- resource management;
- document management;
- senior management responsibilities;
- corporate controls and improvement techniques (Driņķe, Janovs, 2011).

Each area should be particularly defined and implemented in processes of the institution. It does not need to put any of the ISO management standards. It is possible to use quality management system methodology to ensure efficient operation.

Based on the total quality management principles, there are a number of quality management models and standards developed in the world, which are aimed at excellence in performance. Excellence models and quality standards are designed as practical tools to help institutions to approach to outstanding corporate level by completely assessing actual situation, identifying strengths and weaknesses and promoting improvement and perfection. In turn, the important role in ensuring quality and competitiveness is given to quality award. Competition for the Quality award is announced in Latvia every year, but this award has not become popular. The Quality award could be motivation to think about quality management systems. This can be explained by insufficient activities of the Latvian Quality Association and necessity for public information to all parties involved – both from the public and private sectors.

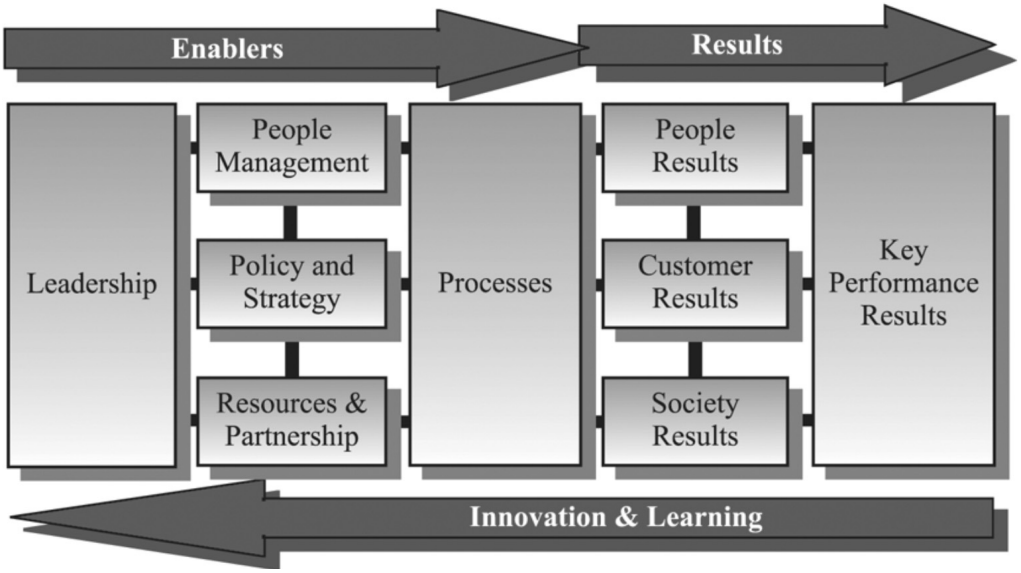

Figure 2. EFTQM model (Pildavs, 2004)

After the introduction of the ISO, an institution can choose the most suitable development tool, Investors in Excellence or Investment Excellence (IiE), common assessment framework (CAF) developed by the European public administration, which is based on Excellence Model developed by the EFTQM – European Foundation for Quality Management (EFTQM or EFQM). The authors of the study chose to review the EFTQM model in the private sector, because it can be used at national, regional and local organization's management level. The authors suggest using the assessment elements of this model in the private sector as the self-assessment method to increase efficiency. The considered EFTQM models are supported by figure (see *Figure 2*). Prerequisites from 1 to 5 are included in the prerequisite panel, which sets the criteria for prerequisites. The criteria define what an institution is doing and what approach it uses to achieve the desired results. It should be noted that the prerequisite criteria are based on the assumption that employees, processes, partnerships and management are necessary for an institution to achieve results. Prerequisite criteria reflect mission of the management – to serve the public, respectively to base its activities on the principles of corporate social responsibility. It is important for institutions to assess the model criteria to optimize own resources.

Open interviews with 100 senior managers were performed by authors. According to results of the study, self-assessment in Latvia, unlike in other European countries, is carried out if any ISO standard or support system is introduced. According to the EFQM Excellence Model, the main benefits of self-assessment of an institution are:

- ability to learn from the experience of successful enterprises;
- better preparation to be qualified for the Latvian and European Quality Awards;

- involvement of employees in the assessment process, thereby motivating them to "think about what and how we can do better";
- adoption of new ideas from employees about areas to be improved;
- identification of strong areas and areas to be improved on the basis of facts;
- "best practice" identification within the institution;
- ability to hear and listen to colleagues, thus contributing to a better mutual understanding;
- assessment of all processes important for an institution;
- application of the resulting conclusions to further operation and resources planning;
- self-assessment methods.

To perform self-assessment of an institution and select the right method, it is important, first of all, to understand the purpose of this process. The institution should consider the following factors:

- time and human resources;
- employees' knowledge of the EFQM Excellence Model;
- self-assessment relation to the planning process;
- how much accurate result is needed.

We have to conclude that an institution – private, public administration, non-governmental institution, has the opportunity to choose the most suitable model of control system and implement it as a practical and effective tool for performance optimization. The authors of the study considered a number of quality management systems, guidelines and conditions and acknowledge that neither the name of the management system nor the new fashion trends are important, but a positive change that can result from corporate processes, which ensure a better quality of services, effective communication and satisfied customers and other parties concerned. Grunig and Hant describe the relationships as "a two-way symmetrical model, which is aimed at mutual awareness. Symmetry is achieved between the sender and recipient of the information. The two-way symmetric model contains the feedback. It is based on a dialogue" (Barrie, 2002). Since 1996, different QMS have been introduced in Latvia; the most popular ones are shown in *Figure 3*.

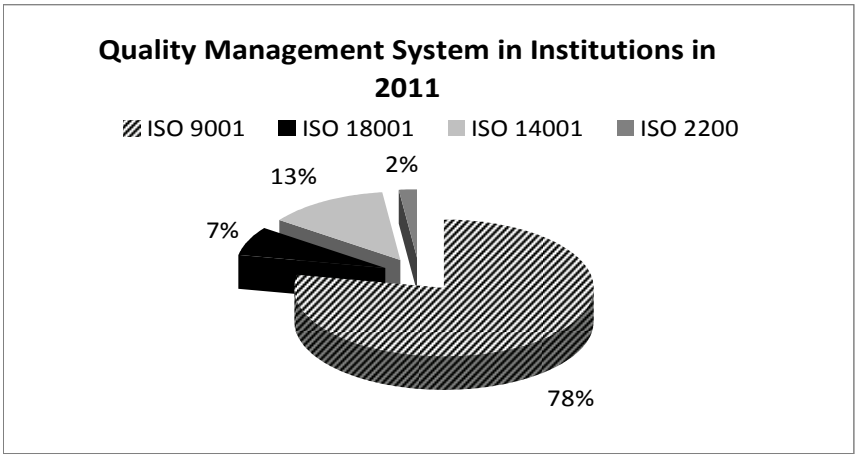

Figure 3. Distribution of Quality Management Systems in Latvia in % (Driņķe, 2009)

A general conclusion – there is a trend in Latvia to introduce various QMS, and their number increases every year; however, the implementation process is slow, which can be explained by motivation of the management and lack of knowledge about different standards and systems. According to the information available to the Latvian Quality Association, in January 2012, a total of 789 companies were certified in Latvia (there are approximately 78 680 companies in Latvia). 78% of these companies are certified according to the ISO 9001 standard, and 308 of them provide services, i.e. 0.8% of all service providing companies in Latvia. The ISO 9001:2009 standard system takes the largest share in Latvia, the ISO 14001:2004 standard is the second most implemented standard. The companies are increasingly choosing to implement integrated management systems – one system incorporating requirements of two or more systems.

There is not a single standard in the today's world, which can be simply applied to all institutions. It is also a positive fact, because an opportunity is given to institutions to choose, which model to implement in their structures. However, everything is based on great interest in the process. If the management fails to show the initiative, there will not be visible results. Ten countries of the world have the highest registered quantity of ISO certificates: China, Italy, Japan, Spain, UK, USA, Germany, India, France and Australia (Driņķe, Janovs, 2011). Decrease in certified companies is valued negatively, because the quality of services provided by companies could be low. Though it is assumed that the introduction of the quality management system is an expensive process, benefits of the system, if it is properly introduced and used, are direct cost savings in the longer term. It has been proved by many studies carried out in the world and also the assessment of interviewed managers on the introduced quality systems in Section 3.

Efficiency of Quality Management Systems in Small and Medium-sized Enterprises in Latvia

During the period from May 2012 to August 2012, the authors questioned employees in many companies and interviewed senior managers in small and medium-sized companies of the service sector. Questions in the questionnaire were developed based on the criteria for self-assessment model, while questions in the management interviews were designed to determine advantages or disadvantages of the quality management system or methodology. A random set of respondents: 100 managers and 100 employees of the same companies randomly chosen from the authors' database. All responses were used. All questionnaire and interview data were considered applicable for the study. The qualified companies are certified by any of the ISO standards to reduce costs and increase customer satisfaction at the same time, since it is defined in the ISO standard.

Employee satisfaction questionnaire is divided into six parts (my data, my work, my job as a manager, work of the unit, activities of the company and recommendations in free form) and each part assesses different elements. The authors compile the questionnaire as a summary that consists of four main parts: my work, my job as a manager, work of the unit, activities of the company (from 1–5 points, where 5 – max and 1 – min). Results of the questionnaires in each part of job satisfaction are assessed at a relatively high average value, see *Figure 4*.

Only 34% of the questionnaire part "Recommendations" was completed and respondents mentioned the need for process review and timely provision of information, raising the wages and insufficient competence of a manager.

To be able to assess the real benefits from implementation of the quality management system, the authors consider the concept of productivity and its importance. Productivity, also called performance in economics, is the concept that describes the relationship between the production of products (services) and resources to be used for this purpose (Latvian Ministry of Economics, 2006). This definition is used in both macroeconomics and micro-economics.

Production function or other mathematical models derived on its basis are widely used in microeconomics. For example, a variety of resources, labour (human resources), capital (land, buildings, equipment, working capital), energy, etc. are, by this or another technology, combined in the production process at the corporate level, finally resulting in one or more products that are sold on the market at a fixed price. Productivity in this case can be measured by comparing the production costs with revenues. One of the most widespread practices to estimate roughly the specific productivity of a company is to compare positions of profit and loss by the formula: Productivity = net sales/cost of sales. Positions included in the corporate profit and loss account are used in analysis of other performance factors (Sociological Research Methodology, 1981).

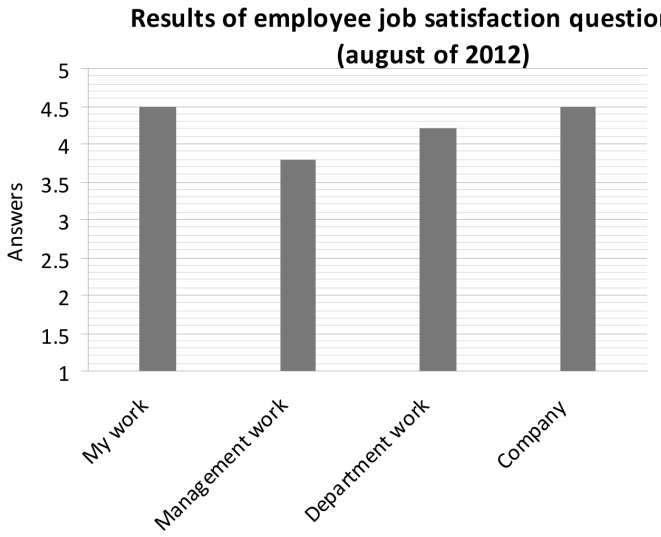

Figure 4. Results of 100 employee job satisfaction questionnaire

Interviews with companies' managers can be summarized as follows:

- cost reduction is the advantage of the system as the quality management system staff turnover is low;
- processes are sorted in companies and this facilitates work;
- quality management system is effective (recognized by all managers surveyed) in companies, which implement a management tool to ensure competitive operation.

In general, the biggest benefit of the system is associated with cost reduction and productivity enhancement in the institution. Japanese founder of the quality management system George. M. Juran (Juran, 1989) considers these system improvement processes through the prism of corporate costs. One of his ideas was to define quality as "fitness for use", which expresses how well the product meets the real needs of the consumer (Juran, 1989).

It is important for every company to safeguard its intended area and carry out systematic, well-prepared and planned measures to decrease this area. Thus, analysis of cost trends lead the authors to the conclusion that during a certain period after introduction of the system, the costs decrease, provided that the system is not a bureaucratic process but a tool for regulation of internal processes.

The quality management system in institutions is an effective management tool. The authors conclude that to ensure sustainable operation of the institution, there is no need for mandatory certification by any of the standard systems (e.g. ISO) because it is a relatively expensive process. To ensure effectiveness it is possible to use also a quality

management system methodology (based on TQM or EFQM model), which would include the following elements:

- optimal use of information technologies focusing on use and development of existing resources;
- establishment of staff competence, assessment and development of personnel management audit. The competency – a person's ability, knowledge and skills, which in turn, are divided into main groups, consisting of more defined components or particular properties. Model of competencies is a set of competencies corresponding to a particular position or group of positions – a total of generally accepted knowledge, skills, abilities, behaviour patterns and properties, which will help each employee to do his/her job as well as possible, and provide the basis for individual assessment and development. In turn, competence of the management includes personnel assessment and audit development based on every employee's productivity measurement.

Process management shows how an organization identifies, manages and improves its key processes that are focused on fulfilment of the functions. A key aspect is the processes management to implement the corporate strategies and policies that fully meet needs of customers and other parties concerned and add value. This criterion focuses on innovation and modernization. Keywords of this criterion are processes and customer-oriented services. Mutual process management is important to fulfil this criterion; it is clear that the process requires the following: the corporate functioning process requires the one who defines and the one who fulfils it, monitoring, review, measurement, implementation and understanding, contribution to achievement of the goal, which indicates that the process, that is documented, but is not feasible, is irrelevant because there should be a process and system understanding. Manager – a leader is also needed to increase corporate productivity. This criterion makes clear that a manager of an institution should be a leader who formulates and implements the mission, vision and values needed for the long-term development of the institution. The leader is also the one who ensures a link between the institution and the society. This criterion also considers the manager's operation in two dimensions – internal dimension focuses on the establishment of the corporate management system and employees' motivation, while the external dimension is associated with manager's duties to co-operate with the parties concerned.

The authors conclude that if these principles are respected and the quality management system methodology or certified framework is used, the institution can increase productivity and competitiveness, and the studied business practices can be mentioned as examples.

Quality assurance and administration of management costs, accounting and management are the most important processes in setting the corporate goals and policies, since the

possibility to reduce quality costs allows reducing price of a product and gain an extra profit at the expense of savings.

Conclusions

Summarising the findings of the study, it is possible to make a number of following conclusions and recommendations:

1) Understanding of quality is essential for competitiveness growth in the private sector.
2) Latvian Quality Association shall carry out training, exploratory work on benefits of different systems and opportunities to optimise corporate resources.
3) The relatively small number of institutions that introduced the quality management system can be explained by the fact that there is no understanding of benefits from implementation of the model, and there is no precise definition of corporate quality objective. Senior management should develop and implement a unified corporate system model based on TQM elements precisely defining quality objectives and tasks.
4) Common understanding of corporate objectives is achieved by ensuring total quality management in the Latvian business environment.
5) Implementation of quality management systems or methodologies reduces the corporate costs and ensures competitive operation.
6) Quality awareness is essential for increasing competitiveness of the companies of the private sector;
7) In order to ensure sustainable development, companies need to undergo self-assessment, using TQM philosophy.
8) The number of companies, which implement the various quality management systems in Latvia is small. We can mention 10 countries as an example of effective production, which have the highest number of quality management system certificates. This means that a properly implemented system works effectively and ensures sustainable development.
9) Whereas Latvia has a great share of small and medium-sized businesses in the total number of enterprises, it is necessary to focus on self-efficacy and promote implementation of the quality management system methodology to businesses;
10) Ensuring the total quality management in Latvian business environment, the common understanding of the corporate objectives will be achieved; it promotes national competitiveness in the international environment and increases productivity.

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INNOVATION ACTIVITY AND ITS INFLUENTIAL FACTORS: LESSONS FROM THE BALTIC COUNTRIES

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Abstract

Topicality. *Innovation is the best way for our modern global community to achieve sustainable goals and sustain our prosperity. Innovation should be our main goal and the point of achievement till the time it becomes a sufficient part of our national conciseness and culture (Macher, Mowery, 2008).*

Problem statement. *Innovation is the key to international competitiveness in the 21th century. The present article discusses a research framework that brings together a variety of related factors to innovation process on the basis of systemic review of theoretical and empirical studies. The results highlight a set of variables which would help entrepreneurs and policy makers foster innovation through the choice of the best method and researches.*

The ***aim*** *of the present paper is to investigate human capital, R&D, cooperation with external environment, on innovation oriented organizational culture, and market orientation, state policy relation to the process of innovation creation in Latvian, Lithuanian and Estonian innovative enterprises.*

Objectives of the paper are to*:*

- *create a theoretical model for analysis of factors influencing innovation;*
- *test different factor impact on innovation in Lithuanian, Latvian and Estonian innovative companies;*
- *summarize the conclusions of Latvian, Lithuanian and Estonian enterprises' innovative practices.*

The main research methods applied: *grouping method, graphical method: graphic design, image building, and content analysis, statistical analysis techniques.*

The main results and conclusions. *The author has created a theoretical model for analysis of factors influencing innovation that reflects the enterprise's capacity to achieve competitive advantage. The impact of different factors on innovation was empirically tested in Lithuanian, Latvian and Estonian innovative companies.*

The methodology for evaluation of factors influencing innovation creation was created. The author evaluated the relationship between human capital, state

innovation policy, R&D, cooperation with scientific-research centres, universities, organizational culture, market orientation, as well as innovation activities in Latvia, Lithuania and Estonia. Finally, the conclusions regarding innovative practices of Latvian, Lithuanian and Estonian enterprises were summarized.

***Keywords**: innovation, human capital, state innovation policy, collaboration, R&D, market orientation, Baltic countries*

Introduction

The creative act of invention is resistant to precise analysis but typically requires the combination of differing knowledge assets within the individual, together with the time to experiment and willingness to tolerate failure (Lester, Piore, 2004). Schumpeter linked entrepreneurial initiatives of individuals to the creation and destruction of entire industries (Schumpeter, 1934). Empirical work has established that many industries go through a life-cycle with distinct phases of entry, survival or exit (Klepper, 1997). Innovation is encouraged to spill over from the traditional, internally localized departments, such R&D, to embrace the whole firm (Teece, 2000). According to Chesbrough, innovation is no longer restricted to the industrialised labs of the large corporation; rather it has become a collaborative process that requires the input of many specialised actors or institutions both within and beyond the firm (Chesbrough, 2003). The enterprise's innovative performance implicates in itself: product innovation, process innovation, marketing innovation and organizational innovation (Eurostat, 2012).

Innovation Activity and its Influential Factors: Lessons from the Baltic Countries

The author has developed a specific methodology based on theory and empirically tested it through evaluation of the impact of different factors on innovation introduced in Latvian, Lithuanian and Estonian innovative firms. In reality, sample questions were organized using a 10-point Likert scale. Namely, the author asked respondents to evaluate specific assumptions that represent introduced product innovation, process innovation, marketing innovation and organizational innovation during last 3 years from 1 till 10. Also innovative companies were asked to evaluate different factors such as human capital, R&D, state innovation policy, cooperation with external environment, innovation oriented organizational culture, and market orientation from 1 till 10. Respondents were asked to bear in mind that 1- means strongly disagree, and 10-fully agree. Respondents represented middle and top level management. Research was held from 01.04.2012 till 01.12.2012. Although there were 520 enterprises questioned in Latvia, 281 enterprises in Lithuania, and 197 enterprises in Estonia, the author received back only 105 filled out forms from Latvian innovative enterprises, 70 filled out forms

from Lithuanian innovative enterprises, and 32 forms from Estonia. The list of Latvian innovative enterprises was formed according to unpublished materials of the Central Statistical Bureau of the Republic of Latvia – "List of Enterprises with Product Innovation, and/or Process Innovation, and/or Marketing Innovation, and/or Organizational Innovation from 2006 till 2008"; a catalogue "Innovative Companies in Latvia 2011" published by the Investment and Development Agency of Latvia. The list of Lithuanian innovative enterprises was formed according to the catalogue "Gateway to Innovation in Lithuania 2011" published by the Lithuanian Innovation Centre. The employees of the enterprises were asked to fill out a questionnaire and provide the answers on the various blocks. The list of Estonian innovative enterprises was formed according to the actual catalogue on entrepreneurship in Estonia "Entrepreneurship Award of Estonian Enterprises" provided by the Estonian Chamber of Commerce and Industry in collaboration with the Estonian Employers' Confederation from 2010 till 2012 in the innovation nomination; a list of enterprises by the Tallinn Science Park Tehnopol.

The data was calculated through SPSS 17.0 version.

Empirical Research: Case of Latvia, Lithuania, Estonia

The author defined the mean value of the evaluated factors (see *Figure 1*). The highest mean figures were implicated in such factors as human capital and the figures stood at 7.60 in Latvia, 8.01 in Lithuania, and 8.4 in Estonia.

Innovation-oriented organizational culture was also highly appreciated by the Latvian and Lithuanian innovative companies and the figures stood at 7.60 in Latvia and 7.53 in Lithuania. However, innovation-oriented organizational culture in Estonia was not so much appreciated and stood at 7.17. It is interesting to admit that the Latvian innovative companies evaluated innovation-oriented organizational culture as high as human capital. Namely, companies highly evaluated the strategic objectives set by the top management and employees' ability to achieve these objectives. In this respect, it was admitted that there is inter-disciplinary team collaboration on projects, formal procedures and control support creativity and innovation, meanwhile organizational structure supports the flow of innovation. It was admitted that the possible conflicts were successfully solved and the support was provided to creativity and innovation. Innovative suggestions of the staff were evaluated and provided tolerance to mistakes.

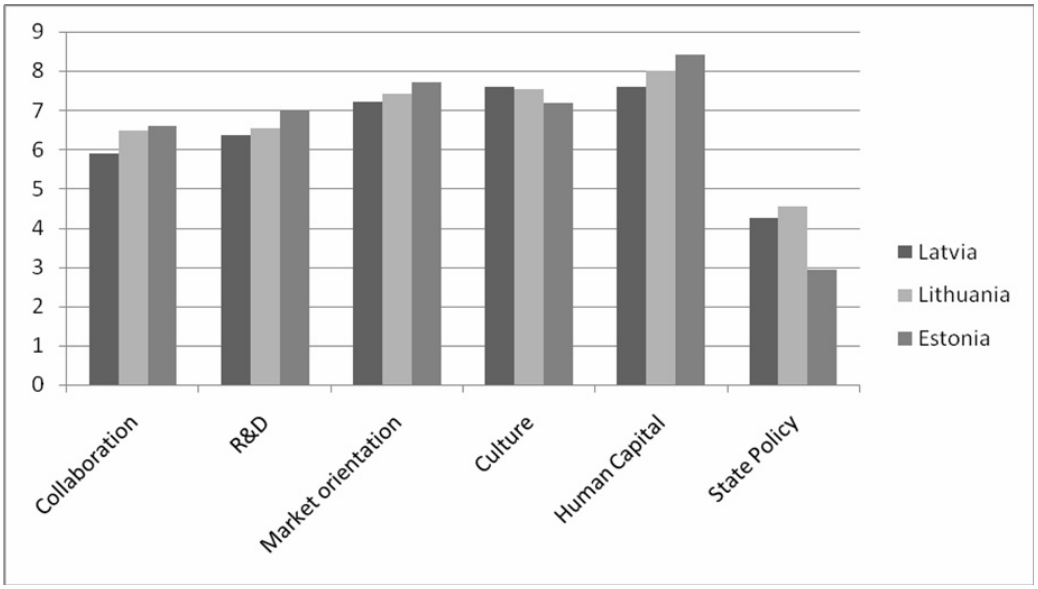

Figure 1. Mean value of the evaluated factors (created by the author)

Source: Authors' compilation based on empirical analysis

Market orientation was also evaluated pretty high by the Latvian and Lithuanian innovative companies and the figures stood at 7.20 in Latvia and 7.42 in Lithuania, and quite high in Estonia at 7.7. It was revealed that during the last 3 years the companies have collected the information about changes in the market, attracted innovative ideas from market research and applied market research information for business decisions and even announced that staff met customers in order to learn how to serve them in the best manner. It was admitted that companies' knowledge level of the market segments and competitors in industry was extended. Different departments used to share information about market changes within the company. Finally, it was announced that new products were developed based on information about customers and competitors obtained during the last 3 years.

Research & Development activities were evaluated with 6.37 in Latvia and 6.54 in Lithuania, 6.97 in Estonia. Innovative companies evaluated the following determinants: constant knowledge assimilation from different sources; a company obtains specific machinery, software, technological equipment; sufficient scientific personnel for innovative activities; commercialized scientific research results; increased expenses on R&D activities (in comparison with the previous year); in-house R&D department.

Collaboration with external environment on innovation was evaluated by the Latvian innovative companies with 5.88 and by Lithuanian innovative companies with 6.4, while by Estonian innovative companies with 6.6. It must be admitted that Estonian and Lithuanian innovative companies tended to collaborate with universities, scientific

research institutions, suppliers, customers, state organizations and other companies more than Latvian innovative companies.

The lowest mean figures were devoted to the national policy in the field of innovation – 4.25 in Latvia, 4.54 in Lithuania and 2.93 in Estonia. The Latvian, Lithuanian and Estonian innovative companies admitted that there was no positive impact of changes in the state tax policy on innovation.

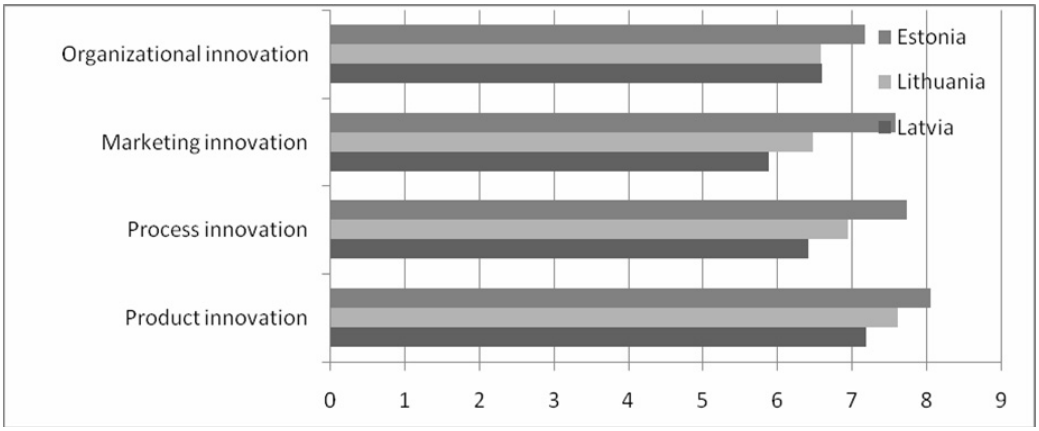

Figure 2. Innovation in Latvia, Lithuania, Estonia

Source: Author's compilation based on empirical analysis

Figure 2 shows that over the last three years the product and organizational innovation rather than process innovation and marketing innovation had prevailed in Latvian innovative companies. Namely, companies had introduced a product/ service through implementation of a new or improved product/service; through increased expenditures on product innovation from turnover; through the promotion of customer satisfaction by existing product/service innovation; through the creation of new product/service on the basis of improvements in software, in technological specifications, in components and materials and introduced organizational innovation through implementation of new organizational methods in business practice, in knowledge management, in workplace organization, in formation of external relations; through innovation in organizational culture and information systems, as well as information-sharing practices; through increased expenditure on organizational innovation from turnover.

However, over the past three years, the process and product innovation prevails in Lithuanian and in Estonian innovative companies. Companies had introduced a product/ service through implementation of a new or improved product/service; through increased expenditures on product innovation from turnover; through the promotion of customer satisfaction by existing product/service innovation; through the creation of new product/service on the basis of improvements in software, in technological

specifications, in components and materials and introduced process innovation through implementation of new or improved production/delivery methods; increased expenditure on process innovation from turnover; implementation of new or improved production/ delivery methods through changes in technology, equipment, software; decreased unit cost of output; increased unit quality of output.

	Implementation of new or improved product/service	product/service innovation promote customer satisfaction	improvements in product software	improvements in product technological specification	improvements in product components and materials	Implementation of new or improved production / delivery methods	Increased expenditure on process innovation	improvements in production technology	improvements in production equipment	improvements in production software
Creative employees		.591		.580						
Talented employees										
Special knowledge	.527			.591						
High experience		.548		.538						
Achieved goals					.430					
Interdisciplinary team collaboration	.405									
Formal procedures for innovation	.479	.441								
Support for innovation and creativity					.425					
Resolution of possible conflicts	.427	.598		.450	.407					
Evaluated innovative proposals	.420	.463	.430	.453	.466					
Tolerance for mistakes	.474		.545							.497
Scientists meets clients							.518			
Wide information distribution through departments						.552				
Enterprise obtains specific machinery									.617	
Enterprise obtains specific software			.620							.622
Enterprise obtains specific technological equipment								.680		
National collaboration	.659									
Collaboration within the EU		.526								
Collaboration outside the EU							.507			

Figure 3. Correlation analysis: Latvian innovative enterprises (1)

Source: Author's compilation based on empirical analysis

Figure 3 reflects the correlation analysis of different factors and technological innovation, namely product and process innovation. As the matter of fact, in the context of Latvian innovative enterprises, it should be admitted that there were a strong correlations

between specific technological equipment and improvements in production technology (.680); National collaboration and Implementation of a new or improved product/ service (.659); specific software and improvements in product software (.620); and improvements in production software (.622). Weak correlations were defined between implementation of a new or improved product/service and interdisciplinary team collaboration (.405); the resolution of possible conflicts (.427); and evaluated innovative proposals (.420). Insufficient correlations were depicted between improvements in product components and materials and achieved goals (.430); and support for innovation and creativity (.425); and resolution of possible conflicts (.407).

	New product design marketing	New product price marketing	Increased expenditure on marketing innovation	Innovation in business practices	Innovation in knowledge management	Innovation in workplace organization	Innovation in formation of external relations	Innovation in organizational structure	Innovation in information systems	Increased expenditure on organizational innovation
State financially supports engagement of new staff in innovation sphere	.312		.309							
State financially supports transformation of technology									.320	.300
State financially supports networking										.300
Creative employees							.525			
High experience					.569		.623	.575		
Strategic goals are set	.428									
Interdisciplinary team collaboration	.401	.440								
Formal procedures for innovation		.444								
Evaluated innovative proposals	.425				.437		.453			
Tolerance for mistakes	.421	.462		.441	.453		.502	.439		
Collection of info about market changes							.509			
Wide information distribution through departments									.504	
Enterprises obtain specific software				.613	.614	.622	.650	.601		
Commercialization of research results									.616	

Figure 4. Correlation analysis: Latvian innovative enterprises (2)

Source: Author's compilation based on empirical analysis

Correlation analysis of different factors and non-technological innovation in the Latvian innovative enterprises' sample is reflected in *Figure 4*. There is a strong correlation between specific software and innovation in formation of external relations (.650), innovation in business practices (.613), innovation in knowledge management (.614), innovation in workplace organization (.622), and innovation in organizational structure (.601). Moreover, it must be admitted that there is a strong correlation between commercialization of research results and innovation in information systems (.616).

Weak correlation was defined between state's financial support for engagement of new staff in innovation sphere and new product design marketing (.312); and increased expenditure on marketing innovation (.309). Insufficient correlation was depicted between state's financial support for transformation of technology and innovation in information systems (.320); and increased expenditure on organizational innovation (.300)

	Implementation of new or improved product/service	Product/service innovation promote customer satisfaction	Improvements in product software	Improvements in product technological specification	Improvement in product components and materials	Implementation of new or improved production / delivery methods	Increased expenditure on process innovation	Improvements in production equipment	Improvements in production software	Increasing unit quality of output
State financially supports innovation projects			-.305						-.305	
Employees create new knowledge			.622							
Employees are best performers						.615				
Support for innovation and creativity			.624							
Resolution of possible conflicts			.616							
Tolerance for mistakes			.776							
Wide knowledge about competitors			.713							
Wide information distribution between dep.			.746							
Enterprises obtain specific machinery								.738		
Enterprises obtains specific software			.660						.633	
Commercialization of research results										-.239
Collaboration with universities				.607						
Collaboration with clients	.616	.610								
Collaboration with state institutions					-.273		-.287			
Collaboration with other enterprises					-.277					

Figure 5. Correlation analysis: Lithuanian innovative enterprises (1)

Source: Author's compilation based on empirical analysis

Figure 5 reflects the correlation analysis of different factors and technological innovation, namely product and process innovation. As the matter of fact, in the context of Lithuanian innovative enterprises, it should be admitted that there were strong correlations between tolerance for mistakes and improvements in product software (.776); specific machinery and improvements in production equipment (.738); wide knowledge about competitors and improvements in product software (.713); wide information distribution through departments and improvements in product software (.746).

There were negative correlations between state financial support for innovation projects and improvements in product software (-.305); and improvements in production software (-.305). Another negative correlation was depicted between improvement in product components, materials and collaboration with state institutions (-.273); and collaboration with other enterprises (-.277).

	New product promotion marketing	New product price marketing	Increased expenditure on marketing innovation	Innovation in business practices	Innovation in knowledge management	Innovation in workplace organization	Innovation in formation of external relations	Innovation in organizational structure	Innovation in information systems	Increased expenditure on organizational innovation
State financially supports innovation projects								-.358		-.247
State financially supports identification of innovation potential					.566		.523			
State financially supports engagement of new staff in innovation sphere					.522					
Talented employees							.694		.600	
Employees are best performers							.626		.650	
High experience						.603	.652			
Strategic goals are set						.613	.718			
Achieved strategic goals							.622			
Supported information flow						.698	.641			
Support for innovation and creativity						.702	.663			
Collection of info about market changes							.751			
Wide knowledge about market segments							.729			
Wide knowledge about competitors				.730	.709					
Wide information distribution through departments							.779		.711	
Usage of market research information			.728							.720
Enterprise obtains specific software				.652			.663			
Sufficient amount of scientists		.612								
Commercialization of research results								.724	.618	.721
Collaboration with universities		.612				.672				
Collaboration with research institutions	.648									
Collaboration with state institutions		-.265								-.259
Regional collaboration					.616	.601	.659			
National collaboration		.608								
Collaboration within the EU		.625								

Figure 6. Correlation analysis: Lithuanian innovative enterprises (2)

Source: Author's compilation based on empirical analysis

Correlation analysis of different factors and non-technological innovation in the Lithuanian innovative enterprises' sample is reflected in *Figure 6*. There is a strong correlation between wide information distribution through departments and innovation in formation of external relations (.779); wide knowledge about competitors and innovation in business practices (.730); usage of market research information and increased expenditure on marketing innovation (.728); and increased expenditure on organizational innovation (.720). Wide knowledge about competitors and innovation in knowledge management (.709); support for innovation and creativity and innovation in workplace organization (.702); wide knowledge about market segments and innovation in formation of external relations (.729); commercialization of research results and innovation in organizational structure (.724); and increased expenditure on organizational innovation (.721); wide information distribution through departments and innovation in information systems (.711). There is negative correlation between state financial support for innovation projects and innovation in organizational structure (-.358); and increased expenditure on organizational innovation (-.247).

Correlation analysis of different factors and technological innovation in the Estonian innovative enterprises' sample is reflected in *Figure 7*. In the context of Estonian innovative enterprises, it should be admitted that there was a strong correlation between state financial support for innovation projects, changes in tax policy, state financially supports knowledge and technology transformation and decreasing expenses of process innovation (.707), (.706) (.702); between usage of market research information and improvements in product software (.776); specific technological equipment, attraction of scientific personal, commercialization of research results and introduction of new production/delivery methods through changes in equipment (.747), (.875), (.787).

In the context of Estonian innovative enterprises it should be admitted that there was a negative correlation between state financially supports knowledge and technology transformation, state financially supports innovation projects and improvements in product software (-.851), (-.750); between state financially supports identification of innovative potential and implementation of new or improved production/delivery methods (-.702); between employees are best performers and increased expenditure on process innovation (-.750).

	Implementation of new or improved product/service	Improvements in product software	Decreasing expenses of process innovation	Implementation of new or improved production / delivery methods	Increased expenditure on process innovation	Implementation of new or improved production / delivery methods through technological changes	Production of new products/services through improvements in technological specification	Production of new products/services through improvements in component and materials	Introduction of new production/delivery methods through changes in equipment	Increased expenditure on product innovation	Increasing unit quality of output
State financially supports innovation projects	.667	-.750	.707								
Changes in tax policy			.706								
State financially supports identification of innovative potential				-.702							
State financially supports collaboration	.658	-.634									
State financially supports knowledge and technology transformation		-.851	.702								
Employees are best performers		.677			-.750						
High working experience		.507									
Inter-disciplinary team collaboration			.508			.522					
Supported information flow			.599				.606	.625			
Supported innovation and creativity									.571		
Innovative ideas from market research		.686	-.627				-.616				
Scientists meet clients								.625			
Wide knowledge about market segments	.575			.525							
Wide information distribution between dep.	.572										
Usage of market research information		.776	-.686				-.609	-.682			
Constant absorption of knowledge					.668				.516	.663	.756
Enterprise obtains machinery							.600	.591	.660	.619	
Enterprise obtains software						.551					
Specific technological equipment							.637	.663	.747	.589	
Attraction of scientific personnel							.566	.651	.875	.688	
Commercialization of research results		-.684			.540			.513	.787	.681	
Increased R&D expenses		-.603			.564				.697	.609	
Collaboration with research institutions		.508		-.586	-.597						-.625
Collaboration with consumers			.546				.597	.763	.503	.510	
Collaboration with state institutions			-.570			-.513					-.558

Figure 7. Correlation analysis: Estonia's innovative enterprises (1)

Source: Author's compilation based on empirical analysis

	New product promotion marketing	New product price marketing	Increased expenditure on marketing innovation	Innovation in workplace organization	Innovation in formation of external relations	Implementation of new organizational methods in business practices	Innovation in information systems	Innovation in organizational structure	Implementation of new marketing methods in packaging	Implementation of new marketing methods in product placement	Increased expenditure on organizational innovation
Changes in tax policy	.570	.569	.552	.678	.474						
State financially supports personnel attraction						.641	.638				
State financially supports knowledge and technology transformation				.734							
State financially supports collaboration				.690		.552	.786	.545			
Employees are best performers				-.758					.588		
Highly qualified personnel		-.702									
High working experience				-.738							
Training in innovation									.537		
Supported information flow	.621	.691	.597		.605						
Tolerance for mistakes				.530			.553	.634			
Innovation ideas from market research					-.670				.669	.777	
Wide knowledge about market segments			-.632		-.690		.742	.615			
Wide information distribution between dep.		-.599	-.712		-.672						
Usage of market research information									.697	.694	.556
Constant absorption of knowledge				.576							
Enterprise obtains machinery					.570						
Specific technological equipment					.512				-.711	-.787	
Commercialization of research results									-.855	-.723	
Increased R&D expenses									-.779		
Collaboration with consumers				.561	.634						
Regional collaboration							.731	.554			
Collaboration with EU	-.793	-.779	.722								

Figure 8. Correlation analysis: Estonian innovative enterprises (2)

Source: Author's compilation based on empirical analysis

Correlation analysis of different factors and non-technological innovation in the Estonian innovative enterprises' sample was reflected in *Figure 8*. In the context of Estonian innovative enterprises, it should be admitted that there was a strong correlation

between the state financial support to knowledge and technology transformation and innovation in workplace organization (.734); between state financial support for collaboration and innovation in information systems (.786); between Innovation ideas from market research and Implementation of new marketing methods in product placement (.777); between Regional collaboration and Innovation in information systems (.731); between Collaboration with EU and Increased expenditure on marketing innovation (.722).

In the context of the Estonian innovative enterprises, it should be admitted that there was negative correlation between Increased R&D expenses and Implementation of new marketing methods in packaging (-.855).

Conclusions

In the Latvian, Lithuanian and Estonian innovative companies the most highly treated asset is a human himself/herself. Innovative companies highly valued employees' knowledge sufficiency for daily work, employees' creativity, talent, special knowledge that is needed for specific job. Also it was admitted that employees create new ideas and knowledge. In fact, it was admitted that employees are highly qualified performers and professionals with quite a high level of experience. There is a weak state financial support for project funding, networking and collaboration, staff training, engagement of new staff in the field of innovation. Also there is insufficient state financial support for identification of innovative potential and transformation of technology and knowledge in both observed countries. The Lithuanian and in Estonian innovative companies prevail introduced process and product innovation. In the past three years, product and organizational innovation prevailed in Latvian innovative companies. In the context of Latvian innovative enterprises, it should be admitted that there were strong correlations between specific technological equipment and improvements in production technology (.680); national collaboration and implementation of new or improved product/service (.659); specific software and improvements in product software (.620); and improvements in production software (.622). In the context of Lithuanian innovative enterprises, it should be admitted that there are strong correlations between tolerance for mistakes and improvements in product software (.776); specific machinery and improvements in production equipment (.738); wide knowledge about competitors and improvements in product software (.713); wide information distribution through departments and improvements in product software (.746). In the context of Estonian innovative enterprises it should be admitted that there was a strong correlation between state financial support for innovation projects, changes in tax policy, state financial supports for knowledge and technology transformation and decreasing expenses of process innovation (.707), (.706), (.702).

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PROFOUND INTEGRATION OF LATVIA IN THE EUROPEAN UNION AS A FACTOR OF ECONOMIC GROWTH

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Abstract

This research is devoted to analysis of integration of economy of Latvia in the European Union. The authors discuss important aspects of integration: international trade, Latvian import and export quotas, volumes of foreign investments, centralised financial monitoring. The authors of the present paper also utilise contemporary econometric approach (a vector error correction model) to estimate a long-term relationship between Latvian GDP and volume of attracted foreign investments. The discovered significant co-integration of research indicators is conserved as an important evidence of integration of Latvia in the EU. Using comparative analysis, the authors analysed prospective opportunities and risks of the euro adoption in Latvia.

Keywords: *economic integration, foreign investments, VECM, euro adoption*

Introduction

Openness of national economies on the basis of world trade development and development of international division of labour is increasing the involvement of countries in the global economy (Krugman, 2012). Global integration processes allow using resources more efficiently. The European Economic Union serves as an example of cooperation and economic integration of the former antagonists and participants of the destructive wars. Deteriorated contradictions between countries of the Central and Southern Europe, and as well as between the "new" and "old" countries of the European Economic Union in terms of the world financial crisis have an objective economic basis in the form of considerable gaps in their levels of economic development and life. At the same time, it is possible to state that consequences of the crisis in these countries would have been more destructive in case they were beyond the borders of

this union. Higher degree of integration reduces consequences of the economic crisis. Further unification of the European market and monetary system, as well as graduate delegation of economic power to the European Commission and the European System of Central Banks will provide greater opportunity to coordinate economic interests of individual countries.

The aim of this research is to critically assess directions and consequences of further integration of Latvia in the EU. The main objectives are to identify and analyse potential advantages and negative consequences of integration for Latvia. A special attention is paid to econometric estimation of current level of co-integration between Latvian economics and foreign investments.

International Trade of Latvia and its Prospects

National economy of Latvia is characterized as a small open economy not due to its physical volume but according to general criteria: degree of involvement in the world economy and its impact on the world national currency rate and interest rates. Ratios of economy openness of Latvia are high and close to ratios of such countries as Germany, Norway, Poland, and Denmark. It is confirmed by the results of calculation of such indices as export and import quotas (*Figure 1*), net export and foreign trade quota.

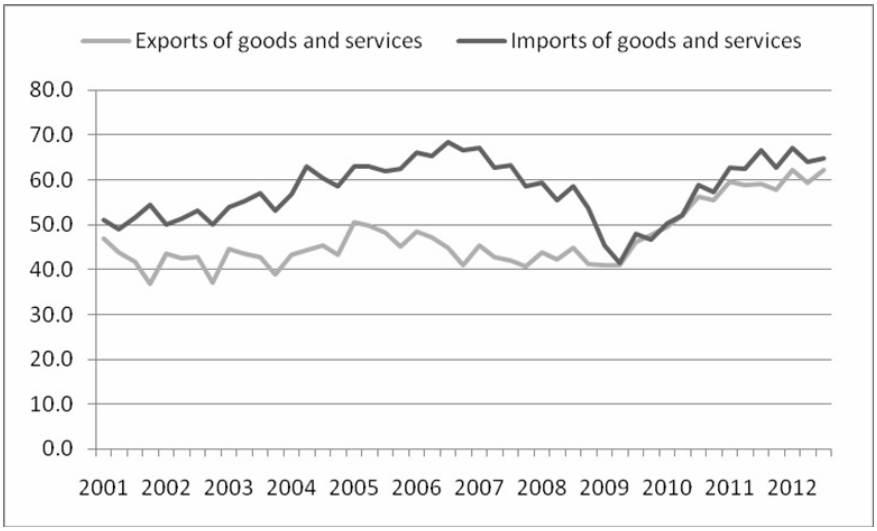

Figure 1. Latvian national export and import dynamics in 2001–2012 (% of GDP)

Source: Eurostat database (Eurostat 2012)

Analysis shows that even though export quota has grown from 40.8% to 61.62% in the period 2002 to 2011, a state of current account does not correspond to the condition of balance adequacy that threatens stability of national currency rate because currency quota also has a growth trend. It has increased from 50.89% to 56.29%, and its highest level was in 2006. It is explained by functional dependency of import on GDP level that reached high level in pre-crisis years. Foreign trade quota in general has grown from 91.7% to 119.91% in 2011. Net export ratio is far from the desired level. In 2009, for the first time it reached a positive value of LVL 140 million and LVL 475 million in 2011. But this is not enough to improve the balance of payments of Latvia. National economy of Latvia will have to find new ways into a world market, because 72% of export belongs to the EU countries. Optimisation of payment balance is the most important factor of economic growth. Growth of negative balance of foreign trade in the period from 2000 to 2008 and growth of deficit of current account to GDP reached its maximum in 2007 and amounted to 22.31% of GDP.

The reduction of deficit quota of the current transactions amount in 2008 is explained by the reduction of aggregate demand caused by the crisis, but not by achievements of foreign trade in the area of export. Imports reduced faster than exports. In the current period, a growth of deficit of current account of payment balance is being observed. Balance deficit of Latvia is higher than in the neighbouring Baltic States (for example, in Estonia positive balance is 7 % of GDP) (*Figure 2*).

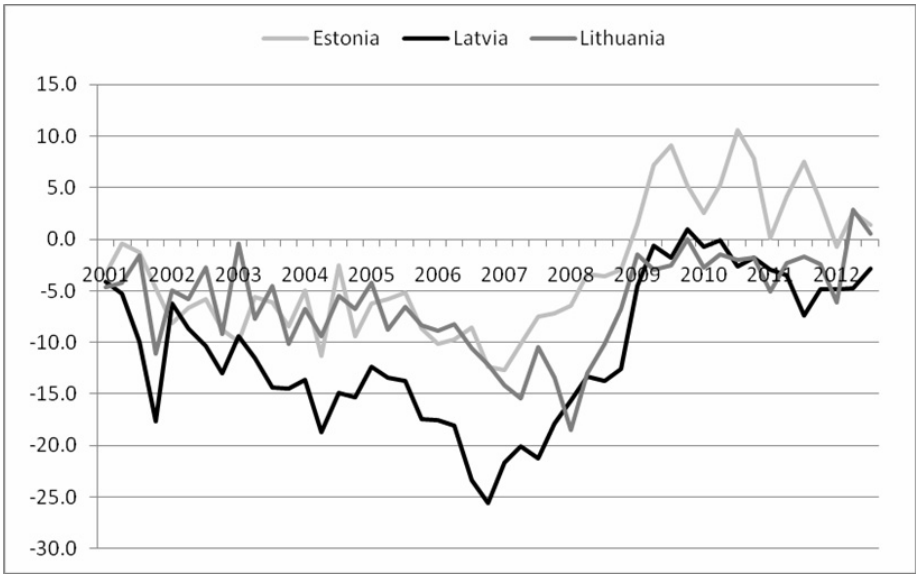

Figure 2. Baltic States` payment balance dynamics in 2001–2012 (% of GDP)

Source: Eurostat database (Eurostat 2012)

The Latvian economy faced a problem of expansion of export possibilities and increase of competitiveness, although positive tendencies are already observed. Thus the amount of export in 2010 increased by 27.2% (to 2009), and in 2011 by 27.4 % (to 2010).

Financing the deficit of current account of payment balance has an obvious limit. In a long term, it is impossible to sell assets and expand loans. The payment balance deficit was covered owing to reduction of reserves, growth of public debt and attracted foreign investments. Although a growth of public debt has not reached its critical point by ratios of the Maastricht criteria and makes up 46% of GDP, the value is quite critical for Latvia in comparison with leading countries of Europe, taking into account insufficient ratio of real sector in GDP structure. Latvia needs influx of foreign investments in real sector of economy. However, foreign investments in majority of cases are directed not to real sector but to real estate and finances, commerce and transport. At present a tendency of investment growth is observed in the area of financial cooperation. In real sector and manufacturing industry a ratio of investments had reduced and in 2010 made up 13% of 2000.

Pegging of the lat to the euro has reduced cost of national currency up to 25%, because in this period the market rate of the euro was high. It switched over an aggregate demand to import goods. Price effect of import purchases had responded and tightens price competition. Modern rate of the lat reduces export possibilities of Latvia. Therefore changeover to the euro that is the accession of Latvia to the European Monetary Union (EMU), in accordance with opinion of many economists, leading specialists of the Central Bank of Latvia, will expand export possibilities of Latvia and will create conditions for improvement of the payment balance. For Latvia, the euro adoption means decreasing the sharp financial problem of constant increase of import cost over export and will release the Bank of Latvia from necessity to contain large currency reserves in the euro. It may decrease heavy duty to payment balance of this country up to two billion lats that will allow deeper integration of Latvia in the European economy. Such reconstructed current account of payment balance will not be burdensome for the EU financial system.

Export quota problem became more urgent in the period of adoption of the single European currency (Bitāns, 2012). 11 countries took part in the discussion, and stated that decrease of transactional costs connected with currency conversion and risk reduction gives opportunity of increasing export from 5% to 50%. Adoption of the euro and comparability of prices allows reflecting differences in the production costs that stimulates strengthening of competition. Decrease in speculative arbitrage transactions should lead to reduction of prices and more total satisfaction of buyers' needs. Great publicity of competition conditions lightens international comparisons of balances of enterprises and analysis of their export prices and transactions. According to the opinion of several Latvian economists, the euro adoption in Latvia gives opportunity to increase export quota up to 5%. It assumes GDP growth from 2014 to

2020 approximately to EUR 8 thousands million or LVL 5.6 thousands million that compile LVL 2700 per capita (Bitāns, 2012).

Entry of Latvia into EMU creates conditions for accrual economic growth; more positive connections with economy of the largest countries will be established. The Central Bank of Latvia sees a number of irrefutable advantages of the euro adoption. First of all, risk of national currency devaluation will be reduced and risk of exchange fluctuations of the lat will be eliminated (*Figure 3*). Reduction of interest rate should take place and lighten restructurisation of debts, including public debt.

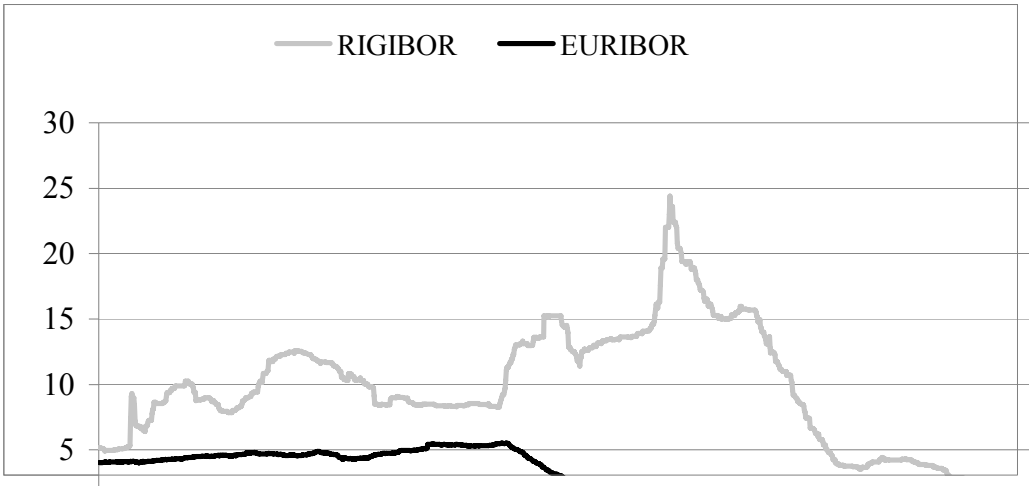

Figure 3. Annual Rigibor and Euribor interest rates fluctuations in 2007–2012 (%)

Source: Bank of Latvia (Bank of Latvia 2011)

According to calculations of the Latvian economists, the sum for public debt servicing activities related with the interest rate reduction for the decennial period may decrease and provide savings up to EUR 900 million or LVL 600 million (Kaužēns, 2012). In the private sector, it is possible to obtain growth of GDP to EUR 8 thousands million in the period from 2014 to 2020, and it will increase budget in the form of tax liabilities. Reduction of costs connected with the lat conversion in the amount of LVL 50 million annually assumes savings up to 0.5 thousands million for decennial period (Bitāns, 2012). There are serious objections against the euro adoption based on calculation of transactional costs of changeover, connected with recalculation of prices, but they might be considered as capital costs that are compensated during their application. Opponents of accession to the European Monetary Union motivate the refusal to adopt the euro by threat of inflation growth. But there are counter-evidences. Statistical data show that natural inflation growth was observed in eight countries, and in seven countries inflation decreased, in two – it stayed without changes (Kaužēns, 2012).

Upraise of inflation impulse largely depends on the declared rate of national currency. Real purchasing power of the lat is lower than official rate that should be taken into account when changing currency.

Role of Foreign Investments in the Economy of Latvia

Entry of Latvia in EMU will increase its rating. According to calculations, a difference in interest rates is expected within 1.5 %. In opposite case non-accession to EMU will decrease credit rating to 1–2 steps (Kaužēns, 2012). Latvia needs an influx of capital for development of branches oriented to production of export and import-replacing goods. It would initiate positive changes in the national economy structure of Latvia. In our opinion, benefits of the euro adoption are greater that the assumed losses. Investors need "credit of trust" and reliable investment climate. Experience shows that rumours about possible devaluation of the lat in 2007 caused its depreciation and internal devaluation. In autumn 2008, on the background of rising macroeconomic instability and growth of government debt, the international rating of Latvia fell down and outflow of capital increased. During this period, the Bank of Latvia was forced to sell over one fourth of its international reserves. In the middle of 2009, international reserves were closed off for one-third. International financial aid obtained in 2008 increased bank liquidity and reduced pressure on the lat. Experience of Estonia shows that accession to the euro zone increases influx of foreign investments in manufacturing sector (2.8% of GDP in Estonia, and only 0.9% of GDP in Latvia at the same period) (Bitāns, 2012). Influx of direct foreign investments and a decrease of interest rate, finally, should increase business activity and employment. According to calculations of economists, non-accession of Latvia to the euro zone may decrease employment to 25%, and, alternatively, refusal from national currency may give GDP growth up to 19% after accession to EMU (Bitāns, 2012).

Although the importance of foreign investments can be assumed as a common place for any European country, to the best of our knowledge, there are no empirical researches devoted to analysis of short-term and long-term relationship between foreign investments and Latvian national accounts.

We applied modern time series econometric techniques for analysis of relationships between Latvian GDP, employment and foreign investments. A set of research data is collected from databases of the Central Statistical Bureau of Latvia (Eurostat, 2012) and includes quarterly values of these indicators in 2002–2011. GDP values are used in prices of the year 2000, without seasonal adjustments.

The first step of analysis was testing of causal relationships between selected indicators. A popular Granger test (Granger, 1969) was utilised for this purpose; the results are presented in *Table 1*.

Table 1

Results of the Granger Test for Causal Relationships between Indicators

Direction of influence	F-observed	p-value	Causal relationship*
Employment of GDP	9.59	0.00	Yes, lags 0,1,2,3,4
GDP on employment	0.32	0.73	No
Foreign investments (lag 2) on GDP	14.77	0.00	Yes, lags 2 and 3
GDP on foreign investments	1.61	0.22	No

**at 5% significance level*

According to the presented results, we note significant influence of both employment and foreign investments on GDP and absence of influence the opposite direction (GDP on the indicators). It is possible to conclude that employment affects GDP not only in the current quarter (lag 0), but also in next three quarters (lags 1–3). Foreign investments cannot be utilised and affect GDP immediately, significant effects are observed after 6 and 9 months (lags 2 and 3).

Statistical analysis of relationships was impeded by the presence of structural break (or set of breaks) within the selected time interval. The global world crisis of 2008 affected all spheres of international economy and obviously changed patterns of GDP, employment, and foreign investments time series (*Figure 4*).

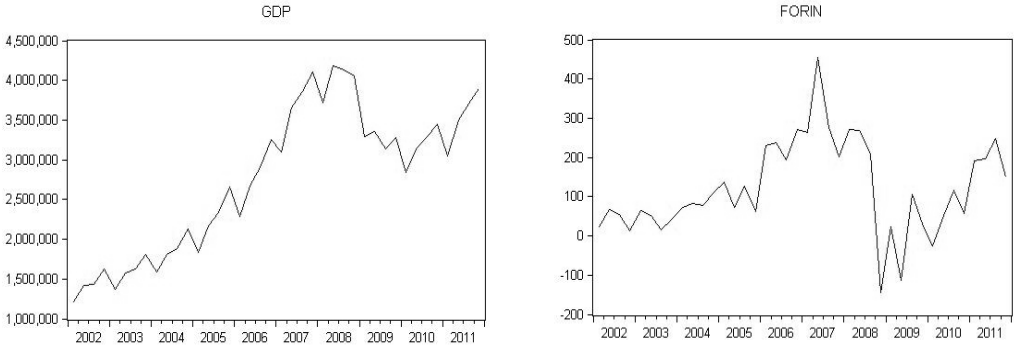

Figure 4. Patterns of GDP and foreign investments time series in 2002–2011

We applied Perron's approach (Perron,1989; Perron, 1990) for testing stationarity of time series in presence of structural breaks. A point of the break was selected manually, and the base of the time series dynamics. The results of Perron's test for stationatity are presented in *Table 2*.

Table 2

Results of Perron's Test for Stationarity

Time series	Conclusion about stationarity
GDP	not stationary
ΔGDP*	stationary
Employment	not stationary
Δ Employment*	stationary
Foreign investments	not stationary
Δ Foreign investments*	stationary

**Δ means the first difference of the time series*

The authors conclude that all three time series are first-order integrated I (1), so the time series themselves are not stationary, but their first difference (absolute growths) is. Having the same level of integration allows time series to be co-integrated (have a stable long-term relationship).

The co-integration equation was estimated using the Johansen test (Johansen, 1991) (enhanced with structural break components):

$$\ln(gdp) = 0.223\ln(forin) + 0.959\ln(empl) - 1.019,$$

where
gdp is a volume of Latvia's gross domestic product;
forin is a volume of direct foreign investments into Latvia' economy;
empl is a number of employed persons in Latvia.

This equation represents a long-term relationship between GDP, employment, and foreign investments. The logarithmic (Cobb-Douglass) form of the equation allows interpreting the estimated coefficients as elasticity values. So we conclude that GDP elasticity on employment is 0.959 (which is close to 1 as expected), and GDP elasticity on foreign investments is 0.223 and significantly differs from zero. The latter result is very important for our research and can be considered as an evidence of high-level integration of Latvia with the global world (mostly – into EU) economy. This result becomes even more important due to insignificant relationship between GDP and government expenses and non-financial investments that we discovered using the same approach.

Discovered long-term co-integration between GDP and foreign investments allows us constructing the vector error correction model (VECM). This approach is widely used for macroeconomic modelling (Canova, 2007) and includes both short-term and long-term aspects of the relationship.

The model equations were estimated using EViews software and for GDP have a form:

$$\Delta \ln(gdp) = -0.407 * (\ln(gdp_{-1}) - 0.223 \ln(forin_{-1}) - 0.959 \ln(empl_{-1}) + 1.019) -$$
$$- 0.011 \Delta \ln(gdp_{-1}) + 0.017 \Delta \ln(gdp_{-2}) + 0.388 \ln(forin_{-1}) - 0.112 \Delta \ln(forin_{-2})$$
$$+ 0.4131 \Delta \ln(empl_{-1}) - 0.265 \Delta \ln(empl_{-2}) - 0.128 -$$
$$- 0.002 tr * du1 + 0.001 tr * du2 + 0.215 Q_2 + 0.168 Q_3 + 0.205 Q_4,$$

where
gdp_{-1}, $forin_{-1}$, $empl_{-1}$ are first lags of corresponding variables;
gdp_{-2}, $forin_{-2}$, $empl_{-2}$ are second lags of corresponding variables;
tr is a trend variable;
$du1$ and $du2$ are dummy variables for two structural breaks (crises of 2008 and positive trend after recession in 2010);
Q_2, Q_3, Q_4 are dummy variables for quarters (to capture seasonality).

The long-term relationship is presented in the equation in the form of co-integration equation, and a related coefficient (-0.407) shows how fast is the system returning to a long-term equilibrium when it is deviated from that for some reasons. This value means that if a system is deviated from the equilibrium, it will correct 40% of this deviation during one quarter. This value is relatively high, so we can expect fact reaction of the Latvian economy on changes in volume of foreign investments.

Short-term fluctuations are reflected in the equation as coefficients for the first and second order indicator differences.

Common factors of integration processes demand arranging of the EU-wide new supranational stabilization mechanisms, making coordinated economic policy, and strengthening of the macroeconomic programming, executing the stabilization programs that smooth over crisis situations. Entry of Latvia in EMU may take place in new conditions. On the 29th of June, 2012, leaders of the euro zone countries made a resolution about creation of the common financial system and the common banking supervision system at the European level (Van Rompuy, 2012). It is also indicative of the progress towards an integrated economic policy. Creation of the integrated banking system with centralized supervision gives opportunity not only to see risks in advance, but also to prevent them, thus smoothing over crisis situations and unhealthy competition. A common European guarantee fund that was created on the basis of insurance savings made by the banking system should lift the burden of financial losses off taxpayers` shoulders. Fiscal policy of the national governments should be

coordinated and it should be made according to principles of the government debt reduction and intensification of social dimension of the member countries' budgets.

Entry of Latvia in EMU may give positive results like strengthening of the banking system and enhancement of credit instruments of economic growth regulation (Titarenko, 2012). Nowadays, the monetary policy of the Bank of Latvia mainly comes to check the prices and support the national currency rate. Use of money supply as a regulation tool of business activity in terms of fixed exchange rate is limited by the necessity to even out its fluctuation. Expansion of currency corridor, as it has been foreseen by the Exchange Rate Mechanism, to 15%, in our opinion, would lead to price increase of import. Expansion of export possibilities due to reduction of the lat rate would not compensate losses. Entry of Latvia into the euro zone is a matter of the nearest future. As statistics shows, 80% of credit portfolio in Latvia consists of the euro, and, the euro makes up more that 50% in assets of the commercial banks of Latvia.

Conclusions

Profound integration of national economy in the European Union is manifest and naturally determined process. Slowdown of this process can be considered as a threat for the Union and can lead to its breakup. Analysis of the Latvian national economy shows that the next consistent step of integration, adoption of the euro, is advantageous, even subject to significant potential losses and risks. Entry of Latvia into the European Monetary Union will improve the investment settings and favour the development of Latvian economy.

In this research, the authors discussed different effects of integration and adoption of the euro in Latvia. The authors also applied a contemporary macroeconomic approach, based on a vector error correction model, and discovered significant co-integration of Latvian GDP and the volume of foreign investments in 2001–2012. The article addressed the importance of foreign capital in developing the Latvian economy, a role of monetary instruments in this process and also discussed other prospective consequences of the euro adoption.

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THE AUDIT AUTHORITY OF THE EUROPEAN UNION FUNDS FOR 2014–2020 PLANNING PERIOD

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Abstract

One of the preconditions to the allocation of the European Union (EU) funds to Latvia in the new planning period 2014–2020 is the Audit Authority as a part of the EU funds management and control system that would give assurance to the European Commission that the management and control system of Latvia is effectively providing a guarantee that the statements of expenditure presented to the Commission are correct and the underlying transactions are legal. The aim of the article is to define the model and role of the Audit Authority in the EU funds management and control system in the current planning period of 2007–2013, explore the concept of the institutional framework for new programming period. The main task of the article is to evaluate the most effective institutional model of 2014–2020 planning period in respect of the Audit Authority by examining a number of EU funds' institutional framework models. The research method applied – qualitative analysis of the audit results obtained by the Audit Authorities of 27 EU member states and requirements of the European Commission for 2014–2020 planning period.

Keywords: *Audit Authority, Managing Authority, management and control system, institutional framework*

Introduction

The Audit Authority is an essential element of the EU funds management and control system. It has been successfully functioning from the 2007–2013 EU funds planning period, but as regards the next 2014–2020 planning period, the major question is whether it should continue its work or some changes are needed.

First of all, the author of the paper will analyze the existing structure of the EU funds management and control system in 2007–2013 planning period and, specifically, the role of the Audit Authority in this structure. Second, the research on possible improvements in the work and structure of the Audit Authority will be presented, using qualitative analysis of the audit results of the Latvian Audit Authority and Audit

Authorities of 27 EU member states in 2007–2013 EU funds planning period, as well as the new requirements of the European Commission for 2014–2020 planning period. Finally, a conclusion on the role and place of the Audit Authority of the EU funds 2014–2020 planning period will be presented.

European Union Funds System in Latvia

Based on the experience gained in the EU funds 2004–2006 planning period, the Ministry of Finance of Latvia provides the Audit Authority's functions for the current 2007–2013 planning period.

According to the European Commission's requirement, the task of the Audit Authority is to provide an independent and objective statement to the European Commission regarding the performance efficiency of the EU funds management and control system, as well as legality and accuracy of the declared expenditure.

The Latvian institutional framework of the EU funds management can be seen in th *Figure 1*.

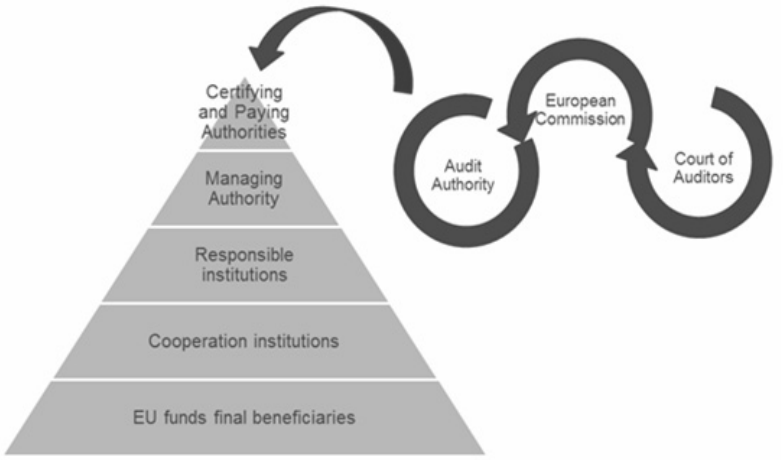

Figure 1. The Latvian institutional framework of the EU funds management (Janberga, 2012)

The Audit Authority should provide assurance to the European Commission on permanent EU funds management and control system and separate institutions involved in the EU funds management – beginning with the EU funds final beneficiaries and including the Managing Authority, the Certifying Authority and the Paying Authority. Meanwhile, the European Commission, relying on the work of the Audit Authority, provides assurance to the Court of Auditors, which would, in its turn, provide the report on the previous financial year to the European Parliament and the Council.

According to the information provided in *Figure 1*, the EU funds management system in Latvia consists of multiple levels of authorities – starting from the EU funds final beneficiaries who receive the funding. The most important tasks of the Responsible institutions are to define the EU funds' project application evaluation criteria according to the planning document, to ensure proper evaluation and selection of the EU funds' financed project applications as well as monitoring and control over the implementtation of projects, analyzing problems related to implementation of activities and projects and coming up with the proposals on improvement to the Managing Authority.

In the current planning period, there are six cooperation institutions:

- Central Finance and Contracting Agency;
- Investment and Development Agency of Latvia;
- State Employment Agency;
- State Education Development Agency;
- State Regional Development Agency;
- Society Integration Foundation.

Next level consists of Responsible institutions, which should analyze problems related to implementation of activities and projects of the EU funds, come up with the proposals on improvement to the Managing Authority, take part in setting criteria for the project evaluation, ensure proper evaluation and selection of the EU funds financed project applications, as well as monitor and control project implementation.

The Responsible institutions are eight line ministries:

- Ministry of Economics;
- Ministry of Finance;
- Ministry of Education and Science;
- Ministry of Culture;
- Ministry of Welfare;
- Ministry of Transport;
- Ministry of Health;
- Ministry of Environmental Protection and Regional Development;
- State Chancellery.

Summarizing the above – mentioned information, segregation of duties between Responsible and Cooperation institutions depends on the decision of a specific Responsible institution as to whether and which functions are to be delegated to the Cooperation institution.

The Managing Authority, represented by the Ministry of Finance, plays a very important role in the EU funds management. Its duty is to ensure the management and implementation of the EU funds. The Managing Authority's functions are strictly

separated from the Audit Authority's functions. The Managing Authority cooperates with Responsible institutions, consults with social partners in the private sector and regional partners to develop documentation on every planning period, thus ensuring the principle of partnership in preparation of the planning documents as well as the EU funds' inter-sectoral coordination. The Managing Authority has delegated a part of its functions to the Responsible and the Cooperation institutions, while the Managing Authority monitors and coordinates all delegated functions.

Taking into consideration the experience of the previous 2007–2013 planning period, such decentralization creates risk that some institutions will not properly implement the functions delegated by the Managing Authority, and will make control and monitoring of the delegated functions expensive and difficult.

The Treasury performs the functions of the Paying Authority and the Certifying Authority. The Treasury is responsible for making payments related to the EU funds projects and for financial accounting of the payments made. The Treasury prepares and submits to the European Commission certified expenditure declarations and payment claims, thus confirming that the expenditure declarations are correct and results from the reliable accounting systems are based on the verifiable supporting documents, as well as the expenditure declared complies with the applicable Community and Latvian law and are made in respect of operations selected for funding under the program, the applicable criteria and complying with Community and Latvian legislation.

As shown in *Figure 1*, all the above – mentioned institutions are controlled by the Audit Authority by performing management and control system audits and the audits of operations.

Until 2011 part of Audit Authority functions – performance of system audits – was delegated to the internal audit divisions of bodies involved in the EU funds management and control system administration. This decentralization created a risk of poor performance of Audit Authority's functions and made control and monitoring of the delegated functions very difficult. Staring with 2011, all functions of the Audit Authority in 2007–2013 planning period are concentrated at the Ministry of Finance. Thus all Audit Authority's functions are performed according to the single methodology – the International Standards on Auditing issued by International Federation of Accountants, but not the International Standards for the Professional Practice of Internal Auditing as before.

As a result of auditing missions of the European Commission in 2010 and 2011, a new specific requirement for the Audit Authority was given – to concentrate all Audit Authority's functions in the Ministry of Finance. Accordingly, the risk of undermined audit independence was minimized, which could have taken place because the internal audit divisions of bodies involved in the EU funds management and control system administration report to the management of the specific institution and internal audit divisions perform their functions according to the International Standards for the

Professional Practice of Internal Auditing, but not the International Standards on Auditing, thereby not according to the requirements of the European Commission.

In addition to the above-mentioned changes, one of the new requirements of the European Commission was for the Audit Authority to report on audit results directly to the European Commission.

The next step to ensure independence of the Audit Authority was to make changes in the structure of the Ministry of Finance, stating that the Audit Authority is subordinated to the Minister for Finance, not the State Secretary as before. As the result, the Audit Authority that has functions, which are performed by the EU Funds Audit Department of the Ministry of Finance, depends on other ministry's structural divisions in planning and performance of audits, as well as in preparation of audit reports and opinions.

Moreover the Audit Authority does not interfere with the performance of ministry's primal functions as well as the establishment of the internal control system.

The independence of the Audit Authority was also strengthened by incorporating the norm in the EU Structural and Cohesion Funds' Law that the Audit Authority informs the Cabinet of Ministers on the results of the audits in the reporting year. If the Audit Authority obtains the information that might seriously influence the implementation of the EU funds, it immediately informs the Cabinet of Ministers. Every year before December 31 the Audit Authority has to send the Annual Control Report and Opinion on the implemented management and control system to the European Commission. The Annual Control Report consists of information on the results of evaluation of the implemented system and the opinion on whether it complies with the Council Regulation No. 1083/2006 laying down general provisions on the European Regional Development Fund, the European Social Fund and the Cohesion Fund. Since the European Commission takes into consideration these documents relying on the European Community budget shared management to make sure that the Member states use adequate financial aid according to the defined regulations and principles necessary for the European Community's interest protection, the Audit Authority has specifically defined the justification of evaluation and opinion on the information provided in these documents.

To ensure efficiency and effectiveness of audits performed according to uniform standards in all member states, to prepare the Annual Control Report and Opinion on management and control system and eligibility of declared expenditure, it is essential to establish the adequate Audit Authority according to the requirements of the European Commission.

Research

The research was based on 27 EU member states' as well as Latvian experience in activities implemented in 2007–2013 EU funds planning period and activities necessary for preparation for 2014–2020 planning period. The research method was qualitative analysis of the audit results of the Latvian Audit Authority as well as Audit Authorities of 27 EU member states in 2007 to 2013 EU funds planning period and the new requirements of the European Commission for 2014–2020 planning period.

Taking into consideration that the management and control system structure of the new planning period should be defined before the end of 2012, the most important issue is establishment of the Audit Authority, which would provide assurance to the European Commission that Latvia is eligible for the EU funds.

Unlike 2007–2013 EU funds planning period regulations, European Commission's requirement for the new planning period at the point of this research is the Audit Authority's and Managing Authority's structural segregation if the cumulative amount of aid in all operational programs exceeds EUR 250 000 000 (in 2007–2013, the total amount of the EU funding allocated to Latvia was EUR 5.7 bln). As the total amount of aid in Latvia will most likely exceed EUR 250 000 000, the previously mentioned requirement should be met in the new Latvian institutional framework of the EU funds management.

The Audit Authority in the new programming period, as well as current programming period, should provide assurance to the European Commission on successful management and control system in Latvia, adequate audits of operations and audits of the annual accounts. Within six months of the acceptance of the operational program, the Audit Authority is required to prepare an audit strategy that sets out the audit and auditing methodology, certified expenditure audit selection and planning principles related to the current accounting year and the next two accounting years. Based on the performed audits and the results of audits, the Audit Authority has to prepare:

- Annual Control Report for the previous accounting year's audits and audit findings.
- Opinion on the preceding annual accounts.

It is important to agree on the future of the EU funds' optimized institutional framework at national level to ensure timely implementation of the EU fund launch in early 2014 (or as early as possible), thus ensuring the country's timely EU funding, contributing to economic stabilization and development. If an agreement on the EU funds' institutional framework is not achieved and the preparatory steps are not taken in time, the country runs the risk of delaying the acquisition of significant financial support.

Therefore after the assessment of a number of possible models of the EU funds institutional framework it is essential in the research to identify the most effective institutional model for 2014–2020 planning period, which would contribute to the system optimization as compared to the current planning period.

The main principles of implementation of the EU funds institutional framework are:

- Thematic concentration – the need to introduce a limited number of clearly defined and understandable thematic objectives by ensuring an effective policy objectives and quantifiable results.
- Reducing administrative burdens – focus on delivering the results, reducing the proportion of the controls and audits in the implementation of funds.
- Institutional concentration – most centralized EU funds management and control system.
- Institutional succession – the maximum use of the experience, capacity and human resources in the field of fund administration from the previous planning periods.

During the research, eight potential institutional system models known at the beginning of 2012 were analyzed. The models differ in overall system centralization level, the number of institutions involved and their level of responsibility.

- In the model building the following fundamental principles were used:
- Removing control function duplication, while maintaining existing human resources.
- Managing Authority is responsible for the provision of the program management and implementation.
- Establishing the Audit Authority as an independent authority.
- Line ministries maintain an industry expert advisory role.

In order to determine the most optimal institutional framework, model analysis was performed based on the following criteria:

- reducing the administrative burden;
- institutional concentration;
- institutional continuity;
- relationship with budget planning;
- impact on the budget;
- system advantages and disadvantages.

As the major benefit a unified approach to controls and monitoring has been evaluated, taking into account the criticism of the European Commission of the situation in the current planning period and reducing to a minimum the risk of termination of payments.

The following bodies were identified as the possible variants of the Audit Authority: the State Audit Office, a newly created separate body, the Ministry of Finance as an independent unit, as well as the possibility that the Audit Authority's function will be performed by an internal audit division was considered. Each option has both positive and negative aspects.

The research showed that in order to maintain the above-mentioned principles, it would be necessary to preserve the Audit Authority as an independent body at the Ministry of Finance. It would provide the following benefits:

- lower maintenance costs;
- reducing the administrative burden both for beneficiaries and public administration;
- institutional continuity.

Conclusions

To ensure that the Audit Authority could convince the European Commission on the compliance of management and control system, a timely decision on the establishment of the institutional framework for the EU funds management is required, ensuring that it is not an obstacle to the EU funds allocation planning and establishment of the EU funds management system.

Based on the experience of 2007–2013 planning period, it was concluded that the changes made to the management and control system should support the Audit Authority as part of the management and control system, retaining it as an independent entity of the Ministry of Finance. Thus, it would be possible to avoid increased administrative burden in addition to increased cost, providing institutional continuity, unified approach to controls, avoiding the need to delegate functions and carry out the monitoring of delegated functions.

As for the role and model of the Audit Authority of the EU funds for 2014–2020 planning period, the research showed that it will continue to be a major element of the EU funds management and control system, provided that its structure will not be significantly changed and it will retain its independence, while the improvements will only be made regarding the effectiveness and efficiency of the Audit Authority's work.

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CONSUMER ETHNOCENTRISM IN LATVIA

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Abstract

Consumer ethnocentricity is a concept which incorporates the moral and emotional aspects of purchasing or rejecting imported goods based on possible implications on domestic industries. Although introduced in the context of American consumers in 1987, Consumer Ethnocentricity Scale (CETSCALE) has been used in numerous customer surveys in many countries and industry sectors. The objective of the present study is to evaluate the Latvian consumers' ethnocentricity by analysis of nationwide survey results, in terms of gender, age, education and income categories. The availability of similar studies in other countries allows for estimating the level of ethnocentricity of Latvian consumers internationally.

Keywords: *ethnocentrism, CETSCALE, Latvia, socio-economic variables, consumer attitudes*

Introduction

Research objectives

The purpose of the study is to estimate the level of ethnocentricity of Latvian consumers and the dependence of the revealed level of ethnocentricity upon the socio-economic variables by analyzing the survey questionnaire data collected.

The Concept of Consumer Ethnocentrism

The concept of ethnocentrism was introduced by Sumner (1906), and it deals with the tendency for individuals to differentiate between the 'in-groups' and 'out-groups'. An individual from in-group identifies strongly with in-group ethnicity, language, culture and religion viewing events from the perspective of in-group. Out-group ethnicities or

cultures are considered inferior. The level of ethnocentrism depends upon the cohesion of personal and social elements and it ranges from inferiority felt when compared with other ethnicities or cultures, to beliefs of superiority, and contempt of outsiders. The concept of consumer ethnocentrism has been derived from the general concept of ethnocentrism by Crawford and Lamb (1981), who extended the concept beyond psychological and social frameworks as a factor in consumer purchasing choices. The construct of consumers' ethnocentrism relies on the presumption that the consumers' patriotic emotions will have significant effects on attitudes and purchase intentions. Shimp and Sharma (1987) defined consumer ethnocentrism as "the beliefs held by consumers about the appropriateness, indeed morality of purchasing foreign-made product and the loyalty of consumers to the products manufactured in their home country." Their research suggested that consumers refuse to buy foreign products because they consider that they are harmful to the national economy and cause unemployment.

Herche (1992) found that consumer ethnocentrism can predict consumers' preferences to buy domestically produced goods instead of foreign and that the ethnocentric tendencies are better predictors of purchase behaviour than demographic or marketing mix variables.

Consumer Ethnocentrism Tendency Scale (CETSCALE)

Shimp and Sharma (1987) in their study were the first to develop a scale for measuring the ethnocentric tendencies of USA consumers. The predictive validity of scale was tested in a nationwide mail survey. They proved that consumer ethnocentrism can measure, explain and provide answers to why and to what extent consumers prefer domestic products instead of foreign. They characterized the scale as a measure of 'tendencies' rather than 'attitudes' because it also includes the explanation of consumer decisions to buy 'the most appropriate product'. It can be concluded that CETSCALE is a successful predictor of consumers' beliefs, attitudes, purchase intentions and decisions. Since then, the scale has been widely used to measure ethnocentrism tendencies across many countries and customer segments: studies within developed and in the developing countries. Although other scales have subsequently been suggested and tested, CETSCALE has become the most commonly used instrument for measuring consumer ethnocentrism. Generally, the consumer ethnocentrism is measured by an average of each respondent's summed scores across the 17 scale items.

Latvian CETSCALE

The original American questionnaire was translated into Latvian by a certified translator and back translated into English. Thus the Latvian questionnaire can be considered as adequately representing the original English version. Data collection for survey was conducted from October 28 – December 21, 2012. In order to obtain representative

coverage of Latvian consumers, three sampling methods were used. The first method (electronic mailing) was used to get responses from publicly available mailing addresses at governmental institutions, companies and individual businesses. Questionnaires with fillable forms for each statement along with a cover letter were mailed to 4 401 e-mail addresses in total. The second method involved direct distribution of 150 printed questionnaires to bachelor students of two universities. The third method involved voluntary filling out of 100 printed questionnaires by respondents when attending a public library. For the electronic mailing sample, 534 questionnaires were correctly completed and 86 e-mails were returned as undeliverable. For the direct distribution in universities, 32 questionnaires were completed. For the library sample, 16 questionnaires were completed. Eventually, three samples were pooled form testing proposed relationships. Overall response rate of questionnaires distributed was 12.5%.

Hypotheses

Past results of CETSCALE surveys in different countries are mixed. However, mostly unidimensionality, internal reliability and discriminatory validity of the scale is supported. In some countries research suggests two-dimensional structure of the scale. The research examines the socio-demographic variables of gender, age, education and income. A lack of prior research in Latvia suggests the testing of the following hypotheses:

H1: The CETSCALE has internal consistency against the sample.

H2: Each of the 17 items of the CETSCALE is able to discriminate between high scorers and low scorers of the sample.

H3: The CETSCALE is unidimensional against the sample.

As prior research in a number of countries suggest, different socio-demographic groups differ with respect to consumer ethnocentrism. The most consumer ethnocentric group will have significantly more females, higher average age, the least education and the least average income. Thus, one may expect that:

H4: Females are more ethnocentric than males.

H5: Older respondents are more ethnocentric than younger ones.

H6: Persons with lower education are more ethnocentric than people with higher education.

H7: Persons with lower average income per household member are more ethnocentric than more affluent respondents.

Several consumer surveys with respect to food products conducted in Latvia during the last decade prove that domestic origin is an important factor behind the choice as a guarantee of product taste, quality and safety. Therefore,

H8: Latvian respondents' CETSCORE will be relatively high with respect to comparable samples from other countries.

Methodology and Results

Cronbach's alpha coefficient is the most common measure for internal consistency reliability when using Likert – type scales. According to George and Mallery (2003), scale's internal consistency is excellent as the value of Cronbach's alpha coefficient is 0.939, thus exceeding the recommended 0.90 value. The results along with the items are presented in *Table 1*. All items contribute to the reliability and construct validity of the scale as the items correlate more than 0.4 with the factors that underlie them, the Cronbach's alpha does not increase when one of the questionnaire items is deleted. This indicates that none of the items can be deleted from the CETSCALE. Thus, the stability of the scale is even more supported. Therefore, the reliability estimates from the sample support Hypothesis 1.

Discriminatory power refers to a scale's ability to produce a wide range of scores. It is a desirable property of a questionnaire because it looks for differences between the answers of respondents. Discriminatory power can be measured by Ferguson's delta, which ranges from 0 (summed responses across the items are the same for every respondent) to 1 (each respondent has a unique summed score). However, even in theory, the value of 1 is possible only when the number of respondents does not exceed the number of unique outcomes. Kline (1986) proposed a scale to be considered discriminating if delta is above 0.90. The CETSCALE has high discriminatory power as the value of Ferguson's delta is 0.994 and Hypothesis 2 is supported.

The unidimensionality of Latvian CETSCALE can be tested by Principal Components Analysis (PCA). The Kaiser-Meyer-Olkin measure of sampling adequacy is high with KMO = 0.948. Bartlett's test of sphericity was statistically significant with alpha = 0.0012, supporting the null hypothesis H0: there is no correlation significantly different from 0 between the 17 variables. As the computed p-value p = 0.9988 is greater than the significance level alpha = 0.05, the null hypothesis H0 cannot be rejected. In other words, the risk to reject the null hypothesis H0 while it is true is 99.88%. The value of Kaiser-Meyer-Olkin measure and results of Bartlett's test of sphericity suggest the appropriateness of PCA. The initial solution extracts 17 factors (components), the same as the number of variables factored.

Table 1

Questionnaire Items, Cronbach's Alpha Values and Initial Factor Loadings

#	Item	Cronbach's Alpha	Factor loadings
1	Latvian people should always buy Latvian-made products instead of imports.	0.931	0.724
2	Only those products that are unavailable in Latvia should be imported.	0.932	0.716
3	Buy Latvian-made products and keep Latvia working.	0.934	0.631
4	Latvian products, first, last, and foremost.	0.930	0.759
5	Purchasing foreign-made products is non-Latvian.	0.931	0.728
6	It is not right to purchase foreign products, because it puts Latvians out of jobs.	0.932	0.734
7	A real Latvian should always buy Latvian-made products.	0.930	0.813
8	We should purchase products manufactured in Latvia instead of letting other countries get rich off us.	0.931	0.776
9	It is always best to purchase Latvian products.	0.932	0.673
10	There should be very little trading or purchasing of goods from other countries unless out of necessity.	0.933	0.666
11	Latvians should not buy foreign products, because this hurts Latvian business and causes unemployment.	0.931	0.774
12	Curbs should be put on all imports.	0.934	0.581
13	It may cost me in the long-run but I prefer to support Latvian products.	0.934	0.603
14	Foreigners should not be allowed to put their products on our markets.	0.932	0.695
15	Foreign products should be taxed heavily to reduce their entry into Latvia.	0.933	0.641
16	We should buy from foreign countries only those products which we cannot obtain within our own country.	0.932	0.702
17	Latvian consumers who purchase products made in other countries are responsible for putting their fellow Latvians out of work.	0.931	0.740
	Composite reliability	0.939	
	* Cronbach's Alpha scores on the deletion of an item		

Source: research findings

Only two components have eigenvalues above 1. The cumulative percentage of variance explained by the first two factors is 56.4%. In other words, 56.4% of the common variance shared by the 17 variables can be accounted for by the two factors. This initial solution suggests that the final solution should extract not more than two factors.

The number of the extracted factors, eigenvalues and variances explained by variable are displayed in *Table 2*.

Table 2

Components and Extracted Factors

Compo-nent	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.478	49.9	49.9	8.478	49.9	49.9
2	1.116	6.6	56.4	1.116	6.6	56.4
3	0.985	5.8	62.2			
4	0.786	4.6	66.9			
5	0.701	4.1	71.0			
6	0.648	3.8	74.8			
7	0.587	3.5	78.2			
8	0.540	3.2	81.4			
9	0.489	2.9	84.3			
10	0.442	2.6	86.9			
11	0.385	2.3	89.2			
12	0.376	2.2	91.4			
13	0.351	2.1	93.4			
14	0.326	1.9	95.4			
15	0.303	1.8	97.1			
16	0.266	1.6	98.7			
17	0.220	1.3	100.0			

Source: research findings

Another way to determine the number of factors to extract in the final solution is Cattell's scree plot. This is a plot of the eigenvalues associated with each of the factors extracted, against each factor. At the point where the plot begins to level off by forming an ‘elbow’, the additional factors explain less variance than a single variable. The scree plot is shown in *Figure 1*.

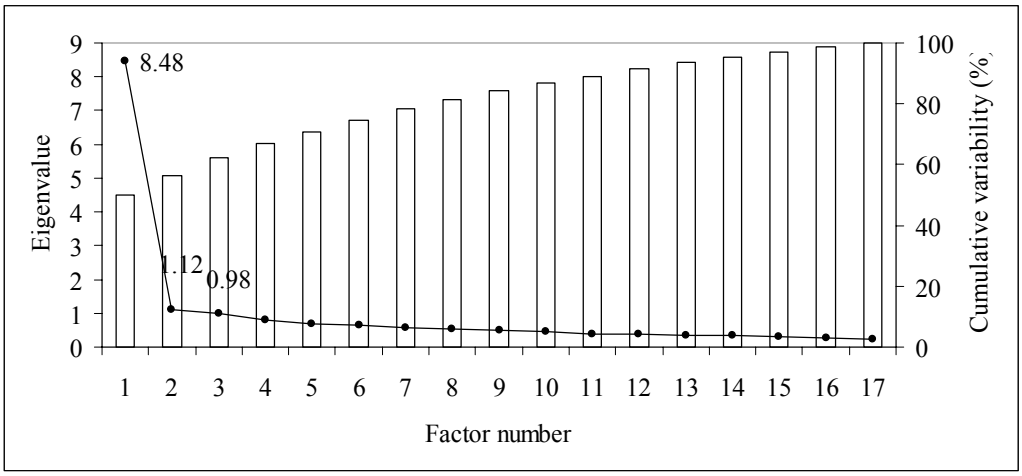

Figure 1. Catell' s Scree Plot

Source: Research Findings

As seen from the scree plot, Varimax rotation method is not necessary, and only one factor can be extracted. However, one factor explains only 49.9% of the Total Variance, and two factors are selected as suggested by eigenvalues. After Varimax rotation, only 10 variables had loadings on either of two factors exceeding the value of 0.6, which is commonly accepted as a 'rule of thumb'. The values of factors attributed to variables (variables with factor values over 0.6 are shown in bold) are displayed in *Figure 1*.

The explanations of factors retained vary depending on researchers' interpretations in various countries. Rahman, Morshed and Hossan (2011) found seven factors in Bangladeshi CETSCALE, providing no interpretation on extracted factors. Strehlau, Ponchio and Loebel (2012) extracted three factors from Brazilian CETSCALE – trade, country preferences and employment concerns. Wanninayake and Chovancová (2012) attribute the four extracted factors of Czech CETSCALE to patriotism, feeling of bad economic and employment impact, product availability and xenophobia. Renko, Crnjak-Karanović, and Matić (2012) extract only one factor in Croatian CETSCALE, naming it simply a consumer ethnocentrism.

Two factors in Latvian CETSCALE can be associated with patriotic feelings and trade issues (*Table 3*).

Table 3

Rotated Factor Loadings of Latvian CETSCALE

Variables	Factor 1 – Patriotism	Factor 2 – Trade
1	**0.786**	0.179
4	**0.772**	0.252
3	**0.757**	0.066
2	**0.680**	0.298
7	**0.649**	0.490
11	**0.622**	0.461
8	**0.617**	0.471
14	0.251	**0.797**
15	0.221	**0.748**
12	0.150	**0.740**
17	0.509	0.548
16	0.472	0.534
6	0.544	0.495
5	0.567	0.457
9	0.550	0.390
10	0.580	0.341
13	0.519	0.316

Source: Research Findings

The 17-item CETSCALE was summated as a new composite variable, which is commonly called CETSCORE, with values ranging from 17 to 119 (mean = 65.74; s.d. = 19.64). Mann-Whitney U-tests were calculated along the four socio-demographic variables: Gender, Age, Education and Income. As only Gender is binary variable with other variables being multi-categorical, respondents according to their Age, Education and Income were split into two groups. The first Age group included respondents under 50 years of age, the second – 50 years of age and older. The first Education group included respondents with college education and lover, the second – university graduates, masters and doctors. The first Income group included respondents with the monthly household income per person LVL 200 or less, the second – above LVL 200. For all four tests, null hypothesis stated is H0: there is no difference between two groups of respondents. The results of the test are displayed in *Table 4*.

Table 4

Mann-Whitney U-test Results on Socio-economic Variables

Hypothesis	Variable	Category	Number of respondents	CETSCORE	Z-value	Probability
H4	Gender	Male	267	62.86	3.14162	0.00168
		Female	315	68.18		
H5	Age	18–49	394	64.06	2.76540	0.00569
		over 49	188	69.26		
H6	Education	Primary, Secondary, College	106	68.14	1.40164	0.16102*
		University, Masters, Doctor	476	65.20		
H7	Income	under 200	220	70.32	4.21398	0.00003
		over 201	362	62.95		
* *p-value supports null hypothesis*						

Source: research findings

With regard to Gender, males (n = 267) had a mean CETSCORE of 62.86, while females (n = 315) averaged 68.18. Mann-Whitney U-test calculated Z value Z = 3.14 exceeds the critical value 1.96 (p = 0.0017). Thus the null hypothesis can be rejected. H4 is retained: female respondents' CETSCORE significantly exceeds male respondents' CETSCORE.

Younger respondents (n = 394) had a mean CETSCORE of 64.06, while older respondents (n = 188) averaged 69.26. Mann-Whitney U-test calculated Z value Z = 2.77 exceeds the critical value 1.96 (p = 0.0057). Thus the null hypothesis can be rejected. H5 is retained: older respondents' CETSCORE significantly exceeds younger respondents' CETSCORE.

Respondents with lower education (n = 106) had a mean CETSCORE of 68.14, while respondents with higher education (n = 476) averaged 65.20. Mann-Whitney U-test calculated Z value Z = 1.40 does not exceed the critical value 1.96 (p = 0.16). Thus the null hypothesis cannot be rejected. H0 is retained: there are no significant differences between CETSCORE of respondents with lower and higher education levels.

Respondents with lower income level (n = 220) had a mean CETSCORE of 70.32, while respondents with higher income (n = 362) averaged 62.95. The difference between Mann-Whitney U-test's calculated Z value Z = 4.21 and critical value 1.96 (p = 0.00003) is highly significant. Thus the null hypothesis can be rejected. H7 is retained: the level at which poorer respondents' CETSCORE exceeds more affluent respondents' CETSCORE is highly significant.

Latvian CETSCORE, at 65.7, is rather high if compared to scores in other countries (*Figure 2*).

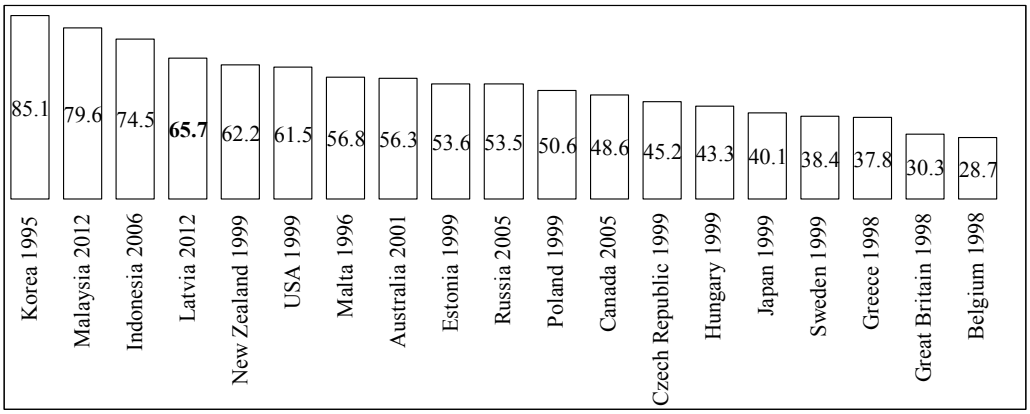

Figure 2. CETSCORES in selected countries

Source: research findings, Caruana and Magri (1996), Elliott et al. (2001), Hamin and Elliott (2006), Hult et al. (1999), Saffu and Walker (2005), Shah and Ibrahim (2012), Sharma et al. (1995), Steenkamp and Baumgartner (1998), Vida and Fairhurst (1999), Watson and Wright (1999)

However, the comparison is rather vague due to limitations with respect to survey year, sample population and sample size. In case of repeated surveys in particular country, the last score available is used. H8 is retained: Latvian respondents' CETSCORE is relatively high with respect to comparable samples from other countries.

Conclusions

The Latvian CETSCALE consumer survey questionnaire results show internal consistency and discriminatory validity of the scale. The unidimensionality of the scale can be either supported or rejected depending on evaluation method selected. Latvian CETSCALE cannot be unambiguously considered as unidimensional. Latvian females, older people and persons with lower income are more ethnocentric. There are no statistically significant differences in consumer ethnocentricity level depending upon their education. Latvian respondents' ethnocentrism is relatively high with respect to comparable samples from other countries.

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EVALUATION OF THE COMPARATIVE TRADE ADVANTAGE OF LATVIAN PROCESSED FOODS AND AGRICULTURAL COMMODITIES

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Abstract

The turnover of the Latvian foreign trade in processed foods and agricultural commodities has been continuously growing. The research aims to evaluate trade performance by single sectors within the total trade turnover. Indexes for revealed comparative advantage, relative trade advantage, and revealed competetiveness are used at both broad product groups and more disaggregated levels along with the Kaplan-Meier survival estimates for continuous intervals of trade with certain competitiveness level. Research results suggest that product groups with stable and relatively high export volumes have comparative trade advantage. Survival chances of uninterrupted periods of trade are higher for imports.

Keywords: *foreign trade, food and agriculture, revealed competitiveness, specialization, survival estimator*

Introduction

The balance of the Latvian foreign trade in processed foods and agricultural commodities has been negative for two decades. Evaluation of the trade competitiveness of Latvian agri-food industries has to be considered as crucial in structural adjustments of the sector towards maximizing the returns from trade. The underlying factors should be assessed by using several measures of trade competitiveness both at broad product groups and more disaggregated levels.

Research objectives

The objective of the study is to assess the revealed trade competitiveness of Latvian agri-food sectors and evaluate the survival chances of uninterrupted periods of trade.

The Concept of Revealed Comparative Advantage

The original index of revealed comparative advantage (RCA) was proposed by Balassa (1965). RCA or Balassa index is equal to the proportion of exports of a particular product by country in total exports divided by the proportion of world exports of the same product in total world exports. As RCA is based on the past trade values observed, it is not set before the occurrence of trade flow, but is revealed after the trade flow takes place. The RCA index was introduced because of the difficulties in measurement and comparison of all the factors influencing a country's comparative advantage. Similarly, the RCA index is used to reveal the comparative advantages in imports. As the Balassa-index neglects asymmetric values, Vollrath (1991) suggested three different specifications of revealed comparative advantages. Hillman (1980) questioned the ability of Balassa index to measure comparative advantage and developed an inequality expressing necessary and sufficient condition for the correspondence between the Balassa-index and pre-trade relative prices for a specific sector under homothetic preferences. Marchese and de Simone (1989) converted this inequality into an equation for computing the Hillman condition. Dalum, Laursen and Willumsen (1998) developed the Revealed Symmetric Comparative Advantage (RSCA) index. In general, all the above-mentioned indexes yield similar results. However, specific results would be sensitive to the index used. The RCA index is commonly viewed as a measure identifying the extent of comparative advantage or disadvantage. Thus it can be considered a cardinal measure. Ballance, Forstner and Murray (1987) suggested statistical tests for examining the consistency of various indexes, arguing that RCA index provides a ranking of product groups upon the comparative advantage, being an ordinal measure. Moreover, he insisted that the index identifies only the advantage or disadvantage. Thus it can be considered a dichotomous measure.

Methodology and Results

Balassa index

First, export share of a particular product by particular country to a group of countries relative to its total exports of product group to the same set of countries is calculated. Then, the export share of a particular product by a group of countries relative to group's total exports is calculated. RCA index or Balassa index is obtained by dividing these two variables:

$$RCA = \frac{\frac{X_{ij}}{X_{it}}}{\frac{X_{sj}}{X_{st}}},$$

where X is the value of exports, i – a country, j is a product, t is a product group, s is a set of countries. If RCA>1, then a comparative advantage is revealed. RCA values below 1 suggest comparative disadvantage.

Vollrath index

Vollrath (1991) proposed a measure of the relative trade advantage (RTA). A counterpart of RCA, relative import advantage RMA similarly to RCA is calculated. RTA is expressed simply as the difference between RCA and RMA:

$$RTA = RCA - RMA,$$

where M is the value of imports,

$$RMA = \frac{\frac{M_{ij}}{M_{it}}}{\frac{M_{sj}}{M_{st}}}$$

Vollrath's revealed competitiveness index RC is defined as

$$RC = \ln RCA - \ln RMA$$

Positive value of RTA or RC reveals competitive trade advantage.

Hillman condition

Hillman condition HI is expressed as:

$$HI = \frac{1 - \frac{X_{ij}}{X_{sj}}}{\frac{X_{ij}}{X_{it}}(1 - \frac{X_{it}}{X_{st}})}$$

using the same notations as in formula (1).

Revealed Symmetric Comparative Advantage (RSCA) index

The RSCA index is a transformed Balassa index as follows:

$$RSCA = \frac{RCA - 1}{RCA + 1}$$

The RSCA takes values between -1 and 1, with positive values indicating a comparative export advantage and negative values indicating a comparative export disadvantage. By substituting RCA with RMA in formula (6), a RSCA index for imports is obtained.

Sample data

The foreign trade data was extracted from the United Nations COMTRADE database. With a view of obtaining the information that would provide necessary distinction between processed foods and agricultural commodities, a combined approach was applied, extracting the data conforming to the EUROSTAT PRODCOM classification from trade data according to 6-digit codes of HSO 2002 and HSO 2003 classificators, including first 24 2-digit code groups. In total, 53 product groups were selected with data on both exports and imports over the period from 2002 to 2011 on annual basis. Indexes for comparative advantage are calculated for the Latvian foreign trade relative to world trade.

Latvian foreign trade indexes

Calculated RCA indexes both for exports and imports conformed to Hillman condition with all HI values exceeding 1. Thus, the RCA index is suitable for measuring comparative advantage.

Consistency tests of the indices

Out of six possible pairings of four measures (RCA, RTA, lnRXA and RC), the correlation coefficient between paired indexes in each of ten years exceeds 0.70 only for one pairing – lnRXA and RC (*Table 1*). None of the pairings have correlation coefficient over 0.75 every year. Only 12 of 60 coefficients exceed 0.75. So the indexes cannot be considered as cardinal measures of comparative advantage.

Table 1

Cardinal Measure Test of the Indexes, 2002–2011

Pairings	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
RXA/lnRXA	0.75	0.77	0.70	0.79	0.72	0.73	0.69	0.71	0.63	0.59
B/RC	0.56	0.51	0.61	0.65	0.57	0.60	0.60	0.62	0.55	0.55
B/RTA	0.54	0.56	0.46	0.28	0.25	0.51	0.53	0.61	0.64	0.75
lnRXA/RC	0.84	0.71	0.80	0.83	0.86	0.87	0.91	0.79	0.84	0.85
RTA/lnRXA	0.52	0.47	0.31	0.25	0.18	0.34	0.29	0.31	0.25	0.31
RTA/RC	0.76	0.68	0.62	0.60	0.49	0.61	0.55	0.67	0.53	0.59

Source: research findings, UN Comtrade database

The consistency test of the indexes as ordinal measures is based on Spearman rank correlation coefficient for six pairings. The results show that 33 coefficients of 60 exceed the value of 0.75 (*Table 2*). The consistence is moderate and indexes cannot be considered ordinal measures.

Table 2

Ordinal Measure Test of the Indexes, 2002–2011

Pairings	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
RXA/lnRXA	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
B/RC	0.79	0.74	0.80	0.82	0.75	0.85	0.89	0.77	0.80	0.81
B/RTA	0.61	0.60	0.49	0.43	0.34	0.46	0.47	0.35	0.25	0.37
lnRXA/RC	0.79	0.74	0.80	0.82	0.75	0.85	0.89	0.77	0.80	0.81
RTA/lnRXA	0.60	0.58	0.52	0.52	0.39	0.51	0.47	0.38	0.30	0.42
RTA/RC	0.90	0.87	0.85	0.84	0.81	0.80	0.70	0.75	0.71	0.73

Source: research findings, UN Comtrade database

The consistency test of indexes as dichotomous measures is based on simple calculations of the share of the product groups with the same interpretations of the observed index values. Only one value out of 60 is lower than 0.70 (*Table 3*). This is indicative of dichotomous consistency of all four indexes.

Table 3

Dichotomous Measure Test of the Indexes, 2002–2011

Pairings	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
RXA/lnRXA	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
B/RC	0.82	0.77	0.81	0.88	0.78	0.86	0.84	0.87	0.86	0.88
B/RTA	0.81	0.77	0.81	0.89	0.79	0.87	0.85	0.87	0.87	0.89
lnRXA/RC	0.82	0.67	0.73	0.74	0.76	0.80	0.75	0.81	0.86	0.80
RTA/lnRXA	0.80	0.77	0.81	0.88	0.78	0.86	0.84	0.87	0.86	0.88
RTA/RC	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Source: research findings, UN Comtrade database

RSCA index for primary products and processed products

Computed values for export RSCA and import RSCA are provided in *Table 4*. Export RSCA indexes for primary products show increase in the period from 2008 to 2010, while index for processed products is negative. This can partly be explained by the global crisis when demand shifted from high value products to primary products. The trend reverses in 2011. Import RSCA indexes for primary products are negative over the whole ten-year period, while indexes for processed products are positive over the whole ten-year period. In other words, Latvian imports of primary products are relatively lower than in the world. And vice versa, Latvian imports of processed products are relatively higher than in the world.

Table 4

Export and Import RSCA Indexes for Primary and Processed Products, 2002–2011

Group	Flow	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Primary	Exports	-0.44	-0.31	-0.49	-0.18	-0.28	-0.17	**0.02**	**0.08**	**0.06**	-0.03
	Imports	-0.13	-0.17	-0.17	-0.18	-0.21	-0.19	-0.14	-0.12	-0.10	-0.12
Processed	Exports	**0.12**	**0.10**	**0.13**	**0.06**	**0.09**	**0.06**	-0.01	-0.04	-0.03	**0.01**
	Imports	**0.05**	**0.06**	**0.06**	**0.07**	**0.07**	**0.07**	**0.06**	**0.05**	**0.04**	**0.05**

Source: research findings, UN Comtrade database

The increase in export RSCA index for primary products has to be attributed to increase in index in product groups such as live animals, chilled fish, eggs, plants and seeds. As Latvia traditionally exports large volumes of cereal surplus, index for cereals is mainly positive.

Stability of the RSCA index

Stability of the RSCA indexes over a ten-year period was evaluated by linear regression as proposed by Dalum, Laursen and Willumsen (1998). RSCA index in every subsequent year was regressed on the RSCA index in the first year according the formula:

$$RSCA_{tj} = \alpha + \beta * RSCA_{t1} + \varepsilon \ ,$$

where $t1 = 2002$,
$tj = 2,3,...,10$ – years from 2003 to 2011,
α and β – regression coefficients,
ε – standard error of the regression.

Stability of the RSCA depends on calculated values of β, and it shows the changes in the overall specialization in exports or imports. If $\beta = 1$, the specialization of the trade flow is unchanged. If $0 < \beta < 1$ means weaker specialization (or de-specialization). If $\beta > 1$, specialization has strengthened. Dalum, Laursen and Willumsen (1998) recommend further analysis by using the correlation coefficient R of the regression. Specialization is considered unchanged if $\beta = R^2$. If $\beta > R$, specialization has strengthened. If $\beta < R$, specialization has weakened. Stability of Latvian export and import RSCA indexes is calculated with 9 possible time lags on the index at the first year. The calculated stability for export RSCA index is shown in *Table 5*. In all cases β<1, suggesting a despecialisation of Latvian exports.

Table 5

Stability of Latvian Export RSCA Index

lag	α	β	R^2	R	β/R
1	0.0629	0.9130	0.7879	0.8877	1.0285
2	0.0547	0.8555	0.6693	0.8181	1.0457
3	0.0123	0.8050	0.5967	0.7724	1.0421
4	0.0006	0.6866	0.4750	0.6892	0.9962
5	0.0029	0.6848	0.4316	0.6569	1.0424
6	-0.0212	0.6421	0.3917	0.6258	1.0260
7	-0.0321	0.5746	0.3525	0.5937	0.9679
8	-0.0458	0.5198	0.3016	0.5492	0.9465
9	-0.0266	0.5176	0.3009	0.5486	0.9436

Source: research findings, UN Comtrade database

Calculated stability for import RSCA index is shown in *Table 6*. Similarly to export RSCA, in all cases β<1, suggesting a despecialization of Latvian imports.

Table 6

Stability of Latvian Import RSCA Index

lag	α	β	R^2	R	β/R
1	-0.0052	0.9434	0.9431	0.9711	0.9715
2	-0.0050	0.8761	0.9089	0.9534	0.9190
3	-0.0272	0.7517	0.6758	0.8221	0.9143
4	-0.0409	0.7387	0.6349	0.7968	0.9271
5	-0.0204	0.6735	0.5695	0.7546	0.8925
6	-0.0212	0.5524	0.4194	0.6476	0.8530
7	-0.0477	0.5258	0.3437	0.5863	0.8968
8	-0.0228	0.5323	0.3582	0.5985	0.8895
9	-0.0194	0.5305	0.3690	0.6075	0.8733

Source: research findings, UN Comtrade database

Survival probability estimation for positive RSCA indexes

The Kaplan-Meier survival function is used as an estimator of survival probabilities for spells with positive RSCA indexes both in exports and imports. The estimation procedure was proposed by Kaplan and Meier (1958). A spell is defined as a period of time (number of years) with continuously positive value of RSCA index. A spell can either be observed at the first year of the whole ten-year period, or it can start at any year of the ten-year period. A spell can either last for one or more years since it has started, or it can last till the end of the entire ten-year period. A spell is considered an individual observation. When a spell ceases (RSCA index turns negative), it is referred to as a failure. When a spell does not cease until the last year of the whole period, it is referred to as lost. If the lost spell has started at the last year, it is considered net lost at this year. The Kaplan-Meier estimator is used to calculate the unconditional probability that a spell will survive year t, which means that spell has been active for t years. The estimator function can be expressed with the formula:

$$\hat{S}_{t_i \le t}(t) = \prod_{i=1}^{t} \frac{n_i - d_i}{n_i},$$

where t_i is the survival time (period of uninterrupted positive RSCA index),

c_i is the number of spells net lost at the year t_i

n_i is the number of spells at risk at the year t_i less c_i,

d_i is the number of failures (which means negative RSCA index next year after being positive) by the end of year t_i,

In other words, the number of survived spells at the specified year equals the number of spells survived from the previous year, less the number of failed or lost spells this year. Spells that have started at the last year of the period are considered lost. The conditional survival probability, P_c, is the probability that spell will survive to a specific time, given that spell has survived to the previous time. P_c is computed as:

$$P_c = 1 - \frac{d_i}{n_i}$$

The unconditional survival probability P_u equals to survivor function. P_u is the probability of survival from the first year of observations to a specific time. The unconditional probability is equal to the cumulative product of the conditional probabilities. A yearly or annual spell survival estimate would be computed by taking the n-th root of the unconditional probability at the end of n-year period.

The number of observed spells for Latvian export RSCA is 31. Minimum value of an observed spell is 1 year, maximum value is 10 years. The mean duration of a spell is 5.10 years. The standard deviation is 3.35 years. The number of observed spells for import RSCA is 48. Minimum value of an observed spell is 1 year, maximum value is 10 years. The mean duration of a spell is 5.50 years. The standard deviation is 3.62 years. Descriptive statistics for the durations of export and import RSCA spells are given in *Table 7*.

Table 7

Descriptive Statistics of the Durations of Export and Import RSCA Spells

RSCA	Observed spells	Mean spell (years)	Standard deviation	Minimum spell	Maximum spell
Export	31	5.10	3.35	1	10
Import	48	5.50	3.62	1	10

Source: research findings, UN Comtrade database

The results for the Kaplan-Meier survival estimates for export RSCA are provided in *Table 8*.

Table 8

Kaplan-Meier Survival Estimates for Export RSCA

Years	Net left	Failures	At risk	Failures / At risk	Pc	Pu
1	5	0	31	0.000	1.000	1.000
2	2	2	26	0.077	0.923	0.923
3	2	4	22	0.182	0.818	0.755
4	1	4	16	0.250	0.750	0.566
5	1	2	11	0.182	0.818	0.463
6	1	0	8	0.000	1.000	0.463
7	2	1	7	0.143	0.857	0.397
8	1	1	4	0.250	0.750	0.298
9	0	1	2	0.500	0.500	0.149
10	1	0	1	0.000	1.000	0.149

Source: research findings, UN Comtrade database

A yearly spell survival Py equals 10^{th} root of the Pu at the end of 10- year period:
Py = 0.827

The results for the Kaplan-Meier survival estimates for import RSCA are provided in *Table 9*.

Table 9

Kaplan-Meier Survival Estimates for Import RSCA

Years	Net left	Failures	At risk	Failures / At risk	Pc	Pu
1	15	4	48	0.083	0.917	0.917
2	1	2	29	0.069	0.931	0.853
3	0	2	26	0.077	0.923	0.788
4	1	1	24	0.042	0.958	0.755
5	2	0	22	0.000	1.000	0.755
6	1	2	20	0.100	0.900	0.679
7	2	6	17	0.353	0.647	0.440
8	1	0	9	0.000	1.000	0.440
9	5	1	8	0.125	0.875	0.385
10	2	0	2	0.000	1.000	0.385

Source: research findings, UN Comtrade database

A yearly spell survival Py equals 10^{th} root of the Pu at the end of 10 years period:
Py = 0.909

The results of the Kaplan Meier survival analysis for export and import RSCA are graphed as survival curves in survival plot (*Figure 1*).

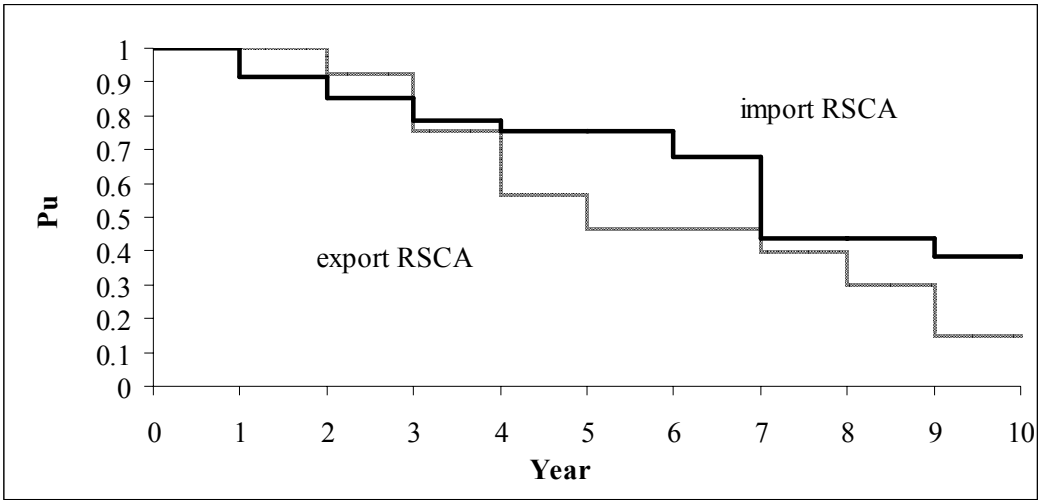

Figure 1. Kaplan Meier survival plot for export and import RSCA

Source: research findings, UN Comtrade database

There is a distinct difference between the survival estimates for export RSCA and import RSCA. Albeit declining somewhat faster during the first three years, survival rate for import RSCA decreases at a slower rate during the next three years. Survival rate for export RSCA declines markedly below the import RSCA rate at the fourth year, and it is lower through the end of the period. The probability that spell can last the whole ten-year period is also higher for the import RSCA.

Revealed trade competitiveness of Latvian processed foods and primary products

After computing the value for RC indexes, products are divided into three groups depending on the RC value in 2011 (*Table 10*). If $RC > 0$, products have comparative trade advantage. If $-1 < RC < 0$, products are considered to have moderate comparative trade disadvantage. If $RC < -1$, products have high comparative trade disadvantage. Products that have comparative trade advantage have stable and relatively high export volumes. Products that have high comparative trade disadvantage are mostly not produced domestically. The level of disadvantage has to be considered relative, as the indexes from which RC index is derived can be only dichotomous measures, not cardinal measures.

Table 10

Revealed Trade Competitiveness of Latvian Processed Foods and Primary Products, 2011

RC values	Product groups
Advantage	Live animals, distilled alcoholic beverages, cereals, processed fish, seeds, dairy products, eggs, wine from grape, rusks, biscuits, preserved pastry&cakes, prepared feeds for farm animals
Moderate disadvantage	Live&chilled fish, starches &starch products, plants, bread, fresh pastry&cakes, processed&preserved potatoes, grain mill products, tobacco products, beer, processed&preserved fruits&vegetables, ethyl alcohol, processed meat products, soft drinks, mineral waters&other bottled waters, cocoa, chocolate&sugar confectionery, fruits&nuts, miscellaneous processed products, bovine, swine, sheep&goat meat, fruit&vegetable juices, processed oils&fats, condiments&seasonings, poultry meat, vegetables
High disadvantage	Processed tea&coffee, coffee, tea&spices, processed sugar, ice cream, margarine&edible fats, prepared pet foods, malt

Source: research findings, UN Comtrade database

Conclusions

Upon the evaluation of comparative trade advantage of 53 Latvian processed foods and agricultural commodity sectors by relative comparative trade advantage index, sectors with the advantage are livestock farming, distilling, cereal and oilseed farming, fish processing, dairy, egg production, wine production, bakery and feed milling. Sectors with high disadvantage are tea and coffee, sugar, ice cream, margarine, pet foods and malt. As the comparative trade advantage index can be considered a dichotomous measure, the degree of advantage or disadvantage is only relative. Survival rate for export RSCA is lower than the import RSCA rate by the end of the period. The probability that spell can last the whole ten-year period is also higher for the import RSCA. The results of the analysis from the policy perspective would prove a necessity for structural reforms in the Latvian agri-food sector by stating long-term national policy goals with market orientation as a key to maximize benefits from trade. Directing resources towards the most competitive sectors would ensure their functioning in the face of increasing competition for the global market.

The performance of sectors with high comparative advantage is based either upon strong position in domestic market (eggs, feed) or steadily growing exports (live animals, processed fish, alcoholic beverages, seeds, cereals, and sweet oven products, dairy). The necessity for structural adjustments in the aforementioned sectors is only minor. Sectors with high comparative disadvantage are almost entirely dominated by imports,

and domestic supply is not competitive. There is a need for structural adjustments in sectors with moderate comparative disadvantage. In some sectors adjustments are already ongoing (emphasis on organic markets in starch sector, market diversification in meat, plants, fish and beer).

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CONTROL OF ASSETS AS A CONDITION FOR THEIR ELIGIBILITY

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Abstract

The paper presents an attempt to define control as the necessary condition for classifying purchased assets. Control in this context is interpreted as a bundle of legal titles constituting economic ownership, the 1960s concept based on the ownership theory.

Keywords: *assets, control*

Introduction

In economic practice, there is a large variety of agreements pertaining to different forms of purchase and use of individual components of company's property. The main problem arising from this variety of agreements from reporting perspective is how to properly classify the content as foreign investment assets. This decision not only directly influences the reported value of property and balance sheet obligations, but is also reflected on the cost side of the profit-and-loss account. Proper asset classification is of great significance for the reporting entity.

Classification of property components should be based on fundamental definitions of balance sheet items; in this case: definition of assets. Definitions of assets presented herein, as used in the International Accounting Standards and respective regulations of the Polish balance sheet law, are similar in content and similarly imprecise. They both make reference to control of purchased property components, but fail to provide for the important distinction between control over components themselves and control of profits resulting from such property element. This dilemma cannot be negotiated solely on the grounds of provisions contained in the balance sheet law. This study is an attempt to address the problem on the grounds of property rights theory. Based on the concept of a bundle of legal titles constituting economic ownership, a definition of control is presented, in the context of property component classification eligibility. By defining control as a bundle of legal titles to economic property, it may be described as physical control over a given component, entitling the owner to utilise and manage

the said property element, as well as to control the proceeds generated by the above-mentioned element.

The objective of this study is to present a definition of control as one of the conditions for asset eligibility. For this purpose, analytical approach was used, supported by induction and deduction methods.

Control as a Definitional Condition for Asset Classification

The Accounting Act (art. 3, pt. 12) (Ustawa o rachunkowości 2009) defines assets as "resources of a reliably estimated value controlled by an entity, resulting from past events and causing in the future an inflow of economic benefits to the entity". This provision defines four conditions of resource classification to be met before a resource can be validly represented as an asset. Further provisions of the Act do not present any additional criteria for asset identification. Consequently, classification conditions are defined as follows:

- Resource must be controlled by the entity in question;
- Resource control must result from past events;
- Resource value must be reliably estimated;
- Resource must cause an inflow of economic benefits in the future.

International Accounting Standards define asset identification as a two-stage process. In the first stage, the resource is examined under general provisions of the asset definition; the second stage of classification involves verification of two specific criteria of eligibility. General provisions of asset definition contained in the Conceptual Framework of the International Accounting Standards (International …, 2011: A4) are as follows: "An asset is a resource controlled by the entity as a result of past events and from which future economic benefits are expected to flow to the entity". This phrase makes it analogous with the definition contained in the Polish balance sheet law. In the first stage, the resource in question is examined in the context of general provisions. The second stage addresses two specific questions:

- Is it probable that the entity will gain any economic benefit from the resource being examined?
- Is it possible to reliably estimate the purchasing price, production cost or any other value-related quality of the resource being examined?

Therefore, inclusion of the resource in the financial report is related to the following criteria:

- Is the entity in control of economic benefits expected from the resource being examined (International …, 2011: A46)?

- Is the resource a result of past transactions or past events (International …, 2011: A46)?
- Is it probable that the entity will gain future economic benefits in relation to the resource being examined (International …, 2011: A51)?
- Is it possible to define the resource in terms of purchasing price, production cost or any other value-related quality that can be reliably established (International … , 2011: A51)?

Further provisions of the Conceptual Framework of the International Accounting Standards emphasize that eligibility of resources is related not only to the legal form of title agreement used as a basis for resource utilization, but also to economic character and economic practice of the resource utilization. Consequently, classification of individual resource positions involves not only examination of their legal basis, but also their economic context. Legal basis examination is a fairly straightforward process, involving verification of ownership title to the resource under examination, while the analysis of the economic context is a complex task, and is not clearly defined. It involves evaluation of the control aspect of the resource, which can be interpreted either as physical right to use the resource in question or the right to dispose of economic benefits generated by the resource.

In the case of leasing agreements, there is no transfer of ownership title, but based on economic practice it can be interpreted as a transfer of control over both physical use of the resource and of future economic benefits generated by the resource. Control over property elements is typically the result of ownership status, i.e. by securing legal ownership title to the resource in question. Under the provisions of the Conceptual Framework of the International Accounting Standards, par. 4.6 (International … , 2011: A45), transfer of control can result from transfers other than ownership title, including transfers based on financial leases.

Provisions of the Conceptual Framework of the International Accounting Standards pertaining to the use of property elements based on financial lease agreements clearly state that the resource is qualified as an asset following the transfer of "*substantially all the risks and rewards incidental to ownership of an asset*", while the "*title may or may not eventually be transferred*" (IAS 17) (International … , 2011: A603). Risks include the possibilities of loss from idle capacity or technological obsolescence and of variations in return because of changing economic conditions. Rewards may be represented by the expectation of profitable operation over the asset's economic life and of gain from appreciation in value or realisation of a residual value. In this interpretation, control over resource involves transfer of substantially all risks and rewards resulting from the use of the said resource.

Transfer of control over a resource is typically marked by the act of purchase. This act is closely related to the transfer of ownership rights. However, in the economic

practice, some forms of transaction do not satisfy this characteristic, as the moment of control transfer does not necessarily coincide with the act of purchase of the property rights. Such is the case of financial lease agreements and instalment purchases. In those cases, it is difficult to establish a precise moment of control transfer. In practice, it is also very difficult to establish the moment when the resource use is deemed a purchase (Hendriksen & Breda, 2002: 594). Ultimately, for the purpose of establishing the legal basis for qualification of agreements as purchase equivalents, the Polish balance sheet law specifies seven conditions to be examined for any agreement related to resource use. If such an agreement satisfies at least one of the conditions formulated in art. 3 pt. 4 of the Accounting Act, it is deemed analogous to a purchase agreement. In other words, the items it refers to are recognized as non-current assets, provided that the agreement meets at least one of the following conditions:

1) It transfers the title of ownership of the asset to the lessee after the end of the term of agreement;
2) It provides the lessee with the option to purchase the asset after the end of the term of agreement for a price lower than the market price at the date of such purchase;
3) The term of the agreement covers the major part of the expected economic life of the asset, but not less than three quarters (¾) of that period;
4) The total lease payments, net of related discount, established at the date of agreement, exceed 90% of the item's market price;
5) The agreement includes the lessor's commitment to conclude with the lessee a subsequent lease agreement, or to extend the existing agreement under more favourable conditions than those specified in the original agreement;
6) It provides for an option to terminate the agreement, provided that any and all related costs and loss incurred by the lessor will be covered by the lessee;
7) The leased asset is tailored to the individual needs of the lessee.

Under the provisions of the Polish balance sheet law, meeting any of the above criteria qualifies the resource in question to be regarded as a tangible asset and, consequently, creates an obligation (or, actually, a privilege) of depreciating its value. By meeting any of the above criteria, the resource is regarded as an eligible external resource made available by means of a financial lease agreement.

Interpreting a lease agreement in terms of purchase is not a valid approach in strictly legal perspective. The rights of parties bound by a lease agreement are not the same as in the case of a sale contract. A lease agreement is legally interpreted as a contract under way (unconcluded), as opposed to sale contract. Failing to meet the required instalment terms in sale transactions does not exempt the party from settling past or future instalments. In the case of a lease agreement, such arrears may result in contract termination, with no outstanding payment obligations. Moreover, the right to dispose

of a purchased resource is practically unrestricted (within the bounds of legal provisions and third party interests), whereas the right to dispose of a resource made available by means of a lease agreement is decidedly restricted and requires the approval of the resource owner.

Polish balance sheet law allows for interpreting resources utilized under lease agreement as assets fully owned by the entity, provided that the entity is in control of any future economic benefits generated by the resource.

Provisions of the Accounting Act pertaining to financial leasing categorization are compliant with those formulated in the International Accounting Standards 17.

Economic Ownership

'Economic ownership' is a term constituted and defined on the basis of the ownership theory formulated in the 1960s. The main theoretical assumption of the ownership theory is to perceive ownership rights as rights of real persons eligible for passing out decisions concerning the property, independent of any formal titles of ownership (Polszakiewicz & Boehlke, 2007: 65). In traditional approach, it assumes that ownership rights can only be executed by real persons, and their motivation to utilize the resource in question is related to the level of ownership rights, interpreted here as sanctioned interpersonal relations pertaining to the use of such resource (Polszakiewicz & Boehlke, 2007: 65). This means that only formally authorized persons may decide on resource use, based on the principle of expected value maximization. It should also be noted that dispersed ownership (public property, joint-stock company with dispersed shareholders) has the effect of diminished motivation to improve the economic results of resource use.

The theory of ownership rights regards private ownership as the most effective form of ownership, providing exclusive and voluntarily transferable rights to the owner. The exclusive character of ownership rights means that the owner is the sole disposer of the effects of resource use – both in terms of generated benefits and loss incurred, while transferable character of ownership rights is of fundamental value for continuity and optimization of management processes.

From the economic viewpoint, the most important issue is to determine the party that benefits from a given resource. In the light of the civil law, being the owner does not necessarily correspond with the third party's rights. This interpretation of ownership has its advantage – it motivates the owner to take an active involvement in the material state of the resource used to generate economic benefits. Being a legal owner does not necessarily create such motivation. On the contrary – one may risk a thesis that only the persons benefitting from the resource will be vitally interested in maintaining the resource in proper condition.

Ownership should not be interpreted solely on the basis of transfer of benefits, but also in the context of deciding on forms and methods of resource use, i.e. on the basis of legal control over the resource.

Based on the assumption that economic science should provide information on economic practice and present economic data in accordance with material truth, the economic understanding of the ownership rights should be clearly distinguished from the legal interpretation of the term. This approach puts the main emphasis on the right of possession (title, tenure) and the right to gain economic benefits.

Therefore, an economic owner is a person gaining economic benefits from a given resource and deciding on forms and methods of resource use.

From economic perspective, ownership is equated with the right of use and the right of possession (title, tenure) of the resource (*Table 1*).

Table 1

Rights of an Economic Owner

No.	Right	Content
1	Right of use	Right to gain benefits from the resource Right to use the resource Right to gain other income
2	Right of possession	Governance over resource

Source: own research

The right of use comprises of three elements. The provisions of Art. 140 of the Civil Code stipulate that the right of use of a good involves:

1) the right to gain benefits from the good (natural and civil);
2) the right to use the good;
3) the right to gain other income (Dybowski, 2003: 224).

Natural benefits represent the fruits of the earth and other detachable elements of the resource. Civil benefits represent income generated by the resource on the basis of legal agreements, such as lease or tenancy agreements. In this context, income represents rent from the resource.

Realisation of the right to use the good applies to goods that do not generate income, but it enables utilization of resources for economic purposes. In this context, it is not the good itself that generates income, but the economic activity resulting from or incorporating such use.

One disputable element of this definition is the term 'income'. The letter of the Civil Code associates this notion with benefits other than economic profit. Thus, it would be more suitable to use the term 'revenue', as a notion of a higher order.

The right of possession is often reduced to physical activities associated with goods governance. Polish legal doctrine equates the right of possession with factual state (Pietrzykowski, 2002: 625). Another clear confirmation of the right of possession can be seen in the act of transfer of the ownership rights realized by the act of goods transfer. This applies in particular to the act of passing the property of movables (contract of sale, art. 535, 548 CC). Prolonged loss of possession by the owner limits his or her right of possession and, in some cases, may even be used as voiding condition, e.g. through a vindication order or ownership by prescription – art. 222 CC).

The above bundle of rights does not include the right to dispose of the object of property rights, associated with property rights in general. Consequently, in this approach, economic ownership cannot be equated with the right to dispose of the good. In practice, this means that the good in question cannot be subject to a sale contract.

The definition of economic ownership puts an emphasis on one of the rights included in the bundle, namely the right to use. It must be noted, however, that this term is typically used to describe property in most general sense, and not individual goods.

Exerting Control versus Economic Ownership

Polish Dictionary of Foreign Words links the term 'control' with French *contrôle* and provides two basic meanings of the word (http://www.swo …):

- Verification, overview, comparison between factual and required state of smth;
- Supervision over sb. or smth., an insight into smth.

Lexicon of Control defines the term as follows: "The essence of control is to monitor certain phenomena, analyse their nature and report this information to superiors" (Kałużny, 2002: 37). Both definitions bring the essence of control down to the act of comparison between factual and required state or condition, followed by determination of extent and reasons for observed disparity, and presenting this information to proper authorities.

The above definitions are inadequate for the purpose of this study, since the use of the term 'control' in the context of asset identification is closer to the notion of ownership, as opposed to a classic understanding of control. The right of ownership warrants full control over the resource being owned. Thus, it may be said that full ownership rights provide full control over the resource.

In the case of transfer of ownership in economic sense, the economic owner acquires only two elements of the bundle:

- the right to use goods;
- the right of possession.

Economic owner does not acquire the right to dispose of the good in the legal context of the term.

Such bundle of rights is a manifestation of the understanding of control over elements of the property interpreted as assets.

Conclusions

Neither the Polish Balance Sheet Law nor the International Accounting Standards have defined exerting control as an element of asset classification, despite the fact that control is one of the preconditions for asset classification. Verification of control requirement is an important element deciding on the volume of reported assets and, consequently, the reported cost of economic activities. Standard definitions of control construed for management purposes are not suitable for the task of asset classification, since their meaning of control is more akin to the notion of ownership, particularly economic ownership, rather than control in managerial context. Economic ownership can be represented as a bundle of rights offering the privilege of governance over the resource (the right of possession) and the power to gain economic benefits generated by the resource (the right to use). Therefore, in the context of asset classification, it seems that defining control in terms of economic ownership is a more viable approach.

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OUTSOURCING AS A METHOD OF R&D INTERNATIONALIZATION BY TRANSNATIONAL CORPORATIONS

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Abstract

Transnational corporations have always used external suppliers of technology in their home countries, but currently companies are increasingly looking for technology in foreign markets. The aim of the paper is to identify the main factors leading the corporations to R&D outsourcing outside the domestic market and the scale of these phenomena. The applied research methods involve the analysis of literature on outsourcing, as well as analysis of statistical and survey data. The results show that certain company-specific capabilities of an outsourcing provider are required in order to outsource R&D to developing countries since transaction costs are still the main motive to outsource to these regions. At the same time, the results indicate that knowledge-seeking objectives lead to outsourcing in developed economies.

Keywords: *research and development (R&D), R&D outsourcing, technology, innovation, transnational corporations*

Introduction

Transnational corporations (TNCs) which have decided to internationalize research and development (R&D) activity have to choose the way of market entry and whether to carry internal or external modes of operating abroad. This is the decision between conducting R&D projects within foreign affiliate and outsourcing it to an independent provider in a host country. TNCs usually keep R&D functions in-house when there is a need to constantly exercise control over R&D projects, when high transaction costs are involved, or when proprietary knowledge and information are sensitive, tacit, expensive to produce, complex or idiosyncratic yet easy to replicate (World Investment Report, 2005: 168).

There is an assumption that TNCs are not willing to outsource R&D activity to external providers since these are strategic projects and functions, which are close to the core competence of a company. Nevertheless, R&D outsourcing outside home

country is increasing. Developed economies are considered to be the most attractive and safe locations for R&D outsourcing. In the countries such as the U.S., R&D service provision is one of the fastest growing industries. R&D activity is also increasingly being outsourced to providers located in emerging economies, such as India, Malaysia or China.

There is a lot of evidence that R&D outsourcing is becoming a key issue in TNC's strategies and occurring worldwide. Increase in R&D outsourcing dynamics is correlated with increased internationalization of innovation activities and fragmentation of R&D functions. This transformation is influenced by both the necessity to integrate international networks of knowledge and innovation, and opportunities of cost reduction and technology sourcing (Jabbour & Zuniga, 1–2).

The aim of the paper is to investigate trends and drivers of R&D outsourcing. Despite the growing importance of R&D outsourcing in the global market development, the topic still remains undeveloped. There is not much literature and statistical data analysing motives for R&D outsourcing and factors that determine location of R&D outsourcing by TNCs. Analysis of whether and where to outsource R&D functions is important not only for theoretical reasons, but also for economic policy (Lewin *et al.*, 2009: 916). This paper attempts to fill this gap by reviewing the available literature sources in order to elaborate on the factors that drive TNCs to outsource R&D activities and examine the motives for choosing the particular outsourcing location.

R&D Outsourcing

In the 1960s and 1970s, there was a tendency to keep R&D functions in-house. The trend changed in the 1990s as a result of increased companies' dependence on external sources of knowledge. This also included a shift towards R&D outsourcing. R&D functions are becoming decentralized and TNCs are getting more technology from external sources. Exploiting external sources of knowledge is a modest method of generating new ideas and bringing them to the market, as emphasized by the imperative of 'open innovation'.

Outsourcing of R&D implies that a company assigns expenditures and risk to the external provider to perform, on its behalf, R&D activities. R&D activities can assume the form of acquisition of R&D results or grants given to others to render R&D services. Outsourced R&D projects are conducted either within the region, the country, or cross-border (Teirlinck, Dumont & Spithoven, 2010:1745).

Outsourcing of R&D involves the question as to whether TNCs should buy technology or generate it in-house. On the one hand, companies would prefer to purchase technology as long as market price is lower than costs of internal production. On the other hand, tacit aspects of knowledge make it difficult to outsource R&D activities to an external provider. The specificity of the asset to be transferred may raise information

asymmetries between parties favouring supplier opportunistic behaviour and creativity degradation (Teirlinck, Dumont & Spithoven, 2010: 1747). Nevertheless, R&D outsourcing is seen as a fast growing and easy method for most TNCs to access customers in foreign markets, improve their competitiveness in the global market and obtain new knowledge which corresponds with company's needs and which may result in new or upgraded products or processes.

R&D outsourcing has a lot of advantages. The most important is that R&D outsourcing is a motive to deepen worldwide operations of TNCs and it helps to expand in knowledge management. Moreover, it enables to lay legacy for the nearest future. Innovation requires specialised skills and competences possessed only within a knowledge network. Strategic R&D outsourcing together with internal implementation of the newest technologies may lead to sustainable competitive advantages (Bradač Hojnik & Rebernik, 2012: 27). A lot of TNCs took advantage of R&D outsourcing, since internal R&D staff is not able to evaluate or take into account a whole range of products or services. External knowledge sources are necessary to exist and succeed in a highly competitive environment. Disadvantages of R&D outsourcing include delays and problems in communication between company and its clients, and inappropriate control of certain company's functions (Yazdanifard, Alli, Wan Yusoff & Babaei, 2011: 387). Unfortunately, little is known about the effects of R&D outsourcing. The main reason for this is the lack of adequate company-level data.

Drivers of R&D Outsourcing

The main factors that lead to TNCs outsourcing of R&D activities overseas are the growing costs and risks of conducting R&D, the rising complexity of innovation that requires specific and specialized skills, knowledge and equipment, intensifying competitive pressure to launch new products more quickly and uncertainty of the results of R&D projects (World Investment Report, 2005: 168). Tacit knowledge is becoming more modifiable as a result of using new research methodologies, and this also facilitates contracting R&D to other firms. The key motivation for TNC to outsource innovation activities outside their home countries is the search for location-specific advantages, especially in order to take advantage of differences in costs and technological expertise (Martinez-Noya, Garcia-Canal & Guillen, 2012: 22). Early studies on R&D indicated that companies may decide to outsource their activities out of the home country either to reduce costs or to explore or acquire new knowledge (Le Bas & Sierra, 2002: 589–609). Recent literature on outsourcing points out the importance of differences in costs and qualification as drivers of these decisions (Manning, Massini & Lewin, 2008: 39–40).

Growing R&D expenditures and intensifying pressure to reduce costs and introduce products quickly to the market force TNCs to seek new methods of conducting R&D more quickly and efficiently. In high-tech industries, competitive success depends on

the ability of companies to launch products rapidly onto the market and R&D activities are labour-intensive because they are based on knowledge and specialised skills. Moreover, enterprises strive for spreading the risk of failure to at least one technology provider. In some industries, where research and testing processes require expensive equipment and specialist skills, contract R&D companies are able to reach economies of scale by offering customized products to firms. Their customers can reduce internal laboratory staff and equipment and, at the same time, speed up the process without losing control of core innovation activities. Since some of the developing countries are able to offer lower labour costs and wider range of qualified manpower compared with those of developed ones, TNCs are outsourcing non-core activities and locating R&D in these low-cost markets (Javalgi, Dixit & Scherer, 2009: 160). For example, salaries of researchers account for about 45% of total R&D expenditure in the U.S. and if the same is undertaken in India, the cost can be lower by 30% to 40%. Construction and overhead costs are also much lower in India. These constitute about 4% and 17% respectively of the total R&D costs in the U.S. Savings on construction costs can range from 25% to 30%, while savings related to support staff expenses are range from 60% to 70% (Basant & Mani, 2012: 25–26). Nevertheless, it should be emphasized that TNCs consider providers for R&D services in developing economies if the most important motive for outsourcing is lower cost.

Product development and engineering activities are becoming so complex, multi-technology and multidisciplinary, that TNCs with different specializations need to be engaged in the particular stages of R&D process. The increasing interaction of technologies across disciplines and industries has become crucial to the competitiveness of technology based companies. In this context outsourcing seems to be an attractive solution. In some sectors it is impossible for an individual firm to gather all information, skills, knowledge and competences needed to conduct R&D projects. In these cases, there is a necessity of exploiting external sources of knowledge, in order to launch new products or process to the market. In fact, companies which are operating in the high-tech industries are becoming more and more dependent on external knowledge and technology providers. TNCs increasingly decide to direct their effort on product development and the sourcing from the external knowledge, rather than conducting basic and applied research internally.

R&D activity is based on knowledge, and knowledge is being considered as location-specific. Therefore, certain countries offer specialized know-how and skills in a given technological field (Calderini & Scellato, 2005: 289). Indeed, N. Lahiri indicated that companies use geographic collocation with industry peers to access knowledge spillovers (Lahiri, 2010: 1195–1196). Geographical diversification of R&D activity is the result of asymmetries that characterize the market for knowledge in different economies. Interaction between companies in these economies creates unique source of knowledge. Moreover, geographical diversification increases interactions between R&D employees. That enables tacit knowledge to be transferred among TNCs. Probability that geographical

collocation will generate spillovers is determined by the extent to which knowledge spillovers have both codified and significant tacit components.

TNCs may be willing to conclude outsourcing contracts with providers located in certain economies in order to get access to the knowledge resources in these countries and exploit specialized skills of R&D staff. In sectors where product innovation becomes very modular and complex, it is impossible for a single company to provide all resources and skills, which are necessary to undertake R&D. R&D activity needs to be dispersed among several providers. It has been scientifically proven that the majority of the most advanced projects which are related to product development and engineering activities are still being outsourced to developed countries. The reason for this is that world leaders in the field of knowledge, innovation and technology are mostly located in developed economies. Nevertheless, the latest investigations show that TNCs increase the level of R&D projects, which are being outsourced to developing countries. Some developing economies, such as India or China, are seen as attractive locations for innovation activity because they increasingly invest in infrastructure and their educational systems, which reduce difficulties of doing business while improving access to higher-quality workforces (Ricart, Agnese, Pisani & Adegbesan, 2011: 276–277). The current location pattern shows that high-value added activities are largely performed in advanced market economies, while low value-added activities are performed in emerging market economies (Mudambi, 2008: 702). However, this trend is changing since the developing countries are improving their technological competences. Consequently, more high-value added activities are being outsourced to these markets (Dossani & Kenney, 2007: 784; Jensen, 2009: 191; Maskell, Pedersen, Petersen & Dick-Nielsen, 2007: 248).

Increasing popularity of R&D outsourcing is also the result of growing number of R&D providers. The privatization of public research laboratories and rising costs of conducting R&D by universities in many economies has forced TNCs to enter the market and establish spin-offs. Some manufacturing multinationals have subcontracted their R&D functions into external companies. Moreover, new entrepreneurs with specialist knowledge, skills, competences or equipment have also entered the market (World Investment Report, 2005: 169).

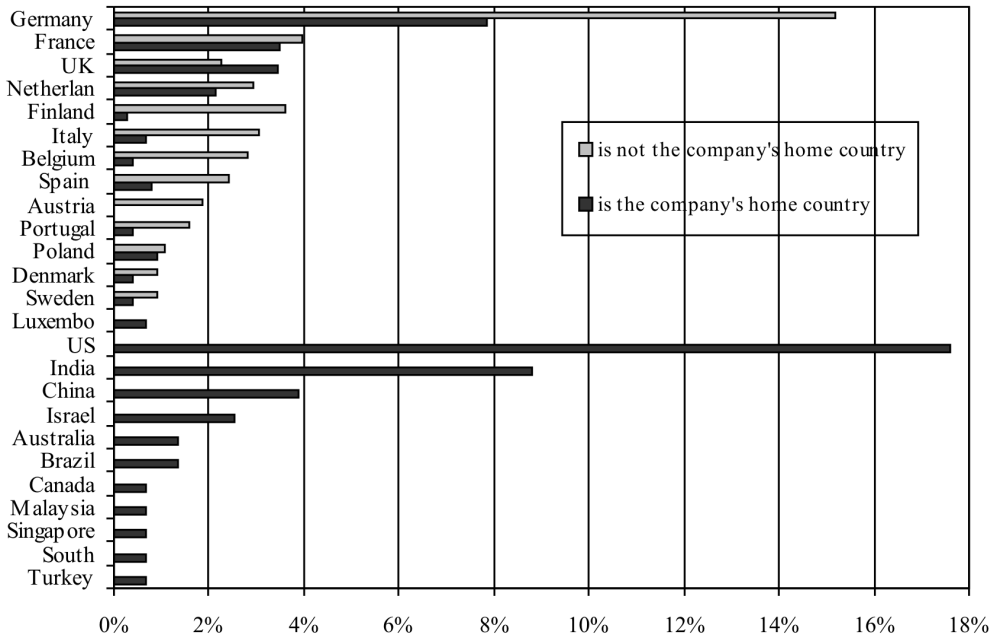
The decision of TNCs to outsource R&D activity also depends on the nature of knowledge and the level of required coordination. Some studies on R&D outsourcing reveal that the decision of where to locate R&D activity is dependent on the character of tasks being outsourced (Doh, Bunyaratavej & Hahn, 2009: 931). The decision to outsource R&D activity is then influenced by how processes are ‘embedded’ (Grote & Taube, 2007: 65). In the situation where knowledge is highly tacit R&D projects will be conducted internally, if the cost of transfer and coordination is essentially higher than the potential advantages from R&D outsourcing. Agreements with external technology providers may be concluded when knowledge becomes more codified,

research methodologies evolve, technologies become standardized and coordination becomes easier (World Investment Report, 2005: 171).

R&D outsourcing has its limits. In view of the transaction costs, R&D outsourcing is difficult to be implemented because of a high degree of complexity and uncertainty associated with the nature of R&D (Brook & Plugge, 2011: 7). The more technology can be codified the easier it is to be outsourced. Companies are also not inclined to outsource the core of their technological advantage. Moreover, outsourcing can cause leakage of company's knowledge and loss of specialised employees that can lead to strong competition for the outsourcing company. Additionally, intellectual property rights are not always enforceable, even if the regulations and legal system are effective. Difficulties may also occur when R&D is outsourced to the providers localised worldwide, so there is the necessity to manage and integrate R&D among different enterprises, with different work cultures and languages. Basic and applied research in most cases can be outsourced efficiently without negative impact on the company's competitiveness, contrary to product development which is seen as strategic and because of that mostly conducted internally. The costs of losing an innovative edge may be huge for a market leader. Nevertheless, this trend is changing, since R&D outsourcing is developing fast. Companies may start by outsourcing basic and applied research and deepen relations with R&D outsourcing providers if it succeeds. With time even knowledge networks can be established.

Trends in R&D Outsourcing

The survey that was conducted among 1000 the most innovative European companies indicated the most attractive locations for outsourcing R&D (Monitoring Industrial Research, 2012: 24; see *Figure 1*).



Share of votes for the most attractive locations for R&D outsourcing

The Netherlands, Luxembourg

Figure 1. The most attractive locations for R&D outsourcing

Source: Monitoring industrial research. The 2012 EU Survey on R&D Investment Business Trends, European Commission Joint Research Centre & Institute for Prospective Technological Studies, Luxembourg 2012, p. 25

Almost 30% of respondents considered their home country as the most attractive location for R&D outsourcing. Less than 30% chose another European Union country and the remaining ones chose economies outside the European Union. Germany was regarded as the most attractive country for R&D outsourcing, but mostly because of a high share of votes from domestic companies. As regards the countries outside the EU, the United States and India occupy better positions than China. It has also been observed, that the lower the R&D intensity, the more common is the decision to outsource R&D to the providers located in home countries. 41% of the respondents in the low R&D intensity sectors preferred their home country for R&D outsourcing. Similar decisions were made by 22% of the companies operating in the medium R&D intensity sectors and 11% firms from high intensity industries.

The global trends in R&D outsourcing have seen a decrease because of the nature of R&D activity. R&D projects in most cases are investments with a long-term financial rate of return. Consequently, companies are willing to invest in long-term projects only if there is certainty about sustainable profitability. India was still a leading location for

R&D outsourcing in 2009, but the most dynamic change was recorded regarding the U.S. which grew from the sixth place in 2008 to second place in 2009 in the ranking of most attractive locations for R&D outsourcing (Tyler Marvin, 2011: 24). This shows that previous leaders from the East and South Asia region are being usurped by developed countries, which have a reputation of safer countries to conduct innovation activity during times of economic uncertainty. There are four emerging economies in top 10 destinations (India, China, Malaysia and Taiwan) and except for India, all of them have weaker position than in the previous edition of survey. The decision to outsource R&D activity closer to the home market or in more secure countries was a key reason why the U.S. jumped up from the sixth to second place in the ranking.

The survey conducted by M. Demirbag and K. Glaister examined locations for R&D outsourced by TNCs. Five countries/regions were singled out: the U.S. and Canada, emerging Asian economies, Eastern Europe and Russia, India and China and EU-15. R&D activities which are knowledge-intensive are more likely to be located in the U.S. and Canada, while projects regarding which cost reduction is the main driver of R&D outsourcing are more likely to be located in India or China. The EU-15 seems not to be competitive in either of these aspects. The study also indicates a very strong trade-off between host country experience and political risk. Consequently, as providers for R&D outsourcing increase their knowledge on rendering services, the influence of political risk is going to be reduced. The study implies that the higher the level of salaries in the R&D in home countries, the more likely that India or China is chosen as a location for R&D outsourcing. The host country knowledge index is the highest in the U.S. and Canada, so TNCs for which the most important driver of R&D outsourcing is knowledge seeking, will probably chose one of these countries. The pool of science and engineering specialists are the important advantage for Eastern Europe and Russia, India and China, and the U.S. and Canada. The survey indicates the correlation between R&D outsourcing experience and location choice. The most experienced TNCs are willing to outsource R&D activities to the emerging Asian economies and Eastern Europe and Russia. India and China appear to receive projects from companies less experienced in the field of outsourcing. This is partially because India and China are popular locations for IT and electronics projects including an element of imitation (Demirbag & Glaister, 2010: 1554–1556). It can also be expected that the character of R&D activities being outsourced to the developing economies will move to more complex functions. The reason for that is confidence and trust between partners which are a major constraint in the sourcing process. Therefore, it is predicted that experience gaining by TNCs in the field of operating within these countries will result in strengthening relationships with providers in developing economies (Martinez-Noya, Garcia-Canal & Guillen, 2012: 32). Consequently, more tacit and complex knowledge is supposed to be transferred, since TNCs accumulate experience of contracting in these economies and more equitable and efficient contract can be signed (Coltman, Bru, Perm-Ajchariyawong, Devinney, & Benito, 2009: 391–392).

Conclusions

The pace of technological change and the challenges which TNCs face to improve their competitiveness in the global market have resulted in R&D expansion worldwide. This trend is influenced by R&D outsourcing which has become increasingly common way of conducting R&D activity by TNCs. New pools of innovation activity and talent appear in global market and they attract transfer of R&D activities of TNCs to these locations in the form of outsourcing. TNCs outsource R&D activities more often than small and medium sized companies, since they are able to integrate in global networks of innovation faster than other entities. TNCs are directing their innovation strategies towards open innovation systems, exploiting knowledge from the external sources to develop and commercialize new products and processes. As a consequence, TNCs should join external sources of knowledge, skills, technologies and talents to their innovation systems and learn how to improve collaboration with external R&D outsourcing providers. However, while outsourcing can be used to reduce overall costs and gives opportunity to exploit external sources of knowledge, oversight and feedback are very important issues to ensure successful outsourcing operations. Consequently, it is essential for TNCs that they are involved in outsourcing activities to keep control and oversight over their activities and be able to quickly react.

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COMPARABILITY OF THE REPORTING INFORMATION REPRESENTED BY FAIR VALUES

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Abstract

The fair value measurement plays an important role in maintaining comparability of the financial reports. The specificity of this measurement approach may cause incomparability of the financial statements. It refers to comparability between various entities, as well as the same entity but between different years.
The research topic concerns the comparability as the quality characteristic of fair values included in the financial statement. The aim of the article is to identify the factors, which can cause loss of comparability of information represented by fair values, and answer the question: is the information expressed in fair values comparable? To achieve the above-mentioned objective, the author of the present paper made use of the analysis method, while for the purpose of formulating conclusions, a deductive method and synthesis were used.
As the result, the author states that the main factors, which can cause the comparability loss, are related to the procedure of establishing the fair value and the scope of its application for the balance sheet measurement. The hierarchic way of fair value measurement may have a real impact on the reports' comparability, its compulsory or optional application for the balance sheet valuation and the application for only selected assets and liabilities.

Keywords: *fair value, balance sheet valuation, financial statement comparability*

Introduction

According to the conceptual framework for financial reporting developed by the International Accounting Standards Board, the objective of general purpose financial reporting is to provide financial information about the reporting entity that is useful for current and potential investors, lenders and other creditors in making decisions about providing resources to the entity. If financial information is to be useful, it should simultaneously have two basic features: to be relevant and provide faithful representation. The utility of financial information will be enhanced when it is comparable, verifiable, understandable and on time. Moreover, the cost may be constrained in preparing useful financial information.

This article focuses on comparability – one of the above-mentioned qualitative characteristics of useful information. This characteristic was analyzed with respect to the specific type of reporting information measured at fair values. So, the aim of the present paper is, first, to identify the factors, which may cause the loss of comparability of information represented by fair values and, second, to attempt to answer the question: is the information expressed in fair values comparable? Therefore, at the beginning of this article, the fair value was described as a category of measurement at a balance sheet date, with a particular focus on the procedures of its determination. The second part of the paper contains the analysis of different aspects of the fair value comparability. Finally, the conclusions are formulated, using a deductive method and synthesis.

Determination and Implementation of the Fair Value for the Balance Sheet Valuation Purposes

According to the Polish Accounting Act (Polish Accounting Act 2009: Art. 28, Sec. 6) the fair value is the amount for which the given asset could be exchanged, and the liability settled in an arm's length transaction, between interested and well-informed, unrelated parties. According to the IFRS 13, the fair value should be based only on selling prices, so the price range is narrower here. The international definition of fair value is: the price that would be received for the asset sold or paid to transfer a liability in an orderly transaction between market participants at the measurement date. It appears from the two definitions that fair value is an estimation of the price in a hypothetical transaction where the market situation was taken into account.

Table 1 indicates the most important areas of fair value use for the balance sheet measurement according to IFRS and the Polish law.

Table 1

Fair Value Recognition of Assets and Liabilities According to IFRS and Polish Law

Balance sheet element	Basis of the balance sheet valuation (IFRS)	Applying way of the fair value (IFRS)	Basis of the balance sheet valuation (Polish law)	Applying way of the fair value (Polish law)
Financial instruments (categories: measured at fair value and available for sale	fair value	compulsory	fair value	compulsory
Investment properties	cost or fair value	optional	cost or fair value	optional
Biological assets	fair value	compulsory	no application	
Property, plant and equipment	cost model or revaluation model	optional	no application	
Intangible assets	cost model or revaluation model	optional	no application	
Non-current assets held for sale	the lower of: carrying amount and fair value less costs to sell	compulsory	no regulation	

Given that the essence of fair value is an estimation of the price for a transaction, which, in fact, doesn't happen, an important question is how to determine it. The Polish Accounting Act contains no records concerning determination of fair value. However, IFRS 13 establishes a fair value hierarchy that categorizes the inputs to valuation techniques used to measure fair value at three levels:

Level 1 (the highest priority) – quoted unadjusted prices in active markets for identical assets or liabilities that the entity can access at the measurement date;

Level 2 – inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly, for example:

- quoted prices for similar assets or liabilities in active markets;
- quoted prices for identical or similar assets or liabilities but in markets that are not active;
- inputs other than quoted prices that are observable for the asset or liability, for *ex ample* interest rates, credit spreads;
- inputs that are derived principally from or corroborated by observable market data by correlation or other means;

Level 3 (the lowest priority) – unobservable inputs for the asset or liability. They are used when observable inputs are unavailable because of little or no activities on the market at the measurement date. Therefore, an entity should use the best information available, which might include the entity's own data. Moreover, all information about market participant assumptions that is reasonably available should also be taken into account.

To determine the fair value, one should first use inputs coming from the active market, if such exist. However the given market's activity evaluation made by the entity is a subjective evaluation. It is theoretically possible that one entity can recognize the given market for specific assets as active, while the other – as insufficiently active. If the entity states the lack of prices on the active market for the same assets like those measured (e.g. for investment properties), it will be necessary to use inputs from Level 2 or 3.

For example, the real estate's fair value that is based on prices of an active real estate market of other kind should additionally be corrected by differences between the evaluated asset and the asset with the price from the active market used to determine the fair value. Here the entity evaluates the appropriateness of using the inputs from the given real estate market and the value of necessary corrections. If there are no prices on the active market for the real estate properties of other kind, we should use recent prices of similar real estate properties from less active markets to determine the fair value, correcting them for variations of the economic terms at that time. Here again the entity itself decides whether both real estate properties are similar and how big is the correction amount. The lack of active market for identical or similar asset results in the need to use the estimation methods, which are selected by the entity. Then a threat of undermining the rightness of this instead of another model appears. After the model is selected, a range of individual decisions becomes available for the entity. When the fair value is established using the discounted cash flow method, the entity determines the length of the period accepted to the model, the discount rate with the current risk and the amount of expected cash flows. A minimal change in parameters taken to the model can result in the substantial change in results of evaluation and the amount of determined fair value. If the fair value is established, using the estimation model, it represents a forecast based on subjective assumptions and opinions of a given group of people, rather than the entire market.

Therefore, the scope of individual assumptions and decisions of the entity made in the course of establishing fair value is wide. This fact is important for keeping qualitative characteristic of the reported information represented by fair values, especially comparability.

Comparability of Information Represented by Fair Value

The comparability of reporting information has a practical meaning for financial analyses in a period (for establishing trends in the entity's activities) and for comparisons between different entities. This characteristic of reported information is conditioned by the continuity principle. It refers to applying the accounting principles in the constant way in the following periods, i.e., using identical methods for transaction grouping, for measuring assets, liabilities and net profit to ensure comparability.

Two amounts included in the financial statements can be regarded as comparable only if they have the same character, i.e., they were established, using the same valuation principle and the same grouping principle. The comparability of figures is a necessary condition for drawing comparisons of reported information and for related analyses. Lack of comparability precludes making an appropriate evaluation of entity's situation by users of the financial statements. The evaluation of comparability of the reporting data can be held in two dimensions, which can be described as external and internal.

The external dimension of comparability means comparability between reporting information from different entities in the same period. The internal dimension stands for the comparability of the data within one entity but in different periods. With reference to one entity, it is also possible to check comparability of amounts concerning the same period. The external and internal dimension of information comparability was presented in *Figure 1*, *2* and *3*.

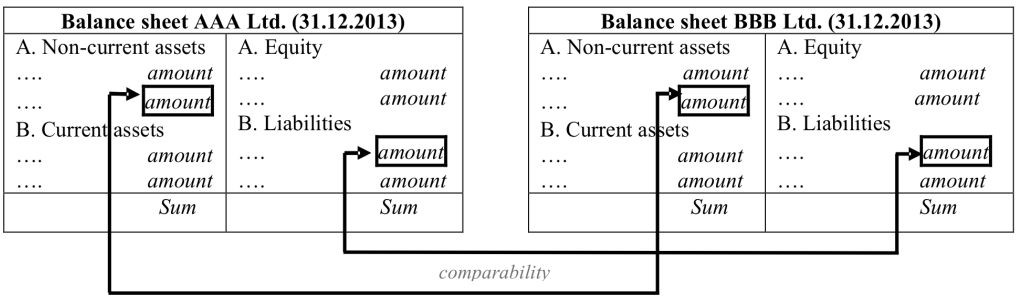

Figure 1. The external dimension of reporting information comparability – different entities, the same period

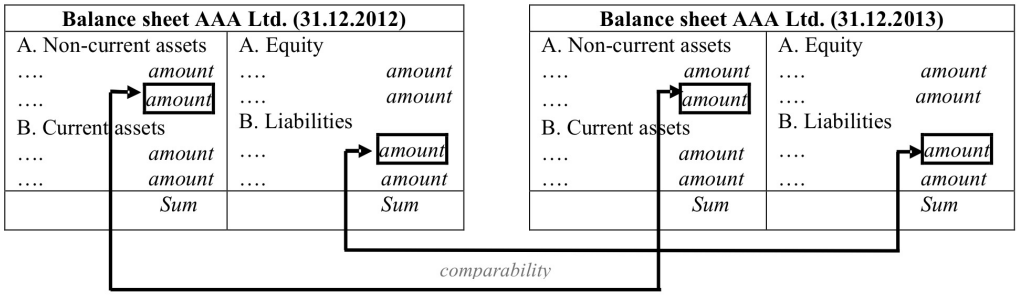

Figure 2. The internal dimension of reporting information comparability – different periods, the same entity

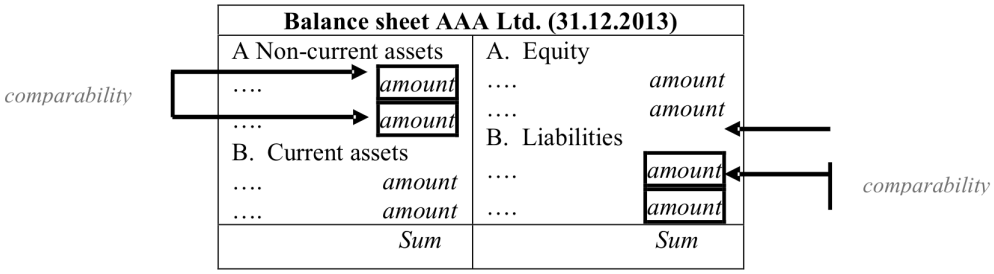

Figure 3. The internal dimension of reporting information comparability – the same period, the same entity

During evaluation of the comparability of the amounts included in financial statements, which were measured at fair value, we should take into account the specificity of this value category, i.e., applying areas and determining the procedure. It means that the following distinctive features will have practical meaning for the comparability of fair values:

- hierarchization within fair value measurement procedure;
- the possibility to make subjective decisions during the fair value measurement procedure;
- compulsory or optional use of fair value for valuation, depending on the kind of assets or liabilities;
- using only closely determined selected assets and liabilities.

Owing to the hierarchy of inputs used by the fair value measurement procedure that was described in the first part of the study, the essence of determined fair values won't always be the same. For instance, it some cases it will be the price of the real transaction related to the identical asset quoted on the active market, while in other cases, it will

be the price of the real transaction, but for a similar asset; finally it can be an estimation of this price determined using one of the valuation techniques.

Therefore, the hierarchy in the process of fair value measurement ensures the comparability of fair values, which were determined in exactly the same way.

The comparability will be maintained for those fair values, which are based on current prices from active markets for identical assets (first level of the hierarchy), because the base of establishing them is exactly the same. However, if we compare fair values, which are based on inputs from different hierarchy levels, their comparability recognition will not be so obvious. For example, comparing a fair value based on the quoted prices for the same asset with a fair value based on the quoted price of a similar asset we should remember, that the second one considers correction by the difference between the evaluated asset and the similar one. Stating resemblance of assets being measured, as well as the magnitude of the correction amount is the entity's individual decision, and it can influence the loss of comparability.

Comparability of fair values is even more complicated when there is no active market for both identical and similar assets. Then the fair value should be estimated using valuation techniques. For example, an entity in one year, stating the lack of active market for the measured asset, determines its fair value using the existing quoted price of the asset regarded by him/her as similar. Next year this entity measures the fair value using an income method, stating the lack of current prices for a similar asset. In both years the asset is measured at fair value, but the two amounts represent different content. In the first year, it is based on a real market price and is a result of observation. Next year it is a forecast of the present value of cash flows expected in the future. These two amounts may not be regarded as comparable by users of financial statements.

A threat of comparability loss can appear also when both compared fair values are established using valuation techniques (both in external and internal dimension). In Polish and international regulations there are no strict recommendations, which valuation techniques should be used in a particular case. Therefore, it is possible that different models will be used for measuring the fair values to be compared. The continuity principle will be kept because the measurement principle is fair value. However, different companies may apply different models to determining fair values of assets of the same kind, and it makes the calculated fair values incomparable. Even if the same models were applied, there is no comparability guarantee due to the fact that different assumptions could have been employed as well as different parameters could have been taken into consideration. It will cause the incomparability of fair values in the external dimension. The lack of comparability will also occur when one company in consecutive years does not use the same model for establishing the fair value.

In view of the above statement, the fair values, which are based on quoted prices for the same assets or liabilities as the ones measured, are exclusively comparable. When

inputs from lower level in the hierarchy are used to measure compared fair values, their comparability may be lost.

Along with the hierarchization in the fair value measurement procedure, the influence on its comparability in the external and internal dimension exerts the compulsory or optional application of the fair value for the valuation on the balance sheet day.

Compulsory application of the fair value means that the balance sheet value of a particular asset or liability in different companies, as well as in one of them but in consecutive years, represents the fair value. However, the compulsory applied fair values may sometimes be incomparable, because of the aforementioned influence of the hierarchical measurement procedure.

The optional application of the fair value means that it can be used as the balance sheet policy instrument, i.e., there is a legally guaranteed possibility to choose the fair value category for asset measurement. Thereby, one of the compared companies may use the fair value for the valuation of the same asset, while the other – the historical cost. Due to such a choice, the balance sheet values of the given asset in the two companies may not be comparable. Even if both entities choose the fair value for valuation, the comparability isn't guaranteed because of the hierarchical way of determining them.

The optionality of applying can affect the fair value comparability also in the internal dimension. It can take place when the given company uses the right to choose and changes the valuation principle of the given asset from the historical cost so far applied for the fair value. The continuity principle permits to change the applied valuation principles if it is necessary for presenting the true and fair view in the financial statements, however, the reasons for such a change should be described, and the influence on the profit and loss account should be determined. Then the balance sheet values from the periods before and after the change lose their comparability. However, this can happen on a one-off basis, because repeated changes in the applied valuation principles in consecutive years cause doubts about the existence of the right reason.

Next characteristic of the fair value as a valuation category is its selective application for the balance sheet measurement – only to specific assets.

It means that amounts in a company's balance sheet can include different bases of measurement, i.e., both historical and fair values. It will also influence internal comparability of the financial information of a given entity and its financial statement ratio analysis together with the assessment of entity's financial situation. Reduced application of the fair value only for valuation of particular elements of the statement of financial positions makes a balance sheet only a set of non-additive positions (Kabalski, 2007: 260). Actually, the valued positions are added using different assumptions, which are not comparable, e.g., fixed assets valued at cost and financial instruments presented at fair value. The more extended the differentiation in valuation basis of particular balance sheet components is, the smaller is the entity's semantic element

value. In this situation, the total asset or total liabilities and equity is the information with undefined economic value.

Fair value with no monetary coverage is just a virtual value, which in the balance sheet is presented together with historical value covered with monetary units. Past and current cash and cash equivalents are connected with non-monetary value, which cannot even be considered as future inflows to the entity (Luty, 2008: 71). Therefore, values represented in the financial ratios of the entity will be a result of joining heterogeneous amounts and thus incomparable, which will create difficulties during interpretation process. Interpretation dissonance will go even further, when such financial ratios are compared with other entity's ratios. In this case the comparability will be additionally reduced by optionality of fair value application in the balance sheet valuation. Even if both compared entities would apply fair value measurement for the same positions and, for instance, there was no active market and they would use the same model for fair value establishment, it is highly probable that they will not employ the same parameters, e.g., a discount rate. Small discrepancies in discount rates applied in the model may create significant differences in the amounts of fair values, and thus in compared ratios.

Conclusions

Comparability and continuity improve the utility of financial information in decision making process regarding investments and allocation of other assets. Financial information presented by fair value can only be compared if it has been prepared based on the same quotes from the active market for the same assets or liabilities as those which are subject to valuation. In other cases there is a threat to lose the established fair value comparability, which results from characteristics of this valuation category. Thus, one can state that the incomparability of fair values may result from: the hierarchical procedure of fair value measurement, its compulsory or optional application in the balance sheet valuation and application only to the selected components of assets and liabilities.

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TRANSFORMATIONS IN ECONOMY AND CULTURE: DEVELOPMENT STRATEGIES FOR THE EUROPEAN UNION

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Abstract

The present paper deals with possibilities for the development of new forms of economic, social and technological headway designed to create and further improve economies based on knowledge and high technologies sector in the European Union. In the context of enlargement of the European Union, the author analyses innovation processes in economy and culture. The main emphasis is put on the strategic decisions in the area of knowledge economy, creation and further modernization of high-tech sectors as well as creation of scientific and technological progress oriented networks of clusters. Development of high technology sectors and clusterization with a focus on increasing the efficiency of various national and regional economies is a critical precondition for successful creation of modern and knowledge-based economy in both the whole European Union and individual countries. The author suggests creating the regional and cross-regional clusters and their networks also known as economic "oases". The study reveals that the economies, which are based on knowledge development of clusters and their networks, will soon become one of the core forms of economic and technological advancement. The variety of clusters and their networks is defined, and the idea of clusterization generally oriented towards the creation and promotion of high technologies is presented. The author describes some factors of economic, technological and social development of the European Union, and subsequently proves that these factors reflect on the common context of creation of the knowledge-based economies.

Keywords: *Innovation, knowledge economy, culture, networking, clusters, strategies, European Union*

Introduction

The future of the European Union lies in the creation of the knowledge-based society and knowledge-based economy. This means that the issues related to the creation of knowledge-based society and knowledge-based economy require *strategic decisions*.

The essence of these issues could be revealed in the following:

- *What* should the knowledge-based society and knowledge-based economy be like in the future in the European Union?
- *How* should the knowledge-based society and economy be created in the European Union?

To find answers to these questions, there is a need to elaborate and implement appropriate *strategies for the creation of knowledge-based society and knowledge-based economy*. However, *appropriate* concepts and methodologies of preparation and justification of strategic decisions should be used to ensure the elaboration and implementation.

The present paper analyzes a new approach towards the way how to develop *long-term strategies* designed to create knowledge-based economy in the European Union. The approach is a result of *scientific research.* The object of the research was the *creation of the knowledge*-based economy under conditions of enlargement of the European Union.

The objective of the completed research is to prove the fact that key priorities in the creation of the knowledge-based economy is the urge of technological advancement and enhancement of compatibility and productivity, using such opportunities as specialization of national and regional economies, creation of clusters and their networks, as well as the development of the so-called economic "oases" and hyper-clusters in the entire economic space of the European Union.

The main result of the completed research is the concept of *strategies oriented towards integration and synthesis,* the basis for which is the *universal principle of "creation of a new quality":* we should utilize this principle in elaborating and implementing the strategies for creation of knowledge-based economy in the European Union.

New Challenges for the European Union: Knowledge-based Economies and Innovations in Economy and Culture

The development of the European Union is a very complex process of both quantitative and qualitative transformations.

The need for changes within the European Union is determined by a number of *problems* which have been described in various scientific papers (Melnikas, 2002, 2011; Melnikas, Reichelt, 2004).

The main *problems* of the European Union as a system, which require essential and radical decisions, are:

1) There are *very limited sources of energy and raw-materials* in the territory of the European Union. In the environment of economy development, the need for these resources has been steadily growing. It means that the European Union is becoming more and more dependent on the possibilities to increase these resources: we suggest that *prospects of economic development* of the European Union, along with *economic and energy security* of the European Union have been influenced by various economic and political factors characterizing export of these resources to the European Union.
2) Within the countries of the European Union, *very high standards of living are being implemented,* including the spheres of social security and social warranties, as well as environmental protection. As a consequence, all economic endeavours within the territory of the European Union require substantial expenditure which subsequently means that the *cost price* of the products manufactured in the European Union is *very high*. The cost price increase which is disproportionate to the quality of products is indicative of the fact that products manufactured in the European Union become increasingly *incompatible.*
3) Key indicator of well-being in the European Union is the ability to manufacture products to the increasing extent and more massively both in their local and global markets, and sell products of high quality and price. This means that in the European Union the demand for more markets in order to sell their own products is increasingly growing (besides, an adequately high purchase power is of crucial importance). Inadequacy of such markets threatens the development of economies of the European Union.

The need to respond to these problems poses the following *challenges* to the European Union and its development:

1) Quantitative enlargement of the European Union is orientated towards the following:
   - The European Union could win possibly more markets to sell its products.
   - The European Union could possibly gain better "direct" access to the countries in Eastern Europe, Central Asia, the Near and Central East where huge supply of energy and raw materials is accumulated and which have great potential markets for the products manufactured in the European Union.
2) Qualitative development of the European Union is oriented towards the goal to create the knowledge-based society and knowledge-based economy in the territory of the European Union: This could ensure the following:
   - Ability to create within the European Union an alternative energy sector and other sectors of economy, which could allow for decreasing the

dependence of the economies of the European Union on the import of traditional energy and raw materials.

- Ability to create and widely distribute brand new products and technologies in the global market, which could allow the European Union to become the world leader in many spheres of economic and social life.

It is worth mentioning that over the last decade greater possibilities to ensure *quantitative increase* can be observed in the European Union, whereas in the sphere of *qualitative development* numerous difficulties and unpredicted obstacles can be seen (Melnikas& Reichelt, 2004).

Current processes of enlargement of the European Union are very intense. These processes reflect on a two-fold approach towards the European Union and its enlargement:

1) The European Union could be perceived as a multicultural space. We suggest that the common cultural space of the European Union is comprised by various ethnic, religious, social and other cultural spaces represented by their regional, as well as quantitative and qualitative indicators. It is of crucial importance that the development of a common cultural space in the European Union implies both processes of integration and synthesis: this means that integral culture common to the entire society of the European Union inevitably develops within the European Union.
2) The European Union could be perceived as the organization of the states belonging to Europe. Thereby it is possible to assume that the European Union is generally an organization of organizations because a modern state, broadly speaking, can be defined as a societal organization of the superior degree of development. The enlargement of the European Union as an organization of states is going in the way of integration of the new states into this organization; therefore, we suggest that the enlargement of the European Union is followed by the processes of integration. At the same time, it is important to notice that the European Union as an organization has gradually started executing functions of the common state of the countries that belong to the European Union. This means that the European Union is gradually turning into a *super-state.* The development of the European Union as a new super-state simultaneously expresses processes of *synthesis* typical of the enlargement of the European Union as an organization.

We may conclude that both integration and synthesis develop in the process of enlargement of the European Union as a multicultural space and as organization of the states. Therefore, the character and condition of the enlargement of the European Union in the future will be determined by what processes of the enlargement will dominate, and whether the processes of integration or processes of synthesis will dominate.

Depending on whether the processes of integration or processes of synthesis will dominate in the future, it is possible to draft two alternative visions of the future of the European Union:

1) The processes of integration will dominate in the enlargement of the European Union. In this case, multicultural space of the European Union will manifest as a common space comprised by various national cultures where various nations live. In this case, the European Union will continue functioning as the organization of various national states.
2) The processes of synthesis will dominate in the enlargement of the European Union. In this case a new type of common European nation will gradually develop in the space of the European Union, whereas the European Union itself will transform into the integral European super-state. Thereby, modern national states will become administrative and territorial sub-divisions possessing rather wide autonomy in the future European Union as a super-state. Besides, we may assume that in the future the members of the European Union will more likely identify themselves with the integral European nation than with their current nations.

It is natural that the two alternative visions are *hypothetical.* At the same time, it is worth noting that the second vision (the vision of the domination of the processes of synthesis) is just a continuation of the first vision (the vision of the domination of the processes of integration). This means that both visions as a *complex* can be considered as a *common hypothesis* dedicated to the future of the European Union: in this common hypothesis two stages could be emphasized: the first one (the stage of integration processes) and the second one (the stage of the synthesis process).

It is necessary to mention that *regardless* of the combination of the processes, integration will characterize the enlargement of the European Union; whatever the case, the development of the *knowledge-based society and knowledge-based economy* will manifest in the European Union. The knowledge-based society in the future will be an integral part of the European Union.

Transformations in the "enlarged" European Union and Characteristics of the Development of the Integral Space in the Entire European Union

Over the recent decades, the main typicalities have developed in the integral economic and social space of the entire European Union. Among those the following could be identified:

- *general* typicalities characteristic of the development of all large economic and social spaces that are known not only in the situation of the development of the European Union, but also appear in the evolution of *all* civilizations and cultures;
- *specific* typicalities characteristic of the development of the European Union in particular, manifesting as *historically unique* phenomena of the development of civilizations and cultures.

General typicalities are the ones which, drawing an analogy in one way or another, have already evolved in the history of the development of other civilizations and cultures. Specific typicalities are those of the exceptional origin of the European Union, its economic and social space and transformations of this space. It is important to note that the most substantial specific typicalities are those which allow revealing the specificity influenced by various regional factors, including the countries of Eastern and Central Europe.

It is possible to mention a large number of general typicalities characteristic of the integral economic and social space of the entire European Union. The leading ones are:

1) Typicality of the *priorities of the quantitative growth and qualitative advancement* manifests the fact that the development of the economic and social space in the entire European Union is characterized by the two *main priorities*: quantitative and qualitative development.
2) Typicality of the *priorities of democratic attitudes*, humanism, human rights and common human values proves that striving to implement the ideals of democracy and humanism is the most intrinsic value towards which the development of the European Union is oriented.
3) Typicality of the *increasing complexity of the structure of multicultural spaces* indicates that, in the situation of the development and enlargement of the European Union, not only the diversity of cultures that appear in the space of the European Union increases but also the *processes of the increasing complexity of those cultural systems and structures* occur: *new characteristics* and *dimensions* of multicultural spaces develop that are indicative of increasing variety of ethnic, confessional, regional, demographic, social, economic, political, ideological, mental and other factors.
4) Typicality of *the balance in general and local factors* demonstrates that in the situation of the development and enlargement of the European Union, an *integral European civilization of a new type* is forming that possess *twofold* characteristics: first, *general* characteristics, characteristic of all spheres of life within the *whole* space of the European Union; and second, *local* characteristics, expressing typicalities of different countries, regions and societal layers.

5) Typicality *of predominant norms and standards* implies that in the situation of the development and enlargement of the European Union, the *uniform norms and standar*ds have been steadily prevailing in the integral economic, social and cultural spaces.
6) Typicality of *nonsynchronical development* suggests that in the situation of the development and enlargement of the European Union, more and more *uneven changes* emerge.
7) Typicality of *cyclical development based on the "wave" principle* refers to the fact that all processes of the development of the European Union are undergoing cycles: each cycle includes a certain *stage* of development, which can be outlined by both quantitative and qualitative changes.
8) Typicality of *increasing differentiation and differentiation variety* exhibits that in the situation of the expansion of the European Union, within the integral economic and social space new manifestations of differentiation occur, and the range of differentiation expands.
9) Typicality of *balance of centripetal and centrifugal forces* in the situation of the development and expansion of the European Union is seen in the simultaneous manifestation of *two opposite tendencies*: on the one hand, it is a tendency of *striving to enter the common system,* expressing the priority of obedience to the system; and on the other hand, it is a tendency of *striving to strengthen the sovereignty and autonomy in the common system*, expressing the priority of *the self-assurance of personal wellbeing at the expense of the system*).
10) Typicality of *predominance of traditional leaders* proposes that, in the situation of the development and expansion of the European Union, the priority interests to be implemented are those developing in larger countries of Western Europe, e.g. Germany and France (these countries have historically developed as traditional leaders of the European Union).
11) Typicality of the *expansion potential* expresses the idea that the European Union as an *integral system* has been increasingly operating within *global* economic, social, cultural, informational and political spaces.
12) Typicality of the *adaptability in the consistently changing external and internal environment* suggests that, in the situation of the development and enlargement of the European Union, *multifaceted processes of adaptation* arise: the new member states of the European Union need to adapt to the new space – the European Union, whereas the "old" members of the European Union have to adapt to the "enlarged" European Union and "accept" new members as equal partners; besides, all European Union as an integral system needs to adapt to the consistently changing external environment.

Specific typicalities characteristic of the development and enlargement of the European Union as an integral system, are *multifaceted*. Some typicalities reflect on the specificity

of a particular *époque,* whereas the others express specificity of particular regions, spheres of social and economic development or certain layers of the society.

The most notable *specific typicalities* expressing current era are:

1) Typicality of *regulated and controlled liberalization* that reveals rather contradictory processes typical of the current development of the European Union.
2) Typicality *of promotion and predominance of the concerns of large economic subjects* demonstrates that in both *the overall globalization* and the specific economic and social space of the *European Union, the concentration of economic activities* is steadily happening. The actual situation in both economic space of the European Union and global markets has been increasingly influenced by activities and opportunities of *large economic subjects* (here we consider large economic subjects – those *large enterprises* that operated in international markets, *networks* and *organizations* of small and medium enterprises, and various *international corporations* and *international economic organizations*).
3) Typicality of the *declining role of the state as a structure to organize the society* indicates that in the situation of the development and enlargement of the European Union in national countries, the state as a key organizational structure for any society of any country has increasingly losing its previous importance and a number of opportunities to immediately influence the situation in the country.
4) Typicality of *manifestation of threats and issues of a new kind* allows us to conceive that each stage of development and enlargement of the European Union reveals *new threats* and causes *new issues* that are determined by various factors of moral, ideological, cultural, political, social, economic, ecological, military and informational character.

Strategies Designed to Create Networks of Clusters and economic "oases" in the Knowledge-based Economy

Creation of the knowledge-based society and knowledge-based economy in the European Union requires elaboration and implementation of appropriate development strategies.

Understanding that the European Union enlargement processes are two-fold (they are processes of integration and synthesis), it is possible to assume that in the situation of enlargement of the European Union, the strategies of two types could be implemented:

- strategies oriented towards the processes of integration;
- strategies oriented towards the processes of synthesis.

It is critical to note that strategies oriented towards integration and synthesis can also be designed for the entire European Union and for particular spheres of social and economic life in the European Union. One of these spheres is the development of national and regional economic systems and the creation of cluster-based economy of a new type.

Contemporary economic principles and practices confirm that in efficiently operating economic systems their surplus value is created at greater extent.

Development of large economic systems by clusterization may vary greatly. A very prospective method is the creation of regional (territorial) or sectoral "oases".

In general, "oasis" can be explained as an economic system, possessing extremely advantageous political, legal, economic and other conditions for activities and development. These conditions are, as a rule, exclusive and in their presence the "oasis" as economic system receives various privileges or extremely beneficial environment is created for it. "Oases" can be established on behalf of political will of a state or even a group of states: by the way, the idea of regional "oases" is very viable in the improvement and implementation of regional policy of the European Union, with the intentions of creation "oases" not only in particular countries, but also in regions of different countries.

Regional "oasis" is the one where exceptionally advantageous conditions for economic development are created in a territorially outlined area (region). This area may or may not coincide with systems of administrative territorial division of particular countries.

Sectoral "oasis" is the one where exceptionally advantageous conditions are created for particular branch of economy, and particular segments of business or public sector.

Creating and developing "oases", it is very important to consider demographic situation, possibilities to attract, concentrate and efficiently utilize human, financial and other resources, as well as possibilities to rapidly expand various innovations.

The strategies for clusterization and rational specialization of regional economies should include both the strategies oriented towards integration and the strategies oriented towards synthesis: the strategies oriented towards integration and the strategies oriented towards synthesis have different goals and different content.

The idea of the strategies oriented towards integration is to ensure high efficiency and compatibility of different regional economies and different sectors of both integral economic space of the European Union and global markets. These strategies should draw upon the following key decisions:

- Each national or regional economic system should shape up one or more *priorities* with a focus on the *creation of modern state-of-the-art technologies and products based on these technologies:* in view of such priorities one could define or develop *rational specialization of each national or regional economy.*
- According to the *regional priorities,* each national or regional economic system should form *regional economic "oases"* and clusters*;* whereas general

"oases" and clusters can be transformed into *macro* – or *hyper – clusters* on the scale of large regions or the entire country (the clusters of this kind can be of a *broad scope, multi-scope* and *limited scope*, functioning as *specialized* clusters in particular sectors of economy).

- Creation of "oases" and clusterization should ensure that *intellectual resources and technological advancement play the major role* in economic growth. The idea of the *strategies oriented towards synthesis* is to *ensure that major sectors of economy on the scale of the whole European Union* operate as *integral undivided systems.*

Each sector of this kind as a system should possess a *very high level of technological development* and should be a *leader* in the corresponding sphere of economy *on the global scale.* The focus on challenges of this kind requires that within these strategies the following decisions are made:

- On the scale of the entire European Union, the networks of regional and sector clusters as well as "oases" should be created and mutually developed: each element in networks of this kind could become rationally specialized. It would be possible to make sure that the network as a system is of a state-of-the-art level of productivity and technological advancement.
- The networks of regional and sector clusters as well as "oases" should be specialized: subsequently, the networks of this kind on the scale of economic space of the European Union are mutually complementing and functions are based on partnership.
- The networks of regional and sector clusters as well as "oases" that are created in the European Union can operate outside the European Union*:* this will ensure the viability of economic structures of the European Union and their compatibility in the global markets.
- The networks of regional and sector clusters as well as "oases" should be an organizational basis for the economies of the entire European Union*:* the networks of this kind should be understood as the key structural elements of the economy of the European Union, as well as a key organizational structure of the knowledge-based economy (it is obvious that in any of these networks, high intellectual, information technical and other potential should be accumulated, ensuring rapid and efficient headway of technologies and leadership in the global markets).

Implementation of the above strategies is a very important factor to achieve that the creation of knowledge-based economy and knowledge-based society in the European Union becomes a reality.

Conclusions and Recommendations

Creation of the knowledge-based society and knowledge-based economy in the European Union is a very complex, long-term and ambiguous process.

The key challenges and priorities that require main attention when creating the knowledge-based society and knowledge-based economy are the following:

1) Creation of knowledge-based society and knowledge-based economy in the European Union should be oriented towards the solution of the following problems:
   - problems of insufficiency and increase in the cost of energy and raw-materials, as well as problems of secure and reliable import of these resources, along with problems of creation of alternative energy and economies oriented towards alternative raw materials;
   - problems of new prospective markets necessary for implementation of production in the European Union, and problems of its development and introduction;
   - problems of the required potential development for state-of-the-art products, as well as problems of compatibility of the products oriented towards high technologies in the global markets;
   - problems of social security, economic well-being, as well as social, legal and ecological environment improvement.
2) The basis for the creation of the knowledge-based economy in the European Union is the implementation of the universal principle of "creation of a new quality" designed to complete the following:
   - development of the society and economy of a new type is going under concurrent processes of integration and synthesis;
   - when creating the knowledge-based society and knowledge-based economy in the European Union, an integral cultural space should be created*;*
   - when creating the knowledge based society and knowledge based economy in the European Union, the strategies with a focus on integration and synthesis should be created and implemented.
3) In the strategies designed to create the knowledge-based economy in the European Union, the main emphasis should be put on the following *priorities*:
   - *rational specialization* of national and regional economies*,* ensuring *high compatibility* both in the European Union and in global markets;
   - transformation of national, regional and sector economies into the *macro – or hyper –clusters* and *systems of such clusters;*
   - development of *clusters and networks of economic "oases" in the entire space of* the European Union;

- further development of *clusters and networks of economic "oases" as the main organizational structures* characteristic of the system of the European Union. Further scientific research and practice dedicated to the creation of strategies for the knowledge-based society and knowledge-based economy in the European Union are very promising and important.

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USE OF CLUSTER APPROACH TO ENHANCE COMPETITIVENESS OF THE ECONOMY

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Abstract

The article is aimed at studying the creation trends and development of clusters to enhance competitiveness of the economy of the Republic of Belarus. The following analysis techniques were used: statistical analysis, in-depth interviews, computational and analytical method.

The present paper deals with the essence of commodity clusters and their role in innovation and competitiveness of national economy. The clusters in the Vitebsk region of Belarus were identified and their analysis was performed. The author developed and proposed methods for implementing the cluster approach, taking into account the economic evaluation of the cluster approach based on the forecast of competitiveness of light industry. The article offers directions for implementing the cluster approach, including methods of organizational, legal, and communication provision, methods of promotion of economic cooperation and the development of clusters, forms of cluster support by governmental bodies. The author develops the stages of clustering, which include consecutive actions of the government and business entities to develop cluster links and network cooperation.

Keywords: *cluster, competitive advantages, clustering, the cluster approach, competitiveness.*

Introduction

Many countries use clustering to ensure innovative development and competitiveness of the economies. Foreign experience of clustering shows high efficiency of this process in the economy. Clustering has reached more than 50% of the leading economies. The process of clustering started in the post-Soviet countries – Russia, Kazakhstan, Latvia, Lithuania, Ukraine, Armenia, Tajikistan and others (Cluster Observatory Scoreboards). In the Republic of Belarus, the use of cluster approach to modernize the economy in the direction of innovation development is reflected in the policy documents – "State Program of Innovative"

Development of the Republic of Belarus for 2011–2015", "Social and Economic Development of the Republic of Belarus for 2011–2015", "Strategy for Technological

Development of the Republic of Belarus for the period until 2015". However, the cluster strategy has not been determined in the Republic of Belarus.

The study revealed that theoretical and methodological aspects of the organization of clusters of commodity producers form an underdeveloped field of research in the Republic of Belarus.

Thus, problems of the Belarusian economy competitiveness caused by globalization and imperfect innovation systems, positive experience of the cluster concept in foreign countries and lack of developed methodology of the cluster approach to increasing the competitiveness of the economies of post-Soviet countries determined the relevance of the goals and objectives of the study.

The goal of research is to substantiate direction of formation and development of clusters in the national economy of the Republic of Belarus.

The objectives of research are to:

- develop the theoretical foundations of clusters in the economy;
- substantiate the role of clusters in innovative development and competitiveness of enterprises, regions and national economies;
- analyse clusters in the Vitebsk region;
- develop methods of cluster formation in the economy of the Republic of Belarus.

Theoretical Foundations of Clusters in the Economy

The integration of the Republic of Belarus in the global economic community, the development of foreign economic relations and international division of labour have led to the use of the cluster approach to managing competitive economies in Belarus, taking into account national and industry specifics.

The cluster concept for competitiveness of enterprises, regional and national economy is based on the formation of a new relationship between the subjects of management (network cooperation), and between the government and business (public-private partnership). It has resulted in competitive advantages of clusters in enhancing innovation, the development of human capital and improved marketing.

The cluster of commodity producers is considered as producers of complementary network organization, a geographically interconnected cooperation between enterprises and organizations (including specialized suppliers, services, producers and consumers) united around a research and education centre, which is linked to partnership with local agencies and government bodies with a view to improve the competitiveness of enterprises, regions and national economies. In general, the structure of the cluster is represented in *Figure 1*.

Figure 1. Structure of the cluster in the general form

Source: worked out by the author

A business is the central subject. It forms the basis of the production cluster.

State bodies and local institutions form the cluster infrastructure.

The cluster of commodity producers has the following *characteristics,* which distinguish it from other structures:

- location in one geographical territory;
- agglomeration of enterprises, organizations and local institutions united by horizontal and vertical communications;
- production of a "key" product (a product occupying the greatest share in output of the cluster by which the cluster name is determined);
- complementary entities (i.e. complementarity and creation of production chains);
- association of the enterprises of the finished production cycle (from production of raw materials to distribution of finished products);
- presence of competition and cooperation between the members of the cluster.

Cooperation is a source of competitive advantages of clusters to develop interrelations in the cluster (thanks to localization and agglomeration), which are based on the long formal and informal attitudes, and are subdivided into two types: network cooperation and public-private partnership.

The public-private partnership (PPP) is a type of cooperation that represents institutional and organizational alliance between state bodies and business, based on joint financing of projects that promotes coordination of interests of the state and business in innovative development to increase investment resources, to solve of a number national and regional level problems, while decreasing the budgetary expenses.

Role of Clusters in Increasing the Competitiveness of National Economies

Clustering has advantages both for the subjects of the cluster and for regional and national economy as a whole.

The role of clusters in economic development and competitiveness of regional and national economies is shown by the world experience, as evidenced by the following factors.

1. Clusters contribute to enhanced innovative activity and innovations are an important factor of competitiveness increase. It occurs at the expense of the following factors:
   - accumulation of knowledge of commercial and production character in the cluster and fast diffusion of knowledge within the cluster;
   - creating innovation through internal competition between producers of the cluster;
   - accelerating innovation through cooperation between suppliers and producers;
   - acquisitions of innovations within the international technological cooperation of clusters (the joint and franchising ventures).

2. Clusters promote GDP growth and tax revenues in budgets as a result of:
   - joint investment with the members of the cluster, including attraction of foreign investment;
   - attraction of the funds of local budgets to finance innovative projects for development of technologies and infrastructure within the framework of public – private partnership projects;
   - mutual lending to participants of the cluster, as well as mutual guarantees and warranties in case of long-term stable cooperative relations. The cluster may include not only industry, but also the financial and investment companies, including investment banks and specialized leasing companies.

3. Clusters promote the development of small and medium business in the region by means of:
   - formation of the relations of outsourcing when small and medium-sized enterprises carry out production, works and services for key subjects of a cluster;
   - opening of new zones of business in a production chain of a cluster (a chain of values).

4. Export growth in the cluster is provided owing to:
   - joint marketing programs, market research, positioning in market segments;
   - joint programs of advance and sale in foreign markets (creation of joint representations, trading houses, the logistic centres);
   - use of advantages of a well-known brand by all participants of cooperation.

5. The increase in employment and profitability of regional production as a result of organization of clusters occurs due to:

- formation of new business entities due to the impact of competition on greater specialization to create new niches and expand the cluster;
- completion of missing facilities in the technological chain in the import substitution programs, programs to attract foreign investment.

6. Clusters promote economic development of border territories by means of:
   - ensuring border cooperation of clusters in the sphere of trade, agriculture, tourism, transport, infrastructure;
   - presence of a cluster increases the role of regional administrations, develops and strengthens economy of their region, stimulates economic growth and accelerates the solution of social problems, creates conditions for successful development of more backward territories;
   - positive effects (externalities) are created within the cluster when the economic benefits derived from some subjects are transferred to other cluster members. Entering the cluster, enhances the status of its member companies, promotes attention to them by financial agencies to favour the growth of their international reputation and popularity of the brand, as well as attracts more resources to the region.

Thus, clusters of commodity producers are important for companies, their members, and for the economy as a whole. It is necessary to study the basic directions of the formation and development of clusters to use the cluster concept in economic development and competitiveness increase of national economies.

Cluster Analysis in the Vitebsk Region

The following assumptions were identified for clusters in Belarus: favourable conditions for efficient operation of markets, increased competition, imperfect innovation systems, rivalry and cooperation among stakeholders, the presence of local factors of production, which are based on studies of external and internal environment of the Republic of Belarus.

The Vitebsk region is justified as a representative of the region to develop a mechanism for the implementation of the cluster approach in the light industry of the Republic of Belarus, which reflects the general state of the industry and cluster developments in the country, because it has the highest number of people employed by light industry, high concentration of production of light industry and the subjects of the cluster infrastructure sector compared with other regions. It is planned to create three clusters in the Vitebsk region, in accordance with state programs: petrochemical, leather and footwear, linen.

To identify and structure the clusters in the Vitebsk region, a cluster analysis was performed in accordance with the methodology developed by the author (Яшева, Г. А., 2010: 107–112).

Methodology of the research

The sources of information are the regional statistics departments, the Internet, business entities of the Vitebsk region of Belarus, management experts of industrial complexes.

Data structure: output volumes, inter-industry relations in the Vitebsk region, including the scope of delivery and costs, the quality of the network links, which are characterized by the results of the survey on the degree of interaction among the cluster subjects in science, education and marketing.

The method of calculation of variables used in the analysis: to identify and structure the clusters, the following methods were used: statistical analysis, and computational and analytical method. To assess the quality of cluster links an in-depth interview method was used.

Cluster analysis was performed in the following directions:

- key products of the light industry were identified – linen, shoes, clothes (based on the statistical analysis of the industry);
- subjects were identified by the clusters (an in-depth interview with experts, business leaders and organizations), resulting in a list of potential subjects in each cluster;
- the relationships between the enterprises and organizations were revealed (based on statistical analysis and in-depth interviews), in particular, in a cluster of linen – 1430 ties between 65 companies and organizations from 22 industries, 3150 bonds in the cluster of shoes between 175 companies and organizations from 18 industries, 3084 bonds in a cluster of clothing between 257 companies and organizations from 12 industries;
- force coefficients were calculated between enterprises and organizations from different sectors of the economy, the values of which were the criteria for inclusion of subjects in the cluster (the cluster included subjects who had the power coefficient links within 0.08–1.0).

The cluster analysis in the light industry of the Vitebsk region by the author's technique allowed the author to identify and construct three potential clusters – footwear, clothes and linen (*Figure 2*).

The most competitive clusters of linen were identified from analysis of cluster competitiveness (according to the developed methodology), which received the highest rating of competitiveness – 0.94 (cluster footwear – 0.9 cluster of clothing – 0.33).

Linen cluster has the most extensive horizontal links across the value chain, creating a cluster of subjects with a number of competitive advantages in the value chain. Suppliers provide lower prices for raw materials, timely delivery, and innovative technological developments. Manufacturers provide high productivity by combining a wide range of products, highly qualified staff and low prices. Intermediaries have great experience and image, high quality, wide range of products, good location.

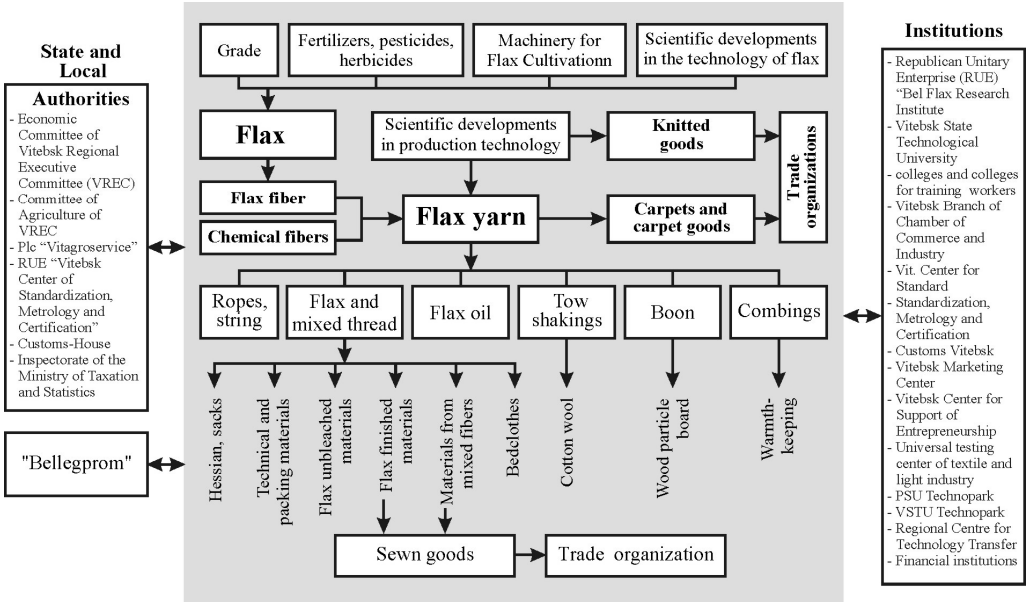

Figure 2. Flax Cluster of Vitebsk Region

Source: worked out by the author

Clustering Method in the Republic of Belarus

The following main stages of formation and development of clusters in the Republic of Belarus are offered, taking into account the author's cluster concept and foreign experience in clustering (Tiri, Moreau & Peeters, 2000; Roelandt & Hertog, 1999; Портер, 2002), as well as special features of economic and social relations in the Republic of Belarus.

At the 1st stage, it is advisable to carry out the following preparatory work

1. Organizational and legal support for cluster initiatives includes:
   - development of methodological and practical materials to create clusters with a view to help regional leaders, the business community and entrepreneurs;
   - disseminate the ideas and the benefits associated with the creation of clusters;

- training to government, business and public institutions through seminars, round tables, workshops and conferences to promote cluster initiatives;
- recruitment and training for specialists who are asked to spread the idea of clusters;
- law of the Republic of Belarus "On the Public-Private Partnership".

2. Creation of non-profit organizations to manage the cluster, including:
   - commission for competitiveness and clusters at the Ministry of Economy, which is recommended to work with the government, both state and local governments on the development of the legal framework of clusters, national cluster strategy, information gathering on the activities of the clusters, an assessment of competitiveness clusters and their subjects;
   - commission clusters at regional committees on the economy, which will carry out organizational support to the process of making changes to the legislation of the Republic of Belarus, aimed at the development of clusters in the region, carrying out activities for the development of cluster initiatives, expertise cluster projects, monitoring and evaluation activities to build clusters, promotion to overcome the administrative and bureaucratic barriers in the organization and development of clusters in the region;
   - profit organizations (industry associations and centres of cluster development) that contribute to the formation and development of the cluster.

At the 2nd stage, cluster initiatives and co-operation are provided by means of the following forms and methods

1. Forms of communication to ensure cooperation in clusters include the creation in regions:
   - database clusters by region, through regional statistical office;
   - portal "Business-to-business" (B2B), which includes all levels of information exchange between enterprises and organizations;
   - portal B2A "Business Administration" (business-to-administration – B2A), which includes business communication of business corporations with government organizations;
   - Portal C2A "Consumer-administration" (consumer-to-administration – C2A), which is used for cooperation between the government and the consumer, including social sector and taxation.

2. Methods of economic promotion for cooperation and the development of clusters include:
   - financing (including public-private partnerships) in a region of innovation infrastructure (regional venture funds, start-ups, credit unions, business angel networks, incubators, technological parks, centres of excellence, centres of cluster initiatives etc.)
   - competitive financing investment projects of the cluster (e.g. technical development, suppliers, projects in education, creation of distribution networks abroad etc.);

- preferential loans and guarantees for investment and projects aimed at the development of clusters;
- grants to study subjects of the cluster;
- placement of the governmental orders cluster.

3. Organizational forms of cluster support by the government:

- lobbying interests of clusters at other levels of government for the protection of producers of the cluster, using measures such as the increase of import duties and import taxes on the sale of competing products, the introduction of quotas on imports of competing products, the introduction of quotas on the export of raw materials, etc.
- Help in international cooperation of clusters, which consists of various forms of promotion of local clusters (internet, trade and economic relations, conferences, negotiations with foreign investors and international donors, forums, etc.).
- The contest among the clusters, and the establishment of the annual awards to the best cluster.

Stage 3 – formulates objectives of the cluster, for example – to attract a cluster of a certain number of actors involved in the process chain, the formation of a common brand cluster, attracting foreign investors in the cluster, the organization of joint for enterprise cluster "N", "X", "Y" at foreign market and other purposes.

Stage 4 – cluster project planning. The following projects are involved: the project of creating a specific cluster project of the subject of the cluster infrastructure (the centre of the cluster development, regional venture capital fund), to attract foreign investors and joint ventures in the cluster, and others to develop cluster projects it is advisable to use the method of project management and funding, which is set out in the paper (Яшева, Г. А. 2010).

Stage 5 – network cooperation and public-private partnerships are organized in the formation of competitive factors, using the following forms of cooperation.

1. Form a network of cooperation and public-private partnerships in the development of human capital:

- joint departments, laboratories, centres of fashion by opening offices in the industry;
- implementation of the knowledge management systems (transfer of informal knowledge) within clusters, such as the training program in the industry with a cascading effect where students are learning; continuous improvement of the "Kaizen tiean" system in work;
- creation of centres of excellence in the form of virtual organizations based on industry research and educational institutions in the cluster.

2. Forms of networking to enhance innovation:

- joint research in the field of the "key" goods in the cluster (supplier, manufacturer, research organization);
- joint program of modernization (suppliers and producers).

3. PPP forms of innovation and investment in the development of clusters:
   - the provision of public capital investment to support high-performance clusters of investment projects on a competitive basis;
   - support projects aimed at innovation and financial infrastructure for the cluster;
   - government guarantees to banks for investment projects of the cluster, including the development of suppliers.

Stage 6 – the elected coordinator of the cluster project evaluates the cluster. The evaluation includes regular monitoring of competitiveness of clusters, assessment objectives, roles of participants, the initial results. Based on the results, the following objectives are determined (Stage 3), and therefore the cluster process is continuous.

An important practical issue is the question of clustering – the period of time that will be required to create a real cluster. Many researchers point out the complexity of forecasting real results of the cluster approach. Porter concludes: "From a study of many special cases, it is clear that it requires ten or more years to achieve real competitive advantage of clusters" (Портер, 2002: 249). Russian scientists Lozinski and Holiday argue that real benefits of cluster development appear only after 5–7 years (Лозинский, 2003: 11). Experience shows that it took almost 10 years for China to develop competitive clusters in the textile and clothing industry (Шестопалов, А. 2013).

Conclusions

In the formation of an innovative economy of Belarus, traditional approaches to improve the efficiency and competitiveness of the national economy based on state support for individual sectors cannot meet the ongoing changes in the environment (globalization, increased competition, the formation of networks). They should be complemented by a new cluster-based approach, fostering networking and public-private partnerships in the development of science and education. The study showed that the Belarusian economy strongly needs clusters of commodity producers. They will contribute to the economic development and competitiveness of the national economy through social capital and synergies from the cooperation.

The clusters identified in the Vitebsk region of Belarus appeared to have potential. Cluster analysis has shown that the cluster links and cooperation within them are not developed. The article offers directions for implementing the cluster approach, including methods of organizational, legal, and communication provision, methods to promote economic cooperation and the development of clusters, forms of cluster support by

governmental bodies. Stages of clustering which include consecutive actions of the government and business entities to develop cluster links and network cooperation have been developed.

It should be noted that only collaborative efforts of the state and local government, as well as business entities and institutions, in particular, can ensure the success of the cluster policy. We believe that in the Republic of Belarus the local government should be an initiator of clustering activity.

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