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Turinys / Contents

Editorial

"Journal of Management" is periodically published applied sciences journal by Lithuania Business University of Applied Sciences. It is being published since 2002 and already has solid experience. During this period there was a change in journals form, structure and content. Journal has been positively evaluated by foreign scientists, as number of them publishing is constantly increasing. There is a possibility to submit articles in English and Lithuanian languages. Now 26 th number of the journal is being released to readers. Only thoroughly selected articles by editorial board are being published. Authors of these articles represent various Lithuanian and foreign countries science, education and business institutions, such as Lithuania Business University of Applied Sciences, Vilnius Gediminas Technical University, Šiauliai University, Klaipeda University, Kaunas University of Technology, Vilnius University, Alexander Dubček University of Trenčín (Slovakia), Szent István University (Hungary), Université du Québec en Outaouais (Canada), Baltic International Academy (Latvia), Giresun University (Turkey) and other institutions.

The journal provides opportunity for academics and professionals to interact and communicate in international forum. Applied research journal „Journal of Management" Editorial Board goal is to achieve that published articles will analytically describe foreign countries economical, business and technological environment. These criteria will be evaluated while selecting articles. So, we expect that when readers get familiar with published articles, they will be able to find new and thoughtful material.

Hungarian and Canadian scientists have carried out a research "Evolution of innovation strategies during the market life cycle", where they analyze the idea that innovation is at the heart of firm's success. The research states that as the firm evolves along the market lifecycle, the nature and contribution of innovation change dramatically. It is also believed that the emphasis is put on product innovation, in mid cycle on new marketing and financial solutions, the concern being commercialization and growth. Scientists state that at maturity the focus shifts to production innovation and to financial innovation, the recycling the excess cash flows into other productive ventures. Using the concept of the market and organization lifecycle, this exact research builds an explanatory and predictive model of the evolution of core innovation as the market develops, matures and declines. As authors also state, it concerns the dynamics of innovation, the innovation profile along the lifecycle and the innovation project profile.

Worth noting another research carried out by Canadian scientist Chillingworth, where she examines the need for an effective pre-project feasibility tool and associated stakeholder engagement or facilitation methodology, and the extent to which the Feasibility Formula™ has a positive effect on an organization's competitiveness in the marketplace, irrespective of size of the firm, its position within the lifecycle, industry type or corporate culture. This research addresses competitiveness factors and the tool's support for strengthening core competencies, firm growth, proficiency of workers, speed of decision making and strategic alignment – culminating in a firm's competitive advantage.

Another noteworthy research has been carried out by Slovak researchers Koišová and Ivanová "Development and tendencies of factoring market". In this article scientists analyze the current state and development tendencies of factoring market in the world and in the Slovak Republic.

Undoubtedly all researches in the Editorial could not be reviewed, so we encourage familiarizing with them in the journal.

We invite scientists to actively publish in the journal, share their research results and methodological insights. We expect for close cooperation.

Prof. Dr. (HP) Valentinas Navickas
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THE EFFICIENCY EVALUATION WHEN RFID IS USED IN WAREHOUSES

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Annotation
Apparently, the importance of RFID in the development of logistics is immense and has a tendency to grow: under modern globalisation circumstances, the application of information and communication technologies (ICT) has become a crucial factor of development both logistics and economics in general. The analysis of the scientific works devoted to the theme of RFID in warehouses has been conducted. It showed the importance of research, which combines both the application of RFID in warehouses and efficiency evaluation.
The article discloses the efficiency evaluation for radio frequency identification technology (RFID), which is used in warehouses. . RFID-based process is usually more efficient than paper-based one. The implementation of RFID is exclusively important for trading companies, operating in international trade, for business development and competitiveness, especially after the economic downturn.
The above mentioned peculiarities show the importance of research which combines implementation of RFID and efficiency evaluation in warehouses. The paper presents the results of investigations in this context. Therefore, there is a demand to create and use in logistics such instrumentation for efficiency evaluation that would be used to identify reasonably those cases when the traditional technology is worth changing into RFID. Decisions, which are oriented to warehouse efficiency and to the increase of competition of various economy subjects, usually exploit the opportunities provided by RFID.
In the paper perspectives associated with the application of RFID in warehouses are presented, the peculiarities of the application are investigated, and the analyses of costs and benefits are provided. The analysis of investments into RFID and related infrastructure is presented herein. The results of the study are used during the formulation of cash-flow model, which can be applied to evaluate efficiency when RFID is used in warehouses. The assessment of practical application of proposed cash-flow model is presented in the paper as well.
KEY WORDS: information technology, RFID, efficiency, cost-benefit analysis, application

Introduction

A huge dynamism is a logistics characteristic: it undergoes multiple and rapid alterations, needs reacting to new challenges and tackling more complicated problems. Since the development level of information technologies is growing, the needs are perceived in a new way, which appear in the practice when radio frequency identification technology (RFID) is applied.

There are several ways to develop logistics by applying RFID:

- The recognition and visibility of products. Today is predominant focus on tracking (i.e. recognition and visibility of an object by using unique ID) (Erkan et al. 2014);
- The replacement of manual data collection to automatic collection. A seamless flow of information can be created with automatic application only (Spekman et al. 2006);

The automatisation of process. RFID is considered to have potential to improve the efficiency and accuracy of many processes (Miragliotta et al. 2009). First, RFID automates labour-intensive work; second, it gives ability to eliminate human mistakes (Tajima 2007).

RFID distinguishes for certain peculiarities: a customer can get orders that are more accurate worldwide; expenditure of logistics activities, when RFID is used, usually is lower than expenditure of paper-based activities due to the fact that the costs of operations are different. One of the major sources of inaccuracies and productivity losses in handling is paper work (Frazelle 2002). So, by using RFID usually costs of operations are lower (inefficiencies are eliminated (Varila et al. 2007), productivity is increased). However, there is a growth of expenditure which appears as the result of implementation and maintenance of RFID and related infrastructure.

The analysis of scientific literature published by leading world publishers (such as Oxford University Press, Cambridge University Press, Harvard University Press, Springer, M. E. Sharpe, Routledge, etc.) shows that 3 % of the authors, which focus on logistics issues, have taken into account RFID. These authors have mentioned that RFID open new ways for tracking products and assets. It has been revealed by authors that the implementation of RFID offers many possibilities to enterprises. Authors have called the application of RFID as powerful tool that opens new opportunities; one of them is a possibility to re-engineer logistics processes. In addition, 0.5 % of the authors, publishing the books about logistics, also analyse the application of RFID in warehouses. One third of the authors analyse both the application of RFID in warehouses and efficiency.

In the paper complex application of RFID in warehouse is examined, the model which can be applied to evaluate efficiency when RFID is used in warehouses, is presented and empirical assessment which shows that this theoretical model can be applied, are undertaken.

The methods of comparative, statistical, financial analysis and efficiency evaluation have been applied in the paper.

The conception of RFID and its reflection in scientific works

Radio frequency identification technology (RFID) is emerging technology that use radio frequency for capturing data from tags (Lorchirachoonkul et al. 2010). RFID is a maturing technology. It has been around from the early 90's and has successful implementations in warehouses. RFID is technology which can be used to provide electronic identity of any object (Attaran 2007). Such helps to automate labour intensive work (Green et al. 2004); to manage the logistics and inventory problems faced by all companies. RFID technology increases the transparency of the flow of products. In addition, higher transparency will result the savings in costs – if RFID is exploited appropriately. The application of RFID can help to provide also benefits for the firm in its internal operations (Spekman et al. 2006) (to increase inventory visibility for greater operational efficiency, to reduce inventory and out-of stocks (Attaran 2007)).

The variables concerning efficiency are productivity, better management, on-time decision making, on-time data collection, security, and stock control (Mehrjerdi 2011a).

The costs related to RFID's implementation can be broken down into the following components:

- Costs for tags;
- Costs for putting tags;
- Costs for software;
- Costs for antennas and transmitter;
- Costs for server;
- Other costs (for example, training costs) (according Mehrjerdi 2010).

Manufacturing or trade enterprises can introduce RFID on such levels: on pallets, on cases, or on single items. The costs of tags are currently seen as the highest challenge influencing the adoption of RFID: the total costs for tagging increase dramatically when tagging is required for individual items. But in comparison with barcodes RFID tags are different. RFID tag is reusable technology and costs for tagging can be spread over time while barcode can be used only once. Marks and Spencer compared costs for tags and barcodes. The company mentioned that the capital costs for RFID will be less than the annual costs for barcodes (Jones et al. 2005).

In literature it is also mentioned, that in some cases RFID creates volumes of data that are difficult to manage. According to an estimate RFID could generate 10 times more data, causing a huge increase in the daily volume of data on the corporate IT system. This means, that hardware costs required to deal with the mountains of data received from RFID's equipment, have to be investigated. The solution lies on the implementation of proper data-management system that can analyse huge amounts of data quickly (Winans 2005). This means that investments into server have to be planned also.

On the other hand, the authors suggest that RFID has the potential to deliver the wide range of benefits, including tighter management, stock control, also the reduction of shrink and labour costs (Jones et al. 2005). There are authors who analyse the potential benefits of RFID, like Spekman et al. (2006), Mehrjerdi (2011), Mehrjerdi (2010) and Green et al. (2004). For example, Mehrjerdi (2011b) identifies the list of benefits that RFID can deliver to different industries. Lee et al. (2004) quantify indirect benefits, which are provided by RFID.

RFID is used in different range of applications, including the tracking of documents, assets, products, and pallets. So, this provides the opportunities to explore RFID (Attaran 2007). More specifically, there are a lot of applications that can be used in the following industries: for example, RFID can be used in distribution, retail, and manufacturing industries. Usually it is used for the tracking of pallets, cases and reusable transit packaging (Jones et al. 2005).

In literature is mentioned that usually the benefits of RFID's implementation in warehouses rise from the reduction of operating costs through decreasing the manpower, claims, returns and lowering appropriate costs (Boeck et al. 2008; Mehrjerdi 2011b). Mehrjerdi (2011b) mentions that such will also help to increase production volume (such constrain will be used in the formulated model) or to reduce working capital by enabling the reductions of stock level, lowering the inventory write-offs from the returns of goods.

RFID may also facilitate the improved use of warehouse space. If goods don't need to be stored according to product type in manual locations, then they can be stored in the most efficient way according size or shape. In such case, warehouse's managers can use handheld devices to locate products and improve efficiency for placing and picking items (Jones et al. 2005).

Talking about the comparison of costs and benefits Kok et al. (2008) suggest comparing cases with and without RFID, especially in terms of costs. On the other hand the benefits from RFID's implementation will not arrive themselves. There must be incentive for enterprises to adopt the technology, rather as to use instrumentation which would help to identify cases when the traditional technologies could be replaced by RFID. The results of research together are also important for revealing new opportunities to expand the usage of RFID. These and other questions will be also discussed in the sections bellow.

Models, which can be applied for the efficiency evaluation when RFID is used in warehouses

Efficiency is an index allocated to measure the qualitative and quantitative results of economic practice and it is associated with resources which are used to achieve the above mentioned results. Economic efficiency is of two sizes: economic effect and combination of resource usage (or in other words a relation between results and expenditure).

To improve efficiency means desire to get as much benefit as possible with the available resources. In the literature such directions for efficiency improvement are mentioned:

- Minimization of costs – when resources are saved, the time for operations can be shortened, etc. (Lan 2005);

- Minimization of costs and maximization of value – reduction of operations costs, increase of revenue at the same time (in terms of economies of scale) (Coelli et al. 1998).

Miragliotta et al. (2009) present analytical model which can be used to assess the costs and benefits of RFID's implementation. The mentioned model provides the assessment of how and when positive return of investments can be achieved with RFID (Miragliotta et al. 2009).

Miragliotta et al. (2009) mention that the comprehensive evaluation of results and investments is not provided in the studies. Although some authors present mathematical and simulation models, in the most of models, which are presented in literature, the limited subset of benefits is analysed. Also these models provide only the evaluation of benefits and are not used for efficiency evaluation.

In the literature there are several dimensions which are introduced for the analysis of RFID: processes, scenarios, and the topology of warehouse chain:

- Processes. The analysis considers different processes, where RFID can be used (such as material handling, inventory management, and other);
- Scenarios. The analysis examines the technological scenarios (such as the usage of RFID for pallet units, cases, items, and assets) (Miragliotta et al. 2009);
- The topology of warehouse chain. There are many warehouses which can be used to distribute goods. Usually, the analysis considers different types of warehouses chain: single warehouse chain (this is the chain of one warehouse), dyadic warehouse chain (this is the chain of two warehouses) and networked warehouse chain (this is the chain of multiple warehouses)).

Talking about the processes, there is a study of Veeramani et al. (2008), where the main processes: receiving and shipping processes are analysed. Other processes of material handling (such as putting to storage, transfer from storage to picking, and picking) are not considered in their study.

Talking about scenarios, there are a few studies which are not limited to case-level and pallet-level tagging. This direction was taken by Tellkamp (2003) who proposed new return on investments (ROI) model. Unfortunately, the author presented results and didn't describe the model.

Talking about the chain of warehouses, there are studies which are limited to the analyses of single warehouses.

After the literature review it has been clarified that authors examine the application of RFID, when:

- RFID is applied in close warehouse (in-house). Such RFID is analysed by Cicirelli et al. (2008), Fontanella (2004), Spekman et al. (2006), and Vijayaraman et al. (2006).
- RFID is applied in open warehouse (in the yard). Such RFID is analysed by Boeck et al. (2008), Fontanella (2004), Kelepouris et al. (2007), Liu et al. (2008), Sliwa (2003), and Spekman et al. (2006).

The author of this study focuses on issues, when RFID is conducted in close warehouse. The study will be limited to the analysis of single warehouse.

Authors have mentioned that high area density is the most important in close warehouse. Density in both vertical and horizontal directions and in smaller area has to be revised. This means, that infrastructure from density point of view have to be analysed. Each network is unique. Radio frequencies are sensitive to liquids, metals, and other environmental disturbances that absorb and alter the wave propagation. All space objects prevent and reflect the radio signal in very complex manner, which could lead to "dead" areas where the infrastructure configuration and installation will not be optimized by taking into account the individual situation of the network. So, this has to be surveyed as well.

By using specialized and accurate testing tools such as spectrum analysers and signal generators results can be received at the macro level of the facility and the micro level where readers will be set-up, also called interrogation zones. When the infrastructure design have been selected, an installation and network architecture or a software tool configuration ensure a successful infrastructure set-up, aiming to avoid the many pitfalls associated with poor systems such as ghost reads, phantom tags, reader cross-talk and nulls or dead spots within the interrogation zone (Spekman et al. 2006). Such is important for analysing investments and the dimensions of any warehouse (Karagiannaki et al. 2011).

In literature Anandarajan et al. (1999), Katz (2006) analyse the further questions of investments. The authors state that investments are short and middle-term (Attaran 2007). Talking about investments, the authors classify them as primary (purchase and implementation of technology) and continual (related to the development of RFID).

Some authors mention up-front investments, such as the investments in readers and initial hardware and software costs, and the on-going investments associated with tags. These costs occur at different times (Alison et al. 2010).

The authors have mentioned that investments into RFID can be the initial and follow-up. As well they have stressed that the information, collected to a computer, can travel anywhere where is accessible by the internet or on a private network (Boeck et al. 2008). This means, that costs to access internet or private network have to be included as additional investments.

In addition, the economic efficiency can be evaluated using two components: investments and benefits. Also economic efficiency can be measured as a real efficiency and as an expected efficiency. In order to outline a real efficiency, indexes, indicating efficiency of used RFID in real time, are analysed. It means that efficiency can be measured in real-time and action related to optimisation can be taken at once (Green et al. 2004).

An expected efficiency is identified in such cases when it is necessary to evaluate the benefits of RFID which are intended to be applied. In order to outline an expected efficiency, historic data and predictions based on information which reflects other enterprises experience are used. These predictions are used to assess or increase the efficiency of RFID's usage. One of the ways to evaluate an expected efficiency is to evaluate the investments (expenditure) and benefits (income increase,

costs decrease) of subjects that work or intend to operate in warehouses.

The further study is divided into two parts: the assessments of investments and the assessment of benefits. The combination of such components will help us to evaluate economic efficiency. Talking about benefits, RFID helps to identify different improvement opportunities across all dimensions of any warehouse.

Modelling investments into RFID

Various models to evaluate efficiency are used. There are models with different time frame. Gaukler et al. (2007) model is dedicated for one-period operations: the enterprise makes decision about the optimal stock level at the beginning of the season, and then no further changes take place. Gaukler (2010) models multi-period operations, as more realistic environment, in which usually the continuous monitoring of stock is used over multiple time periods. In particular, it is needed to examine the impact of imperfect information on stock level, and the role of RFID for the reduction of out-of-stocks (Gaukler 2010).

In the literature, different logic to evaluate efficiency is used. There are simulation models (Lee et al. 2004) or analytical models, which are based on analysis logic of benefit-cost. Talking about analytical models, it is important to mention that the importance of technological implementation is emphasized in these models. Such models are intended for assessing cost and results of technological development in the long run (usually 5 years horizon (Gaukler 2010)). In practice these models are used for making decisions about investments. An example of such a model can be one (presented in Fig. 1) designed to measure the usage benefit of technologies which an enterprise experiences from time perspective.

In the model, presented by Gaukler (2010), the influence of RFID is seen as two constrains: first, RFID directly affects the process and, second, it also affects the amount of product sold.

In the model the extent and growth of sale are considered as the main factors, determining profitability of investments in RFID technology.

Firstly, an enterprise invests into tags and spends money for tagging items and assets. The price of tags depends on their flexibility. In this case it is discussed about one-time investments as RFID is reusable technology. It is assumed that the tags for items are implemented at manufacturing plant and the tags for different areas (for receiving and shipping area) are implemented in warehouse.

Secondly, an enterprise gives some funds for purchasing software and security technologies, which guarantee the safe transfer of data.

Thirdly, an enterprise spends a certain amount of money on infrastructure (antennas, transmitters, and servers). For a warehouse, which is engaged in RFID-based process, more money is required than for the warehouse which is not engaged in it.

Finally, an enterprise has some additional costs. Such costs arise because of training employees and re-designing routines (Thiesse et al. 2011) (these costs are initial costs).

In the enterprise, which has just invested into RFID, operating costs can be bigger, but it can change (decrease) with the time. While operating costs (i.e. average common costs per production volume) decreases, there is a monetary return which forms an appropriate economy of operating costs.

A well-organized process can mean extra savings since such activity expenditure (costs) decreases in the course of time. Additional benefit can be created when volume increases and expenditure decreases. Therefore, in order to establish a technological appliance benefit it is offered to discount (discount is a way for calculating future money on the basis of present worth) savings of activity expenditure and production volume (in value) increase. Calculating net income authors subtracts funds from income which are given for the maintenance of RFID (Fig. 1).

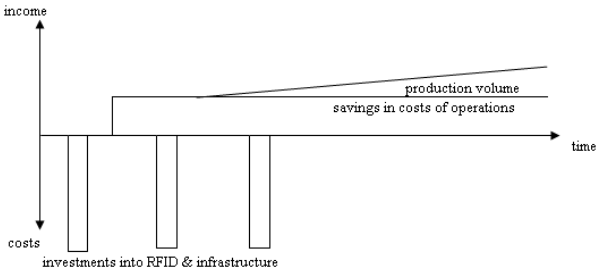

Fig. 1. The model of cash flows generated by investments into RFID

After summarising, the conclusion can be drawn that, the model (presented in Fig 1) can be applied to evaluate efficiency, when investments into RFID are one-off (single-period or initial investments) and follow-up (which can be called as multi period investments).

When business investments into RFID are modelled, discounted cash-flow method is used. The method includes the following four elements: the cash-flow element, element of the real or expected period, the continuity and continuous assessment of investments element and the element of discount norm, allowing including the risk premium, which is used to calculate the present value of money.

The cash flow is defined as incomes and outcomes of cash and cash equivalents incurred during the period in the company due to specific its investments (Mackevicius et al. 2006).

The advantage of the method. The discounted cash-flow method is based on the fact that risk premium can be included into the discount norm. The method seems simple, but difficulties arise when the size of the discount norm have to be justified which is used during calculations.

The weakness of the method. In the process of discounting some factors such as inflation changes, the entity's solvency does not take into account. These factors may also influence the cash flows at the current value but during the discounting process they are not evaluated.

The main inputs of this model: investments in RFID and related infrastructure; savings of operation costs; production volume (in value) increase.

Estimating the input of investments in RFID and infrastructure. The funds given for purchasing software

and technological equipment to be evaluated as well as funds given for technologies guaranteeing the safe transfer of data have to be included.

While calculating the savings in costs of operations, the expenditure economy is evaluated. In the enterprise, which has just invested in RFID, the above mentioned costs for operations can be bigger, but in the course of time it can differ (decrease). When expenditure (i.e. average common sale expenditure) decreases, its monetary return appears, forming relative economy of activity expenditure. It is considered that savings from investments is received immediately after the end of investing process.

Referring to expenditure return, it is necessary to mention that during return calculation costs for putting tags and maintenance of equipment are calculated and are included in costs of operations calculation. It is also important to mention that expenditure return can be steady or decreasing. In Fig 1 a steady expenditure return is highlighted, but expenditure return can relate to volume direction, i.e. if production volume increases, it should also increase. For example, talking about the economy of work pay fund, it is possible to state that: firstly, the economy of work pay fund in warehouses is growing as production is growing; secondly, it is accumulated at the end of the year. This is shown by some research results, which tells that production volume has grown up more times and the number of employees has increased up.

Calculating the income changes (net income), costs of operations related to sales is subtracted from production volume (in value). This means that the usage of RFID allows changing costs structure: to reduce personnel costs, to increase costs for RFID, for the maintenance of new technology, and for building up infrastructure, but generally it helps to reach higher efficiency level.

The author offers to expand this model and apply it not only for one-off (initial) but also for cases when manifold (continual) investments are analysed. In addition, the author offers a mathematical expression of the model (1 formula).

In order to determine the benefit of technological application and to evaluate its present worth discounting the savings of activity expenditure or net income was used (Bergendahl 2005).

The cash flow model is universal. This model can be applied when historic (real) and generated (expected) data is analysed.

In the article author also provides the mathematical expression of the model, which can be used for evaluating efficiency when RFID is used or planned to be used (1 formula).

E.g.:

$$E_t = \begin{cases} -T_0^t + \Delta NI_0^t, \text{ kai } NI_n^{\bullet} < NI_n; \\ -T_0^t + \Delta C_0^t, \text{ kai } NI_n^{\bullet} = NI_n \end{cases} \quad (1)$$

Herein ΔNI_0^t is net income during the period t (when RFID is applied), present worth of increase (assessed by applying 2 formula), $NI_n^{\bullet}$ is net income when RFID is not applied during n years (assessed by applying 3 formula), NI_n is net income when RFID is applied during n years, ΔC_0^t is activity expenditure received during the period t (when RFID is applied), present worth of decrease (assessed by applying 2 formula), T_0^t is investments made during the period t in RFID, present worth, t is the whole analysed period, and the moment of investments beginning, E_t is economic efficiency after the period t (when RFID is applied). The present worth of the indicated investments (if it is not one-off) is evaluated by formula 2.

In order to calculate the present worth of net income, the following formula can be used.

E.g.:

$$NI_0^t = \sum_{n=1}^{t} \frac{NI_n}{(1+k)^n} \quad (2)$$

Herein NI_n is net income when RFID is applied during n years, k is discount norm, NI_0^t is net income earned during the period t, present worth.

E.g.:

$$I_t = I_0(1+q)^t \quad (3)$$

Herein I_t is during the period t accumulated production volume extent, I_0 is existing production volume, q is accumulation norm, t is period

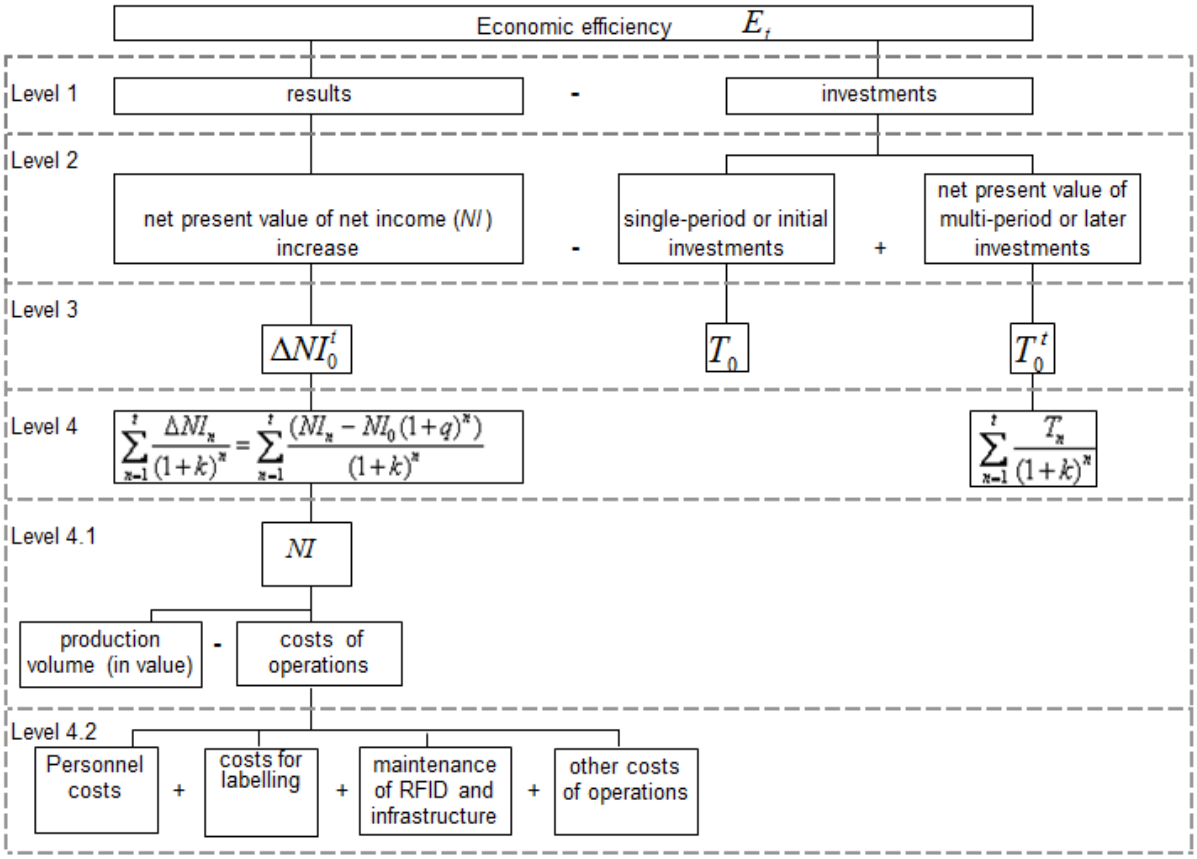

Fig. 2. The model of cash flows generated by investments in RFID (prepared by author)

It is indicated that the index of economic efficiency shows how much accomplished investments are covered by discounted savings of activity expenditure and or/if net income has been received. The author presumes that cash flows which are generated by enterprise investments in RFID are positive. However, the author refers to the fact that in the case of a particular enterprise the input of the model can be smaller as well as its size and direction can change.

In summary, it can be mentioned that proposed theoretical model (Fig. 2), can be applied to evaluate efficiency when RFID is used: when investments into RFID are one-off and manifold (the 2nd level), when a real and expected period is used (the 4th level), when RFID is used in close warehouse. In the model various levels of economic evaluation are released, the costs of implementation and the usage of RFID, in particular – investments and the results reached by the deployment of RFID – have been analysed.

It is foreseen that the presented model can be used in cases where it is necessary to choose RFID and decide on the appropriateness of their usage.

Empirical assessments for proposed model were undertaken (Table 1). For empirical assessments wholesale company is selected. The company employs 53 staff; the company has 4 warehouses and picks orders for 4842 customers. The total space, which is used for warehouse operations, is 6485 square meters.

The meanings of the model parameters (in thousands of Euro) are provided in table 1. During empirical assessments the discount norm of 10 % was taken (that means k=0.1). Investments into software are not planned, because the company has own programmers, which is developing software in-house (and it is difficult to measure, how many days programmers will require for the development). Investments into RFID and infrastructure consists of: antenna for RF-infrastructure costs 200 Euro (in Table 1 it is calculated for 20 (802.11b standard-compatible) antennas); transmitter costs 600 Euro (in Table 1 expenditure for 2 transmitters is calculated); the survey for designing infrastructure costs 2500 Euro; server costs 3000 Euro; RFID terminal costs 5000 Euro (it is calculated for 4 terminals); RFID scanner (used for scanning at least from 3 distance-metres) costs 1500 Euro (it is calculated for 4 scanners) (prices were provided by CHD LT (2010). 30 % of reduction (based on data of Cisco Systems (2010) for variable costs are calculated only. The costs for putting tags at the locations are fixed: this means that warehouse's areas have to be tagged only once. The costs for maintenance of RFID and infrastructure are planned as usually around 16 %.

Table 1. The evaluation of investments into RFID

Model inputs	Investing moment	After 1st year	After 2nd year	Total
Production volume in value (Euro)	850000	850000	890000	
Costs of operations (Euro) (13.57 %)	115345	104226	109654	
Investments into RFID and infrastructure (Euro)	37300			
Costs for putting tags (10 days of warehouse worker's costs and costs for tags) (Euro)		965		
Costs for maintenace of RFID and infrastructure (16 %)		5968	5968	
Net incomes (30% of personnel costs savings are included)	734655	750777	786314	
Net income increase (Euro)		14656	34572	
Investments	37300			
Net income increase, present worth (k=0.1)		14656	29369	44025
Investments, present worth (k=0.1)	37300			37300
Economic efficiency after 2 years				6725

The conducted empirical study of theoretical model has shown that the offered model can be applied for complex evaluation of efficiency when RFID is used in warehouse. During empirical estimation, it has been established that an enterprise receives the biggest economic benefit due to reduction of operational costs savings in the first year after the end of investing process. It is calculated that investments into RFID and related infrastructure during investing year are 4.3 % of annual incomes of the same year.

Conclusions

The application of RFID is figured out as important priority of research in the theme of logistics. The analysis of literature showed that in the modern theories of logistics there is a lack of scientific generalisations and solutions regarding to the topic of efficiency evaluation when RFID is applied. There are a lot of theoretical questions addressed to such areas as: the comparative analysis when RFID is used; when it comes to the choice of alternatives of RFID development patterns, based on both costs and results, which are received when RFID is used in warehouses. Having analysed the survey of scientific literature, the following conclusion is drawn that in scientific literature, assessing economic efficiency, it is discussed about the usage of RFID, but it is hardly discussed about the efficiency of the application of RFID. However, it is not considered that by applying RFID costs structure is changing. After literature survey it is find out that it is a lack of complex scientific works, when the peculiarities of RFID are taken into account, and when theoretical solutions are oriented to the effectiveness of activity.

In the paper new cash-flow model is proposed. In summary, it can be mentioned that proposed cash-flow model, can be applied to evaluate efficiency, when investments into RFID are one-off and manifold, when a real and expected period is used, when RFID is used in close warehouse with any size and height dimensions.

For the activation of the usage of RFID in warehouses, it is appropriate to apply the cash-flow model, which is developed and helps to evaluate efficiency when RFID is used in warehouse. In the model various levels of economic evaluation are released, the costs of implementation and the usage of RFID, in particular – investments and the results reached by the deployment of RFID have been analysed.

It is foreseen that proposed cash-flow model, which can be applied to disclosure economic benefits when RFID is used in warehouse. These findings are particularly important in cases where it is necessary to choose RFID and decide on the appropriateness of technology usage.

The assessment of practical application of theoretical model has been provided. It is foreseen that the model can be used by enterprises which manually retrieve products in warehouses. The conducted empirical study of theoretical model has shown that the offered model can be applied for evaluation of efficiency, when RFID is used in warehouse. During empirical estimation, it has been established that an enterprise receives the biggest economic benefit due to reduction of operational costs in the first year after the end of investing process. It is calculated that investments into RFID and infrastructure during investing year are 4.3 % of annual incomes of the same year.

The experiment has showed that the model can be used to identify reasonably those cases when the traditional technologies are worth changing into RFID and when RFID can help to reduce operational costs

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EFEKTYVUMO VERTINIMAS KAI AUTOMATINIAM OBJEKTŲ INDENTIFIKAVIMUI SKIRTA TECHNOLOGIJA NAUDOJAMA SANDĖLYJE

S a n t r a u k a

Šiuolaikinės globalizacijos sąlygomis informacinių technologijų ir telekomunikacijų (ITT) pritaikymas tapo esminiu raidos ir plėtros veiksniu. Šiuolaikinėse tiek ekonomikos mokslui priskirtinose teorijose, tiek ir kitų mokslo sričių bei krypčių teorijose stokojama mokslinių apibendrinimų ir teorinių sprendimų, skirtų automatiniam objektų indentifikavimui skirtų technologijų naudojimo tematikai ir problematikai, ypač teorinių sprendimų, skirtų efektyvumo vertinimui.

Automatiniam objektų indentifikavimui yra naudojama nemažai technologijų, visos jos turi savo privalumų ir trūkumų. Kurią technologiją naudoti, dažnai priklauso nuo konkrečios situacijos. Duomenys tarp informacinių sistemų, veikiančių šių technologijų pagrindu, gali būti integruojami tarpusavyje, naudojant elektroninio duomenų apsikeitimo ar kitus standartus. Vieni sektoriai, integruojant informacines sistemas, yra labiau pažengę, kiti – mažiau. Tam pačiam sektoriui priklausančios

įmonės dažnai taiko skirtingus informacijos integracijai skirtus sprendimus. Straipsnyje dėmesys skiriamas prekybos įmonėms.

Apskritai trūksta kompleksinių mokslo darbų, kuriuose būtų nagrinėjamos priemonės, skirtos vertinti ekonominį efektyvumą, atsižvelgiant į įmonių ypatumus. Šiuolaikinėje teorijoje stokojama pagrįstų sprendimų, skirtų automatiniam objektų indentifikavimui technologijų taikymui būdingas sąnaudas bei gaunamų ekonominių rezultatų struktūras bei kiekybiškai išmatuoti ekonominį efektą. Atitinkamų teorinių sprendimų stoka gali būti suvokiama kaip mokslinė problema, reikalaujanti atitinkamų tyrimų.

Tyrimo tikslas – kompleksiškai išnagrinėti automatiniam objektų identifikavimui skirtų technologijų taikymo prekybos įmonėse ypatumus ir parengti modelį, skirtą vertinti įvardintų technologijų panaudojimo sandėliuose efektyvumą.

Tyrimų objektas – automatiniam objektų identifikavimui skirtų technologijų plėtojant panaudojimas prekybos įmonėse. Tyrimų dalykas – automatiniam objektų identifikavimui skirtų technologijų technologijų panaudojimo sandėliuose efektyvumo vertinimas.

Tyrimas organizuojamas taip: straipsnio pradžioje autorė pristatė teorinių darbų apžvalgą, kurioje atskleidžiami automatiniam objektų indentifikavimui skirtų technologijų taikymo ypatumai, pristatomas modelis, skirtas kaštų ir naudos analizei kuomet modeliuojamos investicijos į automatiniam objektų indentifikavimui skirtų technologijų. Tyrimo rezultatai naudojami formuojant pinigų srautų modelį, kuris gali būti taikomas siekiant įvertinti efektyvumą, kai automatiniam objektų identifikavimui skirta technologija naudojamas sandėliuose. Praktinis siūlomo pinigų srautų modelio įvertinimas pateiktas straipsnio pabaigoje.

Gauti tyrimo rezultatai gali būti pritaikyti rengiant ir įgyvendinant kompleksines prekybos įmonių skatinimo priemones; priimant sprendimus dėl prekybos plėtojimo; pasirenkant automatiniam objektų indentifikavimui skirtų technologijų diegimui skatinti skirtas priemones.

Tyrimų metodika. Taikomi šie pagrindiniai metodai: lyginamosios, statistinės, finansinės analizės, efektyvumo vertinimo metodai.

RAKTINIAI ŽODŽIAI: informacinės technologijos, RFID, efektyvumas, kaštų ir naudos analizė, taikymas

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SOCIAL RESPONSIBILITY OF ORGANIZATION AND ITS EMPLOYEE: SICKNESS CASE ANALYSIS

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Annotation

Organizational social responsibility is more than a management theory. By no means, management theoreticians and practitioners affirm that accelerating globalization and international development of companies have turned it into a business changing strategy. A wide spectrum of general interesting signs of social responsibility promote scientific research. Accordingly, combining academic literature review and empirical research results the article selected sickness case analysis as a method analysing organization's management, as well as, its employees' perception and implementation of social responsibility.

Though healthcare and sickness are frequent and popular subjects within medical, sociological and psychological fields, apparently, they lack attention in the context of management sciences. Taking this into consideration, the article spotlights healthcare and social responsibility aspects associated with it, thus, questioning what behaviour is characteristic to an organization and its employee in case of sickness and how it relates to social responsibility?

Hereby, organization and its employee's behaviour became the object of the research, which aims at determining theoretical and practical relationship between organization and its employees' behaviour and social responsibility, specifically, in case of sickness.

The analysis of academic papers leads us to conclusion that organization stakeholders' expectations and ensuing requirements are related to the quality of their lives. The expectations can be identified by the stakeholders' physical and emotional well-being, material and social wealth. These factors could be measured by and based on objective facts on life conditions and/or subjective stakeholder's perceptions.

Both organization social groups – employers and employees – must work together in case of sickness to maintain and foster social responsibility in labour market relations. The employee must actively seek medical care and the organization should give him an opportunity to have a break from playing the employee's role.

The results of the empirical research showed that the respondents' sickness frequency does not affect their socially responsible behaviour with colleagues or the organization. Yet, it is not a rare behaviour, when the employee goes to work having disease symptoms (e.g., slight fever, cough, runny nose). The results revealed that the decreasing income in case of sickness is a compelling reason for the socially irresponsible behaviour. Withal, the analysis of empirical research data shows the employee's insecurity and social instability, thus, refuting Maslow's hierarchy of needs. Therefore, it can be concluded that the employee is socially responsible only when the organization behaving in a socially responsible manner allows him/her to be a socially responsible employee.

KEYWORDS: organization, employee, social responsibility, quality of life, sickness, human resource management.

Introduction

During the last decade scientific attention to organizational social responsibility has shown a remarkable growth both in Lithuania and abroad. Everyday researchers (Tam & Yeung 1999; Rojek-Nowosielska, 2014; Colombo & Gazzola, 2013, Gazzola & Colombo, 2014) present study data on various associated topics like multi-level implementation of social responsibility or the development of socially responsible relationships at organization.

Withal, organizational social responsibility has turned into an alternating business strategy, which transcends management theory.

According to Juščius et. al. (2009), organizational social responsibility performs as a response to globalization and the expansion of global international corporations. Therefore, the idea of a socially responsible business involves the international implementation of organizational social responsibility and its adaptation to the characteristics of a specific company.

Topics such as healthcare and sickness, specific to medical, sociological and psychological contexts, are yet dropped off management research radar. Only a handful of studies are evidenced in management resources analysing healthcare issues (Sorensen, Brand, 2011), healthy lifestyle promotion and its incorporation into organizational strategy (Mudge-Riley et al., 2013) and other similar topics. Apparently, the research on social responsibility in case of sickness remains insufficient, while scientific discourse lacks both theoretical assumptions and investigation on practical perspectives.

Meanwhile, the question – what behaviour is characteristic to an organization and its employee in case of sickness and how it relates to social responsibility – is of a specific relevance due to deteriorating working environment and shortcomings in social dialogue. Despite the compatibility with European Union norms and legal provisions, the decreasing adherence to workers, specifically within health and occupational safety contexts, remains an issue (Woolson & Calite, 2008).

Therefore, the research defines organization and its employee's behaviour as its object aiming at determining theoretical and practical relationship between organization and its employees' behaviour and social responsibility, specifically, in case of sickness.

Accordingly, the following tasks were formed:

1. To analyse the conceptions of a socially responsible organization and a socially responsible employee.
2. To examine the employee's opinion on his/her behaviour at the organization work environment in case of sickness.
3. To assess the organization and its employee's social responsibility in case of sickness.

Methods used: scientific data analysis and synthesis, quantitative research (questionnaire). Seeman methodology (1972) was selected in the formation of the quantitative research instrumentation. The research applied the following statistical methods in data analysis: descriptive statistics, correlation and reliability analyses. The data were processed using SPSS 17.0 software package.

The behaviour of a socially responsible organization and its effect

Speaking about social responsibility, different researchers emphasize an ethical concept hidden in its nature (Zwetsloot, 2003; Tauginienė, 2013), whereas, responsibility is titled as a major contemporary ethical category (Štreimikienė & Vasiljevienė, 2004).

The discussions about responsibility at large and social responsibility highlight a notable divide. In case, responsibility is attributed to a legal and moral category, social responsibility represents the qualities of a moral category like 1) a characteristic, 2) duty, 3) accountability or 4) normative standards (Tauginienė, 2013). According to Štreimikienė and Vasiljevienė (2004), social responsibility represents all the business entities' responsibility for the consequences of their activity. This conclusion relates the abstract ethical category to the activity, occurring within a social reality, and its participants. Here, a socially responsible behaviour is identified as an ethical conduct.

From organization's perspective, the latter landmarks of a socially responsible behaviour remain abstract. Scientific resources define social responsibility as a particular moral set-up of an organization, its determination to act responsibly in different situations, for instance, to comply with laws, create employee-friendly workplace, the same time, to maintain its operational profitability, cooperate with colleagues and community, as well as, supply services to customers and etc. (Matkevičienė, 2013).

Moreover, a commitment to minimize environmental damage is one of the important aspects of organizational activity indispensible from the concept of sustainable development and its principles. Researchers view organizational social responsibility as a seeking process, in which the organization develops its identity by balancing human, planet, profit and external world expectations (Juščius et. al., 2009).

Withal, a wide range of achievable results and benefits to stakeholders motivate organization's disposition to act in a socially responsible manner (Matkevičienė, 2013; Juščius et. al., 2009). Referring to operational standards of performance, a multi-level implementation of social responsibility promotes creation of long-term prospects, energy and waste decrease, not to mention, the associated expenses, as well as, business differentiation and readiness for change.

Meanwhile, social perspective sheds light on a rather different social responsibility effect. An efficient implementation of social responsibility within an organization opens up possibilities to strengthen its human resources and intellectual capital, ensures organization's security and reputation. Moreover, organizational social responsibility occurring with company's active involvement in the solution of particular social and relevant public issues can create value and ensure competitive advantage.

Yet, a socially responsible organizational behaviour is closely related to its members' and other stakeholders' voluntariness and public spirit, since this moral category demands more than it is determined by the public norms established by law and penalties. Organizations aim at an honest activity and reputation of a reliable partner, whereas, these objectives come not only from operational standards of performance, but also from the internal organizational needs and culture (Matkevičienė, 2013).

Relationship between an organization and the employee: the field of different expectations

In the analysis of theory and practice of social responsibility numerous theories seek to explain the phenomenon, which can be grouped into certain clusters: instrumental, utilitarian, managerial, relational and political theory. Here, the nature, progress and dynamics of the relationship an organization and its employees foster may be based on different scientific approaches. For instance, researchers (Apostol & Nasi, 2014) define the relationship an organization and its employee express in public sphere – media – by referring to classical – liberal economic and communist - doctrines, as well as, contemporary neoliberal – human resources management – conception.

Yet, avoiding macro level insights, the study selected political economy theories and their approaches as the basis in defining organization's behaviour. This approach merges and combines the elements of integrating legitimacy theory, stakeholder theory and institutional theory (Susith & Stewart, 2014). According to Freeman (2010), stakeholder theory performs an important part, which ascribes the organization stakeholders to any groups or individuals affected by the organization's implemented goals.

With the reference to various scientific sources, stakeholders can be divided into groups: internal and external (Carrol, 1989), strategic and moral (Goodpaster, 1991), voluntary or involuntary, primary and secondary (Clarkson, 1995), and etc. This type of stakeholders' allocation involves criteria, which help analysing the relations among stakeholders.

Meanwhile, relations among stakeholders turn into the central axis of the theory affected by different groups' expectations. Susith and Stewart (2014) identify the diversity of stakeholders' expectations taking a broader perspective and avoiding primitive approach, such as organization members' economic and financial needs. However, different stakeholders' expectations causing competitive interests may provoke the conflict. Here the

organization having regard to its financial, social and environmental commitments needs to be prepared to seek balance among the interests causing discord.

In Susith and Stewart's view (2014), the relationship among stakeholders can be assessed in two ways – taking ethical and managerial prospects. In case ethical prospect of stakeholders' theory stresses the necessity of accountability for each of the stakeholders' groups, notwithstanding their power, then managerial prospect focuses on the interests the most powerful groups express, referring to their options. Here the recourse an organization takes from conflict situations is its ability to manage the stakeholders' enforcement, as well as, crucial and competitive interests.

The opposition between life quality and sickness: the behaviour of a sick person and social environment

Researchers Štreimikienė and Vasiljevienė (2004) notice that scientific and technological progress satisfying people material needs in the developed countries now is directed towards the qualitative development of other aspects, such as education, culture and social environment. Therefore, greater human civilization requirements occur, which are related to the apprehension of major human values and their implementation in social life.

From the organization and stakeholders', especially employees', perspective, one of the principal values and expectations is their proper life quality. Orlova and Gruževskis (2012) specializing in the development of the life quality conception tendencies, define it as an aggregate welfare. It comprises objective descriptors and subjective evaluation of physical, material, social and emotional well-being, as well as, personal development and purposeful activity, all weighted by a personal set of values (Rapley, 2008: 54). In other words, life quality of an individual can be identified according to his/her physical and emotional status, as well as, material and social well-being. The evaluation of life quality may be based on objective facts and individual subjective perception. Noteworthy, the quality of life is dynamic and it shifts according to an individual's personal developmental processes. Therefore, researchers agree that the analysis of a life quality and its influencing factors requires addressing the cultural and valuable contexts, which an individual operates in (Orlova & Gruževskis, 2012).

In fact, physical well-being is among the major criteria of a life quality, which, according to Rapley's model (2008), can be analysed via three components:

1) objective conditions of living,

2) person's subjectively perceived physical well-being and

3) the link between physical well-being and individual's personal values, his/her expectations.

External environment affects each of these components, which depending on the approach, may be decomposed into separate factors.

Hereafter, medical fitness ensures the individual's physical well-being, whereas, sickness opposes to his/her favourable health condition. Basing on foreign studies (Bury, 1997; Freund & McGuire, 2003), Lithuanian researchers (Baltrušaitytė et. al., 2013) notice the diversity of trends this phenomenon is being explored in Anglo-Saxon scientific resources. Here, the following aspects are being applied in the analyses of sickness:

1) sickness as a biological reality (*disease*);

2) sickness as an anatomical experience (*illness*) and

3) sickness as a social reality *sickness*).

No doubt, biological parameters reflect sickness, but at the same time, they influence an individual's relationship with the environment and the reactions of his/her environment to the sickness.

Medically, sickness is identified as the expression of physical and psychopathological symptoms. Meanwhile, taking into account the sickness as an individual experience, the focus shifts to the sick individual's relationship with the ailment. This way, not only the perceived sickness symptoms, but also the individual's life situation, biography, cultural diseases and health conception, as well as, his/her interactions with others and their reaction to his/her sickness affect the individual's relationships. Sickness as a social reality expresses itself through its social aspects: sociodemographic morbidity trends, social definition of sickness and a patient's behavioural adjustment (e.g., the issue of fit note and etc.).

Actually, last century research declared about the socially undesirable status of sickness, which posed a threat to the social order (Parsons, 1951; Gerhardt, 1989). The sickness was approached as:

1) a deviation linking to the unconscious individual's desire for the time being to evade the commitments imposed by the modern society,

2) or an incapacity, when ailments stop the individual from performing his/her social roles.

Accordingly, sociological theory proposes two approaches towards person's omission of social commitments due his/her sickness, which can be related to the category of an ethic responsibility. In one case, an individual (consciously or unconsciously) is not keen on participating in the performance of his/her social roles (being an employee or a family member, etc.), thus taking personal responsibility for this omission. Otherwise, when the person is incapable of doing his/her duties due to sickness, he/she must take responsibility not for the unaccomplished duties, but for the appropriate realization of his/her sick role. According to Parsons (1951), sick role is closely related to the expectations imposed by other social groups and their actions, which anticipate the sick person's behaviour and the behaviour of his/her surrounding social environment:

1) the sick person is obliged to try to get well, since he/she is temporary exempted from duties (e.g., to seek effective treatment measures);

2) the sick person is not responsible for his/her condition, thus, he/she is not obliged to take willpower treatment (e.g., in case of mental illness);

3) in case the person is incapable of getting well, he/she should seek technically competent help and cooperation with the medical professional (e.g., in case of chronic or other illnesses).

One should note that a medical doctor and the entire health care system play an important role in the

establishment of relationship between the sick person and his/her surroundings. In Jutel and Nettleton's view (2011), the official diagnosis approved by a doctor is basically the single acceptable excuse from the execution of the accepted social commitments. Hereby, Freidson's (1970) approach is highly relevant in the determination of organization and its employee's behaviour in case of sickness, viewed as an expression of social responsibility. According to him, when a medical doctor diagnoses disease, the biophysical condition is granted a social status, which explains the sick person's behaviour in respect of his/her social environment. Due to this, the individual's behaviour may be based on an inadequate perception, which interferes the apprehension of a socially responsible behaviour in the organization.

Social responsibility in case of sickness: research methodology

In order to examine an employee's opinion on his/her behaviour in case of sickness in organization's work environment and to evaluate his/her and the organization's social responsibility in case of sickness, the research intends on carrying out a quantitative analysis applying a questionnaire. Seeman methodology (1972) was selected in the formation of the quantitative research instrumentation using concept rationalization:

1. Selected theoretical conceptions: organization's social responsibility, employee's social behaviour.
2. The main theoretical conceptions were divided into conceptual parts: the causes of sickness behaviour, the symptoms of sickness behaviour, and employer's attitude towards sickness behaviour.
3. Each of the conceptual part was determined and theoretically analysed.
4. The research designed separate questions for each of the conceptual parts using Likert scale.

The data were analysed applying the following statistical methods: descriptive statistics (frequencies, mean values), correlation analysis (Pearson correlation) and reliability analysis (Cronbach's alpha). The authors agreed on two levels of significance - p: $p < 0,01$ and $0,01 < p < 0,05$ – which allow determining the significance of the results. The methods applied enabled a significant distinction of the dependencies between separate research questions, which were related to the social responsibility of an organization and its employee's behaviour in sickness cases. Here statistically significant correlation coefficients contributed to the revelation of the quantitative research results.

The study selected the visitors of Kaunas trade town 'Urmas' and shopping mall 'Savas', as the respondents to the research questions, since both of these locations are famous for the abundance and diversity of clients. Hereby, using random sampling, it was possible to gather opinions from diverse employees, occupying various positions at different companies, on their behaviour in case of sickness considering the organizations' activities.

The sample was estimated using accredited sample calculation site (www.raosoft.com). Given the research data are about to be implemented as the tendencies of Lithuanian organizations' social responsibility in case of sickness, thus, the respondents' population was selected considering all the employed Lithuanian citizens. According to Statistics Lithuania, in 2014 there were 1833990 employed individuals, whereas in Kaunas district there were 362130 employable men and women. Here regarding 91% of the respondents' opinions as credible and applying a 5% error, the required research sample size is 288 respondents.

Cronbach's alpha coefficient was used in the detection of the questionnaire reliability, submitted to experts. Here, the more Cronbach's alpha draws near 1 ($\alpha \leq 1,00$), the greater consistency the questionnaire displays, the better accuracy the questionnaire results reflect (Čekanavičius & Murauskas, 2002). Despite demographic data, according to SPSS software package calculation, Cronbach's alpha coefficient of the questionnaire reaches 0,789, meaning the questionnaire is highly reliable.

Relationship between organization and its employees' social responsibility were identified and analysed using Pearson correlation and arithmetic means.

The research took place on November the 12th, 2014, at 2-4 PM, at Kaunas trade town "Urmas" and shopping mall "Savas" premises. The authors are extremely grateful to the students from Kauno kolegija/ University of Applied Sciences, Faculty of Management and Economics, for their kind contribution to research data collection.

In the course of quantitative research conduction, volunteers handed out 300 empty questionnaires. 293 completed questionnaires satisfying the required research sample size (288 respondents) were collected and used in data analysis.

The respondents' distribution by place of performance shows the following results: 52,2% of the respondents were surveyed at Kaunas trade town "Urmas" and 47,8% of them – at the premises of the shopping mall "Savas". Here 25% of men and 75% of women participated in the research. The majority of the respondents were 18-30 years-old (50%), 30% of them - 31-50 years-old, 17% - 51-65 years-old, and finally 3% of the respondents were over 66 years-old. Concerning the sample size, it is possible to conclude that potentially the majority of the research respondents were working-age Lithuanian citizens.

The respondents' distribution by educational level revealed that 30% of the participants had acquired higher professional education, 35% - higher or professional education, 32% - secondary, and 3% - basic education. Such an even distribution by educational level marks the respondents' diversity, thus, allowing the analysis of the research data in the national context and considering them as tendencies.

Social responsibility in case of sickness: research results

The survey revealed that 30% of the respondents fall ill only once or twice within a few years, whereas 40,3% once or twice a year (see Fig. 1).

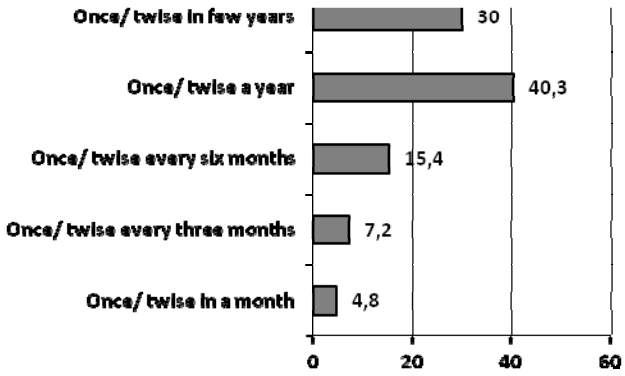

Fig. 1. Respondents' Distribution by Morbidity (%)

Such morbidity is sufficiently rare among the respondents. Thus, further on, the respondents' morbidity is being evaluated as a tendency reflecting organization and its employee's behaviour in case of sickness and expression of their social responsibility.

The research aimed at detecting, which sickness symptoms cause the respondents' concern and their absence at work, so the respondents would seek professional medical help and an adequate treatment at home or at medical institutions. Since the respondents' opinion varied from "I totally disagree" (value 1) to "I totally agree" (value 5), the mean respondents' opinion, approaching 5, was cibsidered as negative (see Fig. 2). Accordingly, the research data revealed that the respondents go to work having cold (mean 4,06, see Fig. 2), coughing (3,87) and having headache (3,73).

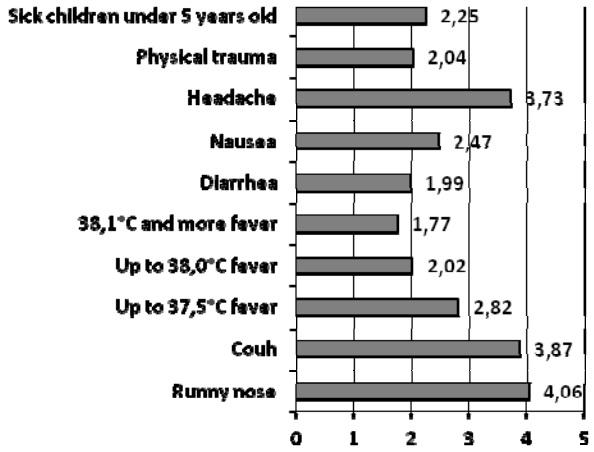

Fig. 2. Respondents' Distribution by Work Attendance in Case of Sickness (Mean)

Fortunately, the respondents rarely go to work having fever, diarrhoea, having physical trauma or in case of their children illnesses. Yet, work attendance having 37,5°C fever, affirmed by 2,82 of the respondents (see Fig. 2), causes concern and doubt about organization employees' social responsibility towards colleagues.

Focusing on the fact that the majority of respondents fall ill once or twice a year or within a few years (see Fig. 1), a presumption arises that a sick employee can afford resting, healing and becoming a socially responsible colleague. However, the research data show that the frequency of disease manifestations does not influence employees' social responsibility at work.

Conducting a causal analysis of the respondents' unwillingness to stay at home and have treatment, the research results revealed that the major causes are related to Laws of Republic of Lithuania on Social Responsibility Guarantee to Workers (see Fig. 3). During the research timing, Lithuanian Law obliged employers to pay 80% of earnings for the first two days of sickness, which in a week period decreased to 40% and were paid out by SoDra. In case home treatment lasted longer than a week, employee's earnings decreased to 80% and were paid out by SoDra. Accordingly, the situation, when a sick employee rather than staying at home goes to work is explainable by the importance he/she gives to the decreasing income, which disregards the risk of transmitting disease to the staff and his/her social responsibility at large.

The other reasons the respondents mentioned as the excuse for their attendance at work when being sick were related to their job admiration (mean 3,16, Fig. 3) and their belief that the work is extremely reasonable and the organization may suffer loss due to his/her absence (mean 2,75, Fig. 3). In case the person works alone without entering staff the possibility of transmitting disease to others is low, whereas, his/her attendance even in case of sickness may be of a great importance. Otherwise, the concern about work and disregard to the staff health can be seen as his/her selfishness rather than the social responsibility or loyalty to organization. In any case, further and more detailed research is required in order to confirm or deny these assumptions.

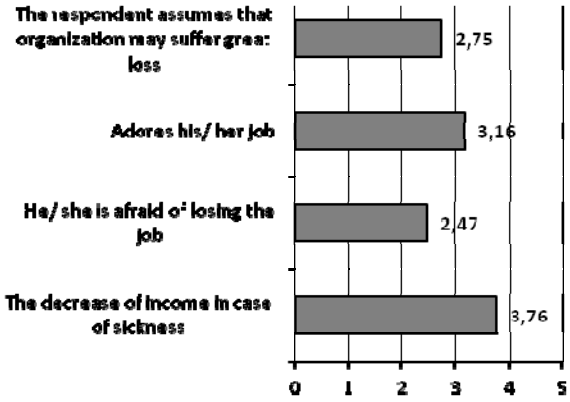

Fig. 3. The Causes of the Respondent's Attendance at Work in Case of Sickness (Mean)

In the analysis of the respondents' behaviour in case of sickness, the fear of losing job comes to the front (Fig. 3). Though the mean of 2,47 is relatively low and it rather shows that employees are not afraid of this kind of employer's behaviour, yet, some of the respondents do not reject this option.

Consequentially, the analysis of the respondents' opinion on organization as his/her employer's behaviour in case of his/her sickness revealed that the employer allows the employee to stay at home for some days without contacting a medical doctor regarding the fit note

(mean 2,77, Fig. 4) or on the contrary – insists on receiving the fit note. The latter tendency can be based on the employer's desire to save money, when SoDra, not the organization, pays sickness benefit. At the same time, the employee is still required to work at home or to deal with the accumulated workloads, when he/she is back to work.

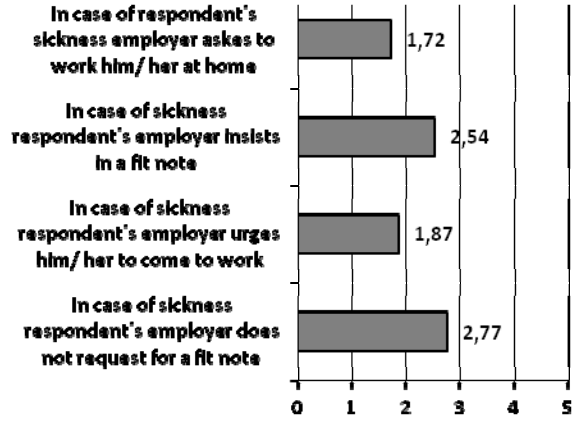

Fig. 4. Employer's Behaviour in Case of Employee's Sickness (Mean)

Research results cannot confirm the later assumptions, yet the following studies may use them as the hypotheses for further analysis of social responsibility between workers and organizations.

In order to link the respondents' responses on their behaviour in case of sickness to a common value, the research derived their arithmetic mean. Accordingly, the received value was correlated with the causes of the respondents' behaviour in case of their sickness (Table 1). The derived correlations show that the relationship between the employee's behaviour in case of sickness and its causes is not strong. Yet, a statistically significant relationship persists (noteworthy, the relationship gets stronger with the greater number of respondents).

Table 1. The Causal Relationship of Employees' Behaviour in Case of Sickness

The Respondent feeling disease symptoms goes to work, because...		**Employee's behaviour in case of sickness**
The income decreases in case of sickness	Pearson correlation	** **0,224**
	Number of respondents	279
He/she is afraid of losing job	Pearson correlation	** **0,176**
	Number of respondents	277
He/she adores his job	Pearson correlation	** **0,176**
	Number of respondents	272
He/she thinks that the organization shall suffer loss without him/her	Pearson correlation	0,095
	Number of respondents	283

Note: * - statistical significance 0,05; ** - statistical significance 0,01.

Regarding statistically significant relationships between the employee's behaviour in case of sickness and its causes, when his/her income decreases or he/she is afraid of losing job, one can note the respondent's social insecurity and instability. This tendency explains the general dominating mood emerging from the employees' social and financial stability in Lithuania. But on the other hand, the employee is required to show awareness when becoming a socially responsible member of an organization. Nevertheless, basing on Maslow's hierarchy of needs (1955), at this level, we cannot speak about social needs and commitments until an individual's (in this case, an employee's) physiological and safety needs are satisfied.

Hereafter, aiming at linking the respondents' answers to a common value and defining their opinion on organization/employer's behaviour in case of their sickness, the research derived an arithmetic mean, which allowed correlating the common employers' behaviour value with the variations of the respondents' behaviour in case of their sickness (Table 2).

Though the relationship between the analysed elements is rather lose, Table 2 provides with statistically significant data. Probably the strongest and statistically most significant relationship was detected between the employer's behaviour in case of sickness and the employee's fear of being fired. This relationship only confirms the assumption that not only the decreasing income encourages a sick worker ignore his illness, but also the fear of losing job. Therefore, there is a probability that the respondents associate their dignified life with employment, responsibility for it and earnings related with their accomplishments at work.

Table 2. The Relationship Between Employer's Behaviour in Case of Employee's Sickness and Sick Employee's Behaviour

The Respondent feeling disease symptoms goes to work, because...		**Employee's behaviour in case of sickness**
The income decreases in case of sickness	Pearson correlation	* **0,129**
	Number of respondents	279
He/she is afraid of losing job	Pearson correlation	** **0,345**
	Number of respondents	277
He/she adores his job	Pearson correlation	** **0,265**
	Number of respondents	272
He/she thinks that the organization shall suffer loss without him/her	Pearson correlation	** **0,235**
	Number of respondents	283

Note: * - statistical significance 0,05; ** - statistical significance 0,01.

On the other hand, such respondents' opinion (Table 2) on their employers speaks about the organizations' commitment to their social responsibility towards their major organization stakeholders - workers. Due to this reason, there is a mild, but statistically significant relationship between a socially responsible organization and a socially responsible employee (see Figure 5, mean

0,203**, when * - statistical significance 0,05; ** - statistical significance 0,01).

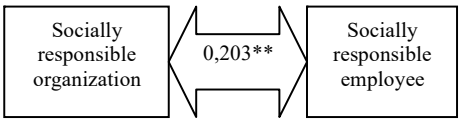

Fig. 5. The Relationship Between a Socially Responsible Organization and a Socially Responsible Employee

Consequentially, the relationship between a socially responsible organization and a socially responsible employee (Figure 5) can be grounded on regularity. Here an employee is socially responsible, when the organization behaving as a socially responsible subject within Lithuanian society, allows him/her to be a socially responsible worker.

Conclusions

The analysis of Lithuanian and foreign scientific researches shows that organization's social responsibility can be identified as its ethic attribute, duty and accountability towards its stakeholders. Moreover, it performs as normative standards legalizing the stakeholders' behaviour. The stakeholders' major expectations and ensuing requirements are very often related to the quality of life, identified as stakeholders' physical and emotional well-being, material and social wealth, which are based on objective facts and/or subjective stakeholders' perceptions.

In case of a temporary sickness (when the elements of biological and social reality, as well as, personal experience allow the perception of sickness), employees as the major stakeholders of an organization should take responsibility following the social responsibility norms and trying to get well by actively seeking medical assistance. Meanwhile, despite the most powerful stakeholders' interests and organization's financial, social and environmental commitments, organization itself should grant the worker a temporary break from playing the employee's role. In case a discord arises, the organization and its members should conjointly seek for the balanced means to solve the problem – the failure to perform the employee's role.

The analysis of the respondents' (employees at organizations) approach towards their behaviour in case of sickness showed that the frequency of disease manifestations does not influence the respondent's social responsibility towards his/her colleagues or organization, since such insignificant symptoms as fever, coughing and running nose do not stop them from going to work.

Therefore, the analysis of the causes affecting the respondent's behaviour in case of his/her sickness indicates that decreasing income plays a major role in the employee's insufficiently social behaviour. Withal, the statistically significant relationships between the employee's behaviour in case of sickness and its causes – decrease of earnings, fear of losing job – show that the employee feels socially insecure and unstable when he/she is sick. Each of these findings contradicts Maslow's hierarchy of needs, which claims that, when a person's (in this case, an employee's) physiological and safety needs are not satisfied, at this level, we cannot speak about social needs and commitments. Thus, the employee is socially responsible when the organization behaving as a socially responsible subject within Lithuanian society, allows him/her to be a socially responsible worker.

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ORGANIZACIJOS IR JOS DARBUOTOJO SOCIALINĖ ATSAKOMYBĖ: LIGOS ATVEJO ANALIZĖ

S a n t r a u k a

Orientuojantis į paskutiniais dešimtmečiais kreipiamą dėmesį į socialinę atsakomybę, pasitelkiant mokslinę literatūrą ir empirinį tyrimą straipsnyje analizuojamas organizacijos vadovų, jos darbuotojų socialinės atsakomybės supratimas bei taikymas. Pastebėtina, kad sveikatos ir ligų temos dažniausiai tyrinėjamos medicinos, sociologijos, psichologijos kontekstuose, tačiau vadybos tyrimuose šis klausimas beveik neliečiamas. Tokiu būdu susidaro tyrimų, susijusių su socialine atsakomybe ligos atveju verslo organizacijose stoka. Todėl straipsnyje ypatingas dėmesys telkiamas ir tyrimas orientuojamas į sveikatos apsaugos ir su ja susijusios socialinės atsakomybės aspektus, ieškant atsakymo į klausimą: kokia elgsena ligos atveju yra būdinga organizacijai ir darbuotojui bei kiek ji siejasi su socialine atsakomybe? Straipsnyje siekiama nustatyti teorines ir praktines organizacijos, jos darbuotojo elgesio bei socialinės atsakomybės sąsajas ligos atveju, išanalizuojant vyraujančias socialiai atsakingos organizacijos ir jos darbuotojo sampratas mokslo literatūroje, ištiriant darbuotojo nuomonę apie jo elgseną ligos atveju organizacijos darbo aplinkoje bei įvertinant organizacijos ir jos darbuotojo elgsenos ligos atvejais socialinę atsakomybę.

Atlikta analizė rodo, kad pagrindinių organizacijos suinteresuotųjų šalių lūkesčiai ir iš to kylantys reikalavimai būna susiję su gyvenimo kokybe, kuri identifikuojama pagal fizinę ir emocinę suinteresuotųjų šalių savijautą, taip pat pagal materialinę ir socialinę gerovę, kas nustatoma grindžiant objektyviais faktais ir/ar subjektyviu suinteresuotųjų šalių suvokimu. Laikinos ligos atvejais tiek organizacijos darbuotojai, tiek organizacija turi bendradarbiauti: darbuotojas turėtų dėti pastangas kuo greičiau pasveikti, aktyviai siekti medicininės pagalbos, o organizacija turi darbuotojui suteikti galimybę laikinai nebeprisiimti darbuotojo vaidmens.

Remiantis atlikto tyrimo rezultatais ligos pasireiškimo dažnis neturi įtakos respondento socialinei atsakomybei prieš kolegas ar organizaciją, nes į darbą einama ir esant ligos simptomams (esant nežymiam karščiavimui, kosuliui, slogai). Tyrimo rezultatai atskleidė, kad ligos atveju sumažėjančios pajamos yra svari priežastis darbuotojo nepakankamai atsakingai socialinei elgsenai. Be to, remiantis atlikto tyrimo duomenų analize galima teigti, darbuotojas nesijaučia socialiai saugus ar stabilus, o tai prieštarauja Maslow poreikių hierarchijai. Vadinasi, darbuotojas yra socialiai atsakingas, kai organizacija leidžia darbuotojui būti socialiai atsakingu, besielgdama pati kaip socialiai atsakingas subjektas Lietuvos visuomenėje.

PAGRINDINIAI ŽODŽIAI: organizacija, darbuotojas, socialinė atsakomybė, liga, gyvenimo kokybė, žmogiškųjų išteklių valdymas.

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FIRM COMPETITIVENESS AND THE *FEASIBILITY FORMULA*™: THE NECESSARY ALIGNMENT OF STRATEGIC GOALS AND CONTEMPLATED PROJECTS

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Annotation

The success and failure of projects is an important consideration for a firm's competitiveness. Projects require resources, both human and capital, and represent an investment in the firm's success and resulting position within the marketplace.

The *Feasibility Formula*™ is a novel tool and accompanying methodology developed by the author for the purpose of contributing to both the firm and the project management profession in its ability to assess the alignment of a project with an organization's strategy, to inform the likelihood of the project outcome, and to support effective decision making. In ascertaining its effectiveness through an iterative methodology refinement and six case studies, the author is further able to establish a link between the utilization of the combined tool and methodology and its favourable impact on a firm's competitiveness.

This paper will examine the need for an effective pre-project feasibility tool and associated stakeholder engagement or facilitation methodology, and the extent to which the *Feasibility Formula*™ has a positive effect on an organization's competitiveness in the marketplace, irrespective of size of the firm, its position within the lifecycle, industry type or corporate culture. It will address competitiveness factors and the tool's support for strengthening core competencies, firm growth, proficiency of workers, speed of decision making and strategic alignment – culminating in a firm's competitive advantage.

KEY WORDS: project success, project failure, firm competitiveness, strategic alignment

Introduction

Competitiveness can be considered multidimensional, as it can be examined from a country, industry or firm level (Ambastha, Momaya, 2004). At the microeconomic firm level, competitiveness indicates a firm's ability to design, produce and market products superior to those offered by competitors, where dominance can be evaluated from several factors, such as price, quality, technological advancement, etc. Firm level analysis focuses on behaviours and the performance of firms (Depperu, Cerrato, 2005).

Competitiveness is important because a country's standard of living is increasingly dependent on the competitiveness of individual firms, which in turn take advantage of the opportunities presented by the international economy and provide substantial leverage for economic growth (Blunck, 2006). However, standards of living vary (Sen, 1988), and are dependent on government policies related to spending in a variety of areas including education, healthcare, defense, or social welfare (Dixit et al, 1997). The presence of corruption, or misuse of public power for private benefit, must also be considered an impact on the standard of living as it can impede human development (Akçay, 2006). In the context of competitiveness, this corruption will alter the contribution to the living standards of the local population.

Much has been written about the competitiveness of firms, from the earliest resource based theories of Schumpeter and Penrose, to the more contemporary theories of industry structure and competitive positioning (Porter, 1990), organizational capabilities and influences (Henderson, Mitchell, 1997) and strategic competitiveness (Grant, 1991; Ireland, Hitt, 2005).

There are many factors that play a role in the competitiveness of the firm, including the role of innovation and accompanying agility of the firm (Cantwell, 2005), and of course, customer loyalty as a result of favourable client experience, from initial engagement to post-sales service (Lam et al, 2004).

The concept of competitive advantage is central in strategic management studies (Porter, 1990; Ghemawat, 1998). Firms achieve sustained competitive advantages by implementing strategies that make use of internal strengths, and by responding to environmental opportunities while neutralizing external threats and avoiding internal weaknesses (Barney, 1991). Resource based views of competitive advantage, however, focus specifically on the link between a firm's internal characteristics and performance. Firm competencies and resources which are distinctive and superior relative to its rivals becomes the basis for competitive advantage (Peteraf, 1993). It is within this theoretical framework, emphasized by the firm's control over its strategic resources, that the author will examine the effectiveness of the *Feasibility Formula*™.

The *Feasibility Formula*™

The *Feasibility Formula*™ methodology and tool was developed to address an organizational problem that is often seen within the project management discipline and

professional community: firms do not make capital project decisions based on the favourable alignment of the contemplated project with organization's strategic goals. Most often, this lack of assessment or consideration for the extent of project alignment with the firm's objectives may preclude the project's likelihood for success from the outset.

Accordingly, this paper examines the problem and resulting need for an effective pre-project feasibility tool and accompanying stakeholder engagement, or facilitation, methodology.

The *Feasibility Formula*™ assists firms in identifying organizational goals and determining the extent to which a candidate project would satisfy these objectives, hence the likelihood of a successful project outcome. It offers an instrument and accompanying structured process that facilitates stakeholder engagement, discussion and decision making. The primary benefit of the tool is derivative of the consultative and interactive nature of the process itself, and its resulting analysis.

The foundational premise of the *Feasibility Formula*™ is that pre-project feasibility determination against an organization's objectives (i.e. "what's important" to the firm) is necessary to determine the viability of a project and its likelihood for success. The tool permits stakeholders to: engage in necessary and meaningful discussion; rate the project against organizational criteria; and make an informed decision as to whether they should proceed with the project given the extent of alignment and outcome of the exercise. The tool and methodology was created to enhance the likelihood of project success, hence corporate performance.

The due diligence and decision making methodology is supported by a visual scoring matrix that identifies individual criteria and permits stakeholders to weight the relative importance of each one. The final version of the tool presents eleven criteria, including: risk, stakeholder satisfaction, compliance, human resources and organizational maturity, etc., that appear common to most organizations, as validated through the research. The stakeholder participants "drill down" on each criteria to further define objectives, against which they will "negotiate" its merits to the organization, and the project's forecasted ability to satisfy, via a scoring system. The final aggregate score presented provides an indication of viability, but is only secondary in informing the likely outcome to the far more significant discussion that has taken place.

Characteristics of Firm Competitiveness

A number of characteristics of firm competitiveness can be found in the literature and in contemporary studies.

Findings from a recent European Competitiveness Report[1] (2014) indicate that as the EU emerges from the recession, one of its competitive strengths - highly skilled workers - remains intact. Within the report, this is seen as a key characteristic of competitiveness, along with important factors and drivers of firms' growth, such as the role of access to various forms of funding. In a separate research work, the realities of competition were further shown to demand focus on a firm's growth – including by acquisition (Ireland, Hitt, 2005).

Another important unit of analysis for understanding competitive advantage is the relationship between firms and potential sources of "inter-organizational competitive advantage" such as knowledge sharing (Dyer, Singh, 1998; Argote, Ingram, 2000). Operations strategy, which leverages a firm's unique operational resources, should emphasize the dynamic development and utilization of competencies and capabilities in order to set new business strategies and implement best practices more effectively in support of firm agility and competitiveness (Gagnon, 1999).

Effective decision making is also a factor of firm competitiveness. According to Wiig (2004), the firm is dependent on the value and sophistication of intellectual capital assets and on how well they are renewed and utilized in conducting work. Consequently, it is important to understand how people and organizations create and utilize knowledge and understanding (know-how) in their daily work lives to analyze situations and make decisions. Decision making practices have a great influence on the competitiveness of a firm (Maskell, Malmberg, 1999).

According to Koplyay and Goldsmith (1998), key characteristics of competitiveness include a firm's "scope" – core competencies and capabilities; "structure" – including decision flow; "speed" – response times to market; and "strategy" – strategic decision criteria. These elements, in combination, provide for enhanced competitive positioning of a firm.

The size of a firm – either micro, small, medium or large – and its industry sector, can be important determinants of firm competitiveness. The role of firm size in advancing business performance, particularly as measured by productivity or export performance is well established in the literature: it is the larger firms that are shown to be more effective in this regard, and are more likely to compete successfully in global markets (Altomonte, Navaretti et al, 2011). Nevertheless, other researchers have concluded that the size of the firm may only have marginal effect on an organization's competitiveness (Dunning, 1996). The research available, nonetheless, illustrates that firm level characteristics are critical in explaining competitiveness.

Corporate culture is also shown to be a factor in a firm's competitiveness, as it is the culture of an organization that determines its ability to react to challenge and to cope with change (Hall, 1993).

In summary, the author has identified from the literature several key characteristics of firm competitiveness to include:

- Competence and skill level of workforce and knowledge sharing
- Effective decision making
- Elements of scope, structure, speed and strategy
- Focus on growth (including by acquisition, access to funding)
- Size of firm, sector and culture

[1] European Commission, *Helping Firms Grow*, Commission Staff Working Document, SWD(2014) 6319 final, http://ec.europa.eu/enterprise/policies/industrial-competitiveness/competitiveness-analysis/index_en.htm

The *Feasibility Formula*™ and Firm Competitiveness

Project success and corporate success have been linked insofar as successful projects lead to improved firm competitiveness (Cooke-Davies, 2002). Firms are turning to project management as part of their competitive advantage strategies and are willing to take critical interest in those practices that will improve their competitive position (Jugdev, Thomas, 2002).

The *Feasibility Formula*™ tool and methodology, while developed for the project environment, addresses a number of competitiveness factors, providing support for a firm's competitive advantage.

Competence and skill level of workforce and knowledge sharing

Beginning with the competence and skill level of the workforce, the Project Management Institute (2014) indicates that today's project managers must not only possess leadership and technical competencies, but *strategic and business skills* (the "talent triangle"), in order to support an organization's strategic goals, improve competitiveness and overall performance.

The role of the project manager now bears responsibility for achieving an organization's goals and business results through project delivery. For the purpose of the author's research, capability is defined as an ability, competency or proficiency based on the culmination of skills garnered from education and experience. Capability was examined for the project manager and/or project team in using the *Feasibility Formula*™ - i.e. engaging stakeholders in the application of the tool and methodology and using the data obtained to facilitate discussion around indications of project success and failure, and decision making.

New skills and capabilities of project team members, once introduced to the tool and methodology, was assessed through interviews and discussion; a review of experience and background; and observation by the researcher. Regardless of whether the individual was a professional project manager, a functional specialist, or senior management member, the capability for using the *Feasibility Formula*™ existed.

The *Feasibility Formula*™ supports the development of project managers in fostering stakeholder engagement and facilitation skills, as well as business skills brought about through the use of the tool and exposure to defining organization strategy and objectives. The project manager and project team participants within each workshop were called upon to assess the methodology and tool, including such aspects as:

- The ease of the methodology
- The tool's contribution to the project
- Ways in which the *Feasibility Formula*™ could support the project manager and/or project team member role
- Ability of the project manager/team member to use the tool
- Ability of the project manager/team member to facilitate the process
- Consideration for training in the use of the tool and methodology
- Willingness of the project manager/team member to use the tool
- Applicability to the project manager/project team member's projects

Findings regarding the effectiveness of the tool and methodology in developing competencies and new skills of the project manager and other firm stakeholders concluded that the *Feasibility Formula*™ contributed in a number of areas:

- Expectations and perspectives of stakeholders are better understood
- Knowledge gained re insight into other functional areas, challenges and opportunities within the organization
- Consideration of organizational objectives brings clarity and focus
- Nurtures a stronger familiarization of "what's most important" to the organization
- Introduces consideration for a project's alignment with an organization's objectives
- Provides for substantial dissection of the project at a very detailed level
- Permits reflection on extended impact of project under consideration and other related projects
- Provides a learning experience through participation
- Facilitates skill development, knowledge sharing and enhanced competency levels overall

The effectiveness of the methodology was further measured through twenty-four formal evaluations completed by the participants of the six case studies. Findings confirmed the development of new skills and their continued confidence in the tool and the likelihood of the participant using the *Feasibility Formula*™ again, as shown in Figures 1 and 2.

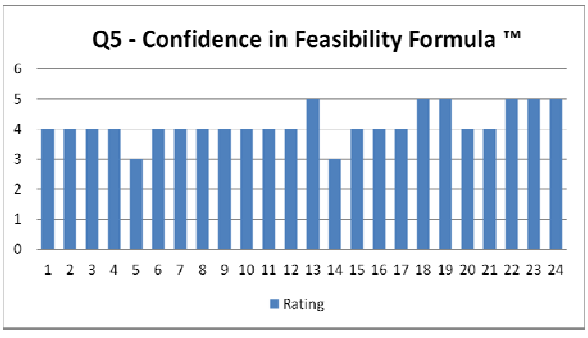

Fig. 1. Confidence in *Feasibility Formula*™

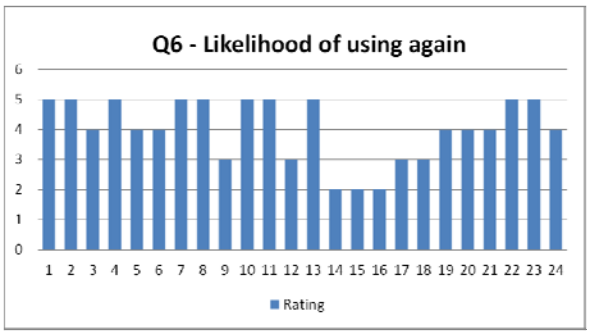

Fig. 2. Likelihood of using *Feasibility Formula*™ again

The project managers and/or project teams in all case studies exhibited new capabilities in using the tool and methodology, with augmented training and instruction on the necessary facilitation techniques. The *Feasibility Formula*™ therefore provides value to the project manager and team members, and to the firm, in the increased competency of its workforce, hence supporting the competitiveness of the firm.

Effective decision making

Williams and Samset (2010) recognized that front-end decision making in projects, in support of organizational objectives, is becoming increasingly important, including "the need for alignment between organizational strategy and the project concept". This alignment permits increased competitiveness through effective decision making and the resulting implementation of projects with a greater likelihood of success.

Two questions regarding decision making were posed in the research: i) *What are the characteristics of effective decision making in a pre-project environment?*; and ii) *Does the use of a pre-project methodology supported by a tool such as the Feasibility Formula™ increase the effectiveness of decision making?* The first question was answered through a comprehensive literature review, and the second question through action research and a comprehensive iterative methodology refinement.

Findings from the research illustrated that the majority of firms studied did not have a formal process in place, nor possess a tool and methodology by which to assess a project up front as to its alignment with organizational goals and its resulting viability. Decision making was not formally facilitated as there was an absence of stakeholder engagement around the decision making process in the organizations surveyed.

The *Feasibility Formula*™ was demonstrated as filling this need by the inherent nature of its methodology in engaging stakeholders and in facilitating the necessary decision making. Value was further brought to the organization via the tool's ability to support effective decision making by:

- Ensuring that the projects are fully assessed to ensure alignment with organizational goals
- Enabling the prioritization of projects among many under consideration
- Allowing for adjustments to project scope and other criteria in order to support increased likelihood of project success
- Supporting the timeliness of the stakeholder engagement sessions, the expediting of same, and the speed with which decisions are made
- Showing likely areas of risk to the organization and consideration for mitigation if the project is undertaken
- Permitting early project termination if applicable (avoiding loss of resources, time and money)
- Providing stakeholders with a view to those elements of a project which may need to be revisited along the lifecycle to ensure continued satisfaction of criteria
- Engaging stakeholders, fostering collaboration, supporting consensus building,

Stakeholders benefit directly from the *Feasibility Formula*™ tool and methodology during the engagement and decision making process as it provides an opportunity for stakeholders to:

- Express themselves and ensure their expectations are known
- Learn about the organization and other stakeholders' perspectives through the process itself
- Seek clarity related to the organization's strategy and objectives
- Become part of an integrated project team
- Enhance communication among team members
- Understand the expectations of others
- Contribute to the organization in a meaningful way
- Assess the project both within and outside of their functional area
- Be better informed, hence better contribute to effective and timely decision making

Decision makers within the organization benefit from having the necessary data and required stakeholder input in a timely manner to inform their decisions. They can further have greater confidence in the accuracy and speed of their decision as a result of the robust process and tool. The process itself supports the firm in its competitiveness, as the outcome is based on effective decisions that are well informed and well timed.

Elements of scope, structure, speed and strategy

Morris (2009) gives consideration to the strategy of the organization, and the importance of aligning projects in pursuit of this strategy. He postulates that the emphasis should be placed on the value that the project produces for the organization, instead of the traditional focus on execution. In order to achieve this, the organization's strategy and requirements must be made explicit. Achieving the alignment between an organization's goals and the project itself is critical to the value that the project can bring to the organization in support of firm competitiveness and performance.

The latter part of the 21 st century has seen a stronger emphasis on the role that projects play in generating favourable, constructive change for an organization by addressing identified strategic objectives (Gareis, 1990; Turner, 1993; Dinsmore, 1999). But while project success has been linked to strategic management in the literature,

there remains a gap in knowledge and utilization related to the tools and methodologies that would facilitate same. The *Feasibility Formula*™ is a tool and methodology that links the strategies of an organization with project outcome and resulting firm performance.

The *Feasibility Formula*™ has earlier been shown to support competitiveness factors such as a firm's "scope" – core competencies and capabilities, "structure" and "speed" - specifically around decision making and flow. We now turn to its ability to satisfy the characteristic of "strategy", and its support for establishing strategic decision criteria. The *Feasibility Formula*™ has been specifically designed as a tool and methodology to capture the organization's goals and the weighting associated with their importance. Further, it measures the project's ability to satisfy the strategic criteria captured and in doing so, provides an indication of likelihood for project success or failure. The purpose of the *Feasibility Formula*™ is to ensure the identification and/or development of the firm's strategic criteria so that project alignment can be determined. This definition of strategic criteria and resulting assurance of alignment better positions the firm's competitiveness in the likelihood of delivering successful, strategically supported projects.

Focus on growth

The *Feasibility Formula*™ can contribute to a firm's competiveness by supporting its growth. This may occur on several fronts including helping the organization to maintain focus on its strategic objectives, to support its structure and governance, to assist in the professional development of its human resources, and to help position the firm overall as a viable entity.

When firms seek funding to help fuel their growth, potential investors will require knowledge of the business – both its current state and its potential future state. Interested investors and sources of funding, either public or private, will want to know that the firm is sufficiently sophisticated in its strategy, processes and operational execution. Firms can seek the traditional financing of banks or other financial institutions, or through means such as venture capitalists. Such investors look to the creditability of the leader/entrepreneur and management team, capability of effort, and their ability to handle risk (MacMillan, Siegel, Narasimha, 1986).

The *Feasibility Formula*™ supports the firm by providing a methodology and tool to: engage stakeholders, ensure consensus on strategic objectives, assess projects or programs of work in a comprehensive manner - including level of effort required and level of risk to the organization -and provide detailed input for effective and timely decision making. Investors would be positively influenced by the firm's ability to demonstrate same through the use of the *Feasibility Formula*™, and the tool and methodology, as embraced by the firm, would be a strong element within a business case in support of funding.

The *Feasibility Formula*™ can equally be used to assess the extent to which a contemplated acquisition may be successful. This occurs on two fronts: firstly, the acquisition can be considered a project, and the tool and methodology may be used to assess the opportunity, as with any other contemplated; secondly, it can further look to examine initiatives of the company under consideration for acquisition, and permit assessment of its projects and their continued alignment with parent company goals.

Size of firm, sector and culture

While it is understood that characteristics of a firm, namely size, sector and culture, have an impact on its competitiveness, it can be concluded from the research that the application of the *Feasibility Formula*™ tool and methodology brought similar value to all firms under study.

The research went further to contemplate factors such as the industry, typology, and project type, hence broad representation of business and project environments.

Effectiveness by project type

Across the six case studies, a variety of project types were represented: 3 different Business projects (Business Development, Marketing and Real Estate Strategy), 2 Accommodation projects, and 1 IT project.

Five of the six organizations had not previously used an assessment tool in support of decision making. Further, there was a definite absence of either identifying or considering organizational objectives as part of a project selection process, regardless of project type.

The eleven strategic elements of the *Feasibility Formula*™ were selected intentionally so as to be applicable across all organizations, industry and project types. The research concluded that irrespective of project type, there were widespread similarities captured for the tool and methodology regarding: the enthusiasm displayed; feedback and suggestions for improvement; its applicability to the identified organization, selected project and its stakeholders; its usefulness and cited benefits; and resulting value. The summary of formal evaluations undertaken supports this finding.

And while there were differences in stakeholder representation and functional dissimilarities amongst the case studies (from salespeople to marketing specialists to facilities personnel to IT practitioners, etc.), the *Feasibility Formula*™ tool and methodology was germane to each project type. Regardless of the subject matter, the tool was equally applicable. The project management discipline instructs that a robust project management methodology can apply to any project type, therefore a project manager should be able to manage projects in any environment. It was not expected to be the case for other project team members consisting of functional specialists. Nevertheless, the *Feasibility Formula*™ permitted these team members to assess their organization and project in a structured and methodical manner irrespective of project type, their role, or area of expertise.

Effectiveness by Project Typology

With respect to project typology, initially it was thought that the tool would be most appropriate for complex project typologies – i.e. ones that could be

considered to present a significant risk, cost and complexity to the organization. Through the evaluation of the six case studies which represented: one Simple; one Simple to Typical; one Typical; and three Complex project typologies, the data showed, however, that the *Feasibility Formula*™ tool and methodology was equally applicable and relevant in all project typologies. Nevertheless, consideration should be given to its ultimate value on very Simple projects of small value and complexity.

Effectiveness by Industry

Six distinct industries were represented in the case studies: project management, wealth management/financial services, defense and aerospace engineering, IT, export development and medical.

Similar to the outcome of the assessment of project types and typology, it was found that the *Feasibility Formula*™ was equally relevant and applicable to every industry assessed. Although the different industry organizations had distinct objectives, the application of the tool was indistinguishable and successfully interchangeable.

Effectiveness by Sector

The case studies further represented three sectors: private, public (i.e. government) and not-for-profit. Each represents a distinct focus and accountability. Private sector organizations are profit driven and typically answer to shareholders; public sector entities serve constituents and are held accountable for the cost-conscious delivery of services to, in this case, Canadians; and not-for-profit organizations are typically driven by their membership and other sponsors to provide relevant services. The author initially undertook the development of the *Feasibility Formula*™ with the private sector in mind. However, with a growing consideration for the wider application of the tool, the public sector was added. And finally, upon undertaking the case studies and seeing an opportunity to include another key sector, the not-for-profit organization was appended.

From the data collected and analysed, it became apparent that the *Feasibility Formula*™ tool and methodology was applicable to all sectors undertaken in this research. As the vast majority of organizations can be categorized within one of these three sectors, it can be concluded that the *Feasibility Formula*™ is applicable to all sectors.

Corporate Culture

It is understood that corporate culture plays a role in the firm's performance. There is a need for corporate culture that encompasses teamwork, involved management and continuous improvement to facilitate organizational success, growth and competitiveness (Irani et al, 2004).

The *Feasibility Formula*™ supports companies operating in this type of cultural environment because of its ability to engage stakeholders and foster teamwork among management and others by requiring their participation in facilitated sessions for the purpose of populating the tool and assessing its outcome.

The culture of each organization participating in the research was taken into consideration and studied in the context of how the tool and methodology was embraced and applied. A narrative was included in the research work to describe the culture of each organization, and the resulting acceptance and adoption of the *Feasibility Formula*™.

Cultures among the organizations varied greatly, and ranged from entrepreneurial firms that exercised autonomy and creativity, to the highly professional matrix organization, to the bureaucratic and hierarchical. However, at their core, each firm exhibited the appropriate cultural traits – i.e. teamwork, involved management, continuous improvement - required for the *Feasibility Formula*™ to have the greatest favourable impact. Interestingly, many of these exhibited traits appeared latent, as a number of the participants commented that teamwork, robust discussion and management involvement was often absent from their past and current informal approach to assessing the viability of projects. It appears that the *Feasibility Formula*™, in some cases, liberated the stakeholders to embrace cultural traits that had merely been dormant.

The *Feasibility Formula*™ augments necessary cultural traits by encouraging both the teamwork of stakeholders and the involvement of management through the application of the methodology. The greatest value that The *Feasibility Formula*™ brings to firms is the direct engagement of stakeholders and facilitation of healthy discussion in order to populate the tool and assess the outcome.

The *Feasibility Formula*™ was developed to foster the engagement of key stakeholders and ensure a common understanding of a project's ability (or inability) to address organizational strategy, and ultimately its likelihood of success. The varying cultures of the organizations did not provide evidence of any impediments in their ability to embrace or utilize the tool and methodology or to fulfill its purpose. Each organization was able to successfully participate and implement the suggested methodology.

It would be interesting to examine the potential of the *Feasibility Formula*™ in supporting firms operating in different cultural environments. A culturally diverse workforce within an organization can contribute to a firm's competitive advantage (Cox, Blake, 1991), and many of the participating firms had such diversity in their stakeholders representation. But what about firms operating in other cultures entirely, such as Asia or EMEA? Would the tool and methodology apply equally successfully in these cultural environments?

The literature possesses few studies that compare the effectiveness of firms across countries that can be linked to differences in the culture or values of the organization, however one particular study conducted by Denison et al (2004), successfully compared cultural traits with firm performance for North America, Asia and EMEA. The results are listed in Table 1 below.

Table 1. Average culture trait scores by region

Culture Trait	North America	Asia	EMEA
Mission	3.32	3.39	3.35
Adaptability	3.25	3.28	3.26
Involvement	3.43	3.42	3.45
Consistency	3.28	3.21	3.26

Source: Denison, Haaland, Goelzer (2004)

The study concluded that the link between company culture and effectiveness appeared to be both strong and consistent: the scores for the culture measures were essentially the same for the samples of organizations in each of the three regions.

This author would then postulate that such similarities in cultural traits between North American firms and organizations in Asia and EMEA infers that the *Feasibility Formula*™ would be equally embraced and effective in its application across these cultural environments.

Effectiveness by firm size

Research conducted by Dunning (1996) characterizes the effect of the size of a firm on its competitiveness: large firms are more likely to engage in global activities than small firms, and transnationality supports a firm's global market share; medium-size firms are likely to be more specialized in their portfolio of global assets and reliant on foreign sources to enhance their portfolio; evidence suggests, however, that small firms are just as likely to engage in merger-and-acquisition activities as are their larger competitors. Results of Dunning's research
illustrate that the size of firms is only of marginal importance in affecting the sourcing of most categories of competitive advantage (i.e. access to resources and assets, consumer demand, inter-firm competition, and linkages with foreign or domestic firms).

Firm sizes of the organizations represented in the research were considered mid-to-large and ranged from 300 to 10,000+ employees. As the unit of analysis for the research was the project itself, firm size appeared to have little direct impact on the application of the *Feasibility Formula*™ tool and methodology and its effectiveness. It was observed, however, that the projects chosen as the basis for the research were scalable as appropriate to the respective size of the organization. Most of the selected projects were for domestic implementation, as this was the focus of these organizations, and one, from the global firm, was planned for transnational execution. When working with the research participants, their access to firm resources and assets, for example, all seemed to be based on what was achievable, given the size of the organization and the project to be undertaken: the large, bordering on mega, firm had chosen to evaluate a contemplated project that would be global in its application and significant to the organization; the smallest firm in the study chose a modest project that had national implications for the organization. Each firm appeared to consider projects that were realistic and appropriately "sized" for the organization, and that would be supported with appropriate resources – both human and financial. The application of the *Feasibility Formula*™ did not uncover the contemplation of any projects that were not appropriate to the size of the firm or its organizational maturity level.

In this context, it appears that the *Feasibility Formula*™ was an appropriate tool and methodology, irrespective of firm size, as the representative stakeholders from the organizations of varying scale found it a most useful input to the evaluation process and ultimate decision making around the project. There was no indication when implementing the tool and methodology of its unsuitability for a particular size of firm. If anything, it may be further considered that in a large firm, the *Feasibility Formula*™ could be more widely applied – i.e. to a larger number of projects or initiatives – compared to a small firm which may have fewer to evaluate.

Conclusion

The success and failure of projects is an important consideration for a firm's competitiveness. The *Feasibility Formula*™ tool, and accompanying stakeholder engagement and facilitation methodology, contributes novel substance to both the firm and the project management profession in its ability to assess the alignment of a project with an organization's strategy, to inform the likelihood of the project outcome, and to support effective decision making. In ascertaining its effectiveness through an iterative methodology refinement and six case studies, the author is has been able to establish a link between the utilization of the tool and methodology, and its favourable impact on a firm's competitiveness.

The *Feasibility Formula*™ methodology and tool provides a practical and engaging means for project stakeholders to contemplate a project's viability and contribution to firm performance. It provides a process and analytical technique for organizations to determine "what matters most" and to identify a project's ability to satisfy these objectives for the benefit of the organization. The author now contemplates adding "competitiveness" as a 12th strategic element for consideration.

The *Feasibility Formula*™ methodology and tool was conceived, and subsequently developed, to address the organizational problem that is often witnessed by project management professionals: organizations do not typically make significant project decisions based on an examination of the favourable alignment of the contemplated project with the organization's strategic goals. The absence of this practice can jeopardize a project's likelihood for success from the outset.

This paper has examined the problem and resulting need for an effective pre-project feasibility tool and accompanying stakeholder engagement, or facilitation, methodology. It has also assessed, through comprehensive research, the extent to which the *Feasibility Formula*™ has a positive effect on an organization's competitiveness in the marketplace, irrespective of size of the firm, its position within the lifecycle, industry type or corporate culture. It addresses competitiveness factors and the tool's support for

strengthening core competencies, firm growth, proficiency of workers, speed of decision making and strategic alignment – culminating in a firm's competitive advantage.

According to Grant (1991), a resource-based approach to competitiveness would include identifying the firm's capabilities and determining what the firm can do more effectively than its rivals. The findings from this research suggest that the *Feasibility Formula*™ is one such tool and methodology that can provide the firm with a number of advantages and practical benefits in supporting the firm's strategic focus, agility, flexibility and adaptability through effective and timely decision making around corporate initiatives, projects and programs of work. The *Feasibility Formula*™ can be considered a valuable tool in supporting firm competitiveness.

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THE DYNAMICS OF ENTPRENEURSHIP EDUCATION: EVIDENCE FROM TURKEY

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Annotation
The basic aim of this study is to explore the expectations of university students from entrepreneurship courses, and discuss the basic dynamics of entrepreneurship education. The research was conducted with a survey form on 244 'business administration' department students of Giresun University, Turkey. The results of the study reveal that, the students expect entrepreneurship courses that have multi dimensions, in terms of a rich content. The preparation of business plan, invitation of successful entrepreneurs to the courses, encouragement, conference requirement and practice focused lectures are some of the key elements that mentioned by the students for effective entrepreneurial education. The results of the data analysis also showed that, the age and 'year of education' of participants is significantly and positively correlated with their thoughts on the entrepreneurship education courses. However, the analysis results indicate that, there is no significant relation with the gender, education groups, income levels, the existence of entrepreneurs in the family, the identity of entrepreneur and the thoughts on the entrepreneurship education, in the frame of this sample.
Key Words: Entrepreneurship education, University students, Turkey.

Introduction

It is known that entrepreneurship is one of the main sources of economical development in the world. So, the level of development can be associated with the level of entrepreneurship in countries. Because of this, the processes that contribute to entrepreneurship are very important. Education is one of these processes, which has a history of more than a century, in the world. As it can easily be estimated, the countries which have the longest history of entrepreneurship education are also the most advanced countries of the world.

In Turkey, the entrepreneurial education is done through the lectures of the state and private universities, and with the training programmes. Although the state incentives for entrepreneurs started in 1920's, the formal education and training programmes have a shorter history. Accordingly, the first education institutions of business were established in 1960's. So, the related activities also started in those years. Today, there are 180 universities and more than 200 business faculties in Turkey. These business faculties have courses about entrepreneurship, either compulsory or elective. Equally, there are formal entrepreneurship training programmes which are designed to support the skills, abilities and knowledge of potential entrepreneurs. At the same time, participating to these entrepreneurship training programmes is the condition of getting state incentives to start a new venture.

The universities have a determining role in students' gaining 'an entrepreneurial spirit' (Yelkikalan et al., 2010). Gery and colleagues (2008) found that, academic training significantly affects students' interest and motivation for establishing their firms. Today, becoming an entrepreneur after graduation is a common goal for many university students (Rasmusses & Sorheim, 2006). This is the result of the conditions in economy and in labour markets. On the other hand, universities want their graduates to use their knowledge and creativity directly in their own businesses. This can be the source of outstanding contribution of new graduates to the society.

The literature on entrepreneurship education is sophisticated and discussing many dimensions of it (e.g.: Sexton et al., 1997; Kourilsky & Walstad, 1998, McMullan & Gillin, 1998; Fiet, 2000; Finkle & Deeds, 2001; Carayannis et al., 2003; Katz, 2003; Okudan & Rzasa, 2006; Rasmussen & Sorheim, 2006; Yelkikalan et al., 2010). This study also aims to contribute these views, with the research and theoretical implications.

The learning priorities of potential entrepreneurs can be as (Sexton et al., 1997): how to obtain and use financial resources, financial growth, increasing the value of firm, compensation issues; recruiting, training, motivating for growth; adapting to turbulent business environment, marketing, customer relations or sales force management, dynamics of management and organization, and finally, problems and obstacles that should be considered during the process.

This study includes two major parts: in the first part, the related literature is presented. Then, in the second part, the results of a research on university students is given and discussed. This research was conducted on the students of business administration department of Giresun University, in Turkey. This study reveals the expectations of respondents from the entrepreneurship courses.

Literature Review

The entrepreneurship can be defined as the process of founding and maintaining a business which depends on

risk taking, creativity, innovation, and opportunity seeking. As entrepreneurship is the key activity for the prosperity and wealth of human, there are efforts to start and maintain entrepreneurship courses and training programmes scientifically. Since the first business school was founded at the University of Pennsylvania as the Wharton School in 1890 and the first entrepreneurship class was held in Harvard University in 1947, the related activities have reached a level beyond estimations (McMullan & Gillin, 1998; Katz, 2003). The activities on entrepreneurship education are realized through courses, trainings, seminars, and workshops, also there is a large range of literature including books, journals and magazines that support the practices. Again, students, entrepreneurs, professors, trainers, states, universities, governments, private organizations, non-governmental organizations (NGO) like trade associations take roles during the process. In relation with this, as an interesting view, Kourilsky and Walstad (1998) propose camps for entrepreneurship for teenagers. Finkle and Deeds (2001: 617) identifies the reality that, the increase in the total number of positions and candidates increases the schools' and candidates' interest in entrepreneurial education.

Okudan and Rzasa (2006: 199) discussed the entrepreneurship education, depending on the views of the students of a class. The scholars argued that, an entrepreneurship course should focus on the business plan writing which will include the identification of target market, marketing plan and sales strategy, technology, financial plan, management principles and organization structure. Also, they stated that, the entrepreneurship courses should give the spirit of entrepreneurship through strengthening the characteristics of autonomy, innovativeness, risk-taking, creative thinking, leadership, proactiveness, and aggressiveness. Also, new ideas or information about new products or services, leadership and communication should be taken from these courses. In the process of entrepreneurship education in universities, an entrepreneurial culture should be created and maintained at the universities, which are reflected in courses, research and other activities (McMullan & Gillin, 1998; Rasmussen & Sorheim, 2006: 185). As Finkle and Deeds (2001) points out the organizations that held these courses should be institutionalized.

Rasmussen and Sorheim (2006) examined the issue from a different perspective. They focused on the question of whether the courses should be 'teaching oriented' or 'action-oriented'. Accordingly, they presented action-based examples from five Swedish universities. The cases which were given by them demonstrate that, 'entrepreneurship education focuses less on teaching individuals in a classroom setting and more on learning-by-doing activities in a group setting' (Rasmussen & Sorheim, 2006: 185). The traditional method of entrepreneurship education is seen as inadequate. So, the new way is based on case-based teaching to link students with real ventures. In this process, they select an idea, compose a team, and deal with any issues in the related phases. Thus, the students are encouraged to set up their own businesses. On the other hand, this method can also be seen as the delegation of teaching activity to the students, which would make the courses more interesting (Sexton et al., 1997; Kourilsky & Walstad, 1998; McMullan & Gillin, 1998; Fiet, 2000). Therefore, many of the pedagogical problems can be avoided through this way. In connection with this, Fiet (2000) suggests a 'student-approved system' for class meetings, which depends on taking the ideas of the students for the content of courses. Hence, the students will feel better and the courses would be more effective.

Carayannis et al. (2003: 769) examined the differences between France and Unites States for their entrepreneurship education systems; and suggest many principles or implementations, including: All of the students should be encouraged to be creative and positively extraordinary. They should be informed about the dynamics of markets, or market requirements. Accordingly, students would learn how important as a choice to set up a business. Also, entrepreneurs can be invited to the courses to present their business stories. (Kourilsky & Walstad, 1998; Carayannis et al., 2003: 769). Even, some potential or practicing entrepreneurs primarily prefer to take courses from other entrepreneurs or at least from the individuals who experienced the similar conditions (Sexton et al., 1997). Furthermore, Carayannis et al. (2003) also suggest vertical and horizontal integration of schools, like university with high school, or university with another university, to share information and knowledge about entrepreneurship. Moreover, the integration of business and engineering programmes should also be provided. Through this way, especially engineering students can be more creative and efficient in their professional life. The authors also suggest a safe environment for students to set up their businesses or for business creation experimentation. Again, the students can be integrated with an entrepreneurial rich environment that depends on creativity, innovation, independence and individuality. In addition, consultants or consulting firms can be a part of this process. And finally, students and professors should set up close relations for efficient studies.

Sexton and colleagues (1997) argued that, entrepreneurs learning experiences which are short, goal focused, content oriented, and taught by current entrepreneurs. The authors searched the learning needs of fast growth entrepreneurs: First, entrepreneurs should determine what, where and how they want to learn. They are reactive, and they give importance to content which includes specific knowledge rather than general information. In other words, they don't consider the process at the first hand. Furthermore, there is a correlation between the education and experience of entrepreneurs and the size and complexity of their establishments. Again, the information and knowledge that is given at the courses should primarily respond the immediate requirements, and support them in the planning process. Also, the content of the courses needs to adapted to the conditions of market or business environment.

According to McMullan and Gillin (1998), the students can be registered to entrepreneurial education programmes with a selection process. This process can

depend on three basic criteria: the value of past responsibilities, commitment to entrepreneurship, and creative thinking. It is obvious that, the outcomes of education programmes would be better with selected students or trainees; because the motivation and readiness will be higher.

Kourilsky and Walstad (1998) propose 'start-up' camps or summer camps for teenagers, especially for girls. This is important to achieve a balance between man and women in entrepreneurial activities. It is clear that, when women participate more to business life, the social and economical development will be easier and higher. As the scholars pointed out, these activities can be enlarged through workshops that provide supplementary instruction and guidance. Again, successful entrepreneurs can mentor their potential colleague.

Hypothesis:

As the age increases, the information and knowledge of an individual increases. Again, the experiences can make the individual more willingness to be an entrepreneur. Also, in the frame of this research, when the year of education increases also the age increases. So, the participants will be closer to the realities of professional life after graduation. They should have serious plans for their future life. Accordingly, they would have important expectations from the entrepreneurship courses, which would respond the requirements of their professional life. So, it can be claimed that:

H_1: There is a significant relationship between the age of participants and their thoughts on entrepreneurship education.

Although, the women and men behave similarly in their daily life, also there can be some differences depending on characteristics special to the gender. Again, the cultural discrepancies can create splits in the expectations of individuals. Wilson and colleagues (2007) achieved the result that, women are more interested in the entrepreneurship education then men, in MBA programs. Conversely, authors found that teenage boys have higher entrepreneurial intentions than teenage girls (Wilson et al., 2007). On the other hand, there can also be differences about entrepreneurial tendencies in a gender group (Kundu and Rani, 2007). There are also other studies that indicate the role of gender on entrepreneurial tendencies (e.g. Gery et al., 2008). So, women or men can have expectations from the entrepreneurship courses in different levels. Again, each gender might have suggestions that can enrich the curriculum, in different degrees. Therefore, it can be proposed that:

H_2: The gender of the participants is significantly and positively correlated with their thoughts on the content of entrepreneurship courses.

As mentioned above, the year of education would reflect to the behaviours and views of individuals. The increase in the year of education will result in an increase in information and knowledge that can improve the skills and abilities. Thus, the awareness of the students would also become higher. They will need to prepare themselves for their near future as professionals. In other words, these people should be ready to undertake responsibilities. So, these individuals will behave more in consciousness. So, it can be asserted that:

H_3: The year of education of the respondents will be positively associated with their thoughts on the content of entrepreneurship courses.

In Turkish higher education system, two education groups can exist in some faculties and some departments: The morning class, and the evening class. Accordingly, morning class students make no payments if they finish school in time. On the other hand, the evening classes charge tuition. So, the income levels of the families of these two groups probably change. In other words, the families of evening class students should have adequate income to afford the costs of the university enrolment. Then, it can be proposed that:

H_4: The education groups of the participants will be significantly correlated with their thoughts on the content of entrepreneurship courses.

The income levels of participants' families would determine many dimensions, like achieving resources, information and knowledge. Thus, it could have impacts on the expectations or thoughts of individuals on the subject. Accordingly, it can be suggested that:

H_5: The income level of participants' families and the thoughts on the content of entrepreneurship courses will be positively correlated.

The experiences would determine the new approach to different issues. Also, family members will take the successful examples as role models for them. In relation to entrepreneurship, the existence of entrepreneurs in the family might strengthen the tendency to this profession. Moreover, the pool of experiences, knowledge and information would also contribute to this type of attitudes. Then, it can be supposed that:

H_6: The existence of an entrepreneur in the family will be statistically significantly and positively correlated with the thoughts on the entrepreneurship courses.

H_7: The identity of entrepreneurship in the family is positively associated with the thoughts on the entrepreneurship courses.

The residence of participants before university education would influence the thoughts, behaviours or attitudes of them on any problem. Accordingly, big cities present many opportunities for personal development. As being the centres of culture, education, healthcare, finance and business, these areas provide sophisticated perspectives, methods or techniques to any individual. Therefore, it is easier to achieve success in any profession in big cities. On the other hand, small cities also present opportunities, but no at that rate. Then, it can be claimed that:

H_8: The residence of participants before university education is positively correlated with the thoughts on the entrepreneurship courses.

Methodology

Research Model

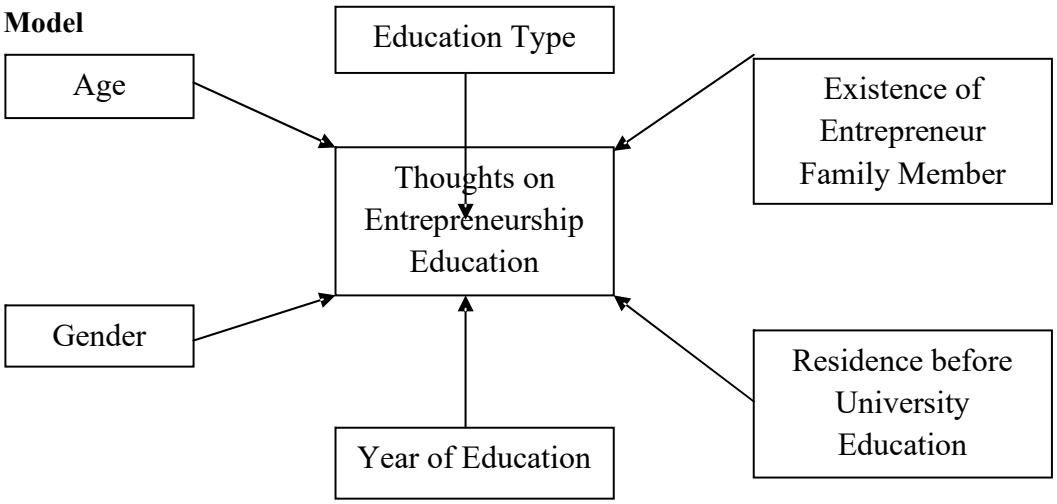

Fig. 1. Research Model

Research Goal

In this survey, it is aimed to find out the preferences of students about the content of entrepreneurship courses. It is also aimed to identify the effects of demographic data of the participants on the variables. The ultimate goal of this study is to discuss the formation of the entrepreneurship courses and propose possible content for efficient results.

Sample and Data Collection

To test the hypotheses developed between the couples of variables, a questionnaire as a method of data collection was conducted on a total of 276 undergraduate students studying at the Faculty of Economics and Administrative Sciences at the Giresun University, Turkey. Collected during April, 2015, the questionnaire included a total of 28 items using 5-point Likert Scale. The scale was adapted from the studies of Okudan and Sarah (2006), and Çetinkaya Bozkurt and Alparslan (2013). In determining the sample group, the technique of convenience sampling was used due to the financial and timing limitations. After conducting a pilot test on a group of 30 students, it was decided to continue with the rest of the questionnaires on the same sample. A total of 276 participants were reached, however only 244 were found to be valid for the data analysis process. The participants were the 1., 2. 3., and 4. year-undergraduates studying at the department of Business Administration, and took part in the questionnaire on a voluntary basis. Data obtained from those 276 questionnaires analyzed through the SPSS statistical package program 21, and several relations were tested. Due to the fact that the data did not show a normal distribution, which is a primary condition of using the parametric tests, non-parametric tests including Mann-Whitney U and Kruskal Wallis Tests were used in testing the hypotheses.

Analysis and Results:

A total of 20 items included in the questionnaire are grouped under 9 variables, 8 of which being the demographic ones, developed by the existing literature and personal evaluations. The variable of 'the content' is measured by 16 items. According to the reliability test conducted on the variable, the scale is found to be reliable (Cronbach's Alpha > 0.70).

According to the descriptive statistics of the demographic questions, out of 244 valid participants, 118 (48.4%) are females and 126 (51.2%) are males.

Out of 244 valid participants, 95 (38.9%) are in their first year, 56 (23%) in the second year, 79 (32.4%) in the third year, and 14 (5.7%) of them are in the fourth year of their undergraduate education. Again, 118 (48.4%) of the participants are in the group of 'morning class', so125 (51.2%) of them are 'evening class' students. These 'evening class' students are paying fees for their education.

The ages of participants are as follows: 12 (4.9%) students are 19 years old; and 33 (13.5%) of them are 20 years old; 59 (24.2%) of the students are 21; then, 65 (26.6%) of the participants are 22 years old; 39 (16.0%) of the respondents are 23; the number of participants who are 24 years old are 25 (10.2%); then, 8 (3.3%) of them are 25; there is only 1 (.4) students for each group, who are 27, 28, and 55 years old.

Just, 74 (30.3%) of the respondents have an entrepreneur in their family. These entrepreneurs are mothers 12 (4.9%), fathers (14.8%), brothers or sisters 15 (6.1%), and others 11 (4.5%).

As shown on the Table 1, out of 244 valid participants, 82 participants (33.6%) have a monthly income level of 0 – 1000TL (app. $350); 77 participants (31.6%) of 1001 – 2000TL ($350-700); 47 participants (19.3%) of 2001-3000TL ($700-1050); and 17 participants (7.0%) of 3001-4000TL ($1400-1750); and 21 participants (8.6%) 4001 TL ($1750) and above.

Table 1. Monthly Income Distribution of the Participants

Inn TL (app. half of $ in currency)		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-1000	82	33.6	33.6	33.6
	1001-2000	77	31.6	31.6	65.2
	2001-3000	42	19.3	19.3	84.4
	3001-4000	17	7.0	7.0	91.4
	4001-	21	8.6	8.6	100
	Total	244	100	100	

As shown at the Table 2, out of 244 valid participants, 58 (23.8%) lived in Giresun province before their university education. Accordingly, Giresun is the province that hosts the university, and has a population of 440.000. Also the province center has a population of 100.000. The second highest rate about the residence before university education is 13.5%, for the 33 students coming from Trabzon, a historic city and commercial center in Black Sea Coast. The Trabzon province has a population of 750.000, and almost 230.000 people live in the city center. The third highest number of respondents is 31 (12.7%), and they are from Istanbul. The most populated city of Turkey, which has a population of almost 15.000.000. Then the fourth rate is 4.5% for 11 students each both from Ankara and Ordu. Ankara is the capital of Turkey, which has a population of 5.000.000. And, Ordu, is a big city near Giresun, at the Black Sea Coast. Moreover, in the sixth place there is Samsun province which is a port and big city, about 250 km from Giresun city center and has a population of almost 1200.000. So, 9 (3.7%) participants are from Samsun. Then, there is Rize, a city at the Black Sea Coast, almost 200 km from Giresun city center, and 7 (2.7%) students are from this city. Hence, with 1 (.4%) student from both Gümüşhane and Artvin, the other cities that are in relatively short distances to Giresun, the 49% of participants are from the provinces of Black Sea Coast. In total, the participants are coming from 49 different provinces of Turkey and two provinces of Azerbaijan.

Table 2. The Residence of Participants before University Education

The Number of Students	%	Province	Population
58	23.8	Giresun	440.000
33	13.5	Trabzon	750.000
31	12.7	Istanbul	15.000.000
11	4.5	Ankara	5.000.000
11	4.5	Ordu	750.000
9	3.7	Samsun	1200.000
7	2.7	Rize	350.000
1	.4	Artvin	200.000
1	.4	Gümüḫane	200.000
82	38.3	Other Provinces	-

Table 3. The Results of Factor Analyses

	Factor (Kaiser-Meyer-Olkin (KMO) = .885 Significance = .000 Variance = 31.132 % Reliability (Alpha/α) = .8771	**Value**
M27	The entrepreneurship course should have more hours.	.687
M23	The knowledge about competitiveness should be given.	.679
M22	The potential entrepreneurs should be supported in the areas of economy, technology, and law.	.664
M15	The knowledge about market conditions, law, incentives and business founding should be given.	.642
M16	Projects should be prepared during the courses.	.618
M26	A feasibility study (business plan) should be prepared.	.613
M25	The education system should be adapted to the technology.	.599
M12	The characteristics of courage, self confidence, creativity, being innovative, being sociable, and opportunity seeking should be given.	.596
M18	There should be seminaries and conferences about entrepreneurship.	.593
M28	The lecturer should have adequate knowledge and experience.	.551
M10	Successful entrepreneurs should be invited to the courses to present their experiences.	.549
M11	The students that have abilities and interest to entrepreneurship should be encouraged.	.545
M24	Entrepreneurship education should be supported with personal development lectures.	.544
M19	The business ethics should be educated.	.526
M17	The potential entrepreneurs should be allowed to focus their interest areas.	.516
M9	The courses should include practices.	.506

N=244

As it is shown in Table 3, the variables were gathered under one factor. Accordingly, the variables should be grouped as one factor for their similarity, so it was chosen from SPSS system to categorize them under one group. The value of 'Kaiser-Meyer-Olkin Measure of Sampling Adequacy' is .885; with an adequate significant level of (.000). Also, the alpha (α) is .8771, which demonstrates a high level of reliability.

Table 4. Descriptive Statistics

	Factors	Mean	Standard Deviation	Variance
M17	The probabilities should be provided to students to focus their business areas.	4.4713	.7051	.497
M12	The characteristics of courage, self confidence, creativity, being innovative, being sociable, and opportunity seeking should be given.	4.4549	.7765	.603
M28	The lecturer should have adequate knowledge and experience.	4.4180	.8398	.705
M25	The education system should be adapted to the technology.	4.3934	.7651	.585
M11	The students that have abilities and interest to entrepreneurship should be encouraged.	4.3566	.8063	.650
M10	Successful entrepreneurs should be invited to the courses to present their experiences.	4.2992	.7782	.606
M18	There should be seminaries and conferences about entrepreneurship.	4.2869	.8411	.707
M19	The business ethics should be educated.	4.2869	.8362	.699
M15	The knowledge about market conditions, law, incentives and business founding should be given.	4.2500	.8108	.657
M23	The knowledge about competitiveness should be given.	4.1926	.8653	.749
M9	The courses should include practices.	4.1680	.9517	.906
M24	Entrepreneurship education should be supported with personal development lectures.	4.1639	.9460	.895
M16	Projects should be prepared during the courses.	4.1557	.9386	.881
M14	Students should visit the firms. (Excluded)	4.1352	.9039	.817
M27	The entrepreneurship course should have more hours.	4.0615	.9164	.840
M20	There should be a apprenticeship obligation. (Excluded)	4.0615	1.1795	1.391
M21	This course should be lectured by successful entrepreneurs. (Excluded)	4.0328	2.8093	7.892
M22	This course should include knowledge about economy, technology, and law.	4.0328	.9066	.822
M26	A feasibility study (business plan) should be prepared.	3.8893	.8935	.798
M13	Theoretical knowledge should be discussed in the second hand. (Excluded)	3.5287	1.1490	1.320

N=244

As it can be seen at Table 4, the respondent gave similar values to the choices that reflect the elements of entrepreneurship education or training programmes. Accordingly, the highest value of mean is for "the probabilities should be provided to students to focus their business areas", it is 4.4713. After this, there is "the characteristics of courage, self confidence, creativity, being innovative, being sociable, and opportunity seeking should be given", it is 4.4549. Then, the third one is "the lecturer should have adequate knowledge and experience", (4.4180). The fourth variable according to its value is "the education system should be adapted to the technology" (4.3934). The fifth variable is "the students that have abilities and interest to entrepreneurship should be encouraged", (4.3566). The sixth variable in terms of its value is "successful entrepreneurs should be invited to the courses to present their experiences" (4.2992). "There should be seminaries and conferences about entrepreneurship" (4.2869) is in the seventh order. Then, in the eighth place, there is 'the business ethics should be educated" (4.2869), and has the same value with the previous one. The ninth variable is "the knowledge about market conditions, law, incentives and business founding should be given" (4.2500). In the

tenth order, there is "the knowledge about competitiveness should be given" (4.1926). The next one is "the courses should include practices", (4.1680). Then, there is "the courses should include practices" (4.1680). Again, "entrepreneurship education should be supported with personal development lectures" (4.1639), is in the thirteenth order. Projects should be prepared during the courses (4.1557). And, "the entrepreneurship course should have more hours" and "this course should include knowledge about economy, technology, and law" (.4.0615) are in the fifteenth and sixteenth place. The last one is "A feasibility study (business plan) should be prepared", with a value of 3.8893.

This result shows that, the students gave similar importance to the proposed entrepreneurial education choices or methods. This can be the indication of the requirement of a multi-dimensional system for the courses. In other words, the curriculum should be enriched with different items that respond the requirements of each country or region.

Table 5. U-Test Results between the Thoughts about the Entrepreneurship Courses and the Gender

Gender	N	Mean Rank	Sum of Ranks	Mann Whitney U	Sig.
Female	118	121.11	14291	7270	-.298
Male	126	123.80	15599		

Table 5 shows the Mann-Whitney U Test results pertaining to the relationship between the participants" thoughts on the entrepreneurship education content and the gender. According to these results, there is not a statistically significant relationship between these two variables within the sample group (U=7270 and sig.>0.05). So, H_2 is not supported.

It can be claimed that, the homogeneity of the answers of women and men might be the indication of their similar tendencies to the entrepreneurship related issues. However, Erkoç and Kert (2013) identified that, the entrepreneurial tendencies of men and women do not significantly change in "resistance to change", "opinion-leading", and "openness to experiences"; their behaviors alter just in "risk taking".

Table 7. Kruskal Wallis Test Result between Year of Education and the Thoughts about the Content of Entrepreneurship

Year of Education	N	Mean Rank	df	X^2	Sig.
1	95	107.74	3	11.789	.008
2	56	115.33			
3	79	141.63			
4	14	143.43			

Kruskal Wallis test was applied to identify the relation between the year of education and the thoughts about the content of entrepreneurship education (Table 7). According to the Table 6, there is a statistically significant relationship between the thoughts on the content of entrepreneurship courses and the year of university education (x^2 [df=3, n=244] = 11.789 and sig. <0.05). When ranks are considered, the highest rank belongs to the fourth year, and the lowest rank belongs to the first year of students. So, the year of education has a determining effect on the thoughts about the courses. The students' views and expectations about the content of entrepreneurship change depending on their year of education. Hence, the fourth year students has the highest, and the first year students have the lowest level of expectations from the courses in terms of their content. This result can be explained about the level of information and knowledge the third and fourth year students have. Also, they are closer to graduation, and discussing more what they need in the future life. $_3$His supported.

Table 8. U-Test Results between the Thoughts about the Entrepreneurship Courses and the Education Groups

Education Group	N	Mean Rank	Sum of Ranks	Mann Whitney U	Sig.
Morning Group	131	121.81	15956.50	7310.50	.868
Evening Group	113	123.31	13933.50		

Table 8 shows the Mann-Whitney U Test results about the relationship between the participants' thoughts on the environment and the education groups. Accordingly, these two variables are not statistically significantly associated (U=7310.5 and sig.>0.05). Then, H_4 is not supported.

Table 9. Kruskal Wallis Test Result between the Thoughts about the Entrepreneurship Courses and the Income Levels

Income	N	Mean Rank	df	X^2	Sig.
0-1000TL	82	127.98	4	.790	.940
1001-2000TL	77	120.16			
2001-3000TL	47	120.39			
3001-4000TL	17	119.56			
4001TL-above	21	116.79			

As it is demonstrated at Table 9, there is not a statistically significant relationship between the participants' thoughts on the environment and their income levels (x2[df=4, n=244] =.790 and sig.>0.05). Therefore, H_5 is not supported.

Table 10. Kruskal Wallis Test Result between the Thoughts about the Entrepreneurship Courses and the Existence of an Entrepreneur in the Family

Entrepreneur In the Family	N	Mean Rank	df	X^2	Sig.
Exist	71	113.49	1	1.636	.201
Absent	173	126.20			

The thoughts of participants about the content of entrepreneurship courses are not significantly associated with the existence of an entrepreneur in the family (x2[df=1, n=244] = 1.636 and sig.> 0.05) (Table 10). Thus, H_6 is not supported.

Table 11. Kruskal Wallis Test Result between the Thoughts about the Entrepreneurship Courses and the Identity of Entrepreneur in the Family

The Identity of Entrepreneur	N	Mean Rank	df	X^2	Sig.
Mother	12	45.04	3	2.665	.446
Father	36	33.90			
Sister/Brother	15	36.27			
Others	10	39.60			

As it can be seen on Table 11, the thoughts of participants about the content of entrepreneurship courses are not significantly associated with the identity of entrepreneur in the family (x2[df=3, n=73/244] = 2.665 and sig.> 0.05). Therefore, the identity of entrepreneur in family can't be related with the thoughts about the courses, in the frame of this sample. Again, the 'men' is more dominant than women in entrepreneurial activities in Turkey. Hence, H_7 is not supported.

Table 12. The Correlations among Variables – I

	M1	T1
M1. Age	1	
T1. Content	.175**	1
	.006	

N = 244; ** Correlation is significant at the .005 level (2-tailed).

As it is demonstrated at Table 12, the age of the respondents is significantly and positively correlated with the mean of their response, which reflects the choices about the content of entrepreneurship courses. However, this is a law level relation of the 'age' and the 'course content preference'. H_1 is supported.

Table 13. The Correlations among Variables - II

	M8	T1
M8. Residence	1	
T1. Content	-.048	1
	.457	

N = 244

The analysis of the data shows that (Table 13), there is no significant relationship between the residence of the students before their university education and their thoughts about the content of entrepreneurship courses (-.048; .457). In other words, the students, whether from big cities or a small city have similar ideas about the ideal framework of entrepreneurship course content. Again, this can be the indication of a consensus on the dimensions of entrepreneurial education. Today, the intense level of communication makes people aware of any development and unifies their views. H_8 is not supported.

Discussion

As one of the important sources of the development of the countries, entrepreneurship should be encouraged, supported through funds or incentives, and strengthened through education, courses and training programmes.

The education system should be based on lecturers or trainers that were formally 'educated or trained' on entrepreneurship; or the successful entrepreneurs. Especially, inviting successful entrepreneurs to present their 'success story' might motivate potential entrepreneurs to realize their dreams. On the other hand, unsuccessful stories of entrepreneurs are also important to get lessons and avoid mistakes during the process.

The education and training programs should also include meetings as conferences or panels to discuss special regional conditions, requirements or characteristics. Accordingly, as the situations change according to markets, also the methods or techniques of entrepreneurship should be changed. Thus, the opportunities and threads should be evaluated by academics, and leading entrepreneurs of each region or country, and the content of entrepreneurship education should be determined through this process.

The universities might present more sophisticated studies or practices with research centres on entrepreneurship. So, the practices of these institutions are to be integrated with the related policies of governments to achieve the goals. In addition, the required literature would also be formed by universities and state officials together.

A business plan is very essential to be prepared by potential entrepreneurs, which might give opportunities to them to evaluate the details of their business life and get readiness to the developments. In the same way, the entrepreneurship courses and training programmes should encourage individuals, strengthen them, and make them more creative, disciplined, and innovative. Equally, these courses and trainings should improve the skills and abilities of students and trainees in communication, team work, opportunity seeking, and continuous development. Similarly, locus of control, self confidence, ethics, risk taking and the need for achievement are the related characteristics to be integrated with the personalities of potential entrepreneurs.

In general, the entrepreneurial lectures and training programmes should have a content that responds the basic requirements of business life in its major steps. It would widen the horizons of individuals to improve their skills and abilities and succeed in their professional life.

Conclusion

This paper has mainly investigated the dynamics of entrepreneurship education, based up on a research on university students about their perception, and expectations. Accordingly, the students think that, the characteristics of courage, self confidence, creativity, being innovative, being sociable, and opportunity seeking should be given in the courses, by the lecturers or trainers that have adequate knowledge and experience. This would encourage the students that have abilities and interest to entrepreneurship. Moreover, successful entrepreneurs should be invited to the courses to present their experiences. Also, there should be seminaries and conferences about entrepreneurship. The business ethics should be educated; and the knowledge about market conditions, law, incentives, business founding and competitiveness should be given. Besides, the courses should include practices, too. Equally, entrepreneurship education should be supported with personal development lectures. Again, projects should be prepared during the courses. Furthermore, the entrepreneurship courses should have more hours. Finally, a feasibility study (business plan) should be prepared.

As the respondents gave similar values for the proposed elements of entrepreneurial courses, a multi-dimensional education system would be the best. This system can also be improved through discussions among related parties. It is obvious that, new opportunities that strengthen 'opportunity seekers' would contribute to the local economies and the international economy.

This study also demonstrated that, the thoughts on entrepreneurship education are statistically significantly associated with the year of education and the age of the participants. However, it was also seen that, there is no statistically significant links between the thoughts on the content of entrepreneurship education and the gender, education groups, income levels, existence of entrepreneurs in the family, and the identity of entrepreneur. Nevertheless, these results are special to this research or sample.

This study may enhance the understanding of the importance of entrepreneurship education relating it with development of countries. Thus, new discussions might bring new perspectives to the issue that enlarges the horizon for more efficient and effective entrepreneurship courses or training programs.

Theoretical and Managerial Implications

Recommendations

The researcher developed some recommendations for both researchers/theorists and management practitioners. These are:

Theoretical Recommendations

1. Researchers should deeply search the expectations of students and potential entrepreneurs from entrepreneurship courses and training programs in different cultures and countries that have special economical characteristics.
2. The proposals of this research should be retested on other samples with related scales that allow parametric tests to be done.
3. Researchers are encouraged to study further predictors of the dimensions of entrepreneurship education. '

Managerial Recommendations

1. Universities and other organizations that have training programs should consider the expectations of the respondents in terms of the contents of courses, that were mentioned in this study.
2. Universities might establish entrepreneurship departments that can only focus on special entrepreneurship education effectively.
3. Universities and governments can also found research and development organizations for entrepreneurship to design methods and policies. Also,

governments should set up institution to support entrepreneurship and implement related policies.

Limitations

There were some limitations to this study. Below are some of the main ones:

- The data were collected through cross-sectional method and were self-reported. Thus, the potential biases can be identified.
- The results remain limited to the students of department of business administration, Giresun University, in Turkey. Hence, applying the result of this study in a different environment than the Giresun University, would be misleading.

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DEVELOPMENT AND TENDENCIES OF FACTORING MARKET

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Annotation
Factoring is a modern tool to finance an enterprise on a short-term basis by accelerating the breakdown of liabilities, while not raising the debt of an enterprise. In the sixties of the twentieth century, there was a sharp increase in the usage of factoring when various types of services regarding the purchase of goods "on credit" became widespread. The purpose of the paper is to analyse the current state and development tendencies of factoring market in the world and in the Slovak Republic. The main data sources are the databases of the Factors Chain International and Association of Factoring Companies in the Slovak Republic. Statistical methods, such as base index and percentage indicators were utilized in the empirical section. In addition to analysis, research methods of synthesis, comparison and compilation were employed.
KEY WORDS: factoring, domestic factoring, international factoring, recourse factoring, factoring without recourse, forms of factoring.

Introduction

Factoring as financial tool is used by enterprises when financial resources are needed before the maturity of their receivables. Factoring is an advantageous tool since it is also available for enterprises that do not qualify for a bank loan, such as enterprises with a higher risk level profile or start-ups. When using factoring, the credit debt of enterprises is not increased and enterprises' assets do not have to be secured. The disadvantages of factoring include its higher cost. Factoring is usually more costly than the traditional borrowing.

Factoring is becoming more widespread and offered primarily by banks and, to a lesser extent, by non-bank financial institutions. In Slovakia, factoring services are provided by the only non-bank financial institution − Bibby Financial Services. In other countries, factoring services are similarly provided mainly by banks.

Recently, factoring service companies have been increasingly focusing on small and medium-sized enterprises (Belanová, 2012). Large-sized companies offer a high turnover, yet a smaller margin for factoring service companies. It is the small and medium-sized enterprises using factoring services to finance their operational needs; therefore they represent a great potential for factoring service companies. On the other hand, the primary criterion to choose the factoring service company is currently its funding limit. Thus, the amount of finance to be provided by a factoring company is of primary concern, while the price comes second. It is, however, not common for Slovak enterprises to use factoring services. Factoring as a percentage of GDP stands at around 6% abroad, compared to a mere 2% in Slovakia.

Characteristics of factoring and its division

Factoring has played an important role in the market economy. The term has been defined in a number of ways in technical; some authors consider factoring as one of the alternative sources of finance for business growth (Belás, 2010); while others discuss individual financing methods under various circumstances Kislingerová, E. et al. (2007) Belás et al. (2010) and Vlachynský et al. (2012) define factoring as the purchase of short-term trade receivables prior to their maturity date. In principle, it is dealt with the provision of a short-term loan by a factor (bank). Kislingerová (2007) delineates factoring as "…a regular purchase of short-term receivables by a factoring company." Hyránek, Jánošová (2009) as well as other authors (Revenda, Mande, Musílek, Dvořák, Brada, 2000) view factoring as an option to finance businesses on a short-term basis in a both domestic and international trade based on the contractually agreed purchase of short-term receivables associated with the provision of unsecured business loans. In their definitions, Slovak and Czech authors draw upon the definitions discussed in foreign literature.

In practice, there are various factoring forms. The key aspects to classify factoring are as follows: risk of non-payment the receivable, notification on the receivable assignment, scope of cooperation between the factoring company and the enterprise, and the territorial aspect. There are two types of invoice factoring to choose from; real factoring (factoring without recourse) and false (recourse) factoring. In a non-recourse agreement, the factoring company takes on any unpaid debts, and is usually concluded with established suppliers. The factor must look at the creditworthiness and financial situation of the customer as the factor completely assumes the risk of non-payment by the customer. Non-recourse factoring insulates enterprises from the cost of bad debt and the factor is more concerned with the creditworthiness and overall financial indicators related to the supplier's asset structure. Under non-recourse factoring, the factor bears

the complete risk of bad debts arising from non-payment -payment of dues by the customer. For bearing this risk, the factor charges an additional del credere commission. Recourse (false) factoring is fit for manufacturing industries and businesses that need to stabilize their cash flows and extend the due dates of invoices for their customers. Under recourse factoring, the supplier cooperates with the customer on a long-term basis, knows their payment behaviour and intends to improve their business terms and conditions. After the expiry of the receivable due date, the factor may assign the receivable back to the supplier. Thus, the risk of non-payment is borne by the enterprise, and if the customer fails to pay, the enterprise must pay back the purchased amount of the receivable.

According to the debtor's awareness regarding cession, two types of factoring are mainly distinguished. In the open factoring, the customer is informed about the cession of the claim to the factor. Open factoring is quite common, whereas the other type − closed factoring − is not so popular. Under closed factoring, the customer is not informed regarding the cession of the claim and pays to the account given on the supplier's invoice being already the factor's account. According to the country of location of the parties involved in the transaction, domestic factoring and international factoring are distinguished. In the case of international factoring, supplier, customer and factor are not registered in the same state.

In summary, suppliers use factoring services for several reasons. Suppliers opt for factoring services when they want a factoring company to maintain their accounts in respect of customers' invoices, funding, granting credit to the suppliers, etc. Factoring companies provide services related to refinancing commercial loans. Before the factoring companies accept the assignment of receivables, they verify the debtor's capability to settle the debt, creditworthiness of debt as well as its size.

Development of factoring trades

In the sixties of the twentieth century, there was a sharp increase in the usage of factoring when various types of services regarding the purchase of goods "on credit" became widespread. Purchases by credit cards, leasing, forfaiting and factoring also became very popular. Moreover, new ways of doing business activities and their funding, including using computer technology in banking helped accelerate the strides in the factoring market.

Development of factoring in the world

Factoring penetrated into Europe in the early seventies. At around the same time, factoring companies started to form chains with international scope. One of the biggest is the Factors Chain International (FCI). FCI brings together factoring organizations from all over the world cooperating in performing various types of factoring transactions. Currently, an increasing growth of factoring trades has been observed. The growth of factoring business can be attributed to the ever increasing number of factoring chain members, thus a growing awareness of factoring in the world. The latest statistical data indicate that there was a slight increase of factoring turnover compared to 2012 in the world which stood at approximately 5%. From 2009 to 2013, factoring turnover rose by 73.75%. While in 2009 the overall factoring turnover was € 1,284 billion, it rose to € 2,231 billion in 2013. It follows that the factoring turnover rose moderately despite the economic crisis. The development of factoring turnover is shown in Fig. 1.

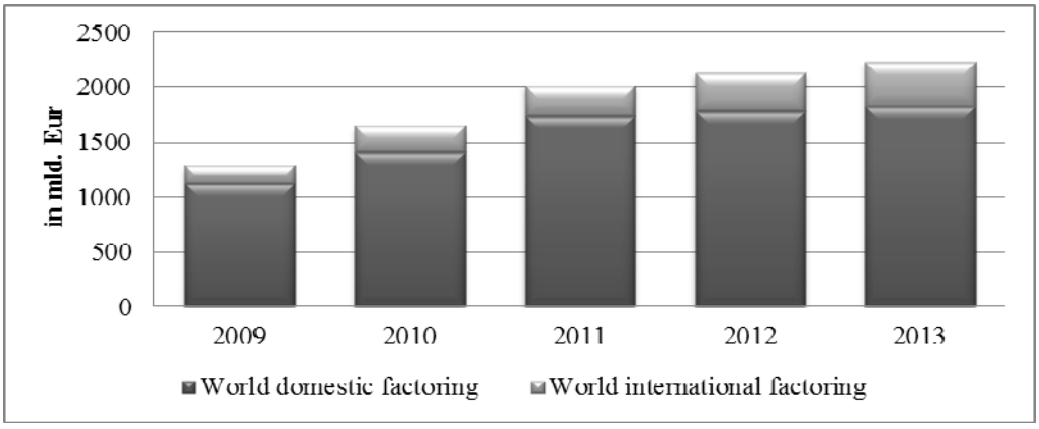

Fig. 1 Development of the world factoring turnover in 2009-2013 in billion Euro. Source: Elaborated by authors according to Table 1.

It follows from Table 1 that a significant share of the world factoring turnover was world domestic factoring, and the highest turnover was of € 1,828 billion in 2013. The world international factoring was on the rise over the period 2009-2013, and its share in the world factoring turnover was 13% in 2009 and reached even 18% in 2013.

Table 1. Development of the world factoring turnover in 2009-2013 in billion Euro. Source: Authors' calculations according to FCI data available on http://www.fci.nl/news/detail/?id=502

Year	Domestic	International	Total	Base index in %
2009	1,118	166	**1,284**	100.00
2010	1,402	246	**1,648**	128.35
2011	1,741	274	**2,015**	156.93
2012	1,779	353	**2,132**	166.04
2013	1,828	403	**2,231**	173.75

From the geographic point of view, Europe has the most important share of world factoring whose volume amounted to more than 60%. It has to be noted, however, that international factoring increased by more than 242%. Thus, the international factoring activity is more dynamic than the domestic factoring activity which rose by 163.5% compared to 2009. China played a major role in factoring business whose percentage share in factoring turnover amounted to approximately 54%, thus becoming one of the leaders in the worldwide factoring market.

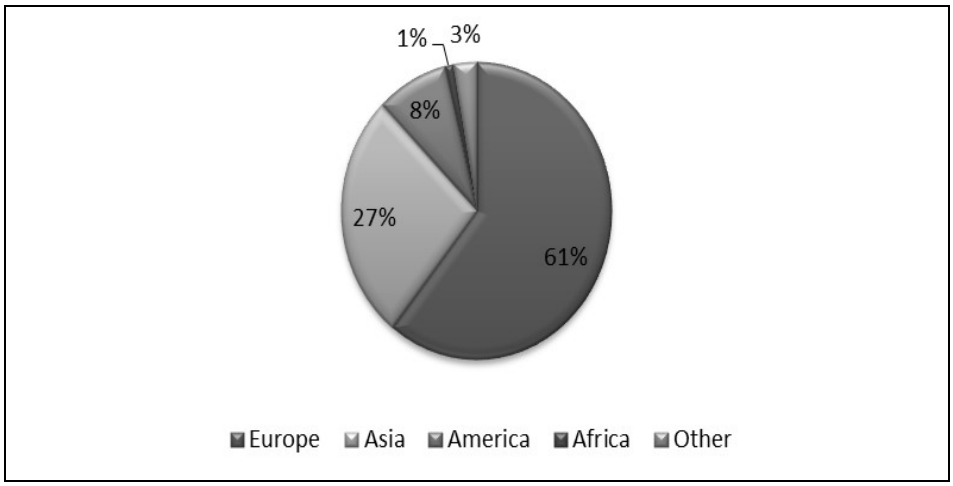

Fig. 2 Development of factoring trades by continents in 2013. Source: Elaborated by authors according to FCI data available on http://www.fci.nl/news/detail/?id=502

The volume of factoring transactions in the world factoring is highest in Europe (61%), followed by Asia (27%) and America (8%). Other important European representatives in the factoring market include the United Kingdom, France, Italy, Germany and Spain.

Even though domestic factoring turnover constitutes a significant share of the world factoring turnover, the world factoring activity lessens its importance since the global capital blurs the boundaries of individual economies, which affect the commercial transactions made by individual enterprises. This is why the world factoring is growing in such a dynamic and fast way. The strongest players in the global factoring market are Asian countries, mainly China, Japan, Taiwan and Hong Kong.

Development of factoring activity in the Slovak Republic

In the Slovak Republic, factoring companies are members of the Association of the Factoring Companies of the Slovak Republic (AFS SR) that was founded in March, 2003. Their founding members include VÚB Factoring, Transfinance Slovakia, Tatra banka, OB Heller, Factoring Slovenskej sporiteľne (SLSP) and OTP Factoring Slovakia.

According to the data provided by the Association of the factoring companies of the Slovak Republic over the period of 2012-2014, factoring services were provided by VÚB Group, Tatra banka, ČSOB Group, SLSP Group, Bibby Factoring and Eximbanka. The data on the total factoring turnover in the Slovak Republic are listed in Table 2. Cumulative data for 1Q and 2Q were available for 2014.

Table 2. Total turnover from factoring services in the SR in billion Eur. Source: Elaborated by authors according to AFS data

Company	2012	2013	2014*	Share in % in total turnover in 2012	Share in % in total turnover in 2013	Share in % in total turnover in 2014
VÚB Group	705	749	195	39.36	48.17	32.55
Tatra banka	455	378	228	25.40	24.31	38.06
ČSOB Group	231	211	69	12.90	13.57	11.52
SLSP Group	375	168	93	20.94	10.80	15.53
Bibby Factoring	25	31	14	1.40	1.99	2.34
Eximbanka		18	0		1.16	0.00
Total	**1,791**	**1,555**	**599**	100.00	100.00	100.00

*Data for 2014 are cumulative data for Q1+Q2

From 2012 to 2013, VÚB Group was the leading factoring company whose share in the total factoring turnover amounted to 48.17% in 2013. VÚB Group managed to increase its year-to-year market share by 9%, which indicates that it financed almost every second trade receivable in Slovakia. A slight drop was registered with Tatra banka, whereas SLSP Group registered a dramatic drop from 20.94% in 2012 to 10.80% in 2013. In 2014, Tatra banka was the leading factoring player with total turnover of € 228 million, followed by VÚB Group with a mere € 195 million. According to available data, Eximbanka had no turnover.

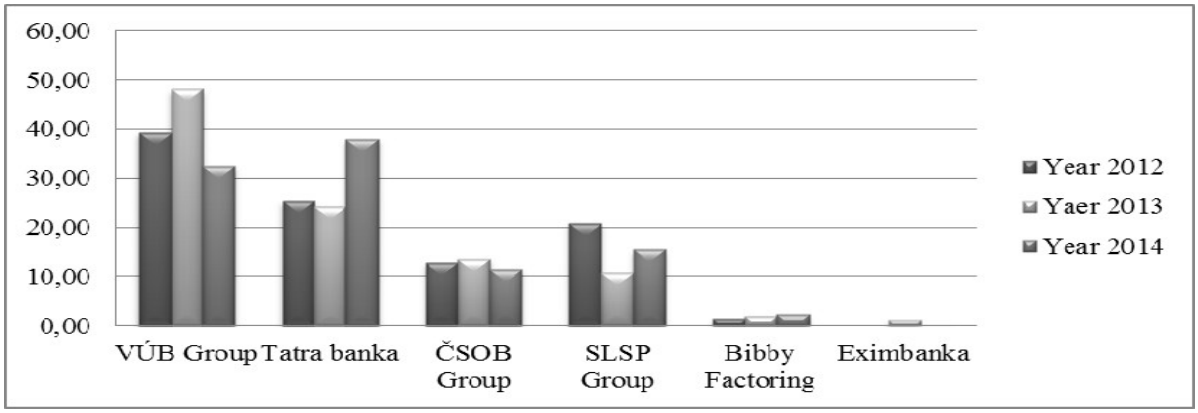

Fig. 3. Share in the total factoring turnover by Slovak factoring companies in 2012-2014 in %. Source: Elaborated by authors according to Table 2.

Overall, however, the factoring business was the most prosperous in 2012, while there was a decrease by 13.18% in 2013 compared to 2012 and there will apparently be a slight decline according to available statistical data in 2014. In Slovakia, factoring services are mainly provided by banking institutions. The only Slovak non-banking company is the Bibby Factoring company. Factoring services are primarily used by small and medium-sized enterprises, yet their use is still lagging behind the use in developed countries. Slovak companies are only learning how to use this alternative source of funding.

While investigating factoring turnover in terms of non-payment risk, we looked at the development of recourse and non-recourse factoring (Tab. 3 and 4). Under recourse factoring, the biggest turnover over the period 2012-2014 was reached by Tatra banka, followed by VÚB banka and ČSOB Group. Sale volume was the highest in 2012 and amounted to € 534 million Eur. In 2013, there was a decline in sale volume by approximately 10% and according to the data available for the Q1 and Q2 2014, further decline can be expected.

Table 3. Development of recourse factoring in million Euro

Company	2012	2013	2014*
VÚB Group	122	135	44
Tatra banka	280	199	160
ČSOB Group	73	94	22
SLSP Group	43	39	24
Bibby Factoring	16	21	10
Eximbanka	0	0	0
Total	**534**	**483**	**260**

*Data for 2014 are cumulative data for Q1+Q2

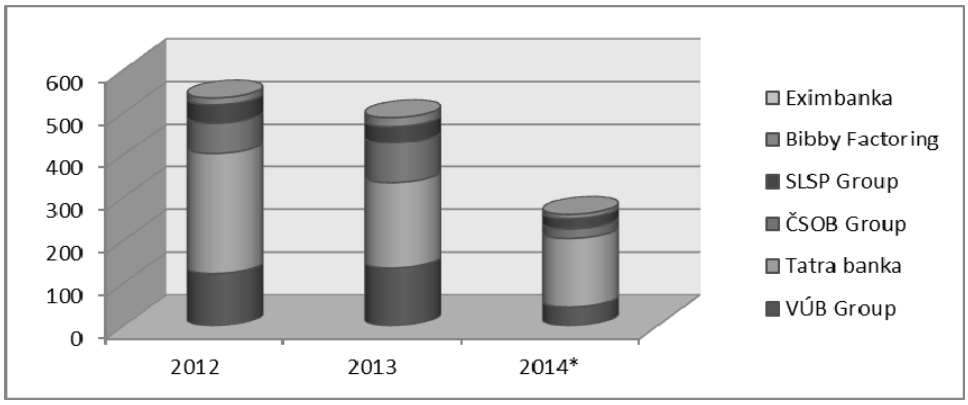

Fig. 4. Development of recourse factoring in million Euro

Under the factoring without recourse, the situation is different. In 2013, factoring without recourse reached € 515 million, which is by 19.5% higher than in 2012 and the factoring turnover might be higher in 2014. Under the factoring without recourse, the leading company is VÚB Group. In 2013, VÚB Group increased their turnover even by 236.8% compared to 2012. Sound development is registered in Q1 and Q2 2014.

In the Slovak Republic, there are no major differences in the development of both types of factoring, even though factoring without recourse tends to grow faster. Factoring services are not that widespread among enterprises in the Slovak Republic when compared to developed countries, or even the Czech Republic, Poland and Hungary. The low level of factoring activity in the Slovak economy might be ascribed to insufficient financial literacy of small and medium-sized enterprises that prefer using more traditional financing methods. Additionally, Pavlát and Schlossberger (2014) point out that small and medium-sized companies face informational opacity regarding factoring terms, conditions as well as fees and charges.

Table 4. Development of factoring without recourse in million Euro

Company	2012	2013	2014*
VÚB Group	87	206	116
Tatra banka	201	126	67
ČSOB Group	55	98	46
SLSP Group	2	77	69
Bibby Factoring	8	9	4
Eximbanka	0	0	0
Total	**431**	**515**	**302**

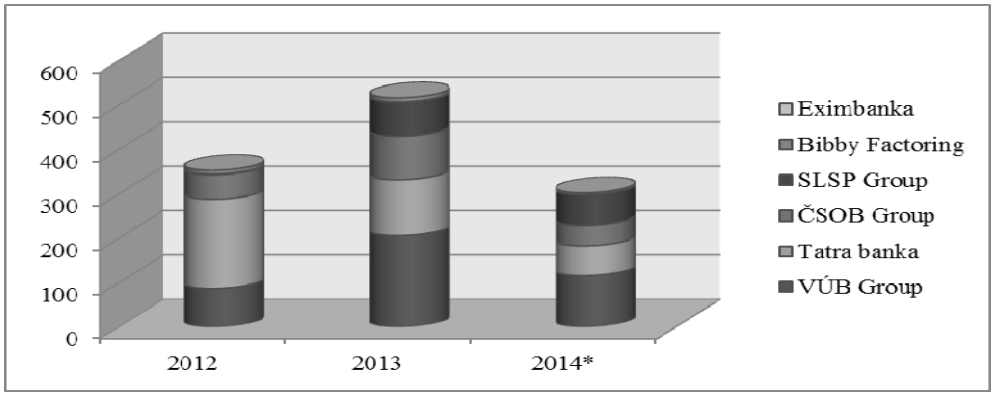

Fig. 5. Development of factoring without resource in million Euro

Conclusions

Rising importance of factoring services and differences in factoring turnover across countries can be attributed to economic performance of the respective country. The stronger and developed economy, the more frequently alternative methods to finance companies are utilized. Factoring services are becoming more widespread and provided almost exclusively by banks. There is only one non-bank institution providing factoring services − Bibby Factoring Slovakia – reaching the lowest turnover in the factoring industry.

From 2012 to 2013, VÚB Group was the leading factoring company whose share in the total turnover amounted to 48.17% in 2013. VÚB Group managed to increase its year-to-year market share by 9%, and is the leader in factoring without recourse. A slight drop was registered with Tatra banka, whereas SLSP Group experienced a dramatic drop from 20.94% in 2012 to 10.80% in 2013. In 2014, Tatra banka was the leading

factoring player with the total turnover of € 228 million, followed by VÚB Group with a mere € 195 million.

From the geographic point of view, Europe has the most important share of the world factoring whose volume amounted to more than 60%. It has to be noted, however, that international factoring increased by more than 242%. Thus, the international factoring is more dynamic than the domestic factoring which rose by 163.5% compared to 2009. Europe is composed of many industrialized countries where the volume of factoring activity is high. Important European representatives in the factoring market include the United Kingdom, France, Italy, Germany and Spain.

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DEVELOPMENT AND TENDENCIES OF FACTORING MARKET

S u m m a r y

Rising importance of factoring services and differences in factoring turnover across countries can be attributed to economic performance of the respective country. The stronger and developed economy, the more frequently alternative methods to finance companies are utilized. Even though factoring transactions are becoming more popular, the main disadvantages regarding factoring are the following: availability of other types of financing enterprises; established traditional forms of financing, such as bank loans; customer's consent with factoring services is required (assignment clause on the invoice); minimum limits on the volume of the assigned receivables - this hinders mainly small and medium-sized enterprises which are unable to reach the minimum annual limit of financial resources; higher costs associated with factoring services when compared to a bank loan.

Factoring services are becoming more widespread and provided almost exclusively by banks. There is only one non-bank institution providing factoring services − Bibby Factoring Slovakia – reaching the lowest turnover in the factoring industry. From 2012 to 2013, VÚB Group was the leading factoring company whose share in the total turnover amounted to 48.17% in 2013. VÚB Group managed to increase its year-to-year market share by 9%, and is the leader in factoring without recourse. A slight drop was registered with Tatra banka, whereas SLSP Group experienced a dramatic drop from 20.94% in 2012 to 10.80% in 2013. In 2014, Tatra banka was the leading factoring player with the total turnover of € 228 million, followed by VÚB Group with a mere € 195 million.

From the geographic point of view, Europe has the most important share of the world factoring whose volume amounted to more than 60%. It has to be noted, however, that international factoring increased by more than 242%. Thus, the international factoring is more dynamic than the domestic factoring which rose by 163.5% compared to 2009. Europe is composed of many industrialized countries where the volume of factoring activity is high. Important European representatives in the factoring market include the United Kingdom, France, Italy, Germany and Spain. The volume of factoring activity is low in the former communist countries. The highest factoring turnover was reached in large countries, namely Poland in 2011 (€ 12,000 million) and Russia (€ 8,580 million). The lowest factoring turnover was reached in Bosnia and Herzegovina, Bulgaria and Serbia. In terms of the number of factoring companies, the Slovak Republic is comparable with the Czech Republic (8), Lithuania (8), Latvia (7), and Serbia (9). In terms of factoring turnover, Slovakia is lagging behind the Czech Republic (€ 3,760 million) and Lithuania (€ 1,755 million). Following the data from 2011, the factoring activity in America is lower than in Europe. This is mainly due to the rapid rise in factoring only in Brazil and Chile. In addition, factoring activity is growing in Canada, Columbia and Mexico, although the leading country with the highest factoring turnover remains the USA (€ 80,000 million). African countries do not play a significant role in the factoring market. Factoring activity, however, is quite widespread in the Republic of South Africa (turnover of € 13,500 million). The strongest players in global factoring market include Asian countries, mainly China, Japan, Taiwan and Hong Kong.

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EVOLUTION OF INNOVATION STRATEGIES DURING THE MARKET LIFECYCLE

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Annotation

Innovation is at the heart of firm's success. As the firm evolves along the market lifecycle, the nature and contribution of innovation change dramatically. At the beginning the emphasis is on product innovation, in mid cycle on new marketing and financial solutions, the concern being commercialization and growth. At maturity the focus shifts to production innovation and to financial innovation, the recycling the excess cash flows into other productive ventures. Using the concept of the market and organization lifecycle, this paper builds an explanatory and predictive model of the evolution of core innovation as the market develops, matures and declines. It concerns the dynamics of innovation, the innovation profile along the lifecycle and the innovation project profile. The lifecycle has the innate capacity to provide a logical framework for the innovation process and a lot more that both explains and predicts. So in this sense, the lifecycle becomes a template that can be relied upon to trace the evolution of the innovation strategies of the firm, as it progresses along the market curve. Even so the lifecycle sufficiently explains the evolution of general firm strategies, HR practices, IT concepts, IP strategies, compensation practices, marketing approaches and financial responses to name a few of the important management challenges that can be better structured and understood. Our goal is to construct model that will allow practitioners to follow with some certainty their innovation initiatives and provide an underlying rationale for the different characteristics of innovation as the firm proceeds from start up stage to growth then on to maturity and eventually into decline. The focus for this article though is innovation, which is a subset of the other phenomena that can be explained using the lifecycle. Using the concept of the lifecycle we can trace the evolution of innovation strategy, its profile and the projects that deliver innovation. We can link these to the underlying dynamics of both the market and the situation of the firm within the market.

KEY WORDS: Innovation, lifecycle, strategy dynamics, high technology management, market dynamics

Introduction

Authors writing about innovation often refer, without necessarily acknowledging it, to the lifecycle as an organizing concept, and for very good reasons (Casselman Nadeau 2002). The lifecycle has the innate capacity to provide a logical framework for the innovation process (and a lot more) that both explains and predicts. So in this sense, the lifecycle becomes a template that can be relied upon to trace the evolution of the innovation strategies of the firm, as it progresses along the market curve.

To our knowledge there has been no attempt to construct a complete, yet concise, model that will allow practitioners to follow with some certainty their innovation initiatives and provide an underlying rationale for the different characteristics of innovation as the firm proceeds from start up stage to growth then on to maturity and eventually into decline.

This article is based on many years of data collection, teaching of high technology management and other articles that set the stage for this synthesis exercise.

We are confident about the validity and grounded status of the model we are putting forth and invite others to join us to flesh out the details that both confirm and advance the depth of understanding of this powerful technique that, like the laws of physics is symmetric in time, and predicts both the future and the past

Among other applications we have found that the lifecycle sufficiently explains the evolution of general firm strategies, HR practices, IT concepts, IP strategies, compensation practices, marketing approaches and financial responses to name a few of the important management challenges that can be better structured and understood this way.

Using this model we can also extend Porter's five forces model along the curve, explain how the firm's core competencies metamorphose into core capabilities and how and why Christensen's ideas on blindness to disruptive technologies occur during the late stages of the lifecycle. The focus for this article though is innovation, which is a subset of the other phenomena that can be explained using the lifecycle.

The dynamics of innovation

Innovation and risk taking have been synonymous forever. Firms need to foster, successful innovation attempts in order to guarantee survival, enhance competitive capacity or create competitive breathing room by retreating into niche markets that are innovation driven (Apple vs. Samsung). The extent of the niche retreat and ability to defend the niche market may actually lead the firm to a blue ocean nirvana, as was the case with Apple computers, which now has long outgrown its computer start and can be seen today as provider of personal communication or identity defining devices (many of Apple's products are seen as fashion accessories as much as portable communication devices). The niche market expands like a new universe and becomes more dominant than the market originally abandoned; from PC's to laptops and tablets and finally to universal hand held communication devices and beyond, as embedded in clothing.

Another example of a blue ocean move that did not happen was American Airlines in the early eighties; AA developed its own reservation system, the Saber that they shared with the agents. Of course the reservation system showed AA travel options first. The system became so successful and monopolistic in character that AA was forced to choose between being an airline or a computer system/software designer and operator. The debate internally was long and exhausting, but AA remained an airline and divested itself of the reservation system. In hindsight they may have missed a big jump into a brand new lucrative market that at the time was a true blue ocean

In the auto market Hyundai is experimenting with new green technologies for its engines that could easily catapult it into a distant enough niche market that looks very much like the beginning of a blue ocean. This move may also be interpreted as one up along the food chain from cars to engines, putting Hyundai directly in competition with another engine company, Honda.

The discovery of blue ocean opportunities is fully covered in Kim, Chan and Renee Mauborgne (Kim, Chan, Mauborgne 1999).

IBM has migrated substantially from the PC and even mainframe markets to be seen today as a corporate consulting firm. This migration was possible through the judicious use of marketing and services innovation. Of course others have followed, Compaq/DEC as an example and will follow, since this niche is not well endowed with a defense perimeter but as an early enough movers, IBM enjoyed a huge advantage, along with Accenture, the first giant competitor in this space. IBM's recent acquisition of Cognos is to be assessed in this perspective of building its application software as a consulting firm and a potential one stop destination for corporate clients. Interestingly IBM's original dominance in PC's market has long faded and its first mover advantage never translated into a serious competitive strengtht. It may well be that IBM's corporate heart never left the mainframe thinking and cultural attributes during the development of the PC.

Recently HP has made moves, along with Oracle and even Microsoft to follow into this market of huge margins and stable clientele. HP and Oracle are relatively late movers and their attempts to bulk up through corporate acquisitions may well be an attempt to enter fully equipped for competing with a "one stop" product line up in this space. HP and Oracle acquisitions provide both market share presence and new innovation capability to the parent companies.

What drives the dynamics of innovation?

Fig. 1. and 2. depict the dimensions of innovation and how the shape of the "egg" emerges from the dominant dimensions at the various phases of the cycle.

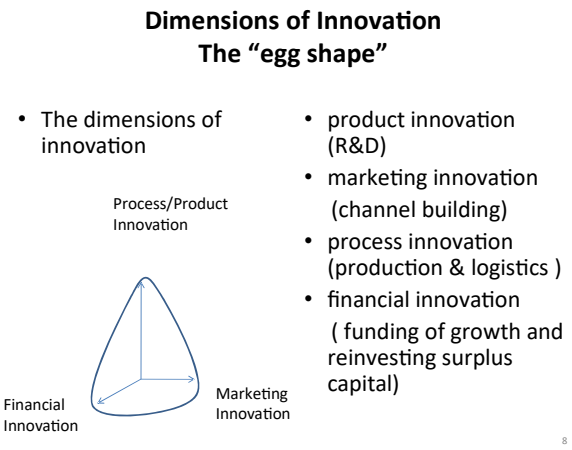


Fig. 1. Four Dimensions of Innovation: The "egg shape" represents the 3 dimensional projection

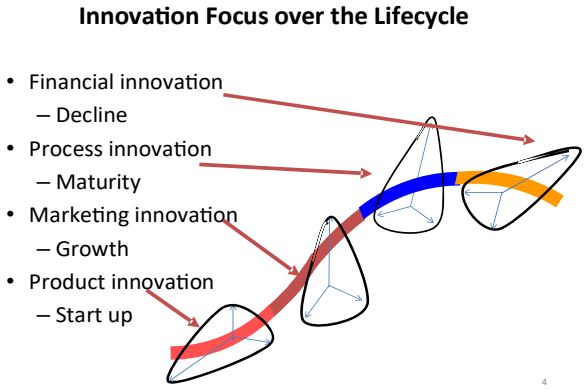


Fig. 2 Innovation of Focus over the Lifecycle

Innovation like any other activity in the firm is subject to the rationale of the appropriate strategy for the particular stage of the lifecycle. In the early stages the rush is to build the top line, in other words revenues faster than the competition. This is done because revenue growth best correlates with stock price and investor interest. And this is why red ink is of little concern to the venture capital investor as long as the revenue growth is substantial in the

sense of faster than any close competitor's and commensurate with growth of the market.

Once the exponential growth phase is exhausted, investors also demand operational discipline and the focus shifts to margins, which require cost controls. So significantly the strategic task shifts from primarily an external perspective, revenues, to an external-internal combination, revenues minus costs, that is margins. This is why entrepreneurs yield to professional managers beyond the high growth stage as leaders of the firm. Entrepreneurs tend to be supercharged on vision and short on managerial discipline, which is absolutely critical for margins generation and maintenance.

When markets start leveling off and shakeout looms the emphasis once again shifts to profits. It takes financial reserves to survive shakeout and great technology does not cut it. All along the maturity phase the key indicator to investors remains profits, which can either be returned to investors as dividends or reinvested in the firm. The very first signal that the growth phase has been left behind is this payment of dividends. The firm admits that it can no longer justify major investments in itself and returns the surplus funds to the shareholders. Microsoft crossed this threshold about a year ago, whereas Apple still finds internal investment opportunities, mostly in next generation products. Correspondingly Apple stocks are on the move and Microsoft shares are stagnant. Worth remarking at this point that firms generate returns for shareholders in two basic ways, either through share appreciation [market value added] or through profits which may become dividends [economic value added]. So the focus shifts from top line to bottom line as the market evolves. Early firms tend to add value through stock price growth and mature firms through accumulation of dividends. In this respect early firm investments are more spectacular and lot more risky whereas late firm returns are steady, usually dependable and low risk. In between growth firms bring a combination of returns, increase in stock price and progressive increase in profits. And that is why firm leadership changes for the visionary entrepreneur who is market fixated to the professional manager who keeps eye both on the market and the firm to the late stage mature market administrator who almost exclusively focuses on the internal operations of the firm (Koplyay et al 2006).

Once the market decline is reached, the challenge is to recycle funds into more productive investments and use the cash cow grazing in the fading market pastures to feed the question marks and stars of the portfolio, or outside the portfolio.

Fig. 3. shows how the focus of innovation evolves along the cycle.

Innovation Characteristics along Lifecyle

	Startup	Growth	Maturity	Decline
Strategy Focus	Product design; Market development	Sales; Production capacity; Production technology	Market share; Production efficiency; Customer loyalty	Margins; cost controls; Financial strength; Portfolio balance
Product Innovation	Product design; Product/ market match	Product differentiation; Product line-up	Product variants; Production costs	Cost savings
Marketing Innovation	Product awareness; Market development	Sales; Brand development; Price reduction	Defend market share; Market share; Customer loyalty	Market exit; market rejuvenation
Process or Production Innovation	Narrow range production or outsourcing	Production capacity; Production technology; Standards development	Production efficiency; Productivity technology reengineering	Capacity/ volume balance
Finance Innovation	Lines of Credit	Capital acquisition; Cash flow	Capital asset management	Margins; cost controls; Financial strength; Portfolio balance; Reinvest profits

Fig. 3. Innovation Characteristics along Lifecycle

The markers of the phases: revenue, margins, profits and cash flow growth are the closest indicators of stock performance and investors make their calculations using these indices as the key input. Martin (Martin 2010) has argued that managers of a firm would be better off concentrating on costumer interests instead of shareholder ones. The claim is that superior results can be attained with this change of focus. Our contention is that customer focus is fine during early stages of the market because it promotes revenue growth but in late stages the customer focus should be replaced with paying attention to the competitors, as now the customer base is stable and well documented and profits are more impacted by competitor moves. And this is why competitive intelligence increases in importance.

Along with the evolution of the financial dynamics we see a corresponding change in management and leadership style at the firm; entrepreneurs of the start up and incubation phase yield to managers in the growth phase, who in turn are replaced by administrators at maturity and the financial custodians in decline. Interestingly the characteristics of these managers correspond to the management style needs of the particular market phase.

Entrepreneurs look exclusively to market opportunities, managers focus on both markets and the firm, administrators still scans in a cursory fashion the now stable mainstream conditions but concentrate on the internal efficiency of the firm to become either the low cost producer or the innovative niche player. In the decline phase, with competition actually starting to leave the market, the financial engineers take over and exclusively focus on the firm, squeezing the operations to extract all the cash flow for outside deployment.

Fig. 4. summarizes the profiles of the leaders managing the innovation process during the four phases of the lifecycle.

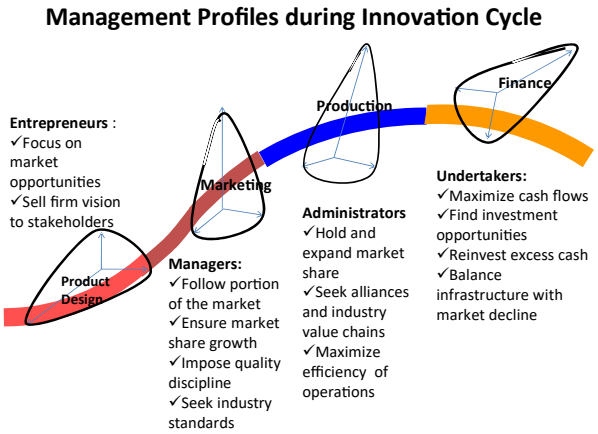
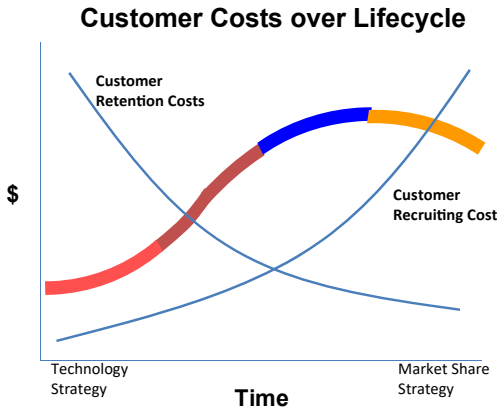


Fig. 4. Management Profiles during Innovation Cycle



Label bold curve as »market lifecycle »
Fig. 5. Customer Costs over Lifecycle

The innovation profile along the lifecycle

It is our contention that innovation has many dimensions, with specific dimensions dominating the firm's innovation focus at different stages of the cycle. But all of the key ingredients of innovation are there and play some role, although a subservient one to the dominant feature. It can happen though that sometime a firm risks all in with a new strategy or a newcomer enters the market with some disruptive idea that defies the dominant innovation mode and redefines the competitive dynamic, but these situations are the exception not the norm.

At the beginning of incubation and start up, the firm's priority is breakthrough innovation to appeal to the innovators and early adaptors of the market, who are as equally technically competent as the firm in the use of the product and relish the chance to deal with challenging technologies. They even take the time to provide feedback to the firm and become a big beta incubator that will signal to the next group, the early majority, the appeal of the product. The only way to retain this customer's group's loyalty is through a continual cycle of new and cutting edge products. The relationship between customer recruiting and retention cost is shown below:

Fig. 5. demonstrates the evolution of the two dominant customer costs during the market cycle. Note the contrasting relationship between the two.

The shape of these curves has logic of its own. The interesting aspect here is that you cannot retain the customer base at the early stages unless you have the very best performing product, even if this product is fragile and lacks reliability. Your marketing signaling device is in fact the cutting or bleeding edge features of the product that recruit the customer, who is the innovator or early adaptor seeking the new product rush. [teenagers and iphones] The relationship reverses in the late stages where recruiting costs become prohibitive, as every competitor wants to hold market share and will defend this with determined effort. However the good news is that retention costs moderate and through such devices as switching costs the customer can be enticed to remain with the firm.

It is worth noting that the early stages are where competitors are "to be beaten" to build market share whereas in the late stages, because market shares are now aggressively defended, the mantra becomes "if you can't beat them buy them". Most of M&A activity in the late stages is to enhance market share (print media]) and in the early stages to capture good technology. Whether to acquire,merge or seek a strategic alliance is the proper option is discussed in an article by Roberts (Roberts, Wenyun 2001).

For a long time during its early growth, Cisco went through dozens of acquisitions, to bring in- house great technologies developed by small and not so small firms. In fact in their candid moments Cisco admitted they were a lot more of a marketing company than a technology one. In contrast Microsoft tried to develop its critical technologies at home, and made several attempts to diversify its markets, without much success it appears. Cisco acquisitions were by and large a great success. And some of the reasons can be found in (Koplyay et al 2007).

The innovation profile changes dramatically along the curve.

During the first stages the firm is a reckless risk taker with blue sky and breakthrough thinking dominating the culture, when high growth rates level off the risk profile transits to risk management (seeking a balance between

new technologies and protecting infrastructure already developed). The dynamics of slowing down the risk taking happens first when marketing comes on the scene (In the early stages marketing's role is minimal as the market seeks you out. You are targeting the innovators and early adaptors, who are alreay looking for you.

But when, and if, the chasm is crossed and the early majority looms, marketing begins to play a key role. As part of crossing the chasm, a bowling alley strategy was developed to focus on the most promising segments of the exploding market. Entrust, in the field of encryption technology, targeted the banks with an impeccable rationale, if we are good enough for the banks we should be good enough for anybody.

However a close competitor to Entrust, VeriSign, grew faster than Entrust during the early tornado phase and hence had better stock price performance due to its top line numbers. So VeriSign was in a position not only to apply competitive pressure but to threaten an acquisition of Entrust. Strategically market share gains (market strength) on the competition can assure both late stage success, a sin setting stanards and a takeover scenario. (The lesson here is that great innovation without great growth numbers is not much help.)

After selecting specific market segments a firm will build customized channels to its customer base. And then marketing comes in to manage and nurture these channels, furthermore because channels represent an investment, finance also starts to take notice.

So the word is relayed to product designers to scope down the blue sky approach and start focusing on products that fit and fill the channels.

In addition, the early majority now is asking for vastly increased product reliability, quality and ease of use which becomes a further constraint on product design freedoms (Moore 2005).

Marketing intelligence feeds this demand configuration back to the product designers and a discipline of not going beyond channel capacities is imposed. Silicon Graphics in the early nineties took its eye off the quality ball and paid a handsome penalty for it. The head of manufacturing called a crisis meeting to force the company back to order as there was significant defection and discontent among its early majority customers, because of persistent quality problems.

A specific technique, concurrent engineering, is often used at this point to instill discipline. Marketing product designers, accountants and production people sit around the same table and discuss their needs. Marketing asks for simpler and less expensive product features, production demands fewer moving parts to make manufacturing easier and better achieve product quality performance and finance imposes product development and production budgets.

Slowly the risk promoting tendency is washed out of the culture and is replaced by a calculated management of risk that evaluates payoffs in light of the market constraints and the existing customer base. The entire support scenario for innovation is discussed in kolyay et al (Koplyay, Chillingworth, Mitchell 2013).

By the time mainstream is reached the firm has substantial investments in infrastructure as part of its legacy. Culture, routines, values, procedures and resources allocations all interact to protect these investments in assets; both tangible, like production capacity and intangible, customer goodwill.

The risk taking is further constrained. Only incremental innovation that supports or improves firm efficiency is promoted or accepted. The hallmark technique of innovation at this phase is TQM, ideas provided by the many is distilled by the few and is meshed seamlessly and incrementally to the existing infrastructure without disrupting operations.

Maclaren Industries (papermaking) in Canada in the mid nineties had production machinery worth close to $500 million that ran 24 hours, every day of the week, with almost zero downtime. The firm had duplicate test machinery off site worth $30 million, which was used to assess all suggested improvements and innovations. The key consideration for this very mature company was never to endanger operations. Risk containment was the principal objective.

Innovation here concentrates on production matters and correlated marketing issues. Product design plays a secondary role and only to the extent that design can help the production process or create, on the margin, product variants that marketing can move within existing channels.

Once the firm reaches market decline the dominant culture becomes one of risk avoidance. The market is close to collapse, competitors are leaving and the firm is exploiting the decreased competitive situation and maybe even gaining market share captured from the exiting firms although in a shrinking market and paradoxically in market decline you can gain market share as your revenues collapse.

Life can be good though (if risky when the rate of decline or potential market collapse is misjudged and assets are left stranded and become write offs) and the principal task is to decrease production capacity commensurate with the market decline.

The focus is to extract the maximal financial returns while the market is still alive. There is no need for renewal innovation, instead just enough creative tinkering is fostered to keep assets healthy and sustainable in the short run.

The premium is on deployment of cash flows and hence the key innovation dimension is finance. Production efficiency is still there and marketing concepts echo through the corporate suites but no longer dominate executive thinking. Product design is a distant memory.

Fig. 6. demonstrates how risk is perceived and managed during the cycle and the framework within which innovation adapts.

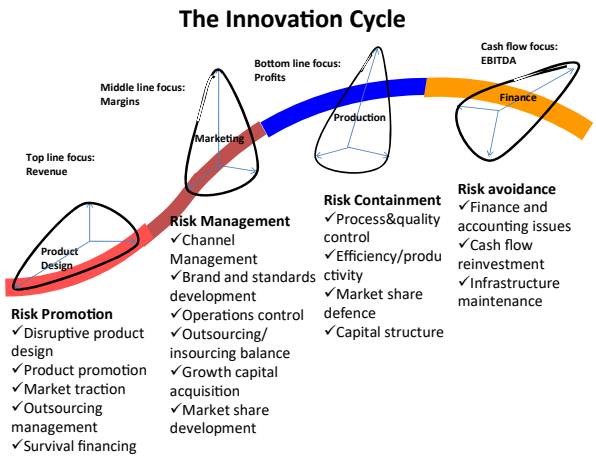


Fig. 6. The Innovation Cycle

So through market pressures the firm, as it proceeds along the lifecycle, evolves from innovation strategies that promote risk taking to the final stages where risk taking is almost banished.

Along with this dynamic, innovation changes emphasis from product focus and big thinking to tightly focused financial concepts such as where to reinvest and how to exploit the remaining competencies of the firm.

Although the succession of innovation is primarily product, marketing, production and finance, nevertheless the other dimensions in a reduced capacity are still there, except perhaps they are not obvious until the transition takes place.

The first stage "egg" is shaped mostly by the product demands which are of the breakthrough type. Yet when the chasm is crossed and bowling alley strategies form, marketing and finance dimensions assert themselves and as soon as the tornado is entered, production plays a key role to protect the quality and reliability interests of the early majority/pragmatist customers.

As the bowling alley develops marketing takes the lead with finance playing a supervisory role in imposing returns on investment criteria. Product design starts a long descent into a secondary or even tertiary role. And this is one of the reasons that top product designers start leaving the firm. They no longer see the challenge of creating cutting edge products and seek out younger firms that still do.

The "egg" now has a principal marketing axis.

When the firm graduates to mainstream and enters maturity, which can last a long time, production takes the lead. The customer base now is mostly the late majority and this group is highly price sensitive, quality conscious and product functionality focused.

Using the market share built during the growth phase, production now bears down of the task at hand.

Economies of scale guarantee the ability to execute a low cost strategy. Close supervision of the production process leads to better quality and incremental product design can hide the technology in a black box that becomes the surface of interaction for the customer and the guarantor of high functionality. Examples are GPS devices installed in cars, the technology is completely masked and the driver sees only the response to or three basic queries

Product design fades to a support role and marketing changes emphasis, instead of always seeking out new markets its primary role is to reassure the existing customer base. The production capacity constraints can dictate sales scenarios that are limited in scope. The volume of sales cannot exceed the capacity to process the orders. Marketing is at this stage more of a junior partner to production and product design is either subservient to production needs or is substantially absent.

In the final stage of decline, the accountants rule the roost. The goal is to extract the maximum return in the form of cash flows for use outside the company. Within the company the only investments that take place are for maintenance of the decreasing production capacity and marginal marketing to serve the legacy customer base. This base is usually well known and does not need major marketing efforts to service.(And accounting imagination takes hold, profits now become EBITDA so that cash flow is maximized to appeal to the economic value investor).

A typical example is Lucent, which services the legacy end of the IT market and generates a very decent return on its efforts.

The "egg" now lies on its side with finance as the main component. Production is still there but diminishing in importance and marketing is a service provider to the other two functions.

The shape of the "egg" evolves along the curve with different players taking turn to assume the lead role.

The dominant players of the late stages are not even present at take off, and conversely, the critical inputs of the early stages are non factors at the end. The evolution of the customer base during the lifecycle influences critically the strategic responses.

Fig. 7. shows the interaction between the customer bases and the major markers of the hi-tech cycle as the market develops.

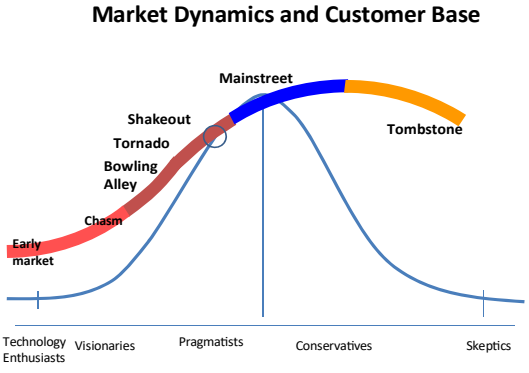


Fig. 7. Market Dynamics and Customer Base

Innovation Project Profiles

What about the characteristics of the activities that delivers innovation?

Almost all innovation, within the firm, takes place on a standalone project basis (the other mechanism is serendipity). But the nature of these projects, their contribution and payoff times vary depending where in the lifecycle the project is undertaken.

Fig. 8. captures the profiles of the underlying projects that deliver the innovation activities during the market evolution.

Innovation Project Profiles

Supports strategy	Supports strategy /Implementation	Supports Implementation of strategy
Low success rate (1-10%)	Higher Success Rate (>50%)	Medium success rate (10-30%)
Product focus	Delivery focus: Suppliers/channels	Alliances focus: industry value chain
Portfolio based (R&D motivated)	Functional based (marketing, logistics etc)	Intra or inter-company based Partners, suppliers, competitors
Short Duration (3-6 Months)	Longer duration (6-18 months)	Longer duration (2-3 years)
High Immediate payoff	Payoff spread out in time	Payoff only after implementation
Idea/Product Centred	Product/production centred	Asset centred
Company based	Focus outside company	Focus both on company and market
Internally funded	Internally /venture capital funded	Internally/jointly funded

Fig. 8. Innovation Project Profiles

Based on unpublished research we can provide a summary of the innovation project profiles as the firm moves along the cycle. This summary is provided above.

Early on innovation is at the heart of strategy. It is risky, of short duration and is often abandoned in execution phase due to unforeseen market developments, but the payoffs are immediate when innovation projects are successful. More often than not they fail as projects or fail to produce anticipated results.

During the growth phase of the market innovation projects focus on both supporting strategy and its implementation. The projects are initiated by the various functional groups in the firm, are less ambitious and hence have higher success rates. Project payoffs are delayed until implementation of the results.

At the late stages innovation projects tend to buttress strategy implementation, as the strategy itself is now stable (either cost leadership, or niche market innovation). Success rates are much higher but involve more stakeholders as the results may affect the company and its partners in the industry value chain. Payoffs are even more delayed due to implementation requirements of the many parties generating the project. (Innovation aimed at improving company logistics is only going to pay off when suppliers and customers both implement the improvements at the same time.)

It may be worthwhile to look at now the stages and types of in venture type capital involvement we find with respect to financing innovation which is at the heart of the young firm. In VC financing the above mentioned stages can be also observed according to the actual situation of the company.

Seed/start up financing:

Seed capital is connected to companies being formed but not yet in fully operational. The development of a basic business idea is supported at this stage through the implementation of a research plan that will bring forth the service or product destined for the market. The technological and economic analyses are financed by this investment. Since the company does not yet exist legally, the investors get options, which ensure them the right to have the proprietary shares in the company in the future.

The start up financing is connected to the product development or service, the testing and the production, often through outsourcing of the product offering by the company that now has assumed legal status and in case of service it is connected also to the establishment of the service. Furthermore financing supports efficient market penetration and especially the ability to follow market growth subsequent to crossing of the chasm. According to Dan Primack Venture Capital investment hit a 14-year high and Venture capitalists are paying more for startups. Much more. And they also have a lot of new funds from which to invest (Primack 2014). This availability of new funds could be attributed to pension funds looking somehow desperately for home runs. These investors tend to respond earlier than their larger VC counterparts, and get heavily involved at the earliest stages of company development. Steve Anderson, for example, used this model with Instagram, getting heavily involved during the first year or so of the company's development. That paid off when Facebook bought the company for $715 million (Forbes 2013).

Both the seed and start up financing have the common feature that they have extremely high risk content.

Early stage financing:

The newly formed companies, which have been working for a short time, and could not get any bank loan because of their high risk profiles, need help from the venture capital. In this stage of the financing the investor has the most active role in the business management to reduce the involvement risk. It is not uncommon for the investor to step in and take control of the firm when the firm does not follow the anticipated growth path.

Such was the case with Philsar in Canada where the key investor stepped in, cleaned house and built the renamed company, Skystone into an attractive takeover target for Cisco.

Expansion/Development financing:

During the expansion stage companies could run into liquidity issues, often due to an imbalance between accounts receivable and payable, an important first sing of dysfunctional entrepreneurial management. And market growth itself may be happening too fast for the firm to keep pace from internal resources. Growth consumes funds quickly but this is acceptable as long as market share and stock value keep pace.

Until this time the previous capital investments are returned so the investments for solving the liquidity problems have relatively small risk. Usually when further financial support is needed, it may be coming not only from private equity or venture capital funds but also from the

bank as a bank loan or mezzanine investment. By this stage the firm has assets the banks can make a loan against; IP, market presence, reputation, key customers and order backlogs. The risk is reduced to a normal level for the institutional investor.

Financing the Initial Public Offering of the company (IPO):

One possible way of leaving the company for venture capital is taking the company public but it is only common in the countries which have a developed capital market. Furthermore the going public phase has onerous information restrictions on the firm to prevent insider trading and stock manipulation, for this reason many young firms in fast moving markets do not prefer this route. Venture capital has to finance the transition period and the setting up of the conditions, which are needed for the realization of the IPO. The venture capitalist has a most important role during this stage, from organizing the syndicate through the preparation and the issuing of the prospectus until the company becomes listed in the stock exchange. As an example the IPO of Facebook in May 2012 can be mentioned.

Financing of the management buyout (MBO) and management buy in (MBI).

Turnaround financing:

Some companies, which are in trouble, financial or managerial, may be worthwhile for venture capital to support. In this case when the problem is occurring in management [for example the knowledge or experience of the management team is not insufficient] then venture capital could reach an effective solution by financing a restructuring of the company or the replacement of the management team (BSE 2003), (Feher-Toma Fekete-Farkas 2014). Turnaround has some specific timelines in mature markets; a company is deemed to have turned around if it posts 6 consecutive quarters of profitability. For the young firm this is not applicable as profit in early markets is nonexistent as the metrics of success are based on market share, revenue growth and customer base loyalty and stability. Usually turnaround is a one-time event, if there is a second turnaround situation the firm usually goes under. Like people firms get confused from turning around too much.

Among other things such collective response tends to foster core capabilities; “what unique things we can do together”, as opposed to early stage core competencies; “what I can do alone.” Initially the projects overlap due to uncertainty in the market and the strong competitive pressures, which often forces the firm to place several bets at once and abandon some projects in mid stream.

As a result projects pile up as waves when driven to shore by the strong winds. High growth lessens these pressures by giving more competitive space to the firms, and hence the projects become less crowded and better planned. Eventually towards mainstream the project overlaps cease and become sequential. Again there is more deliberate planning and selection of projects according to the firms’ strategy and innovation agenda (Hirotaka, Ikujiro 1986).

In maturity, the stroll down mainstream leads to projects that may be distanced from each other, with gains from one project assessed before the next one is undertaken. Projects here usually maintain their ‘shape’ during execution and a lot less contingency adjustments are made. Innovation results last much longer but have only incremental impacts on strategy. Their focus is mostly efficiency improvements to existing operations.

As market head winds diminish (to appreciate the concept of market headwinds, see articles by Paquin and Koplyay 2007), the project portfolio assumes a deliberate structure that is maintained during the execution cycle. Due to higher market certainty, better planning and incremental focus of the projects, a much higher success rate is achieved.

But the payoffs are marginal for each innovation project, although cumulative effects of many initiatives can be impressive. A penny saved on each ton of material produced, when volumes are in the millions, is a significant cost reduction.

Fig. 9. shows the correlation between the evolving innovation profiles and their delivery mechanisms, projects.

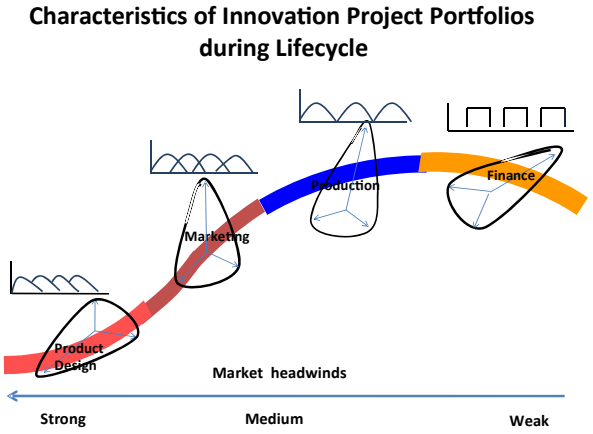


Fig. 9. Characteristics of Innovation Project Portfolios during Lifecycle

The innovation projects could be also considered to have an “egg” shape.

In the early going the main axis is strategy development then its support, in mid cycle it’s both strategy and its execution that shape the “egg” and late stages the key factor is implementation of strategy.

Conclusions

Using the concept of the lifecycle we can trace the evolution of innovation strategy, its profile and the projects that deliver innovation. We can link these to the underlying dynamics of both the market and the situation of the firm within the market.

Innovation first supports, during takeoff, the sometime desperate gambles of the firm to gain market traction and then, as progressively the market headwinds subside, it

underwrites the search for efficiency in the execution of the cost leadership strategy, unless the firm is in a niche market where innovation can still focus on product rejuvenation, in which case it becomes both the primary defense mechanism of the niche and a device to open up doors to blue ocean options. Very distant niche markets from the mass markets can be considered as the first stage of transition to blue ocean markets.

Projects, which are the most common vehicles to deliver innovation, also obey an evolutionary process that takes them from supporting strategy to enhancing implementation.

Project portfolios are shaped by the market headwinds (uncertainty and competitive pressures) and progress from highly unstable, overlapping and structurally fragile state to a more robust sequential existence that avoids the instability of the overlaps and low success rates of the early stages.

Future research should be able to confirm the specific links between innovation and the projects that deliver them by segmenting the market into its four distinctive phases. Furthermore the explanations for the shape of the innovation egg and the underlying project delivery mechanisms can be retested against past and present data bases.

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EVOLUTION OF INNOVATION STRATEGIES DURING THE MARKET LIFECYCLE

S u m m a r y

Innovation is at the heart of firm's success. As the firm evolves along the market lifecycle, the nature and contribution of innovation change dramatically. At the beginning the emphasis is on product innovation, in mid cycle on new marketing and financial solutions, the concern being commercialization and growth. At maturity the focus shifts to production innovation and to financial innovation, the recycling the excess cash flows into other productive ventures.

The lifecycle has the innate capacity to provide a logical framework for the innovation process (and a lot more) that both explains and predicts. So in this sense, the lifecycle becomes a template that can be relied upon to trace the evolution of the innovation strategies of the firm, as it progresses along the market curve.

To our knowledge there has been no attempt to construct a complete, yet concise, model that will allow practitioners to follow with some certainty their innovation initiatives and provide an underlying rationale for the different characteristics of innovation as the firm proceeds from start up stage to growth then on to maturity and eventually into decline.

This article is based on many years of data collection, teaching of high technology management and other articles that set the stage for this synthesis exercise.

Among other applications we have found that the lifecycle sufficiently explains the evolution of general firm strategies, HR practices, IT concepts, IP strategies, compensation practices, marketing approaches and financial responses to name a few of the important management challenges that can be better structured and understood this way.

Using this model we can also extend Porter's five forces model along the curve, explain how the firm's core competencies

metamorphose into core capabilities and how and why Christensen's ideas on blindness to disruptive technologies occur during the late stages of the lifecycle.
The focus for this article though is innovation, which is a subset of the other phenomena that can be explained using the lifecycle.

Using the concept of the lifecycle we can trace the evolution of innovation strategy, its profile and the projects that deliver innovation. We can link these to the underlying dynamics of both the market and the situation of the firm within the market.

Innovation first supports, during takeoff, the sometime desperate gambles of the firm to gain market traction and then, as progressively the market headwinds subside, it underwrites the search for efficiency in the execution of the cost leadership strategy, unless the firm is in a niche market where innovation can still focus on product rejuvenation, in which case it becomes both the primary defense mechanism of the niche and a device to open up doors to blue ocean options. Very distant niche markets from the mass markets can be considered as the first stage of transition to blue ocean markets.

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KEYWORDS: Innovation, lifecycle, strategy dynamics, high technology management, market dynamics

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LOGISTIC COST OPTIMIZATION IN THE FOOD INDUSTRY OF SMALL COUNTRIES

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Abstract

This research is aimed to determined and conduct a logistic cost optimization algorithm in the small markets food industry. The authors conducted a survey and indicated that in a small market food industry the main influence to the transportation cost is partial cargo transportation. Regarding this finding the authors offers a cost optimization algorithm using clustering processes. It was concluded that the usage of clusters can dramatically reduce cost and the optimization level is even higher in a small market.

KEY WORDS: *competitive advantage, clusters, logistics, supply chain management, food industry.*

Introduction

The world's economics is growing and rapid technology change requires a new perspective to competitive advantage maximization possibilities. This paper is orientated to the small markets and particularly to the food industry. Today a new perspective to the small market competitiveness is needed, because there are countries that are developing rapidly and some a failing in the market. Regarding the competitive world index Netherlands remains in the 8th place, Lithuania has dropped from 41th place to 48th. Even united states lowered her ranked from the 3th place to the 5 th. Nether less, Belgium increased from the 17th till 18th place (World economic forum, 2015). Regarding this information, it is important to determine the competitive advantage maximization strategies of the small markets. The food industry has been chosen, because new trends in the industry has required a more complex supply chain management and one of the most complex is the food supply chain. Because there is a new trend that consumer desire for safe, healthy and high quality food products (Canever, Van Trijp, Beers, 2008). There are researches done about competitive advantage increases for the food industry. Sam Saguy and Vera Sirotinskaya analysis the importance of innovations in the food industry with a focus on medium enterprises (Saguy, Sirotinsaya, 2014). The globalization has changes the world and it does not matter the resources or the land, what matters is the technologies that are used (Pilzer, 2006). The internet has created new possibilities and today industry's that learns how to distribute information and products faster will prevail. Bosana and Gebresenbet indicates the importance of food supply chain clustering in order to increase supply chain competitiveness (Bosana, Gebresenbet, 2011). There are scientists that analyzed the logistic cost singularities and their results indicated the need for caution in interpreting changes in logistics costs, and for simultaneously controlling the effects of numbers of employees, transport costs, warehousing costs and total logistics costs (Engblom, Solakivi, Toyli, Ojala, 2012).

Therefore, all irrational cost strongly raises the end product cost in a small markets, because of this the company competitive advantage may lower. In this paper, the authors are aiming to optimize the food supply chain by offering to use clustering processes that would increase the company's competitive advantage. In order to optimize the supply chain it is essential to analyze different transportation cost components in a small markets food industry.

Novelty of the study: Authors research indicates that in the food industry logistic cost has a large impact to the total cost. These cost even more increases in a small market, where the market's receptivity is small. Business cooperation, clustering and integration processes are popular and rapid, because using these processes the company can dramatically lower its cost. The authors done research indicates that using clustering processes in the logistic field, the companies can lower its supply chain cost. Additionally, in small markets clustering processes dramatically lowers cost. Regarding these findings, it can be concluded that clustering process usage in the logistic field, can be treated as a competitive advantage increases factor.

Object of the study: Small market's food industry's logistic cost.

Goal: analyze transportation cost components and model a cost optimization algorithm for small markets food industry.

Objectives:

1. Analyze the structure of food industry's supply chain cost
2. Module food industry's logistic cost optimization algorithm.
3. Conduct a statistical analysis to determine clustering process effectiveness to the total logistic cost.

Food industry‘s logistic cost

Before analyzing the supply chain cost it is essential to understand the complexity of the food supply chain and what kind of expenses may appear in logistics. After all one of the main priorities of competitive advantage is customer satisfaction and today the customers expect food products to be in good quality and on time.

The food supply chain is a complex process that needs to be taken in to consideration constant, because of this there are many database, management systems, like lean management, just in time production and other aspects not only of manufacturing processes, but also about distribution possibilities. Turkensteen and Klose analysed the demand dispersion on logistics costs and determines that the market segmentation is essential for warehouse management systems and offers a one-to-many distribution system in which a central facility serves all demand points (Turkensteen, Klose, 2012). In addition, there research indicates the importance of relationship with distance and logistics cost. Nether less, this particular research does not take in to consideration the short lead-time of food products. Other authors analyze the importance of lead-time in the food industry. Turi, Goncalves and Mocan takes in to consideration not only cost, but also quality and lead-time for the food industry to increase competitive advantage. They conclude that companies within the food industry must improve their overall logistic performance, be aware of any developments from the very beginning, to anticipate them as soon as possible and to adapt quickly, only then they can better distribute their products, meet the needs of their customers and ultimately remain competitive in a highly competitive market (Turi, Goncalves, Mocan, 2014). The supply chain is complex and there are many factors that need to be taken in to consideration, lead-time, cost and product quality is just some of the importance issues that has to be analyzed to determine the impact to the food industry’s supply chain. In addition, there are authors that offers tracking systems for the food supply chain. Chen offers a fuzzy tracking model with can not only determine the position of the product, but also indicates damage products and analysis the reasons why the damage occur (Rui-Yang Chen, 2015). This is another factor that should be taken in to consideration for the logistic cost analysis, nether less this is still a complex field and it differs from the product type and market. Because of this, the main strategy that can lower the damage product cost can be a well prepared packaging for the transportation of the products. “Packaging plays a key role in protecting the product from contamination by external sources, and reducing damage during its transportation and handling in the supply chain from the producer and manufacturer to the consumer. In the United States alone, estimated annual losses due to damaged products exceed $10 billion“(California Polytechnic State University, San Luis Obispo, CA, USA; Michigan State University, East Lansing, 2008). These are the main problems that may occur in every supply chain. However, the small market has another problem that they may have. Partial cargo transportation also makes a large impact to the supply chain cost. The price of transportation differs if you want to transport 32 pallets or 2 pallets. A survey about Lithuania’s market was conducted and in summarize it concluded that that many food companies exports and imports partial cargo, i.e. raw materials for manufacturing. In addition, part of cargo requires frozen temperature while the other part requires chilled. Considering these facts and analyzing the logistic costs, it is possible to conclude that one of the reasons of higher transportation cost is partial cargo transportation (Navickas, Baskutis, Gruzauskas, 2015).

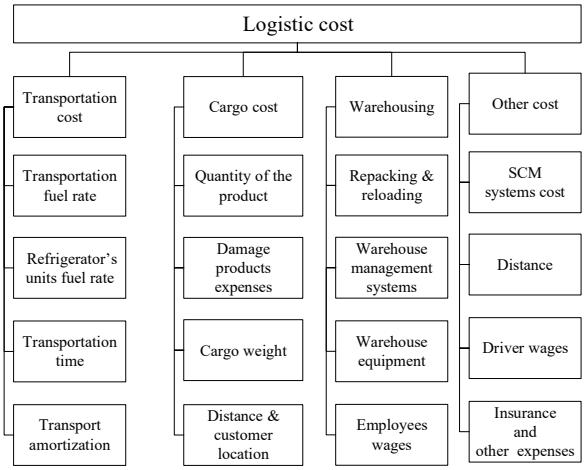

Fig. 1. Total logistic cost

Figure 1 shows the main logistic components. Some of them were already disguised above, like the damage product expenditure, quantity and distance relationship to the logistic cost. It is important to mention the tracking system’s employee wages and other expenses. These are areas that has influence in the supply chain cost, but a small market does not have a big flow of cargo and these kind of systems will not be taken in to consideration in this research. Transport in this scheme is regarded as all types of transportation - truck, sea, railway or air transportation. This is because all of them consumes energy, needs to control the temperature and has amortization expenditures. And lastly the last part is warehousing and it’s maintenance. The warehouse usually has to reload the cargo and repack it, also a lot of expenditures goes to the ordering and cargo tracking systems, because the products needs to be hold as inventory before moving to the customer. The transportation cost components is essential to analyze, because the optimization algorithm needs to be oriented to a particular field.

Logistic cost optimization algorithm

In order to determine and module a cost optimization algorithm, it is necessary to overview the food industry. This is important because the food industry is a wide topic and it is hard to describe the transportation singularities of the food industry, without understand the temperature control regulations. Many different products require different regulations or transportation ways. Food products can be categorized in to groups and there are many different aspects of them. One type of the products can be that requires chilled or frozen transportation.

Chilled transportation usually is from +2 C ° till +15 C °, while frozen transportation usually is from -18 C° and below. The temperature control of the product is important for several reasons for the food industry. First of all the transportation cost depends on the temperature, additionally this means that some programs can be transported together and other cannot. For example you can't transport ice-cream with vegetables and fruits. Unless you are using different temperature control transportation technology's.

1. Refrigerator truck.

Semi-trailer's part of the body is made from thermos material, that helps held the heat from diminishing. Then there may be several refrigerator units inside, that helps maintain the required temperature. The ventilation system for the refrigerator is a technology that uses air tracks from the top to bottom of the truck that creates an air cycle inside, what helps to maintain the required temperature (Laudet, 2013).

2. Flexible partitions for temperature zones.

These partitions are used to divide the transportation area in several parts. It may come in handy transporting partial cargo and maintain two or three temperature zones at the same time. Additionally, this may help companies increase their competitive advantage and decrease cost (Nelson, 2012).

3. Double decker

This technology is used for transportation cargo with several floors. Crossbars are fixed between the trailer walls and on top of them the cargo is loaded. It is important to know the possibilities of these crossbars, because overweight could damage the cargo.

4. Load securing system

Some food products may be transported in small packages and during braking they may fall. These bars are fixed lower than the double-decker and they manly help to maintain a fix position for the cargo.

5. Meat transportation equipment.

This equipment is used when transporting raw meat with hooks and not on pallets.

6. Folding wall

This is a new technology that helps a closed box trailer to load cargo even faster. This is specially developed to load from the side.

7. Thermogram

This technology is used to track the temperature for the whole trip. If necessary, they can print out a thermograph for detail visualization for the transportation process.

Understanding the temperature technology is important for cost optimization in a small market, because the small market has problems while transporting cargo and regulating the quantity of the transportation. This technology usage can help optimize the transportation cost.

Moreover, the temperature effects the food products quality. A research was conducted about the temperature controlled impact to the salmon quality. The results indicated that the DNA damage in salmon cells was visible for frozen salmon after 3 h of thawing at 10^{o} C and for chilled salmon after 9 days of storage (Grandois, Ruas, Kalisa, Jolissaint, Marchioni, Aoudé-Werner, Le Fur, Ennahar, 2013). These findings indicate the importance of temperature technologies usage in the logistic area. Many products are frozen to maintain their freshness, nether less the quality of products lowers overtime. Regarding this fact, the lead-time of transportation is also very important for the food product. It is necessary to distribute the food products as fast as possible, otherwise the customer will not receive quality and healthy food and in these days, it would be a bad situation. Actually, it is already a bad situation in many regions. "Each year, Dutch consumers throw away approximately € 2.5 billion worth of food. This is equivalent to more than € 155 per person, or around 50 kilos. Food producers, wholesalers, the hospitality industry and supermarkets discard a further € 2 billion in food (Ministry of Economic Affairs, 2013) ". This is why lead time is essential for the company, to reduce their cost of wasted food, because it lowers the competitive advantage of the company's.

However these facts validates not for all products. There are products that has a low expiration day, other has a higher. For example cheese, sauces may be transported in longer lead time. This is another topic that is essential in order to professionally determine the temperature technologies impact to the food supply chain. Food can be transported with different types of vehicles. The most common one in Europe is land transportation. Trucks has been used for some times and their usage has increased when the fuel consumption allowed it, but this is not the only transportation possibility. Sea transportation is also commonly used in the food industry. There are large ports in the Europe union that is exporting and important food products often. It is also a way to reduce cost and to offer logistics compatibility. For example, some companies uses transportation from Lithuania, to United Kingdom by land, sea or combined transportation. There are also railway distribution that are used in the food industry, but it is used in larger distances and larger quantities. Usually the cargo in the railway transportations takes up from 2 till 4 wagons. In order to optimize the logistics cost and increase competitive advantage it is important to understand the logistic transportation comp ability. In order to be internationally competitive, businesses are organizing strategic worldwide networks that can deliver an efficient and high-quality response to demand from any segment of the world market. The efficient and integrated organization of such activities is often referred to as global logistics or supply chain management (SCM), and it has become the core of global competitive power.

The food industry has a complex supply chain because of the singularities described above. To increase the companies competitive advantage it is essential to optimize different aspects of the cost.

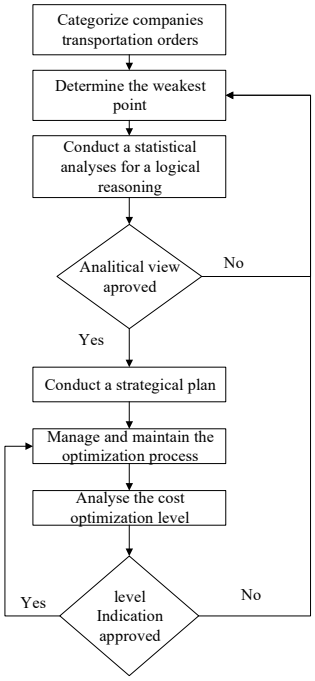

Fig. 2. Logistic cost optimization algorithm

A universal optimization algorithm is described in figure 2. This particular method is modeled for small and large markets, but it also helps indicated the necessary optimization strategy in the small markets. First of all it is important to categorize all the logistic cost, an example what made in the previous chapter about the different cost components. This is essential, because different companies may use different management systems, transportation possibilities, warehouses etc. Then it is important to conduct a survey inside the company and determine the theoretical weakest points. For example some companies may have a problem with the lead-time, because of this many products may be damaged. Nether less this particular problem usually happens in a large market and not in a small market. A small markets main problem would be transporting partial cargo. Usually the companies outsources logistic services, but this method can increase cost, because the transportation price per pallet can vary from 120 euro to 40 euro. When the theoretical weakest points are determined by a survey it is important to conduct a logical reasoning and determine if the experience really indicates the best points to optimize cost. If the statistical analysis is approved it is important to conduct a strategically plan for the cost optimization. This plan can vary for every companies, because some of them should start using fleet management systems, clusters, ordering data bases etc. This particular method needs to be determined inside the company. Then another plan needs to be conducted that would maintain the cost level and if this isn't enough for a cost optimization the algorithm can be continued from the second weakest point, until the company reaches satisfaction.

Clustering process effectivness

Logistic cost structure and the temperature controlled technology overview shows ways how to use clustering process for competitive advantage maximization. Transporting combined cargo and organizing clusters could dramatically increase competitive advantage. Pu-yan Nie and Peng Sun analysed the formation of industrial clusters based on spatial competition and search costs in a game theoretic model. By establishing a spatial competition model, this paper compared firm profits under clustering to those without clustering. They found that search costs are an extremely important factor in the formation of industrial clusters that can give rise to industrial clusters in certain industries (OECD, 2002). This chapter will indicate the impact of different logistic costs to the total logistic cost. This is important to understand and to help determine better strategies in order to use clustering processes for competitive advantage maximization.

A specialist interview was conducted in a small market. Lithuania has been chosen as a proper market - it is in a good geographical position and the food industry is strong in the region. Lithuania holds 64th place in the world's international trade with an export of 30.4 billion $ in 2013. In 2013 part of the export was food that generated 1.9 billion $ revenue and this is an increase by 8.3% if compared to the previous year. In addition, there are 816 food manufactures working in Lithuania (Navickas, Baskutis, Gruzauskas, 2015). Regarding these facts, this is an excellent region to conduct a specialist interview and to determine the main cost of logistics in a small market. During the interview, information was gathered about the loading, unloading addresses, cargo quantity, temperature requirements and fuel consumption rate. During the analysis, it was determined that the largest impact to the total logistic cost does the quantity of the cargo. While transporting a full truck (32 pallets) the pallet price is about 40-48 euros per piece. While transportation partial cargo price per pallet may be from 120 till 80. This is a large influence to the total logistic cost. While transportation full cargo the cost is quite standard, but when transportation partial cargo the cost rises dramatically, this factor is influencing negative the total logistic cost and it lowers the company's competitive advantage. Manufactures who imports raw material usage transport them in partial cargo and they use outsourcing logistics for cost minimization. This is a wise strategy, because it sure lowers cost, because you do not need to send large distances only part of the truck. Nether less it is still expenditures and logistic service providers have their own margin. Because of this the authors offers to use clustering processes for competitive advantage maximization. Cluster can help combine industry's and increase their information flow, R&D and optimize transportation and ordering cost (Pu-yan Nie, Peng Sun, 2015). Why should a company give away their orders to an outsourcing logistic company, if they can create clusters and share cargo together? This way the margin of the cargo can be shared between the cluster for developing centers and development possibilities. This is a strategy that small markets are already using, but not all understand this kind of competitive strategy. To understand the importance of clustering to optimize cost it is essential to overview different types of clusters.

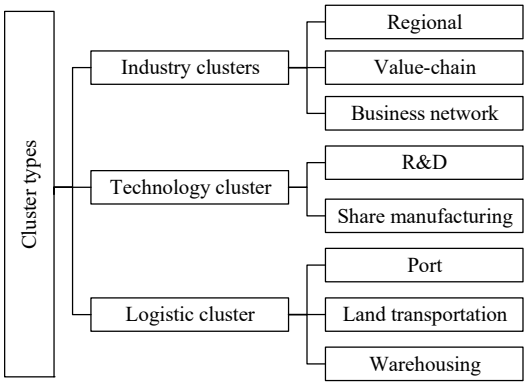

Fig. 3. Cluster types (United Nations ESCAP, 2008)

The first groups of the clusters can be categorizes in to industrial, technological and logistic clusters. The process of clustering is similar in a simplistic way to say companies that has similarities their can combine their information, technology, money and increase their competitive advantage. This particular method is popular around the world, because only working together it is possible to stay competitive and ahead of the growing technology.

Industrial clusters are clusters that work together and share their information. These kind of clusters usually are located regionally and has similar suppliers and working area. After all to get a better price it is wise to buy raw material together and by doing this the cost for raw material would lower. Additionally there are companies that works as groups and are trying to monopolize a specific market. There are many examples like this, particularly in Lithuania there a companies like "Arvi kalatukai", "Viči group", „Kauno grūdai" and etc. These companies have their own and primary working area, but as time goes by they start working with different companies and buys their stocks. This is just one example of a possible industrial cluster.

There other type of cluster is called technological. To put it simple, these companies combines their knowledge and technology to increase capacity, R&D centers and etc. One of the best example is Food Valley, which is a region in the Netherlands. The Food Valley area is the home of a large number of food multinationals and within the Food Valley about 15,000 professionals are active in food related sciences and technological development. Within this region, the Food Valley Organization is intended to create conditions so that food manufacturers and knowledge institutes can work together in developing new and innovating food concepts.

And the last type of clusters are logistic clusters. These clusters are orientated totally to logistic services. This clustering process is the best method for small markets, because of the food industry's singularities the partial cargos can be combined and it will help to optimize cost. One of the best food logistical clusters in the world is "World food programme". This cluster helps to solve the hunger problem in the world and they combine thousands of companies together and organize distribution through the whole world. The logistic systems used in this cluster is incredible, because they have achieved high level of logistic compatibility. Hey control over 100 planes, 3000 railways, trucks, 30 ships and they distribute the food from amazon jungles to Iraq etc.

In general it is hard to determine just one type of clusters, usually they are combined clusters and are working in several areas. For example industrial and logistic clusters often can be used together.

Conclusions

This research indicated that the food supply chain is a complex process in a small market and it is different from large markets. The main singularity of a small market is the flow of cargo, it is much lower than in a large market. Because of this it is necessary to conduct a different approach to the competitive advantage increases. Regarding this finding and analyzing the transportation cost of small markets the results showed that partial cargo transportation can dramatically increase transportation cost in a small market and lower the company's competitive advantage. An optimization algorithm was offered to maximize competitive advantage. This particular algorithm is adapted to all logistic sector and it also can be used in a small markets food industry. While applying the optimization algorithm in a small market a clustering processes strategy was offered for cost optimization. The clustering process indicated that in a small market logistic cost can be dramatically lowered by combining orders and transporting them in a group of companies. Regarding these findings it can be concluded that clustering process can be treated as a competitive advantage maximization factor for a small market's food industry's logistic sector.

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KŪNO KALBA VERSLO DERYBOSE IR DALYKINIUOSE POKALBIUOSE

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Anotacija
Straipsnyje nagrinėjama kūno kalbos signalų skaitymo svarba verslo derybose ir dalykiniuose pokalbiuose. Stebėdami žmogaus kūno fizinius pokyčius, gestus, galime susidaryti daugiau ar mažiau tikrovę atitinkantį įspūdį apie oponento, pašnekovo savijautą, nuotaiką, jausmus, mintis, lūkesčius, ketinimus ir jų pokyčius. Bežodėje kūno kalboje yra labai daug svarbių dalykų: žmogaus laikysena, aprangos stilius, aksesuarai, gestai, žvilgsnis, mimika, šypsena, balso intonacijos, juokas, akių kontaktas, akių ženklai, atstumas tarp bendraujančiųjų, prisilietimas, plojimas, šokis, fiziologinės reakcijos – prakaituojantys delnai, kakta, išbalimas, ūmiai atsirandantis veido, kaklo raudonis ir kt. Dalis bežodės komunikacijos ženklų, arba kitaip sakant kūno kalbos signalų, yra siunčiama sąmoningai (natūralūs ar suvaidinti ženklai, signalai), o kita dalis kūno signalų spinduliuojama į aplinką nesąmoningai, kuomet į gautą informaciją reaguojama iškart žaibiškai, instinktyviai ir negalvojant. Kūno kalbos signalai verslo derybose ar dalykiniuose pokalbiuose yra svarbūs keliais aspektais:
- jie atskleidžia pašnekovo, oponento fizinę ir emocinę būklę bei jos kitimą,
- jie papildo, sustiprina ar susilpnina žodinę kalbą,
- mokančius skaityti bežodės komunikacijos ženklus įgalina daugiau ar mažiau tiksliai nustatyti ar žodine kalba yra sakoma tiesa.
Straipsnyje siekiama sistemiškai apibūdinti kūno kalbos ženklų, signalų raiškos mechanizmus ir jų skaitymo bei interpretavimo taisykles, kurių pažinimas ir laikymasis įgalintų verslo komunikacijoje, verslo derybose, dalykiniuose pokalbiuose formuoti efektyvesnius, labiau pagrįstus sprendimus, remiantis gautais iš oponento kūno kalbos signalais naudoti atitinkamus veiksmus, komunikacinius žingsnius, taktikas, paremtus objektyvia informacija apie oponento, pašnekovo savijautą, nuotaikas, jausmus, mintis, lūkesčius, ketinimus bei jų pokyčius.

PAGRINDINIAI ŽODŽIAI: verslo derybos, dalykiniai pokalbiai, verslo komunikacija, kūno kalba.

Įvadas

Aktualumas. Verslo komunikacijoje, verslo derybose, dalykiniuose pokalbiuose, kaip ir apskritai žmonių bendravime, svarbi ne tik žodžių turiniu perduota informacija, bet ir tai, kaip tie žodžiai buvo pasakyti, kokie balso niuansai buvo panaudoti. Greta to, nemažiau yra svarbūs ir kūno signalai, kuriuos kalbėdami sąmoningai ar nesąmoningai siunčiame. Žmonėms bendraujant, komunikuojant, jų kūnai siunčia daugybę kūno kalbos ženklų – žinučių. Kaip teigia Allan ir Barbara Pease, „svarbiausia ne tai, ką pasakei, o kaip sakydamas pažiūrėjai“ (Pease 2012, p.28). Joe Navarro (Navarro 2013, p.20-22) pažymi, kad “bežodė komunikacija, dažnai dar vadinama bežodžiu elgesiu arba kūno kalba, yra informacijos perdavimo būdas – lygiai kaip ir balsu ištartas žodis, tik tai daroma veido išraiška, gestais, lytėjimu (haptika), fiziniais judesiais (kinezika), laikysena, kūno puošyba (apdarais, papuošalais, šukuosenomis, tatuiruotėmis irk t.), netgi balso tonu, tembru ir stiprumu (nesvarbu, ką žmogus sako).” Joseph Messinger akcentuoja, kad „socialinio vaizdo įtikimumo pagrindas – judesių poveikis – gerokai pranoksta kalbos ar netgi išvaizdos, drabužių teikiamą įspūdį. Gestais perduodamas pranešimas praturtina kalbą, jos atraminiams žodžiams suteikia ypatingą akcentą“ (Messinger 2013, p.12). Taigi, stebėdami žmogaus kūno fizinius pokyčius, gestus, galime susidaryti daugiau ar mažiau tikrovę atitinkantį įspūdį apie žmogaus savijautą, nuotaiką, jausmus, mintis, lūkesčius, ketinimus ir jų pokyčius.

Problema. Nesugebėjimas verslo derybose, dalykiniuose pokalbiuose įvertinti oponento, pašnekovo kūno kalbos (fizinių pokyčių, gestų, mimikos ir kitų ženklų, bylojančių apie jo savijautą, nuotaiką, jausmus, mintis, lūkesčius, ketinimus ir jų pokyčius) gali tapti esmine kliūtimi efektyviems verslo derybų, dalykinio pokalbio rezultatams pasiekti.

Tyrimo objektas – kūno kalbos verslo derybose, dalykiniuose pokalbiuose ženklai, signalai ir jų skaitymas.

Darbo tikslas – apibūdinti kūno kalbos ženklų, signalų raiškos mechanizmus ir jų skaitymo bei interpretavimo taisykles, kurių laikymasis įgalintų verslo komunikacijoje, verslo derybose, dalykiniuose pokalbiuose formuoti efektyvesnius sprendimus, naudoti veiksmus, komunikacinius žingsnius, taktikas, paremtus objektyvia informacija apie oponento, pašnekovo savijautą, nuotaikas, jausmus, mintis, lūkesčius, ketinimus bei jų pokyčius.

Tyrimo metodai – mokslinės literatūros sisteminė, lyginamoji, loginė analizė ir sintezė.

Kūno kalbos ženklai, signalai ir juos apsprendžiantys veiksniai

Bežodės kalbos rimtų mokslinių tyrimų pradžia yra siejama su 1970 metais išleista Julius Fast knyga „Kūno kalba“ („Body language“). Kaip nustatė kūno kalbos tyrimų pradininkas Albert Mehrabian (Mehrabian 1971, 1972, 2009), žodžiais perteikiame 7 % informacijos, balso ypatybėmis – 38 %, o neverbaline kalba perduodame apie 55 % informacijos. Geras derybininkas

turi sąmoningai valdyti savo neverbalinę kalbą, suvokti, ką jis demonstruoja savo oponentui bei mokėti perprasti oponento kūno kalbą, pastebėti, kada jo žodinė ir kūno kalbos informacija prieštarauja viena kitai, kada – sutampa. Tai labai svarbūs impulsai, kurie gali kardinaliai pakeisti derybų eigą ir galutinį derybų rezultatą. Mokslininkai Allanas ir Barbara Pease'ai ištyrė tūkstančius verslininkų ir nustatė, kad apie 60–80 proc. verslininkų stebi kūno kalbą ir nuomonę apie naują asmenį susidaro greičiau kaip per keturias minutes. Jų tyrimai taip pat parodė, kad derantis telefonu paprastai laimi tas asmuo, kurio argumentai svaresni, bet tai negalioja susitikus „akis į akį", nes galutinės išvados yra daromos remiantis tuo, ką matome, o ne tik pasikliaujant klausa, tuo ką girdėjome.

Gebėjimas perprasti pašnekovo, oponento kūno kalbą – numanyti, ką jis galvoja, ką jaučia, kaip reaguoja, ką ketina daryti, - verslo komunikacijoje, verslo derybose ir dalykiniuose pokalbiuose yra labai svarbus. Tam gebėjimui išsiugdyti reikia įdėti darbo: įsisavinti teorinius pagrindus ir juos taikyti praktiškai Ambady, Weisbuch 2010). Tačiau reikia atkreipti dėmesį ir į žiūrėjimo (matymo) ir klausymo santykį. Kaip pažymi Joseph Messinger, „mūsų klausymosi būdas nepasirengęs suvokti dviejų tokių skirtingų vienu kartu vykstančių veiksmų kaip ***žiūrėjimas*** ir ***klausymas***. Negalima sutelkti tolygaus dėmesio į du tokius skirtingus sensorinius procesus. Mes instinktyviai atskiriame du automatizmus – ***klausyti*** ir ***matyti***, bet negalime jų sujungti į vieną bendrą klausymosi procesą" (Messinger 2013, p.13). Norint išmokti ir klausyti ir matyti vienu metu reikia tam skirti papildomą dėmesį ir įdėti papildomų pastangų, kurios ateityje taps papildomais gebėjimais komunikacijoje.

Joe Navarro pabrėžia kūno kalbos signalų skaitymo svarbą, teigdamas, jog " bežodė komunikacija gali atskleisti tikrąsias žmogaus mintis, jausmus ir ketinimus. Dėl šios priežasties ji kartais vadinama *iškalbinga elgsena*. Žmonės ne visada supranta, kad bendrauja ir nekalbėdami, todėl dažnai kūno kalba būna daug tikresnė, nes siekdamas savo tikslų žmogus rūpestingai apgalvoja žodžius. … Jei stebėdami kito žmogaus bežodį elgesį suprantate, ką jis jaučia, ką rezga ir kaip ketina elgtis, arba išsiaiškinate jo žodžių prasmę – iššifruojate jo nebylią kalbą ir tuo pasinaudojate" (Navarro 2013, p.22). Kūno kalba yra labai informatyvi ir siunčia pašnekovui, oponentui daugybę signalų, tačiau vienareikšmiškai juos interpretuoti yra sudėtinga, o kartais neįmanoma ir nepageidautina. Interpretavimo tikslumas ir kokybė priklauso nuo interpretuojančiojo žinių ir praktikos.

Kūno kalba arba bežodė komunikacija apima daug žmogaus kūno ženklų. Bežodėje kūno kalboje yra labai daug svarbių dalykų: žmogaus laikysena, aprangos stilius, aksesuarai, gestai, žvilgsnis, mimika, šypsena, balso intonacijos, juokas, akių kontaktas, akių ženklai, atstumas tarp bendraujančiųjų, prisilietimas, plojimas, šokis, fiziologinės reakcijos – prakaituojantys delnai, kakta, išbalimas, ūmiai atsirandantis veido, kaklo raudonis ir kt. Reikia atkreipti dėmesį į tai, kad dalis bežodės komunikacijos ženklų yra siunčiama sąmoningai (natūralūs ar suvaidinti ženklai, signalai), o kita dalis kūno signalų spinduliuojama į aplinką nesąmoningai, kuomet į gautą informaciją reaguojama iškart žaibiškai, instinktyviai ir negalvojant. Tačiau vis tik visi bežodės komunikacijos ženklai yra valdomi žmogaus smegenų. Kaip pažymi Joe Navarro „svarbu suprasti, kad smegenys valdo visą elgesį – ir sąmoningą ir nesąmoningą. Tokia prielaida yra kertinis akmuo, padedantis suprasti visą bežodę komunikaciją. Nėra tokio veiksmo – nuo paprasčiausio galvos pasikasymo iki simfonijos kūrimo, - kuriam nevadovautų ir kurio nevaldytų smegenys (išimtis – nevalingi raumenų refleksai). ... Taigi remdamiesi bežodžiu elgesiu galime suprasti, ką smegenys nori parodyti" (Navarro 2013, p.38). Mintimis galime stengtis nuslėpti savo savijautą, emocijas, bet vis tiek tam tikrą bežodę informaciją, ženklus, signalus mūsų kūnas sukurs. Pastebėti ir suprasti tokias reakcijas nepaprastai svarbu (Navarro 2013, p.40).

Žmogaus reakcijos į aplinkos poveikį susiję su emocijomis ir išlikimu. Per tūkstantmetę vystymosi istoriją žmogaus smegenų sistemą išsiugdė ir įtvirtino nervų sistemoje paprastą trijų formų atsaką į pavojų: staiga ***sustoti***, ***bėgti*** arba ***kovoti*** (Navarro 2013, p.41). Kaip pažymi Joe Navarro, „gyvūnai ir žmonės reaguoja į pavojų šitaip: pirmiausia sustingsta, tada bėga, paskui kovoja. Jei iš tikrųjų reaguotume į pavojų kovodami arba bėgdami, vaikščiotume nusėti mėlynėmis, sumušti ir išsekę. ... Akimirksniu sustingti grėsmės akivaizdoje – pats veiksmingiausias reagavimo būdas" (Navarro 2013, p.42).

Sustingstame ne tik pamatę pavojų, bet ir išgirdę, pavyzdžiui, durų skambutį viduryje nakties. Per ilgaamžę žmonijos istoriją ***sąstingio*** pasireiškimo formos pakito ir naudojamos šiuo metu kur kas subtiliau. ***Sąstingio*** efektas pasireiškia daugeliui žmonių per pokalbius dėl darbo, gavus barti, kvočiant žmogų dėl dalykų, kurie, jo nuomone, gali užtraukti jam nemalonumų, dėl noro tam tikrose situacijose tapti „nematomu" ir kitais atvejais. ***Sąstingio*** efektas pasireiškia, pavyzdžiui, kai žmonės sugaunami apgaudinėjant, vagiant arba meluojant: pakibus grėsmei arba išaiškėjus apgaulei, jie reaguoja lygiai taip pat, kaip mūsų protėviai – ***sustingsta*** (Navarro 2013, p.43). Trumpas stabtelėjimas, ***sąstingis*** leidžia įvertinti keliamą pavojų ir priimti sprendimą dėl tolimesnių savo veiksmų.

Kai sąstingio atsako nepakanka ir pavojus neatslūgsta arba kai sąstingis nėra pats geriausias veikimo būdas (pavyzdžiui, kai grėsmė pernelyg arti), ima veikti antras atsakas: ***bėgti***. Šio atsako tikslas – išsigelbėti arba bent jau atsidurti kuo toliau nuo pavojaus (Navarro 2013, p.46-47). Bėgimo atsakas žmogaus evoliucijoje irgi įgijo įvairių subtilesnių formų, tačiau jo esmė išliko ta pati – fiziškai atsiskirti arba atsitolinti nuo nepageidaujamų asmenų arba daiktų, ***išvengti*** nepageidaujamų dalykų, ***atsitolinti*** nuo jų. Vengdami pokalbio su nemėgstamu žmogumi, galime nusisukti ir „nepastebėti" to asmens. Vengimas gali pasireikšti įvairiai: žmogus užsimerkia, trina akis, plaštakomis užsidengia veidą (Navarro 2013, p.43). Vengimas gali pasireikšti didinant atstumą tarp savęs ir kito žmogaus – pasislenkant atgal, atsilošiant, pasidedant kai kuriuos daiktus ant kelių (pavyzdžiui, kompiuterį, rankinuką), pasukant kojas link artimiausio išėjimo ir kitais būdais. Verslo derybose vienos pusės derybininkas gali pasislinkti tolyn nuo kitos pusės atstovo, išgirdęs nepatrauklų pasiūlymą arba derybų įkarštyje pajutęs grėsmę, gali užsimerkti, pasitrinti akis,

rankomis užsidengti veidą, pasukti kojas durų link. Kaip teigia Joe Navarro, „toks elgesys nesusijęs su apgaudinėjimu, jis greičiau liudija, jog žmogui nejauku. Senasis bėgimo atsakas šiandien matomas kaip bežodis ***atsitolinimo*** elgesys, kuriuo žmonės stengiasi padidinti atstumą; taigi jei jūsų verslo partneris padidins atstumą tarp savęs ir jūsų prie derybų stalo, vadinasi jam kažkas nepatinka“ (Navarro 2013, p.47-48).

Jeigu žmogus, susidūręs su pavojumi, negali likti nepastebėtas sustingdamas ir negali išsigelbėti pabėgdamas, jam lieka vienintelis pasirinkimas – ***kovoti***. Kovojimo atsakas yra paskutinė taktinė priemonė, padedanti išlikti gyvam pasitelkus agresiją (Navarro 2013, p.48). Evoliucijos metu ne tik žmonės, bet ir apskritai žinduoliai išsiugdė strategiją baimę paversti pykčiu. Tačiau šiuolaikiniame pasaulyje veikti iš pykčio nepriimtina (tai netgi gali prieštarauti įstatymams), tai be primityvaus kovojimo atsako žmonės susikūrė ir subtilesnių kovos formų: ginčai, kivirčai, užgauliojimai, nepagrįsti kaltinimai, oponento statuso menkinimas, kurstymas, patyčios, - visa tai yra priešiškumo apraiškos, šiais laikais atstojančios grumtynes (Navarro 2013, p.49). Priešiškumas kitam žmogui gali būti parodomas laikysena, žvilgsniu, išpučiant krūtinę arba pažeidžiant kito žmogaus asmeninę erdvę. Po smarkaus susirėmimo užverda emocijos, o tai jau trukdo susikaupti, blaiviai, objektyviai mąstyti. Kartais verslo komunikacijoje, verslo derybose ar dalykiniuose pokalbiuose gali būti specialiai provokuojamas kitos pusės susierzinimas, pyktis, kad sumažinti oponento pažintinius gebėjimus, galimybes visapusiškai, objektyviai įvertinti situaciją.

Kūno kalbos signalai verslo komunikacijoje, verslo derybose, dalykiniuose pokalbiuose yra svarbūs keliais aspektais:
- jie atskleidžia pašnekovo, oponento fizinę ir emocinę būklę bei jos kitimą,
- jie papildo, sustiprina ar susilpnina žodinę kalbą,
- mokančius skaityti bežodės komunikacijos ženklus įgalina daugiau ar mažiau tiksliai nustatyti ar žodine kalba yra sakoma tiesa.

Kaip pažymi Allan ir Barbara Pease, „visame pasaulyje pagrindiniai bendravimo signalai vienodi. Kai žmonės laimingi, jie šypsosi; kai liūdni ar įniršę – piktai žiūri, raukosi; linksėdami galvą pritaria arba sako „taip“. Nuleidžiamos galvos judesys, matyt, įgimtas, nes taip elgiasi ir iš prigimties neregintys žmonės. Galvos purtymas, reiškiantis neigimą, taip pat yra beveik universalus judesys, išmokstamas kūdikystėje“ (Pease 2012, p.38). Tačiau greta įgimtų ir genetiškai nulemtų kūno kalbos signalų yra ir tokių bežodės komunikacijos ženklų, kurių turinį lemia tokie veiksniai:

- ***nacionaliniai*** - tie patys gestai skirtingose tautose gali turėti skirtingą reikšmę;
- ***kultūriniai*** – etikos, etiketo išmanymas, išsilavinimo lygis ir kiti kultūros aspektai nulemia naudojamų kūno kalbos signalų arsenalą;
- ***profesiniai*** – lengvas, silpnas rankos paspaudimas gali būti nulemtas žmogaus profesijos, dėl kurios jis turi saugoti savo pirštus;
- ***aktoriniai žmogaus sugebėjimai*** – daugelis žmonių turi didesnių ar mažesnių aktorinių sugebėjimų, moka suvaidinti vieną ar kitą vaidmenį ne tik žodžiais, bet ir kūno kalba;
- ***žmogaus temperamentas, energetika*** – skirtingo temperamento, skirtingos energetikos žmonės naudoja skirtingos amplitudės, skirtingo intensyvumo, skirtingos dinamikos kūno kalbos signalus ir jų komplektus;
- ***žmogaus sveikatos būklė*** – nesveikai besijaučiančio žmogaus žvilgsnis yra kitoks, kitaip skamba jo balsas, gestai vangesni, lėtesni (tačiau yra ir tokių susirgimų, kurie lydimi padidintu emocionalumu, jaudrumu, dirglumu);
- ***žmogaus statusas*** – paprastai kuo aukštesnio statuso asmuo, tuo mažiau jis naudoja gestų, jo gestai labiau rafinuoti, jis juda oriau ir lėčiau nei turintieji mažiau valdžios; perteikdamas informaciją daugiau remiasi žodine kalba;
- ***priklausymas žmonių grupei*** – bežodei komunikacijai įtakos turi grupės tradicijos, normos, taisyklės;
- ***žmogaus amžius*** – su amžiumi gali keistis žmogaus judesių greitis;
- ***neverbalinių signalų derinimas*** – apie žmogaus būklę signalizuoja paprastai ne vienas, o keli bežodės komunikacijos ženklai, tarp kurių turi būti harmonija – harmonijos stoka byloja apie pašnekovo, oponento nenuoširdumą;
- ***galimybės pademonstruoti ir priimti bežodės komunikacijos ženklus*** - fiziniai apribojimai tarp bendraujančių žmonių trukdo pilnaverčiam bendravimui.

Komfortas, diskomfortas ir nusiraminimo priemonės kūno kalboje

Norėdami suprasti, ką kalba mūsų oponento kūnas, turime stebėti ne tik jo judesius ir gestus, bet ir tai, kaip jie keičiasi dalykinio bendravimo eigoje. Oponento kūno kalbos pokyčiai fiksuoja akimirkas, kai keičiasi jo pozicija. Todėl verslo komunikacijos, verslo derybų ar dalykinių pokalbių procesuose reikia įdėmiai stebėti, kada ir kodėl tai vyksta. Verslo komunikacijos partnerio, oponento kūnas yra kaip lakmuso popierėlis, kuris parodo ar mūsų pasirinkti veiksmai, poveikio priemonės teisingi, efektyvūs, ar ne. Nėra galimybių nuolat stebėti visus oponento judesius ir mimiką, nes verslo derybų, dalykinių pokalbių metu reikia galvoti ir apie kitus dalykus. Tačiau svarbiausia yra užfiksuoti tas akimirkas, kai klausantis mūsų argumentacijos ar kontrargumentacijos, keičiasi oponento reakcijos ir į kokią pusę: pozityvią ar negatyvią.

Joe Navarro teigia, jog svarbu fiksuoti ”kaip elgiasi žmonės, būdami ***komforto*** ir ***diskomforto*** būsenos, ir, tuo pasinaudojant, išmokti suprasti, ką jie jaučia, mąsto ir ketina daryti” (Navarro 2013, p.51). Žmogui esant komforto zonoje (geros savijautos), jo kūno kalba byloja apie gerą psichinę ir fizinę būklę, pasireiškiančią pasitikėjimu savimi, pasitenkinimu, teigiamomis emocijomis, pozityviais jausmais. Kai žmogus patiria diskomfortą - jo kūno kalba atspindi stresą ir nepasitikėjimą savimi, blogą vidinę būseną.

Tačiau žmogaus smegenys užprogramuotos taip, kad „priverstų mus siekti saugumo, jei tik įmanoma, vengti pavojų (arba diskomforto) ir siekti saugumo (arba komforto). ... Mūsų smegenys ir kūnas veikdami kartu, mus nuramina ir suteikia pasitikėjimo saugumu“ (Navarro 2013, p.51). Tai Joe Navarro vadina

raminamuoju elgesiu (Navarro 2007, Navarro 2013). Jis teigia, kad suprasti kaip „sąstingio, bėgimo ir kovojimo atsako formos veikia bežodį elgesį, yra tik pusė darbo“, nes pasirodžius atsakui (ypač į grėsmę keliančią, neigiamą patirtį) paskui jį seka ***raminamasis elgesys*** – „smegenys skatina organizmą atlikti paguodos (raminamuosius) veiksmus. Tai aiškiai matomi ir iškart suprantami ženklai. Juos svarbu pastebėti ir išsiaiškinti realioje situacijoje“ (Navarro 2013, p.53; Navarro 2007, p.141-163). Kaip pažymi Joe Navarro, „raminimasis būdingas ne tik žmonėms. Antai šunys ir katės norėdami nusiraminti laižo patys save ir vienas kitą. Žmonėms būdingas kur kas įvairesnis raminamasis elgesys. Kartais jis labai akivaizdus, kartais – vos pastebimas. Dauguma žmonių, paprašyti nurodyti raminamojo elgesio pavyzdį, visų pirma pagalvoja apie vaiką, čiulpiantį nykštį. Suaugusieji nusiramina ne taip krintančiais į akis, socialiai priimtinesniais būdais (pavyzdžiui, kramto guma, graužia pieštuką, tušinuką). Daugelis žmonių nė nepastebi tokio subtilaus nusiraminti padedančio elgesio arba nesupranta jo svarbos atskleidžiant žmogaus mintis ir jausmus. Kaip gaila! Norint gerai suprasti bežodį elgesį, išmokti atpažinti ir iššifruoti raminamuosius ženklus yra tiesiog būtina. Kodėl? Nes raminamasis elgesys nepaprastai daug pasako apie dvasinę žmogaus būseną“ (Navarro 2013, p.53).

Verslo komunikacijoje, verslo derybose, dalykinių pokalbių metu svarbu pastebėti oponento, pašnekovo raminamojo elgesio ženklus, kurie parodytų, jog jis jaučiasi suvaržytas arba neigiamai reaguoja į mūsų veiksmus ar žodžius, nes „po veiksmų, atskleidžiančių diskomfortą (tarkim, atsitraukimo nuo pašnekovo, nepritariamo žvilgsnio, sukryžiuotų ar sugniaužtų rankų), smegenys liepia rankoms atlikti raminamuosius veiksmus“ (Navarro 2013, p.53-55). Kaip pažymi Joe Navarro iš savo praktikos, „kaklo lietimas ir (arba) glostymas yra vienas pačių reikšmingiausių ir dažniausiai atliekamų judesių, kuriais siekiame nusiraminti, reaguodami į stresą“ (Navarro 2013, p.54). Bandydamos nusiraminti moterys dažnai uždengia delnu kaklo duobutę arba ją liečia – jos kenčia, bijo, jaučiasi nesmagiai, nesaugiai, nes meluoja arba slepia informaciją (Navarro 2013, p.54). Joe Navarro nuomone, „raminamojo elgesio požymiai daug reikšmingesni ir patikimesni nei pastangos nustatyti ar žmogus sako tiesą. Jie padeda suprasti, kokios temos žmogų jaudina ar kankina. Tai sužinojus neretai galima išsiaiškinti iki tol kruopščiai slėptą informaciją, galinčią suteikti naujų įžvalgų“ (Navarro 2013, p.57).

Raminamojo elgesio mechanizmas yra toks: „smegenys pasiunčia žinią: „Prašom tuoj pat mus nuraminti“, ir rankos akimirksniu sureaguoja, atlikdamos veiksmą, padedantį vėl pasijusti gerai“ (Navarro 2013, p.57). Kiekvienas žmogus turi savo įpročius dėl raminamųjų veiksmų: vieni kramto gumą, kiti rūko, daugiau valgo, švelniai masažuoja kaklą, perbraukia ranka per veidą, laižo lūpas, liežuviu brauko skruostus arba lūpas iš vidinės pusės, lėtai iškvepia, prieš tai išpūtę skruostus, trina smakrą, glosto veidą, čiupinėja daiktus (pieštuką, tušinuką, lūpų dažus, rankinį laikrodį), moteris timpčioja plaukus, suka ant piršto plaukus, vyriškis brūkšteli per marškinių krūtinę, pasitaiso kaklaraištį. Kaip teigia Joe Navarro, „bet koks veido, galvos, kaklo, peties, rankos plaštakos ar kojos lietimas ***reaguojant į neigiamą dirgiklį*** (pavyzdžiui, sunkų klausimą, keblią situaciją ar stresą) laikytinas raminamuoju elgesiu. Kurios nors kūno dalies glostymas nepadeda išspręsti problemų, bet apramina, numalšina mūsų nerimą. Vyrai įprastai liečia veidą, moterys – kaklą, drabužius, papuošalus, rankas ir plaukus“ (Navarro 2013, p.57-58). Verslo komunikacijoje, verslo derybose, dalykiniame pokalbyje bendraujant su oponentu, pašnekovu, pastebėjus raminamojo elgesio požymius reikia paklausti savęs: „Kodėl šis žmogus save ramina?“. Ir svarbiausias dalykas: „gebėjimas susieti raminamąjį elgesį su įtampą keliančiu veiksniu gali padėti daug geriau suprasti to žmogaus mintis, jausmus ir ketinimus“ (Navarro 2013, p.59).

Norint verslo komunikacijoje, verslo derybose ar dalykiniame pokalbyje daugiau sužinoti apie oponentą, pašnekovą iš jo mėgstamų raminamųjų veiksmų, reikia laikytis kelių taisyklių (Navarro 2013, p.66):

1. Pamatyti vykstant ***raminamąjį veiksmą***. Jei susitelkę stebėsite, ieškodami kūno ženklų, palengva jums eisis vis lengviau.
2. Nustatykite jus dominančio žmogaus **bazinį *raminamąjį elgesį***. Tada sužinosite, kada jo raminamasis elgesys padažnėjo ir (arba) sustiprėjo, ir galėsite atitinkamai reaguoti.
3. Pastebėję, kad žmogus atliko ***raminamąjį gestą***, stabtelėkite ir paklauskite savęs: „Kas privertė jį taip pasielgti?“ Aišku, kad tą žmogų užgriuvo rūpestis. Jūsų, bežodės informacijos rinkėjo, darbas – atskleisti jo priežastį.
4. Atsiminkite, kad ***raminamuosius veiksmus*** žmonės beveik visada naudoja, siekdami nusiraminti po streso. Kalbant apie tai, ar bežodžiai ženklai sako tiesą, žinokite, kad judant nuo pėdų prie galvos ištikimybė tiesai mažėja. Kaip teigia Allan ir Barbara Pease, „kuo kūno dalis toliau nuo galvos, tuo dažniau ją užmirštame. Pavyzdžiui, dauguma suvokia savo veido išraišką ir gestus. Net galime parodyti kai kurias išraiškas: „užsidėti narsų veidą“ ar nepritariamai pasižiūrėti“, „pakelti kančias“ ar „atrodyti patenkintam“. ... Mažiau nei veidą pažįstame rankas ir plaštakas, toliau krūtinę ir pilvą, mažiausiai žinome apie kojas ir beveik pamirštame apie pėdas. Kojos parodo žmonių požiūrį, nes dauguma nenujaučia, ką daro jų galūnės, be to su jomis sąmoningai neatliekami tokie apgaulingi gestai, kokie išdarinėjami su veidu. Asmuo gali atrodyti susikaupęs, save kontroliuojantis, o jo kojos vis barbena ir spardo orą, norėdamos ištrūkti“ (Pease 2012, p.240-241). Kaip parodė Allan ir Barbara Pease atlikti tyrimai su vadybininkais, „meluodami vadybininkai, neatsižvelgiant į lytį, nesąmoningai kur kas daugiau judina kojas. Dauguma vadybininkų nutaisė apsimestines veido išraiškas, meluodami stengėsi kontroliuoti savo plaštakas, tačiau beveik niekas nežinojo, ką daro jų kojos. Šie rezultatai buvo patvirtinti psichologo Paulo Ekmano, nustačiusio, kad meluojant daugėja apatinės kūno dalies judesių, o stebėtojai geriau demaskuoja melą, kai mato melagio kūną. Tai paaiškina, kodėl verslo vadovai jaučiasi patogiau, slėpdamiesi už rašomųjų stalų su tvirtu priekiu. Stikliniu paviršiumi padengti stalai sukelia didesnę įtampą nei masyvūs stalai, nes galima matyti žmogaus kojas, o tuomet sunku save visiškai kontroliuoti“ (Pease 2012, p.241-242). Taigi, kojos yra mažiausiai meluojantis žmogaus organas.

5. Gebėjimas susieti ***raminamąjį elgesį*** su tam tikru stresą sukėlusiu veiksniu gali padėti geriau suprasti žmogų, su kuriuo bendraujate.

6. Tam tikromis aplinkybėmis, kad geriau suvoktumėte žmogaus mintis ir ketinimus, galite ką nors pasakyti arba padaryti, norėdami įsitikinti, ar tai kelia žmogui stresą (tai parodys sustiprėjęs ***raminamasis elgesys***).

7. Įsidėmėkite, kurią kūno vietą žmogus ramina. Tai labai svarbu, nes kuo didesnis stresas, tuo daugiau žmogus glostys veidą arba kaklą.

8. Atsiminkite, kuo stipresnis stresas arba diskomfortas, tuo didesnė tikimybė, kad žmogus griebsis ***raminamųjų veiksmų***.

Raminamųjų veiksmų stebėjimas ir fiksavimas – svarbi priemonė oponento, pašnekovo komfortui ir diskomfortui įvertinti. ***Raminamieji veiksmai*** daug pasako apie jo emocinę būklę, savijautą, ketinimus, lūkesčių išsipildymo laipsnį ir planuojamus veiksmus.

Kūno kalbos ženklų stebėjimas ir interpretavimas

Joe Navarro pateikia 10 taisyklių, kurių reikia laikytis, norint, kad pavyktų sėkmingai stebėti ir iššifruoti bežodės komunikacijos ženklus (Navarro 2013, p.25-34):

1. ***Tapkite įžvalgiais aplinkos stebėtojais***.

Joe Navarro teigia, kad „atidus *klausymasis* yra svarbus norint suprasti, kas sakoma žodžiais, atidus *stebėjimas* gyvybiškai svarbus norint suprasti žmonių kūno kalbą.“ Anot jo, „*sutelktas* (reikalaujantis pastangų) stebėjimas būtinas suprasti žmones ir tinkamai išsiaiškinti iškalbingus jų bežodės elgsenos ženklus“ (Navarro 2013, p.25). Daugeliui žmonių trūksta pojūčio, kuris vadinamas situacijos supratimu, nes to nemokoma nei pradinėje mokykloje, nei gimnazijoje, nei aukštojoje mokykloje (Navarro 2013, p.26). Tačiau, mūsų laimei, pastabumas gali būti išsiugdytas – „šis įgūdis išugdomas mokantis ir taikant žinias praktiškai. Jei esate nepastabūs, nenusiminkite. Šią silpnybę galite įveikti, jei ryšitės skirti laiko ir jėgų stropiam aplinkinio pasaulio stebėjimui“ (Navarro 2013, p.27). Kaip pastebi Joe Navarro (Navarro 2013, p.27), „stebėjimas – sutelktas stebėjimas – turi tapti gyvenimo būdu. Pasyvumas čia nepadės. Tai sąmoningas, apgalvotas elgesys, reikalaujantis pastangų, energijos, susikaupimo ir nuolatinės praktikos. Pastabumas panašus į raumenis: mankštinamas stiprėja, o nenaudojamas atrofuojasi. Mankštinkite savo pastabumo raumenis ir galėsite daug geriau perprasti aplinkinį pasaulį“ (Navarro 2013, p.27).

2. ***Kontekste atliekamas stebėjimas geriausiai padeda suprasti bežodį elgesį***.

Norėdami suprasti bežodį elgesį tikrovėje, realioje dalykinėje situacijoje, turime išsiaiškinti kontekstą. Tada lengviau bus suprasti, ką tas elgesys reiškia. Pavyzdžiui, rankų sukryžiavimas ant krūtinės derybų metu gali reikšti tam tikrą atsiribojimą nuo gaunamos informacijos, užsiblokavimą, nesutikimą su pateikiama nuomone. Tas pats veiksmas atliktas žiemos metu stotelėje laukiant troleibuso jau reikš kitą dalyką – norą mažiau sušalti, išsaugoti savo šiluminę energiją.

3. ***Išmokite atpažinti ir iššifruoti universalų bežodį elgesį***.

Universalaus bežodžio elgesio ženklai yra būdingi beveik visiems žmonėms. Kaip pažymi Joe Navarro, „tam tikra kūno kalba laikoma universalia, nes taip elgiasi dauguma žmonių. Pavyzdžiui, kai žmonės taip suspaudžia lūpas, kad jų beveik nebematyti, tai aiškus ženklas, jog jie susirūpinę, kažkas negerai“ (Navarro 2013, p.28). Pavyzdžiui, prakaituojantys delnai signalizuoja apie nervinimąsi, įtampą, pakelti antakiai rodo nustebimą, abejojimą, primerktos akys, piktas žvilgsnis – nepasitenkinimą, pyktį, burnos srities lietimas pirštais, pieštuku, tušinuku rodo, kad žmogus nerimauja.

4. ***Išmokite atpažinti ir perprasti išskirtinį bežodį elgesį***.

Greta universalių bežodžio elgesio ženklų yra unikalūs, išskirtiniai, konkrečiam žmogui būdingi, ženklai. Kuo ilgiau su verslo partneriu, oponentu, pašnekovu bendrausime, tuo lengviau bus galima pastebėti ir išskirti jo unikalius bežodžio elgesio ženklus, kuriais remiantis galėsime priimti atitinkamus sprendimus.

5. ***Bendraudami su žmonėmis, pasistenkite išsiaiškinti, koks yra jų bazinis elgesys***.

Joe Navarro atkreipia dėmesį į tai, kad „norėdami suvokti, koks yra bazinis elgesys žmonių, su kuriais nuolat bendraujate, atkreipkite dėmesį, kaip jie atrodo, kaip sėdi, kur deda rankas, kaip laiko kojas, kokia jų laikysena ir veido išraiška, kokiu kampu pakelta galva ir netgi tai, kur jie įprastai deda arba laiko savo daiktus. ... Išmokite atskirti ramų veidą nuo įsitempusio. ... Domėdamiesi tuo, kas normalu, palengva imame pastebėti ir suprasti tai, kas nenormalu“ (Navarro 2013, p.30).

6. ***Stebėdami žmones, kaskart stenkitės ieškoti kelių iškalbingų ženklų – tokių elgesio bruožų, kurie pasirodo sykiu arba eina vienas po kito***.

Kaip pažymi Joe Navarro, „gebėjimas suprasti žmones dar labiau patobulės, kai išmoksite pastebėti *kelis iškalbingus ženklus* arba jų grupę. Tokie signalai veikia kartu, jie tarsi dėlionės gabaliukai. Kuo daugiau jų turėsite, tuo didesnės galimybės sudėlioti paveikslėlį“ (Navarro 2013, p.31).

7. ***Labai svarbu ieškoti žmogaus elgesio pokyčių, jie gali reikšti, kad pasikeitė mintys, jausmai, susidomėjimas arba ketinimas***.

Joe Navarro teigia, kad „staigus elgesio pasikeitimas gali padėti atskleisti, kaip žmogus apdoroja informaciją arba prisitaiko prie jaudinančių įvykių. ... Tam tikromis aplinkybėmis pasikeitęs elgesys gali išduoti žmogaus susidomėjimą arba ketinimus. Atidžiai stebint tokius pokyčius, galima nuspėti būsimus veiksmus ir įgyti pranašumą, ypač jei tie veiksmai gali padaryti žalos jums arba kitiems“ (Navarro 2013, p.32).

8. ***Ne mažiau svarbu išmokti pastebėti apgaulingus arba klaidinančius bežodžius ženklus***.

Gebėjimai atskirti tikrus ir *klaidinančius signalus* įgyjami tik kaupiant praktinę stebėjimo patirtį. Joe Navarro teigia, kad reikia „ne tik sutelktai stebėti, bet ir atsargiai vertinti“ (Navarro 2013, p.32).

9. ***Mokėjimas atskirti, ar žmonės jaučiasi laisvai, ar ne, padės sutelkti dėmesį į svarbiausius elgesio bruožus, padedančius iššifruoti bežodę komunikaciją***.

Kaip pažymi Joe Navarro, „žmogaus elgesyje reikia ieškoti dviejų esminių dalykų: *komforto* ir *diskomforto*. ... Jei kils abejonių, ką iš tiesų reiškia žmogaus elgesys, paklauskite savęs, ar jis panašus į komfortą (t.y.

pasitenkinimą, laimę, atsipalaidavimą), ar į diskomfortą (apmaudą, liūdesį, stresą, nerimą, įtampą)“ (Navarro 2013, p.34).

10. ***Stebėkite žmones neįkyriai***.

Joe Navarro atkreipia dėmesį į tai, kad „norint pasinaudoti bežodžiu elgesiu, reikia atidžiai žiūrėti į žmones ir tiksliai iššifruoti, ką reiškia jų nebylus elgesys. Tačiau stebėti žmones reikia atsargiai, o ne spoksoti, kaip daro daugelis pradedančiųjų. Įkyriai stebėti nepatartina. Geriausia stebėti kitus jiems to nežinant, kitaip sakant, nekrintant į akis. Tobulinkite stebėjimo įgūdžius, kol jūsų pastangos ne tik duos vaisių, bet ir niekas nepajus esąs stebimas. Viskas priklauso nuo praktikos ir atkaklumo“ (Navarro 2013, p.34).

Bežodės komunikacijos signalų supratimas ir interpretavimas nėra paprastas dalykas. Bandymai atspėti vieno ar kito bežodės kalbos ženklo reikšmę dažnai gali būti klaidingi, nes tas pats ženklas gali reikšti daugybę dalykų. Galvos kasymas, pasak Allan ir Barbara Pease, gali reikšti ir prakaitavimą, netikrumą, pleiskanas, užmaršumą, melą ir kitus dalykus. (Pease 2012, p.40-41). Norint teisingai interpretuoti bežodės komunikacijos ženklus, reikėtų remtis Allan ir Barbara Pease suformuluotomis trimis gestų interpretavimo taisyklėmis (Pease 2012, p.40-44).

1. ***Skaitykite gestų grupes***.

Kaip teigia Allan ir Barbara Pease, „ir šnekamoji, ir kūno kalba susideda iš menamų žodžių, sakinių ir skyrybos ženklų. Kiekvienas gestas panašus į žodį, turintį daug skirtingų reikšmių. ... Žodžių reikšmė atsiskleidžia juos sujungus į sakinius. Gestai sudaro grupes, arba kūno kalbos sakinius, ir patikimai atskleidžia asmens jausmus ar nuostatas. Kad būtų aiški gesto reikšmė, neverbalinį sakinį turi sudaryti mažiausiai trijų gestų grupė. Įžvalgus asmuo gali skaityti neverbalinius sakinius ir kruopščiai suderinti su asmens šnekamosios kalbos sakiniais“ (Pease 2012, p.41). Kūno kalbos sakiniui „Man nepatinka, ką tu sakai“ (arba „Aš nesutinku“) Allan ir Barbara Pease pateikia tokį gestų grupės (komplekto) pavyzdį: „svarbiausias kritiško vertinimo signalas – rankos prie veido gestas, kai smilius statmenai liečia skruostą, didysis pirštas uždengia burną, o nykštys prilaiko smakrą. Kiti kritiško klausytojo nusiteikimo įrodymai – viena ant kitos užkeltos kojos, ranka prispausta prie krūtinės (gynyba), o galva ir smakras nuleisti (nepalankumas / priešiškumas)“ (Pease 2012, p.41-42).

2. ***Ieškokite atitikimo***.

Norint iš kūno kalbos ženklų susidaryti tikrą nuomonę, reikia stebėti gestų grupes (komplektus) ir jas lyginti su žodine kalba. Allan ir Barbara Pease pastebi, jog „tyrimai rodo, kad neverbaliniai ženklai yra beveik penkis kartus veiksmingesni už žodinį kanalą“ (Pease 2012, p.43). Žodinės ir kūno kalbos neatitikimą galima pailiustruoti šiuo pavyzdžiu: „Sakykime, jei tribūnoje politikas užsidegęs girtųsi išklausantis ir palaikantis jaunimo idėjas, bet jo rankos būtų sukryžiuotos ant krūtinės (gynyba), smakras nunarintas (nepalankus / priešiškas), ar juo patikėtumėte? O jeigu jis mėgintų įtikinti, kad yra geras ir rūpestingas, bet aštriais karatė smūgiais daužytų tribūną?“ (Pease 2012, p.43).

Savo kalbą, teiginius pabrėžiame ir žodžiais, ir kūno kalba. Pabrėždami žodžiais pasitelkiame balsą, keičiame jo aukštį ir tembrą arba pakartojame. Kalbėdami naudojamės ir savo kūnu: antakiais, galva, plaštakomis, rankomis, liemeniu, kojomis ir pėdomis, - pabrėžti žodžiams, kurie mums svarbūs arba kuriems norime suteikti emocinį atspalvį. Jei žmonės kalba nuoširdžiai, pabrėžimo ženklai laikytini universalia kūno kalba. Taip smegenys dalyvauja pokalbyje ir praneša aplinkiniams, kad esame tikri savo žodžiais. Priešingai, jeigu smegenys neparemia mūsų žodžių, kalbėdami atliekame silpnus pabrėžimo judesius arba visai jų nedarome. ***Meluodami žmonės nepabrėžia žodžių***. Norėdami nuspręsti, ką sakyti ir kaip apgauti, melagiai pasitelkia smegenų kognityviąsias funkcijas, bet retai kada susimąsto, kaip melagystes pateikti. Kai meluojantis asmuo stengiasi išgalvoti į tiesą panašų atsakymą, pabrėžimo ženklai iš šalies atrodo dirbtiniai ir pavėluoti; retai kada pabrėžiami tie žodžiai, kuriuos reikia, dažniausiai išryškinami palyginti nesvarbūs dalykai (žr.: Navarro 2013, p.245; Lieberman, 1998, p.37; Lieberman, Rosental 2001). Bandant išsiaiškinti, kur tiesa, o kur melas, kūno kalba gali būti netgi tikslesnė ir naudingesnė už žodžius. Žmonės, kalbėdami įpratę pasitelkti rankas, jų gestais pabrėžia savo teiginius, užsimiršę netgi ima daužyti rankomis stalą, kad suteiktų daugiau svorio žodžiams (Burgoon *et al.* 1994). Kiti pabrėžia žodžius pirštų galiukais – gestikuliuoja jais arba liečia daiktus. Plaštakų judesiai papildo nuoširdžiai tariamus žodžius, reiškiamas mintis ir jausmus. Norint išryškinti mintį pakeliami antakiai ir išplečiamos akys (žr.: Navarro 2013, p.245-246; Morris, 1985, p.61; Knapp, Hall, 2002, p.68, 277-284).

Ir atvirkščiai: žmonės per mažai pabrėžia savo žodžius arba menkai patys tiki tuo, ką sako, kai kalba prisidengę plaštakomis (kalbėdami prisidengia burną) arba ką nors dėsto abejingu veidu. Kai netiki tuo, ką patys sako, žmonės kontroliuoja veido išraišką, apriboja judesius, atlieka kitus atsitolinimo veiksmus (Buck, VanLear 2002, Colta 2010, Fichten *et al.* 1992). Meluodami žmonės dažnai apsimeta mąstantys, pavyzdžiui, delnu paremia smakrą, glosto skruostus, tarytum galvodami, ką atsakyti; toks elgesys visiškai priešingas sąžiningų žmonių elgesiui. Jei žmogus meluoja, jam reikia laiko įvertinti, ką pasakė ir kaip jo žodžiai bus suprasti (žr.: Navarro 2013, p.246; Lieberman, 1998, p.37; Knapp, Hall, 2002, p.320).

3. ***Gestus susiekite su situacija***.

Visi gestai turėtų būti vertinami pagal situaciją, pagal kontekstą. Pavyzdžiui, sukryžiuotos ant krūtinės rankos verslo derybų situacijoje gali reikšti „gynybą“, atsiribojimą nuo oponento dėstomų minčių. Žmogaus, laukiančio šaltą žiemą autobuso stotelėje, sukryžiuotos ant krūtinės rankos reikš visai ką kitą: jis stengiasi išsaugoti savo kūno šilumą. Kaip pažymi Joseph Messinger, „80 % jūsų kūno judesių ar pozų prasmė keičiasi, veikiama juos lemiančio konteksto, arba jie yra nereikšmingas gestikuliavimas, išskyrus kartotinius judesius, visuomet atliekamus nekintamai ar alternatyviai, kad ir koks būtų kontekstas. Tai reiškia, kad prieš vertindami ar aiškindami tam tikrą judesį turite pagalvoti“ (Messinger 2013, p.6).

Kūno kalbos verslo derybose ir dalykiniuose pokalbiuose tyrinėjimui aktualūs Samy Molcho pastebėjimai, kad „tai ką jaučia žmonės ... labai tiksliai atspindi jų kūnų kalba. Kadangi jausminės būsenos priverčia mus *atsiverti* arba *užsiverti*, sukeliami tokie

jausmai kaip baimė, rengimosi sprukti reakcija, išsisukinėjimas, nutolstama nuo taip trokštamo receptyvinio (imlaus, aplinkiniam pasauliui atviro) ir natūralaus elgesio. Visi neigiami jausmai, kurie mus užplūsta – mes jaučiamės nepakankamai įvertinti, įžeisti, nes kitas žmogus nepakankamai domisi mumis arba tuo, ką mes sakome, - visi panašaus pobūdžio nepasitenkinimai ir sukuria mumyse energijos užtvaras. O tai, deja, reiškia, kad nuo šios akimirkos mūsų atviras aplinkai elgesys yra smarkiai sutrikdytas. Nutrūksta informacijos srautas tarp jos siuntėjo ir gavėjo. Taigi aš remiuosi tuo, kad sėkmė priklauso nuo sugebėjimo rasti emocinį priėjimą prie savo partnerio ar pašnekovo bei išlaikyti šį ryšį, nes mano asmeninė sėkmė labiausiai priklauso nuo to, ar sugebu motyvuoti žmones. Bet šis mechanizmas veiks tik tuomet, jei aš tikrai suvoksiu ir rimtai vertinsiu ne tik savo asmeninius tikslus, bet ir kitų žmonių siekius. Taigi priversti pašnekovą patikėti, kad jei jis susivienys su manimi, išsipildys ir jo troškimai bei lūkesčiai. Trumpai tariant: norėdamas „užkariauti“ kitus žmones, tu privalai persikūnyti į juos, pabandyti sužinoti jų norus ir karščiausius troškimus, iškamantinėti, kokie dalykai galėtų juos motyvuoti, kas paskatintų juos veikti, o kas – sutrikdytų jų veiklą. Jeigu tai iš jų išgavau, man belieka paklausti savęs: kaipgi pašalinti jų veiklą sunkinančius trikdžius, kad jie galėtų žingsniuoti su manimi petys į petį keliu, vedančiu į sėkmę?“ (Molcho 2006, p.21). Taigi, ir per neverbalinę kalbą verslo derybose ir dalykiniuose pokalbiuose derybininkas pateikia oponentui signalus apie savo emocijas, jausmus, nuotaikas, nuostatas, vertybes, ketinimus. Veido išraiškos, balso skambėjimas, gestai, pozos – tai atitinkami signalai, kuriuos reikia fiksuoti, analizuoti, apjungti į visumą ir interpretuoti.

Išvados

1. Verslo komunikacijoje, verslo derybose, dalykiniuose pokalbiuose, kaip ir apskritai žmonių bendravime, svarbi ne tik žodžių turiniu perduota informacija, bet ir tai, kaip tie žodžiai buvo pasakyti, kokie balso niuansai buvo panaudoti. Greta to, nemažiau yra svarbūs ir kūno signalai, kuriuos derėdamiesi sąmoningai ar nesąmoningai derybininkai siunčia vieni kitiems. Stebint derybininko kūno fizinius pokyčius, gestus, galima susidaryti daugiau ar mažiau tikrovę atitinkantį įspūdį apie jo savijautą, nuotaiką, jausmus, mintis, lūkesčius, ketinimus ir jų pokyčius. Tai gali pasitarnauti reikalingų poveikio kitai derybų pusei priemonių pasirinkimui ir jų įgyvendinimui.

2. Kūno kalbos signalai verslo komunikacijoje, verslo derybose, dalykiniuose pokalbiuose yra svarbūs keliais aspektais:

- jie atskleidžia pašnekovo, oponento fizinę ir emocinę būklę bei jos kitimą,
- jie papildo, sustiprina ar susilpnina žodinę kalbą,
- mokančius skaityti bežodės komunikacijos ženklus įgalina daugiau ar mažiau tiksliai nustatyti ar žodine kalba yra sakoma tiesa.

3. Geras derybininkas turi sąmoningai valdyti savo neverbalinę kalbą, suvokti, ką jis demonstruoja savo oponentui bei mokėti perprasti oponento kūno kalbą, pastebėti, kada jo žodinė ir kūno kalbos informacija prieštarauja viena kitai, kada – sutampa. Tai labai svarbūs impulsai, kurie gali kardinaliai pakeisti derybų eigą ir galutinį derybų rezultatą.

4. Gebėjimas perprasti pašnekovo, oponento kūno kalbą – numanyti, ką jis galvoja, ką jaučia, kaip reaguoja, ką ketina daryti, - verslo komunikacijoje, verslo derybose ir dalykiniuose pokalbiuose yra labai svarbus. Tam gebėjimui išsiugdyti reikia įdėti darbo: įsisavinti teorinius pagrindus ir juos taikyti praktiškai. Kūno kalba yra labai informatyvi ir siunčia pašnekovui, oponentui daugybę signalų, tačiau vienareikšmiškai juos interpretuoti yra sudėtinga, o kartais neįmanoma ir nepageidautina. Interpretavimo tikslumas ir kokybė priklauso nuo interpretuojančiojo žinių ir praktikos.

5. Kūno kalba arba bežodė komunikacija apima daug žmogaus kūno ženklų. Bežodėje kūno kalboje yra labai daug svarbių dalykų: žmogaus laikysena, aprangos stilius, aksesuarai, gestai, žvilgsnis, mimika, šypsena, balso intonacijos, juokas, akių kontaktas, akių ženklai, atstumas tarp bendraujančiųjų, prisilietimas, plojimas, šokis, fiziologinės reakcijos – prakaituojantys delnai, kakta, išbalimas, ūmiai atsirandantis veido, kaklo raudonis ir kt. Dalis bežodės komunikacijos ženklų yra siunčiama sąmoningai (natūralūs ar suvaidinti ženklai, signalai), o kita dalis kūno signalų spinduliuojama į aplinką nesąmoningai, kuomet į gautą informaciją reaguojama iškart žaibiškai, instinktyviai ir negalvojant.

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BODY LANGUAGE IN BUSINESS NEGOTIATIONS AND BUSINESS MEETINGS

S u m m a r y

In business communication, business negotiations, business meetings, as well as in human communication in general, is important not only transferred information by the content of the words, but also how those words were said, what nuances of voice were used. In addition, no less are important the body signals, which negotiators in negotiations consciously or unconsciously send each other. Monitoring the negotiator’s physical changes of the body, gestures, can be produced more or less realistic impression on his being, mood, feelings, thoughts, expectations, intentions, and their changes. This can be useful for choice of the impact measures on other side of the negotiation and its implementation. Body language signals in business communication, business negotiations, business talks are important in several respects:

- they show the interviewer’s, the opponent's physical and emotional state as well as its development,
- they complement, reinforce or weaken the oral language,
- enables those who can read nonverbal communication signs more or less accurately to determine whether there is a truth said in oral language.

A good negotiator must consciously manage his non-verbal language in order to understand what he shows to his opponent, to know and understand the opponent's body language, to note when the verbal and body language conflicts with each other, when - are the same. It is very important impulses that can drastically change the course of the negotiations and the final outcome of the negotiations. The ability to understand the other person’s, opponent's body language – to imagine what he is thinking, what does he feel, how responsive he is, what does he promises to do - in business communication, business negotiations and business talks are very important. To develop this ability is needed to put a lot of effort: to absorb the theoretical framework and to apply them into practice. Body language is very informative and sends for the interviewer, opponent many signals, but clearly it is difficult to interpret, and sometimes it is not possible or desirable. The accuracy and the quality of the interpretation depend on the knowledge and interpretive practice. Body language or nonverbal communication involves a lot of human body signs. In nonverbal body language there are very much important things: human posture, dress, accessories, gestures, eye contact, facial expressions, smile, voice intonation, laughter, eye contact, eye signs, the distance between communicators, touch, clap, dance, and physiological responses - sweating palms, forehead, paleness, resulting in acute facial, flushing, etc. The part of nonverbal communication signs is being sent consciously (natural or play signs, signals), and the other part of the body signals is emitted into the environment unconsciously when reaction to the information received is immediate, instinctive and without thinking.

This article aims systematically describe the body language signs, signals and mechanisms of their recognition and rules of their interpretation. Their cognition and compliance would enable to adopt more efficient and more based solutions in business communication, business negotiations and business talks. In view of the opponents body language signals can be used for appropriate actions, communication steps and tactics based on objective information about opponents being, his moods, feelings, thoughts, hopes, intentions and developments.

KEYWORDS: business negotiations, business meetings, business communication, body language.

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INVESTIGATION OF INTERDEPENDENCE AND CHANGES IN LITHUANIA HOUSEHOLD CONSUMPTION AND ECONOMIC INDICATORS

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Annotation
In order to identify interdependence of Lithuania household consumption and macroeconomic indicators, an empirical study provided. Changes of Lithuania household budgets for 2007 – 2013 year determined by calculating chain indices, savings rate and its chain indices for 2008 – 2013 year also was calculated. After applying a polynomial trend the average disposable monthly income per member of the household, average monthly consumption expenditure per member of the household, LTL and savings rate (%) fluctuations in time where analysed. In order to establish a relationship between macro-economic indicators and income of household, consumption expenditure and savings rate, correlation and regression analysis performed. Main economic indicators were analysed: GDB, inflation, unemployment level and changes of labour income. For more comprehensive analysis of macro-economic indicators regression models were applied which show the changes in the macroeconomic indicators of changing them affecting the sizes of household income, consumption expenditure and savings ratio. It was found that household consumption expenditure are conditionally correlated with the Lithuanian macroeconomic indicators. The strongest relationship is between GDP, GDP per capita, and the monthly average wage (both gross and net) and average disposable income, average consumption expenditure per member of the household as well as the savings ratio. The analysis of household indicators revealed that in all cases much more accurate than the linear trend, fluctuations in time describes cubic trend, which means that both the average household income and consumption expenditure and savings ratio is not constantly growing size, they tend to fluctuate over the time.

KETWORDS: household consumption, macroeconomic indicators, correlation, regression, trend

Introduction

The economic-financial crisis in 2009 and household's recession increased attention of economists and politicians on the economic mechanism, structure relationship and interaction. The main focus was put on the one of the main economic institutions - household consumption problem and the factors influencing effects, i.e. how households respond to income, income tax, property prices and other indices, how certain groups of users adapts to these changes; which consumer groups are more and which less exposed to certain economic and political changes. These and many other questions intensifies discussions between economists and practitioners about household consumption problems. Among the many factors affecting household consumption and its structure, demographic and social characteristics, household budget and other factors are analysed. Although consumption and the structural changes discussed often, but only a few studies empirically analyse consumption, its structure and dynamics as well as the relationships between these and economic variables. These empirical studies today are much more important for current and future economic fluctuations and changes in the social environment. Multidimensionality of household consumption structure and dynamics allows analysing it in many different ways. In particular, the phenomenon influenced by the economic environment changes. Changing household income and taxes, changing products and their prices determines both the scale of consumption and structural changes. Second, household consumption affected by or affects by itself the economic indicators. Therefore, this topic is relevant to both the theoretical as well as practical point of view.

The object - household consumption and Lithuanian economic indicators.

The aim - to provide household consumption and economic indices in Lithuania for 2007 - 2013 year and identify their interdependence.

The objectives: 1. To structure the household consumption surveys. 2. Submit household budget index changes in Lithuania in 2007 – 2013 year. 3. Calculate the savings ratio for 2008 – 2013 year. 4. Determine the chain indices for the average disposable income, the average consumption expenditure per household member per month, and savings ratio (%). 4. Check relationship between macroeconomic indicators and household income, consumption expenditure and savings ratio.

Analysed macroeconomic indicators: GDP, GDP per capita, Inflation, the average wage (net and gross), registered unemployed, unemployment rate.

Research limitations - the lack of statistical data. The website of Lithuanian Statistics Department does not contain full details of household consumption, the time series data presented in a broken line. Information provided until 2008, which later interrupted and resumed in 2012. This is evident lack of information in 2009 - 2011 years (3 years). In addition, there is no information for 2013 year. It is therefore not possible to analyse the

patterns of consumption, as well as the age effect. In order to reveal the topic, missing data found in other sources (annals of Statistics, the Bank of Lithuania reports, etc.). However, it restricts the investigation, because not all the data is calculated and published.

Research methods - comparative analysis and synthesis of scientific literature, statistical and other data collection, classification, clustering, comparison, specification, elimination, generalization, modelling, analysis and synthesis of various economic indicators, mathematical calculations, graphical methods, modelling of economic processes, correlation analysis, regression analysis, logical comparative analysis and synthesis.

Presentation of the household consumption surveys

As household consumption expenditure is regarded as an important economic variable big attention in the economic literature is paid on consumption issues. In order to explain the causes of changes in consumption expenditure, there are many theories, but there is no consensus that would explain changes in consumption expenditure. Developed new theories/ models are based on several basic consumer models such as Keynes (1936) the absolute income hypothesis, Friedman (1957) permanent income hypothesis and Modigliani and Brumberg (1954) life cycle hypothesis. (Ramanauskas, Jakaitienė, 2007).

The household concept and economic functions are analysed by (1999), Aleknevičiene (2005), Vainienė, (2008), Collin (2003), Snowdon, Vane, (2003), Langvinienė, Vengrienė (2005), Harvey (2004), Browning, Lusardi (1996), Vitunskienė (1997) and others. Researchers present pretty much interpretations of household concept and different classifies their economic functions. It is worth noting that the household concept is constantly changing and is dependent on the political, social, historical and cultural factors (Katz, Weaver, 2002). Big attention to the consumption and other household economic functions paid by Pass, Lowes ir Davies, (1988), Friedman, (1957), Blanchard, (2007), Keynes, (2008), Werner, (2005). Household consumption expenditure classification and the importance for the economy reveals Werner, (2005), Rutkauskas (1999), Skominas (2006), Jurevičienė, Klimavičienė (2008). Miller (1996). Ramanauskas, Jakaitienė (2007) notes that household consumption expenditure are important to the national economy, because they most affect aggregate demand, consisting of consumption, investment and government expenditure, as it has the greatest relative weight in aggregate demand. Consumption essence of micro and macroeconomic level and the factors influencing it are analysed by Jackson, (2005), MassColell et al, (1995), Varian (1999), Deaton (1992), (2005), Vosyliūtė (2003), Jakutis, Petraškevičius et al.. (2005), Paunksnienė, Liučvaitienė (2009), Hardwick, Khan, (1990), Snieška, Čiburienė, Urbonas et al. (2005). Willman (2003), Barigozzi, Alessi ir kt. (2009), Skudelny (2009), Deaton, Erlandesen (2008), performed consumption structure and dynamics studies.

There is particularly few researches because this type researches are expensive and require considerable time and human resources. Most of these studies are funded by various stakeholders, and not publicly available. Consumption correlation with the macro-economic variables (public spending, taxation, price changes, etc.) was analysed by Kruger (2005), Kruger Perri (2004), Campbell (2003). In Lithuania more attention to household consumption pays Lisauskaitė (2010), Lydeka, Žaliauskas (2012). Systematized information on results about consumption research objectives, used methods and the results presented in Table 1

Table 1. Research on household consumption

Author, year	Research objectives	Research methods	Research results
Willman, 2003	Determine function for consumption: type and coefficients by using statistical data.	Regression and comparative analysis	Established particularly important relationship between household income, intuition of its future developments and consumption.
Erlandsen, Nymoen 2006	Identify consumption and population structure by age in Norway	Aggregated macro level statistics.	It was found that changes in the age structure has significant and mathematically (quantitatively) significant impact on consumption.
Kuismane, Pistaferri 2006	Identify the relationship between the consumption and available information and habits of the household	Correlation and regression analysis	It was found week positive correlation between consumption and its postponement due to uncertain future (potential risks). Households cannot predict their income changes, so income is not suitable for variable consumption prediction
Krueger, Perri 2008	Identify households respond to income shocks (Italian case)	Statistical forecasting	It was found strong correlation between income changes (especially in shock period) and reusable products. Weak relationship when analysing single-use products.
Barigozzi ir kt., 2009	Identify a household budget breakdown to costs (consumption)	Regression analysis	It was found that households generally intend in the same part of the income for consumption. However, households are not constant dispensing the consumption funds
Skudelny, 2009	Identify whether there are differences in consumption between the rich and the poor population of the country.	Regression analysis	Significant positive correlation in both cases
Slacalek 2009	Identify household budget breakdowns in different countries	Regression analysis	It was found that household welfare in different countries is changing in different ways, and changes in consumption cannot be generalized.

Krueger, Perri 2010	Identify households respond to income shocks (Italian case). Detailed and expanded 2008 years study	Regression analysis	It was found that there are economic variables that are strongly correlated with household disposable income and consumption.
Jappelli, Pistaferri 2010	Identify households respond to income shocks	Regression analysis	It was found that households react quite strongly to the change in income, while in the reduction of income are relatively unresponsive.
Lisauskaitė 2010	Identify personal income and consumption expenditure changes their structure and differentiation; Reveal Lithuanian personal income and consumption expenditure inequality and determine the coefficients of differentiation as indicators that reflect the public welfare and quality of life in specific expenditure groups.	Descriptive statistics	Identified the population propensity to consume, because very small part of income allocated to save and invest. Much of the spending to ensure critical needs rather than a healthy diet, clean environment, purposeful and create a full-fledged life
Lydeka, Žaliauskas 2012	After analysing theoretical principles of household consumption structure to investigate empirically consumption changes in Lithuania 2008 - 2011 year by demographic, social and economic variables.	Survey, correlation, regression analysis.	The hypothesis that by changing household incomes household consumption structure also changes. Household income changes affect not only the scale of consumption, but consumption structure and consumption of consumer goods to changes in individual groups. Bigger changes are detected when the household income is growing and the lowest when the household income decreased (affects concentration at the cost of the first necessity products)

As already mentioned research in the field of consumption requires considerable time, human and financial resources, and conducted quite rare and are financed by international or local, public authorities. Internationally, consumer surveys carried out by the World Bank, the OECD, the European Central Bank. At the state level, such studies are usually organized national central banks or institutions involved in the collection of statistics. It is important to note that because of the research limitations these studies are more static (done once, based on information available that time) than analytical.

In Lithuania, mostly surveys on the consumption, its structure and the household budget performed by the Department of Statistics. The household budget survey performed by Department of Statistics covers only received average income and consumption expenditure size setting (Department of Statistics, 2012). This static survey first conducted in 2004 and is performed once a year. „The main objective of the study is to collect information on household income and expenditure level, consumption, housing conditions in the various household groups to consumption pattern of the consumer price index data for the calculation of macroeconomic indicators (Department of Statistics, 2012). The last survey performed and generalized in 2008. While statistical survey performed correctly, the results and conclusions based on 5,000 to 6,000 random households data, but the study is limited. The data separated from household characteristics, i.e. do not analyse their specific, relevant household characteristics sections. As well as study more focused on quality and the household status study nor in household consumption and its relationship with other variables.

Lithuanian Department of Statistics since 2005 performs also Consumer Surveys (Department of Statistics, 2014). The study examine how consumers i.e. households trust the current economic situation; think about what their own financial situation changes during the last and the next 12 months. It also examined what households think about the economy and its further development. Saving, its changes and the possibility to save in the future is also one of the study areas. The aim – "to prepare and publish comparable information on consumer purchasing intentions and their ability to save, as well as on how they assess the economic situation and its impact on the intentions" (the Department of Statistics, 2011). The economic situation and its changes characterized by the price, level of unemployment and the general economic situation. This survey is also static and limited.

Household surveys also organizes the Ministry of Environment. Last, detailed household composition, income, property, savings, quality of housing, wishes to improve, household credit, and of course the cost study was conducted in 2002 (Ministry of Environment, 2002). This study is more detailed and more analytical than the Department of Statistics surveys. However, the last survey conducted 10 years ago, so the results of this study and the findings could be questioned, since over 10 years has changed dramatically, both economic and political environment. Similar surveys organized by the Lithuanian Free Market Institute. Their surveys often based on the Department of Statistics presented statistics and / or organized by itself surveys.

Survey results on interdependence between Lithuanian household consumption and economic indicators and their changes

One household disposable income in 2013 amounted an average of 2,565 litas per month, while disposable income per household member - 1,126 litas per month (see. Fig. 1). In comparison with 2012 year disposable income per household increased by 8.2 percent (per capita - 10.8 percent). In the city, one household disposable income was 18.5 percent higher than in rural areas. In order to compare the different size and composition of household income calculated equivalent disposable income, which in 2013 amounted 1,651 litas per month. The maximum of the equivalent disposable income were in households consisting of three or more adults without children (2,011 litas) and two adults younger than 65 years (1998 litas), while the lowest - in households consisting of two adults with three or more

children and single person households (respectively - 1,141 and 1,258 litas). Disposable income in kind was significant only in rural households. Here, they amounted to 3.5 percent of total disposable income (urban households - only 0.8 percent).

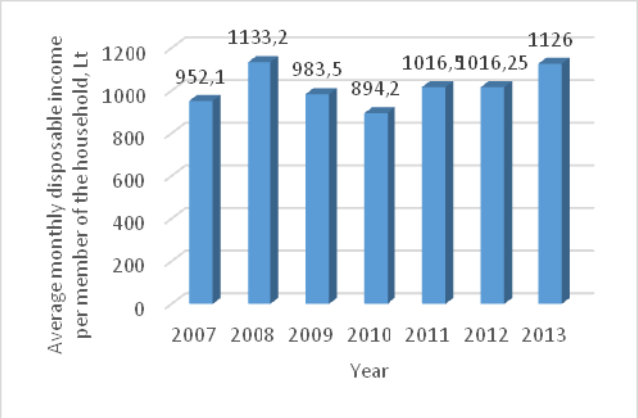

Fig. 1. Average monthly disposable income per member of the household for 2007 – 2013 year

In 2013 like in 2012, households had at its disposal 86 percentage of total monetary income. 52 percent of households' main source of income was from employment income. The old-age pension as the main source of income indicated 31 percent of households, from other social benefits by 11 per cent lived in households. In 2013 social benefits amounted 25.5 percent of total monetary income. Urban residents' income, social benefits accounted for 24 percent, rural - 29.7 percent. Within two years of social benefits part of total monetary income decreased by 3.4 percentage points.

For more than half (56 percent) of households the main source of cash income in 2013 was labour income. Income from wage labour as the main source of income has identified 52 per cent of households. For 42 percent of households were the main source of livelihood of social benefits. Compared with 2012, from social benefits living in households in the comparative share increased by 1 percentage point, from living labour income households also decreased by 1 percent. Especially many living on social benefits individuals were in households with one-person and two adults, of whom at least one was 65 years or older. Social benefits in old age was the main source of cash income to 80 percent of two adult persons, of whom at least one was 65 years or older, and 54 percent of single-person households, and other social benefits - respectively 4 and 11 percent above household types. As the rural population has more old people, one-third (34 percent) rural households' main source of income was the old-age pension.

Noticeable that the average disposable income per household member per month decreased significantly in 2009 even 13 percent compared with 2008. Especially low was in 2010 and this is the period of economic crisis. Since 2011 they began to grow, but has not yet reached the size of 2008.

The household budget survey results show that the average household consumption expenditure in 2012 was 854 litas per person per month (see. Fig. 2). Compared with 2008, consumption expenditure increased by 0.6 percent, or 5 litas per month. The evaluation of consumer price growth, consumption volume decreased 11.5 percent. The urban population average monthly consumption expenditure was 923 litas, rural population - 715 litas. Compared with 2008, the average increase consumption expenditure by 1.6 percent in the citie, while in rural areas - decreased 2 percent. 2012 compared with 2008, increased household consumption expenditure on food, housing, water, electricity, gas and other fuels, health care and education, of which only the cost of housing for rent, water and energy increase exceeded the price growth.

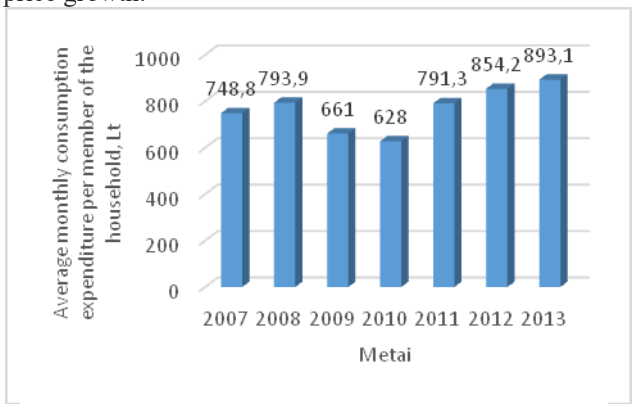

Fig. 2. Average monthly consumption expenditure per member of the household for 2007 – 2013 year

Households expenditure for food in 2012 (excluding the money spent in cafes, restaurants, canteens) used one-third (33.7%) of the total consumption expenditure. This amounted to an average $ 288 per household member per month. Expenditure on food at home in 2012, compared to 2008, increased by 4.3 per cent, while their comparative share of consumption expenditure increased by 1.2 percentage points. Expenditure for food has led to an increase in growth of prices (food prices during this period increased by an average 12.9%), influenced by the fact that people often ate at home - decreased expenditure on food in cafes, restaurants, canteens. Expenditure on food at home, including free or from his farm obtained amounted 31.7 percent of total consumer expenditure in cities and in rural areas - 39.2 percent.

Consumer spending on housing, water, electricity, gas and other fuels amounted 153 litas per household member per month: in the city - 179 litas, the rural areas - 101 litas (respectively 19.4 and 14.1% of household consumption expenditure). Compared to 2008 these expenses increased by 51.2 percent, while eliminating the growth of prices increase was 12.6 percent. Expenditure on housing, water, electricity, gas and other fuels comparative portion of consumption expenditure, compared to 2008 increased by 6 percentage points (in the city - 6.7, in the countryside - 4 percentage points). The increase in the necessary expenditure without almost any increase in income people saved by reducing the expenditure on furnishing and household equipment, leisure and culture, cafés and restaurants. Expenditure on clothing and footwear and communications also decreased mainly due to lower prices.

2012 basic expenditure proportion of all consumption expenditure (expenditure on food, housing, water, electricity, fuel, health care and transport), compared to

2008, increased both in urban and rural areas accounted respectively 67 and 70 percent of all consumption expenditure.

Savings rate is a derivative indicator that shows the disposable income per household member monthly devote themselves (saves). Estimated savings rate given in Table 2.

Table 2. Savings ratio for 2007-2013 year

	Average monthly disposable income per member of the household, Lt	Average monthly consumption expenditure per member of the household, Lt	Savings ratio (%)
2007	952,1	748,8	21,4%
2008	1133,2	793,9	29,9%
2009	983,5	661	32,8%
2010	894,2	628	29,8%
2011	1016,5	791,3	22,2%
2012	1016,25	854,2	15,9%
2013	1126	893,1	20,7%

In Table 2, we see that in 2010 the savings ratio was the same as in 2008 (29.9 percent) while income decreased 21 percent. As a result, households reduced consumption expenditure by 20.8 percent, and the same share of income deferred for saving. It shows Lithuanian households psychological approach to the consumption.

Lithuanian people's savings rate increased especially 2008 - 2010 year and the maximum amount reached in 2009. Income in 2009 decreased by 13 percent, but expenditure reduced by 16 percent a higher proportion of deferred future use. This indicates that the decreasing income households reduced consumption expenditure and a higher proportion of income assigned for future consumption.

For more detailed analysis of household income, consumption expenditure and savings time series chain growth rates were calculated by formula $T_a = \frac{y_t}{y_{t-1}} \cdot 100$, were y_t – time series value for analysed time moment, y_{t-1} – value before analysed time moment.

We can see that average household income, consumption expenditure and savings ratio is not constantly growing in size, they tend to fluctuate over time.

Chain growth rates for average disposable income, consumer expenditure and savings rates for 2008 - 2013 year presented in Table 3 and Figure 3.

Table 3. Chain growth rates for average disposable income, consumer expenditure and savings rates for 2008 - 2013 year

	Average monthly disposable income per member of the household, Lt	Average monthly consumption expenditure per member of the household, Lt	Savings ratio (%)
2008	119,02%	106,02%	140,22%
2009	86,79%	83,26%	109,52%
2010	90,92%	95,01%	90,79%
2011	113,68%	126,00%	74,42%
2012	99,98%	107,95%	71,98%
2013	110,80%	104,55%	129,71%

Chain growth rates of average disposable income, consumer expenditure and savings rates for 2008 - 2013 year show that these indicators are moving irregularly, and neither one of them does not reach the 2008 level (see Figure 3).

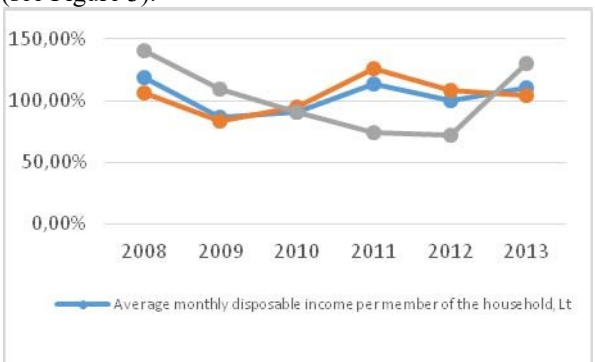

Fig. 3. Chain growth rates for average disposable income, consumer expenditure and savings rates for 2008 - 2013 year

In order to establish relationship between the macro-economic indicators and household income, consumption expenditure and savings ratio correlation analysis used. The country's main economic indicators analysed gross domestic product, inflation rate, unemployment rate, labour income trend. Growing unemployment, declining wages and social benefits are the main challenges that the 2008 - 2014 year Lithuanian population is facing.

Rising unemployment decrease incomes and the ability to consume and save. Rising unemployment leads to many negative consequences. Unemployment reduces people's income, depresses the country's economy, and worsens public finances. Unemployment (especially long-term) is a very important variable that determines the overall personal and family situation. This is one of the most important causes of social exclusion, which includes not only material conditions but also the inability to participate productively in economic, social, political and cultural life.

Pearson correlation coefficient indicates a linear dependence (correlation) between the two indicators. The correlation coefficient r can take values in the range from -1 to 1; negative correlation coefficient indicates inverse dependence, and the positive - direct. Correlation in absolute value closer to 1 shows stronger dependence. Lithuanian macroeconomic indicators presented in Table 4.

Table 4. Lithuania macroeconomic indicators for 2007-2013 year

	GDP, LT	GDP per capita, LT	Infliation, %	Average monthly net wages, LT	Average monthly gross wages, LT	Registered unemplyed, tūkst.	Unemployment level, %
2007	100271,6	30853	5,8	1351,9	1802,4	64,4	4,2
2008	112893,7	35141	11,1	1650,9	2151,7	88,3	5,8
2009	93000,6	29210	4,2	1602	2056	210,6	13,8
2010	96682,9	30771	1,2	1552,4	1988,1	270,4	17,8
2011	107890,6	35344	4,1	1594,6	2045,9	228	15,4
2012	115026,5	38296	3,2	1651,4	2123,8	196,8	13,4
2013	120694,7	40612	1,2	1730,3	2231,7	172,5	11,8

As can be seen in Table 5, the strongest correlation is between GDP, GDP per capita and average wages (both gross and net) and the average disposable income, the average consumption expenditure per one household member and savings rate. Direct correlation indicates that by increasing average disposable income and average consumption expenditure increases GDP and average wages (gross and net).

Meanwhile, the savings ratio and GDP and GDP per capita, correlation are inverse, i.e. increasing savings ratio determines decreasing of thsese indicators. It should be noted that the average disposable income per month per household do not correlate with analyzed macroeconomic indicators. It is therefore assumed that the assessment of households' budgets must be distinguished family or persons living together as individual research units. The household budget is to be considered as a single person living alone budget.

Table 5. Correlations between Macroeconomic indicators and household indicators

	GDP, LT	GDP per capita, LT	Inflation, %	Average monthly net wages, LT	Average monthly gross wages, LT	Registered unemployed, thous..	Unemploy ment level, %
Average monthly disposable income per household, Lt	-0,004	0,042	-0,076	0,674	0,654	0,278	0,270
Average monthly disposable income per member of the household, Lt	***0,806***	***0,724***	0,416	***0,671***	***0,763***	-0,412	-0,387
Average monthly consumption expenditure per member of the household, Lt	***0,950***	***0,932***	0,054	***0,480***	***0,559***	-0,336	-0,292
Savings rate, %	***-0,629***	***-0,675***	0,292	-0,020	-0,052	0,134	0,094

Note: significant correlations are marked.

For more detailed analysis of dependence between macro-economic indicators and household income, consumption expenditure and savings ratio regression analysis was performed. Linear regression model expressed by the equation: $y = a + bx$ where y is dependent indicator, and x - independent. In order to reveal the topic in the regression model as dependent variables y macroeconomic indicators were taken and x was income, consumption expenditure and the savings rate. Determination coefficient R^2 that shows the accuracy of the model is also calculated.

Created regression models presented in Figures 4-13. It was found that by increasing average income by one litas, GDP increases by 94,86 litas; GDP per capita increases 35,15 litas, average net wage 0,92 litas and gross salary – 1,20 litas. By increasing average consumption expenditure by one litas GDP increases by 101,39 litas; GDP per capita increases 41,02 litas, average net wage 0,59 litas and gross salary – 0,80 litas. By increasing savings ratio by one percent, GDP decreases by 104673 litas and GDP per capita decreases by 46321 litas.

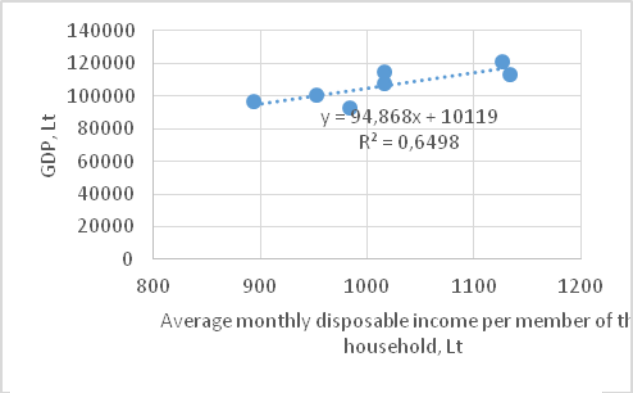

Fig. 4. Regression equation between GDP and average monthly disposable income per member of the household.

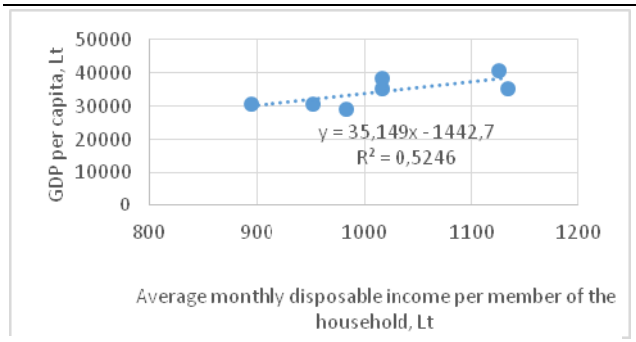

Fig. 5. Regression equation between GDP per capita and average monthly disposable income per member of the household

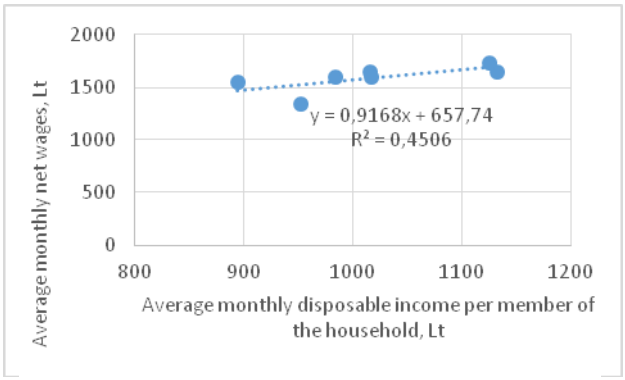

Fig. 6. Regression equation between average monthly net wages and average monthly disposable income per member of the household

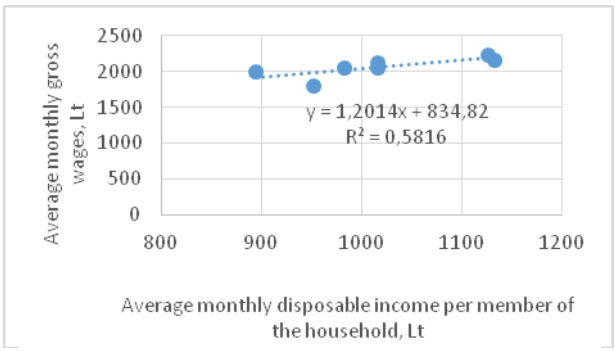

Fig. 7. Regression equation between average monthly net wages and average monthly disposable income per member of the household

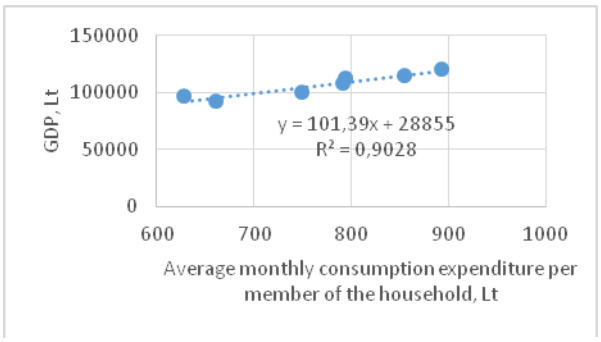

Fig. 8. Regression equation between GDP and average monthly consumption expenditure per member of the household

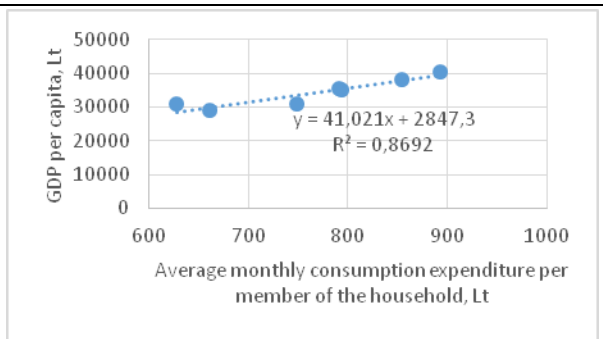

Fig. 9. Regression equation between GDP per capita and average monthly consumption expenditure per member of the household

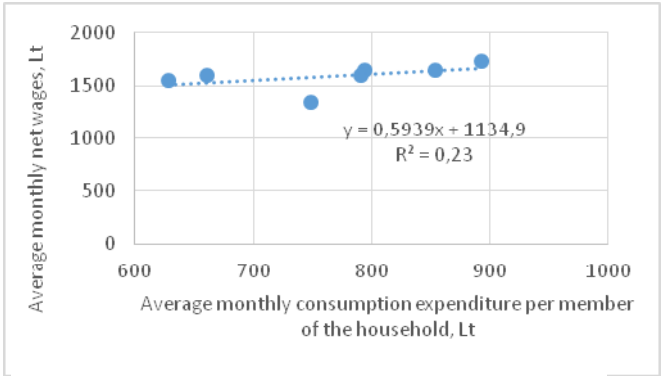

Fig. 10. Regression equation between average monthly net wages and average monthly consumption expenditure per member of the household

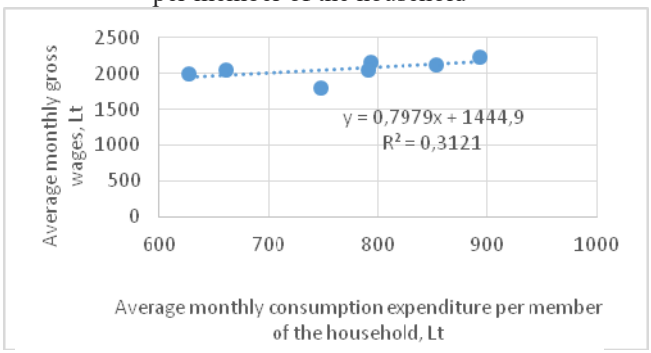

Fig. 11. Regression equation between average monthly gross wages and average monthly consumption expenditure per member of the household

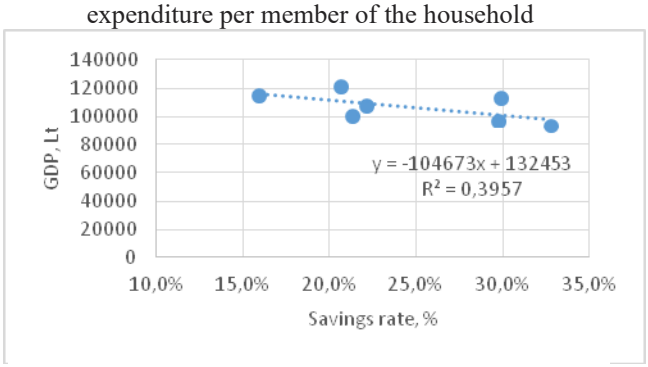

Fig. 12. Regression equation between GDP and savings rate

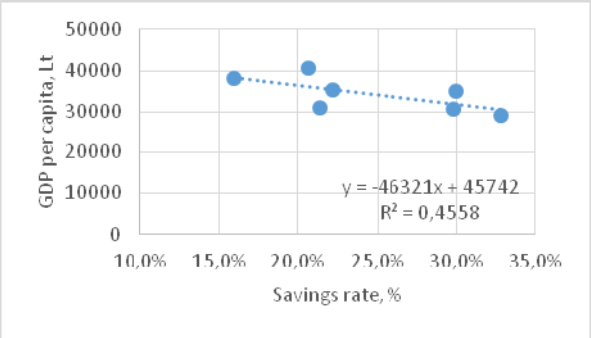

Fig. 13. Regression equation between GDP and savings rate

For more detailed analysis of household income, consumption expenditure and savings time series analysis was performed. One of the main goals of time series analysis is the prediction. The most popular prediction method is trend equation.

When analyzing three household budget indicators, we see that in all cases much more accurate than the linear trend, fluctuations in time describes the cubic trend (third order polynomial), this means that both the average household income and consumption expenditure and savings ratio is not constantly growing in size, they tend to fluctuate over time (see Figures 14 – 16).

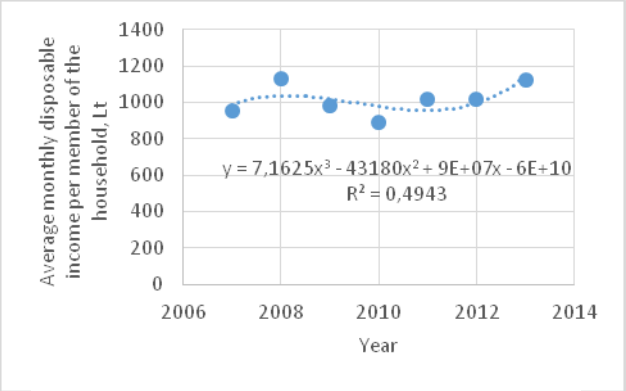

Fig. 14. Trend line for average monthly disposable income per member of the household

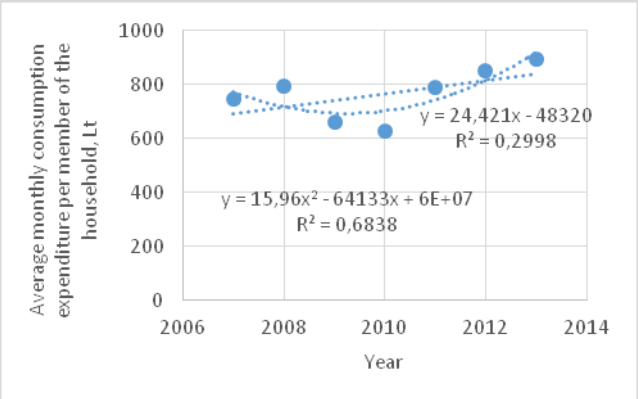

Fig. 15. Trend line for average monthly consumption expenditure per member of the household

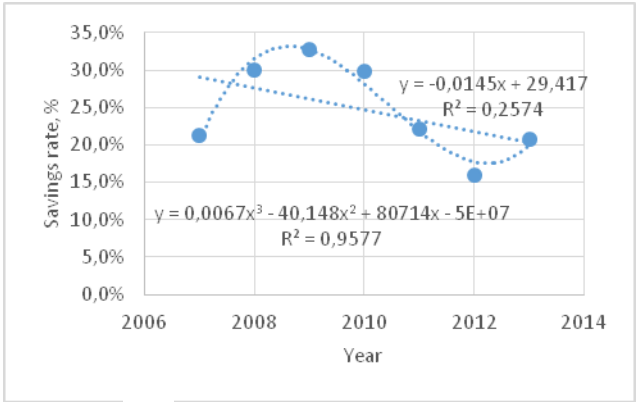

Fig. 16. Trend line for savings rate

Conclusions

There are quite many international studies on consumption, its structure and relationships with other economic variables internationally. However, these studies are specialized and/or episodic. They studied only certain aspects of the consumption or consumption relationship with another economic variable. Most studies based on an aggregate basis, macro-level statistics. There only few detailed micro-level and comprehensive studies. Scientists performing Lithuania various estimates, calculations and simulations usually uses standardized, general (in other words theoretical) factors and other factors. On many occasions, these standard sizes are applicable for advanced economies. For this reason, the Lithuanian consumer research would assess and clarify these figures. In other words, standardized sizes would allow to adapt it in Lithuanian economic case. In reviewing the existing research, it was observed that most researchers and practitioners agree that the consumption its structure and dynamics analysis is important, especially in the economic downturn period. Consumption is a key economic accelerator. In ineffective and unbalanced consumption accelerators also will not work effectively, which results stagnation or even recession in economics. Research that somehow touches consumption, its structure, dynamics and relationships with other variables are more statically in nature from than analytical and without disclosing household consumption and economic indicators relationship and change.

It was found that household consumption expenditure are conditionally correlated with the Lithuanian macroeconomic indicators. The strongest relationship is between GDP, GDP per capita, and the monthly average wage (both gross and net) and average disposable income, average consumption expenditure per member of the household as well as the savings ratio. The analysis of household indicators revealed that in all cases much more accurate than the linear trend, fluctuations in time describes cubic trend, which means that both the average household income and consumption expenditure and savings ratio is not constantly growing size, they tend to fluctuate over the time.

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LIETUVOS NAMŲ ŪKIŲ VARTOJIMO IR EKONOMINIŲ RODIKLIŲ TARPUSAVIO PRIKLAUSOMYBĖS POKYČIŲ TYRIMAS

S a n t r a u k a

2009 metais prasidėjusi ekonominė-finansinė krizė ir daugelio valstybių ūkių nuosmukis padidino ekonomistų dėmesį vienai pagrindinių ekonomikos institucijų, t.y. namų ūkio vartojimo problemoms ir jį įtakojančių veiksnių padariniams, t.y. kaip namų ūkiai reaguoja į pajamų, pajamų mokesčio, turto, kainų ir kitų rodiklių pokyčius; kaip tam tikros vartotojų grupės prisitaiko prie šių pokyčių; kurios vartotojų grupės labiau, o kurios mažiau paveikiamos tam tikrų ekonominių ir politinių pokyčių. Namų ūkio vartojimo struktūros ir jos dinamikos tematikos daugialypiškumas jį leidžia nagrinėti vis kitaip. Visų pirma, šis reiškinys yra įtakojamas ekonominės aplinkos pokyčių. Kintančios namų ūkio pajamos ir mokesčiai, kintantys produktai ir jų kainos lemia tiek vartojimo masto, tiek struktūros pokyčius. Antra, namų ūkių vartojimas yra veikiamas arba pats veikia ekonomikos rodiklius. Taigi, ši tema yra aktuali tiek teoriniu, tiek ir praktiniu požiūriu,

Siekiant identifikuoti namų ūkių vartojimo ir makroekonominių rodiklių tarpusavio priklausomybę Lietuvoje, atliktas empirinis tyrimas. Naudojant duomenų padėties ir rodiklių sklaidos statistikos metodus pristatyti namų ūkių biudžeto rodiklių pokyčiai Lietuvoje 2007 – 2013 metais bei apskaičiuoti santaupų koeficientai 2008 – 2013 m. Pritaikius kubinį trendą (trečios eilės polinomą) atskleisti vidutinių disponuojamųjų pajamų vienam namų ūkio nariui per mėnesį, Lt, vidutinių vartojimo išlaidų vienam namų ūkio nariui per mėnesį, Lt bei santaupų koeficiento (%) svyravimai laike, t.y. grandininių pokyčių tempai. Siekiant nustatyti makroekonominių rodiklių ryšį su namų ūkių pajamomis, vartojimo išlaidomis bei santaupų koeficientu, taikyta koreliacinė bei laiko eilučių analizė. Vertinami pagrindiniai šalies ekonominiai rodikliai: bendrasis vidaus produktas, infliacijos lygis, nedarbo lygis, darbo pajamų kitimo tendencija. Išsamesnei makroekonominių rodiklių priklausomybės su namų ūkių pajamomis, vartojimo išlaidomis bei santaupų koeficientu analizei, sudaryti regresiniai modeliai, kurie parodo kaip keičiasi makroekonominiai rodikliai kintant juos įtakojantiems dydžiams.

Nustatyta, kad namų ūkių vartojimo išlaidos sąlyginai turi ryšį su Lietuvos makroekonominiais rodikliais. Stipriausias ryšys yra tarp BVP, BVP, tenkančio viena gyventojui bei vidutinio darbo užmokesčio (tiek bruto, tiek neto) bei vidutinių disponuojamų pajamų, vidutinių vartojimo išlaidų, tenkančių vienam namų ūkio nariui bei santaupų koeficiento. Tiesioginiai ryšio rodo, kad didėjant vidutinėms disponuojamoms pajamoms bei vidutinėms vartojimo išlaidoms, didėja ir BVP bei vidutinis darbo užmokestis (bruto ir neto). Tuo tarpu tarp santaupų koeficiento bei BVP ir BVP, tenkančio vienam gyventojui, ryšiai yra atvirkštiniai, t.y. didėjant taupymo koeficientui šie rodikliai mažėja. Pažymėtina tai, kad vidutinės disponuojamosios pajamos per mėnesį vienam namų ūkiui, Lt nekoreliuoja nei su vienu nagrinėtu makroekonominiu rodikliu. Tokie makroekonominiai rodikliai kaip infliacija, registruotas bedarbių skaičius, nedarbo lygis neturi sąryšio su namų ūkių vartojimu. Analizuojant namų ūkių rodiklius, išryškėjo, kad visais atvejais daug tiksliau nei tiesinis trendas, svyravimus laike aprašo kubinis trendas (trečios eilės polinomas), tai reiškia, kad tiek vidutinės namų ūkių pajamos, tiek vartojimo išlaidos bei santaupų koeficientas nėra pastoviai augantys dydžiai, jie linkę svyruoti laiko atžvilgiu.

Tyrimo apribojimai – statistinių duomenų trūkumas. Lietuvos statistikos departamento tinklalapyje nėra pilnos išsamios informacijos apie namų ūkių vartojimą, pateikiamą nutrūkstančia laiko eilute. Informacija pateikiama iki 2008 m,, kuri vėliau nutrūksta ir atsinaujina tik 2012 metais. Tai yra informacijos stoka akivaizdi 2009 -2011 metais (3 metus). Taip pat šios informacijos nėra jau 2013 metais. Dėl tos priežasties neįmanoma analizuoti vartojimo struktūros, taip pat amžiaus įtakos vartojimui. Siekiant atskleisti temą, trūkstami duomenys buvo rasti kituose šaltiniuose (Statistikos metraščiuose, Lietuvos banko ataskaitose ir pan.), tačiau tai susiaurina tyrimą, nes ne visi reikalingi duomenys yra skaičiuojami ir skelbiamu.

KEYWORDS: namų ūkių vartojimas, makroekonominiai rodikliai, koreliacinis ryšys, regresinis modelis.

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THE RELATIONSHIP BETWEEN SUSTAINABLE DEVELOPMENT AND CORPORATE SOCIAL RESPONSIBILITY

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Annotation
The article discusses not only the basic principles of sustainable development, implementation, but links to corporate social responsibility as well. In Lithuania and in the entire world scientists constantly analyze corporate activities' impact on sustainable development, what benefit or harm can be done to the company's activity. Therefore, the article also emphasizes the obstacles facing the company, determined to take the path of sustainable development, which measures the potential companies to achieve social responsibility.
KEYWORDS: sustainable development, social responsibility, management theory, corporate responsibility, self-management.

Introduction

Sustainable development is a process launched at the end of twentieth century of which economic, social and environmental areas must develop coordinated to minimize the damage done to humans and the environment. The rising economic problems are more under the influence of the interests of social groups, increasing environmental requirements; the formation of global institutional networks, sustainable development has become an integral part of modern democratic societies and highly topical subject for research. Sustainable development strategy implemented at different levels: at the level of corporate and national level, as well as a global level, where international agreements are signed.

The scientific literature contains a lot of information on how businesses should strive to implement the principles of sustainable development in their work and become a cohesive enterprise. Čiegis and Grunda (2007) emphasize that the literature often refers to one or more concepts or measures to encourage enterprises to achieve implementation of the principles of sustainable development, highlighting the benefits of each of them, but the amalgam of the approach and the identification of these concepts' communication unnoticed. Česynienė and Neverkevič (2009) point out that the main problem may be that the introduction of social responsibility initiatives is a "luxury" that can allow only large companies. However, many researchers (Gruževskis, Vasiljevienė, Moskvina, Kleinaitė 2006; Vasiljevienė and Vasilievas 2006) recognize the need as soon as possible and involve the business world in the implementation of the principles of sustainable development, because, according to Simanavičienė, Kovaliov and Šubonytė (2011), business is the most powerful force allowing the use of the huge financial resources, scientific knowledge, technology and other progress achievements around the world.

Corporate social responsibility and its implementation aspects dealt with so many around the world as well as Lithuanian scientists. The importance of social responsibility analyzed Šimanskienė and Paužuolienė (2010a, 2010b), Barcevičius E., Mšavanadzė N. and Čiupailaitė D. (2007); the concept of social responsibility analyzed Česynienė, Diskienė and Česynaitė (2011), Juščius (2007), Juščius and Kondratyuk (2012), and others. Corporate social responsibility as a business strategy studied Dagilienė (2010), Carroll (1999), Carroll and Buchholtz (2012), and social responsibility initiatives trends observed Mares (2007), Ruzevičius and Serafinas (2006). Problems, arising from the implementing the ideas of corporate social responsibility, analyzed Juščius and Snieška (2008), Bernatonytė, Vilkė and Keizerienė (2009), Čiegis and Gineitienė (2008), Grybaitė and Tvaronavičienė (2008), Lapinskienė and Tvaronavičienė (2009), Schieg (2009), Tafel-Viia and Alas (2009). Various scientists the corporate social responsibility often share with the implementation of sustainable development (Čiegis 2003, 2004, 2008; Juščius 2009; Štreimikienė and Kovaliov 2007; Kaziliūnas 2008; Paulauskas and Paulauskas 2008; Ebner, Baumgarther 2006; Salzmann 2005).

However, according to Bagdonienė and Paulavičienė (2010), not all business ideologues agree with the ideas of social responsibility. Liberal economists criticize this ideology as contrary to the basic principle of business - increase profits, rather than save the planet. Nobel laureate Friedman in the 1970s argued that corporate social responsibility program - only a waste of resources. Other authors (Coelho, McClure and Spry 2002) tell that social programs are useful only for hired managers, who seek career or other personal objectives.

Taking into consideration these main aspects of sustainable development and corporate social responsibility, the research problems can be formulated as follows: is important for companies to comply with the principles of sustainable development; how to promote

the sustainability of the company; what are barriers facing the company, determined path of sustainable development?

The **object** of research - sustainable development's interface with corporate social responsibility.

The **objective** of research - on the basis of sustainable development principles and the relationship with corporate social responsibility, to identify measures for the company to achieve the sustainability of its activity.

To reach the objective the following **tasks** were set:

1. To examine the concept of sustainable development and main aspects of the implementation of sustainable development principles;
2. To specify the sustainable development link with corporate social responsibility;
3. To represent measures for the company to pursue social responsibility.

Research **methods**: systematic scientific literature's methods, general and logical analysis, comparison, generalization and abstraction techniques.

The concept of sustainable development

The concept of sustainable development was analyzed with emphasis on different aspects. In the scientific literature (Du Pisani 2006; Kates, Parris, Leiserowitz 2005; Pearce, Atkinson 1998) usually is used the definition of sustainable development represented by the United Nations Environment and Development Commission. The Commission defines sustainable development as ***development that meets the needs of the current period without risk of future generations to meet them***, i.e. economic development that meets the environmental requirements. Engel and Engel (1990) give a broader approach to sustainable development. They argue that sustainable development is a human activity that contributes to the development community on Earth, and Dasgupta (2007) treats sustainable development as a kind of economic program in which the welfare of present and future generations is becoming more important and relevant.

Odum (1994) provides another approach to sustainable development. He argues that the real world is always changing. If this change is positive, then sustainability can be as natural capital (natural) management. Therefore, sustainability can be understood as the process of adaptation to change, a focus on the management and standards setting.

Thus, the Lithuanian and foreign authors provide essentially the same definition of sustainable development, underlining the long-term economic development, in order to rationally reconcile society's economic, social and environmental interests, and ensuring the welfare of present and future generations within the permissible limits of environmental impact. However, it is noted that the concept of sustainable development usually involves three main aspects; there is no emphasis on the role of institutions, which has a significant influence on a combination of economic, social and environmental objectives into a whole.

The practical application of the concept of sustainable development leads to a lot of unanswered questions, as following (Burinskienė 2004; Čiegis 2003, 2004; Štreimikienė, Kovaliov 2007):

- coherent, relatively detailed and understandable and acceptable vision of a sustainable economy and society in the absence;
- inability to integrate economic, social and environmental objectives into a unified development context and deal with them one at a time and in proportion;
- often development goals and objectives are hardly measurable, it is difficult to separate the public interest from luxury or impossible to meet the desires of individuals and society;
- inefficient communication, transmission of information, affected by interest groups, political sensitivity, realization costs and other problems.

However, inconcreteness of the concept of sustainable development can be considered as a certain strength, which caused many discussions, because each person is different, how different is his opinion, experience and knowledge. Cole (2007); Zeleniūtė and Čiegis (2008) think that for economists is important the improvement of quality of life, for ecologists – the importance of biodiversity conservation, rational use of natural resources, and for sociologists - social obligations and interconnected society. Therefore, all this shows that the concept of sustainable development is a complex which integrates these three dimensions into a whole and give them equivalence which is a key aspect of sustainable development philosophy.

The analysis of sustainable development and the concept's versatility rose in the debate. It should be mentioned that both qualitative and quantitative indicators have a significant impact on the country's sustainable development. Therefore, through institutional indicators the real situation reflects, because every decision may affect sustainable development and its complexity. Of course, bureaucracy, corruption has a negative impact on sustainable development, however, there are other positive influencing institutional indicators: economic freedom, business freedom, civil and political freedom and so on.

Although many authors address different institutional indicators, but according to Acemoglu (2005), one of the most important is the protection of property rights, which means that the property of citizens will not be misappropriated or hijacked. Inadequate protection of property rights leads to a low level of GDP per capita, but low GDP per capita leads to weaker property rights. Less developed countries are too poor to be able to maintain a proper legal framework for seeking sustainability.

Sustainable development management at global level is seen as a legal resolutions, regulations, rules governing the sustainable development process, sum. Management depends on the implementation of the basic principles of sustainable development (see. Table 1).

Table 1. The main principles of sustainable development management

Main principles	Explanation
Partnership (communal)	The inclusion of individuals in sustainable development management, collaboration, solving problems.
Efficient use of resources	Limitation and rational use of resources.
Holistic principle	The equivalence of sustainable development factors.
Information scatter	Population involvement in environmental policy making and informing of the change in the situation, and so on.
International co-operation	Cooperation in solving global problems.
The principle of democracy	Community participation in decision-making, involvement of all stakeholders into development tools, financing and implementation.
Scientific and technological progress and innovation promotion	Implementation of innovations in all areas of life, intellectual resources, improving the quality and increasing the significance of the development.
Taxation of polluters	Polluters' liability and damage return.
Sustainable development Assessment	Criteria and evidence establishment, identification of sustainable development level of the operational efficiency of monitoring and control.
Programming	The inclusion of long-term programs for implementation of the measures.

Source: created by author, according to Masser (2001), Bivainis and Tamošiūnas (2007), Hjorth and Bagheri (2006)

Some of the most important principles of sustainable development are a partnership and holistic principles. The Partnership principle is based on the corporate social responsibility, private and public sector cooperation. The holistic principle is based on the principles of sustainable development dimensions of equivalence. Sustainability management principles are very important for Lithuania because they are associated with the implementation of regional policy to reduce regional socio-economic disparities and promote sustainable development.

Štreimikienė and Kovaliov (2007) highlight that the market alone can not ensure social and environmental sustainability objectives for the obstacles that arise primarily because of the inability of the market to solve the environmental, public goods, information limitations, social inequality and other problems. Therefore, the country's economic development management (institutional dimension of sustainable development) allows a timely manner to internal and international situation changes and maximize the efficient use of the country's economic potential (Lithuanian Economic Development until 2020 Long-Term Strategy 2007). It is necessary to assess the implications of enlargement and aspirations of retrospective and prospective levels to plan, implement, monitor progress.

There are advantages of free trade, focused on ensuring sustainable development and promotion (Gonzalez 2004; Nielsen 2006; Jackson 2007; Ruta ir Hamilton 2007):

1. Free trade between the countries, which promotes the country's economic diversification, effective allocation of resources and respect for the environment and commitment to the principles of entrepreneurship;
2. The scientific and technological development acceleration promoting cleaner technologies, research, providing technological support to developing countries;
3. Public awareness, increasing efficiency, reducing waste.

In the context of sustainable development is very important to rechange dysfunctional methods of production and consumption to the sustainable change in quality, promoting the rational use of resources and reducing waste. Bringing the expected problem and the implementation of the decision should be guided by the basic principles of sustainable development management, which enables the country to approach the level of sustainability.

In the scientific literature in terms of the institutional environment and sustainable development (economic, social, environmental) are two noticeable trends: one trend is oriented to the equivalent dimensions (formed tetrahedron), the other direction related to the "egg" principle when the institutional dimension includes in other three dimensions (see Table 2).

Table 2. "Tetrahedral" and "egg" approaches of sustainable development

Authors	"Tetrahedral"	"Egg"
Foreign authors	Spangenberg and Bonniot (1998); Bossel (1999); Spangenberg (2002); Keiner (2003); O'Connor (2006); Meadowcroft, Farrell and Spangenberg (2005); Cottrell and Vaske (2005); Bell and Morse (2008)	Guijt and Moiseev (2001); Gibson (2001); Giddings, Hopwood and O'Brien (2002); Alpopi, Manole and Colesca (2011); Blanchard and Wolfers (2000)
Lithuanian authors	Čiegis, Tamošiūnas, Ramanauskienė and Navickas (2010); Čiegis (2003, 2004); Čiegis, Ramanauskienė and Startienė (2009); Žvirblis (2007); Žvirblis, Mačerinskienė and Buračas (2008); Žičkienė (2004); Šileika and Žičkienė (2001)	Bivainis and Tamošiūnas (2007); Čiburienė and Guščinskienė (2008); Šimanskienė and Kutkaitis (2009)

Source: created by author

"Egg" is based on the principle that the institutional dimension includes in the three dimensions of sustainable development, leading to the formation of the egg shape. This approach focuses on the fact that the institutional dimension regulates the other three dimensions. Another approach ("tetrahedral") is based on an equilateral pyramid, where four dimensions (economic, social, environmental and institutional) are equally important (see Fig. 1).

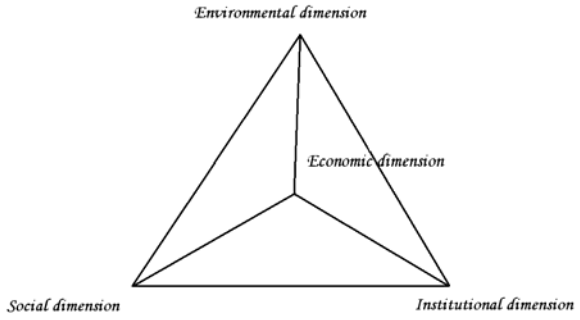

Fig. 1. Four dimensions of sustainable development
Source: made by author

According to the holistic approach of sustainable development and the support of an equilateral "tetrahedral" formation it can be emphasized that development must be based not on the individual dimension, but the whole system, i.e. integrated system. If for any dimension (eg., institutional, economic, environmental or social) would be given more attention, so in this case sustainability will only cover specific problems, so links with other areas of development would be very weak.

Another aspect that makes "tetrahedral" principle important is close link to all four dimensions. The priorities to institutional dimension should not be used because it fails to manage all the environmental factors, however, can alleviate the effects of natural disasters.

The Commission Communication "Rio + 20" provides that it is necessary to strengthen and standardize the management of sustainable development <...> improving, inter alia, the activities carried out under the economic, social and environmental pillar, cohesion and integration policy (The Commission Communication… 2011). It means that equal attention should be given for four sustainable development axes (dimensions). The United Nations also points out that sustainable development emphasizes a holistic, equitable approach to decision-making at all levels (United Nations. Rio+20 2012).

Sustainable development interface with corporate social responsibility

In many European Commission documents, related to sustainable development, stresses that an integrated sustainable development policy in the business environment, technology encourages responsible approach to commercial business processes and the results of the implementation of environmental measures, improving competitiveness, innovation and application of new jobs development (Paužuolienė 2010). Companies are encouraged to take part in social responsibilities, to develop sustainable business, to invest in social initiatives and the implementation of the deployment, execute and develop innovative social initiatives practices.

Corporate social responsibility, emphasizing the importance of sustainable development, is possible to analyze by various aspects: from debate, posed for the formulation of the concept, or socially responsible activities' benefit to society and the environment, to the impact of individual groups on the development of social responsibility and its benefits. Social responsibility is a relatively new concept that is becoming increasingly important relevance.

The analysis of scientific publications showed that there is no universally accepted definition of corporate social responsibility. Čiegis and Grunda (2007) provide much more comprehensive corporate social responsibility concept. According to them, corporate social responsibility is the corporate ideology, policy and practice, reflecting the behavior of companies that voluntarily integrate social and environmental issues and relations with all stakeholders of society, business and government representatives guided by respect for people, society and nature in securities principles. The Lithuanian Ministry of Social Security and Labour (2014) defines that corporate social responsibility - corporate policy and practice when, in accordance with laws, international agreements and the agreed norms of behavior in their internal processes and external relations voluntarily integrate social, environmental and transparent business principles. Thus, it is possible to emphasize that corporate social responsibility can be defined as a term that covers social and environmental principles of voluntary enrollment in the inside processes and relations with the public.

In the scientific literature there are four main corporate social responsibility's development components, which simplify and summarize the social responsibility concept (Išoraitė 2013):

- Competitive businesses in the changes of global economy;
- A safe and clean environment;
- A strong social cohesion;
- Transparent and ethical business practices.

Also, corporate social responsibility can be seen as ethical (vision, goals, values, organizational structure, culture and behavior), sustainability (business processes, supply chain, manufacturing, product design and distribution) and responsibility (relations with the various stakeholders: government, employees, customers, suppliers and society) application of the principles of business processes (Responsible Business Practice 2007). Thus, the concept of sustainable development requires the private sector to change the normal behavior: no longer seek profit-making, but to orientate to the environment.

Juščius (2007) presents a comparison of corporate social responsibility theories (see Table 3).

Table 3. A comparison of corporate social responsibility (CSR) theories

Theory	Approach to CSR	Approach to the costs of CSR	CSR goals	CSR motives	Main arguments
Agency theory	Negative	The waste of resources	Outside business interests	Not economic	Business should be respected only by shareholders' interests
Stakeholder theory	Positive	Justified in the long run	Remove or reduce the resistance of interest groups	Efficiency	Have a negative impact on the company's financial results in the long term
Responsible management theory	Positive	Inevitable	Social-ethical	Moral	Managers must behave morally without considering the financial benefits
Transaction cost theory	Relatively positive	Only partly justified	Social, directly not related with business goals	Only partly economic	Destroys private property rights, promote fair business responsibility
Resource theory	Very positive	Required	Sustainable economic and social objectives	Sustainable development	Correlation between CSR and long-term company's efficiency

Source: Juščius (2007)

Neo-classical theory has formed a relatively clear negative opinion on business programmes, but the new corporate social responsibility theories have noted that social responsibility models are improving, integrating them into the economy, governance and other social elements of modern concepts.

Companies, in order to balance their activity and meet the requirements of social responsibility, guide by certain rules and standards. The modern world is a rational use of balanced social, humanist values and economic benefits combine with the so-called "3E" principle (Išoraitė 2013; Marrewijk 2003; Gruževskis et al 2006; Elkington 1998; Vasiljevienė and Vasiljevas 2006), which Potašinskaitė and Draugelytė (2013) present in the scheme (see Fig. 2).

Fig. 2. Corporate social responsibility framework components

Source: Potašinskaitė and Draugelytė (2013, 426 p.)

Išoraitė (2013) highlights, that corporate social responsibility combines all three principles, without identifying any of them. In other words, social responsibility consciously creates economic, political, legal and moral relationships between organizations and the public. All of this involves socially responsible - sustainable business principles. Social responsibility has a legal foundation for the country in the international community and on a global scale.

Development of idealogy of corporate social responsibility

For an enterprise to be sustainable and oriented towards implementation of the principles of sustainable development, it needs to be, according to Čiegis and Grunda (2007), from the company's foundation built on the foundation of sustainable development, or traditional company has to change its activity in order to become sustainable (see Fig. 3).

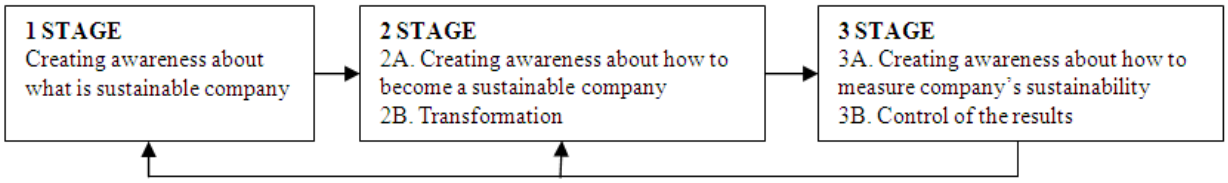

Fig. 3. Stages for the company to become socially responsible
Source: Čiegis and Grunda (2010, 23 p.)

In the first stage, the company has to figure out a sustainable company concept, i.e. what is a sustainable company. In the second stage, where the company has already decided to become sustainable, it is important to develope and understand, how to become sustainable, what conditions and requirements are to be fulfilled. It is also already provides for the transformation of the company. During the final stage the company's results revealed. Thus, at each stage company itself chooses the means and ways to achieve sustainability, since there is a quite a lot of tools that help companies focus on this sphere.

In order to expand corporate social responsibility ideology among small and medium-sized enterprises, Česynienė and Neverkevič (2009) propose a model that includes unified society, business and public efforts and interests (see Fig. 4).

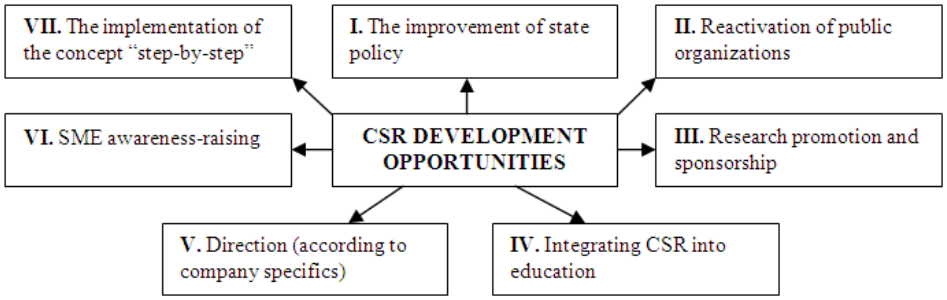

Fig. 4. Development opportunities of corporate social responsibility
Source: Česynienė and Neverkevič (2009)

According to these authors, in order to remove barriers and enhance corporate social responsibility initiatives, it is recommended to take complex steps that unite society, business, government efforts to improve public policy interests, intensifying social organizations to promote and support research in the integration of corporate social responsibility in education by raising awareness among company managers.

According to Čiegis (2008), to ensure the success of the company it should integrate all organizational and cultural values of the company into a coherent whole, so that corporate social responsibility can be measured on the basis of the parameters: the market and the organization (which form the inner aspect of corporate social responsibility), society and the environment (it would be outside the social responsibility aspect). Corporate social responsibility has an impact on sustainable business development. Thus, corporate social responsibility is a practical application of sustainable development in their activities. As highlights Kleinaitė (2007) and Paužuolienė (2010), socially responsible business can help the company to create a competitive advantage, to reveal new ideas and opportunities, to help reduce operating costs. Corporate social responsibility can also be seen as an ethical sustainability and responsibility principles in business processes.

Čiegis and Grunda (2007), concerned with company's transformation into a cohesive business processes, isolated measures that help companies quickly become cohesive: a) the triple bottom line accounting (from the traditional company's profit (loss) reports preparation to the environmental and social analysis of the results); b) the cleaner production (integrated preventive environmental management strategy to manufacturing processes, services and products throughout their life cycle in order to reduce the impact on people and the environment); c) the eco-efficiency (which reaches the supply of competitively priced goods and services, progressively reducing the environmental impacts and resource intensity of the product life cycle to a level which can raise ground capacity); d) energy efficiency (the use of such products that provide the same service, but use less energy); e) 4R (reduction, reuse, recycling, recovery); f) the prevention of pollution (focusing on reduction of pollution and ways to prevent pollution) and the many other measures.

Conclusions

Analysis of the sustainable development concept and principles of the implementation showed that the recent strategy for sustainable development is implementing at enterprise level, emphasized corporate social responsibility, the importance and necessity. Companies began more responsibly to look into the implementation of environmental protection measures, the application of innovation and social initiatives in the installation and implementation process. Corporate social responsibility is a practical application of sustainable development in corporate activities.

In the connection of sustainable development and corporate social responsibility it can be noted that for

companies is more difficult to change its behavior and path of sustainable development, but with an emphasis on the resulting financial benefits and related benefits for society and the environment, more and more companies venturing its activities, focused more on the basic principles of sustainable development. Socially responsible companies economic benefits combine with 3P principles: profit (economic area), people (ethic-social area), planet (the environmental area).

The emphasis on measures that companies seek to social responsibility, it is noted that although the field of environmental initiatives (such as energy efficiency, green procurement, prevention of pollution and so on) may require higher investments, but creates a slower and more stable economic benefits, and social initiatives in the field depends on the number of customers and product quality, results of initiative can be a bit risky. It may be noted that the State aid legislation has drawn a number of measures that encourage companies to integrate socially responsible business principles into their activities.

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DARNAUS VYSTYMOSI IR ĮMONIŲ SOCIALINĖS ATSAKOMYBĖS SĄRYŠIS

S a n t r a u k a

Darnus vystymasis – tai XX a. pabaigoje pradėtas įgyvendinti procesas, kurio metu ekonominė, socialinė bei aplinkosauginė sritys turi vystytis suderintai, kad kuo mažesnė žala būtų daroma žmogui bei aplinkai. Kylant vis daugiau ekonominių problemų, veikiant socialinių grupių interesams, didėjant aplinkosauginiams reikalavimams, formuojantis pasauliniams instituciniams tinklams, darnus vystymasis tampa neatsiejama šiuolaikinės demokratinės visuomenės dalimi ir ypač aktualiu mokslinių tyrimų objektu. Darnaus vystymosi strategijos įgyvendinamos įvairiais lygiais: tiek įmonių lygmeniu bei nacionaliniu mastu, tiek ir globaliu lygmeniu, kur yra pasirašomi tarptautiniai susitarimai.

Mokslinėje literatūroje yra pateikiama daug informacijos, kaip įmonėms reikėtų stengtis įgyvendinti darnaus vystymosi principus savo veikloje ir tapti darniomis įmonėmis. Čiegis ir Grunda (2007) akcentuoja, jog literatūroje dažniau kalbama apie vieną ar keletą koncepcijų ar priemonių, skatinančių įmones siekti darnaus vystymosi principų įgyvendinimo, išryškinant kiekvienos jų naudą, tačiau apjungiančio požiūrio bei šių koncepcijų ryšių identifikavimo nepastebima. Česynienė ir Neverkevič (2009) nurodo, kad svarbiausia problema gali būti ir ta, jog socialinės atsakomybės iniciatyvų diegimas – tai „prabanga“, kurią gali leisti tik didelės kompanijos. Tačiau daugelis mokslininkų (Gruževskis, Vasiljevienė, Moskvina, Kleinaitė 2006; Vasiljevienė ir Vasiljevas 2006) pripažįsta, jog reikia ir kuo skubiau įtraukti verslo atstovus į darnaus vystymosi principų įgyvendinimą, nes, pasak Simanavičienės, Kovaliov ir Šubonytės (2011), verslas – galingiausia jėga, leidžianti panaudoti milžiniškus finansinius išteklius, mokslo žinias, technologinius ir kt. pažangos laimėjimus visame pasaulyje.

Šiame tyrime keliami ***probleminiai klausimai***: ar įmonėms svarbu laikytis darnaus vystymosi principų; kaip skatinti įmonių darnumą; su kokiomis kliūtimis susiduria įmonės, pasiryžusios eiti darnaus vystymosi keliu?

Tyrimo **objektas** – darnaus vystymosi sąsaja su įmonių socialine atsakomybe.

Tyrimo **tikslas** – išnagrinėjus darnaus vystymosi valdymo principus bei sąsajas su įmonių socialine atsakomybe, nustatyti priemones įmonės darnumui pasiekti. Tikslui įgyvendinti buvo suformuluoti tokie uždaviniai:

1. Išnagrinėti darnaus vystymosi koncepciją bei pagrindinius darnaus vystymosi principų įgyvendinimo aspektus.
2. Nurodyti darnaus vystymosi sąsajas su įmonių socialine atsakomybe.
3. Pateikti priemones, kaip būtų galima įmonėms siekti socialinės atsakomybės.

Tyrimo **metodai**: sisteminė mokslinės literatūros, bendrosios ir loginės analizės, lyginimo, apibendrinimo bei abstrakcijos metodai.

RAKTINIAI ŽODŽIAI: darnus vystymasis, socialinė atsakomybė, vadybos teorija, įmonės atsakomybė, savarankiškas valdymas.

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INFLUENCE OF LATVIAN GDP ON THE MAIN INDICATORS OF INHABITANT LIFE QUALITY

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Annotation
The main indicator in the System of National Accounts is the Gross Domestic Product (GDP). However, GDP is not the direct characteristic of the welfare of the community. Nevertheless, there is an opinion that there should be positive correlation between GDP and social welfare: the larger is GDP, the higher is the life quality of the society. Indicators of economic welfare of the society in general are described by the total income. Such income makes the fundament for a certain life quality level. The most important and determinative one for life quality level is the GDP indicator per head of population. In the period of crisis 2008-2010, according to data available to *Eurostat*, Latvia was among the EU countries with the largest decrease of economics and population welfare. Austerity policy conducted by the Latvian government firstly aggravated the heavy condition of the majority of the population, and then, from 2011, started giving positive results. The World Bank, which forms annual rating of states in respect to gross national income per one person, according to the data of the year 2012, placed Latvia in the group of countries with large income. The high mean income itself is not the indicator of high level of living. The originality of the paper is that for the first time mathematical models for statistical data were used for analysis of how interdependence on GDP per one inhabitant of Latvia influences the main indicators of life level and quality. Object of the research: the main indicators, which influence the level and quality of life of the population in Latvia. Goal of the research –to analyze how GDP per one inhabitant in Latvia influences the main basic indicators of the population level of living. Methods of the research are – analysis of Latvian statistics data, mathematical modelling, correlation and regression analysis. For computation and further analysis statistical data about Latvia starting from the year 1995 were used in this work. All the regression models acquired by computations using statistical data are statistically important and quite well explain the significant shares of variance of the effective attributes. Analysis of regression equations showed that the largest direct influence of GDP per one inhabitant of Latvia is done on the mean annual income of equivalent consumer. Without crisis in economy the least influence of GDP is done on the level of employment. The mean annual income of the equivalent consumer directly and largely depends on the mean salary in the country. The mean salary in Latvia to the large extent is directly proportional to the level of employment of the population. For the rise of the life level it is necessary to create favourable conditions for development of industry.
KEY WORDS: GDP, regression model, mean annual income, level of employment.

Introduction

The main indicator in the System of National Accounts is the Gross Domestic Product (GDP), which is determined as cumulative market value of all the volumes of final production of commodities and services in state economics for a period of one year. It is generally accepted that GDP is the best indicator of Economic health. However, GDP is not the direct characteristic of the welfare of the community (Okun 1971). The drawbacks of GDP as a measure of the volume of the public production are the following: the production created within black/invisible economy is not taken into account as well as possible negative effects on the society evoked by realisation of certain goods (alcohol, cigarettes etc.). In Latvia, according to the opinion of some economists, black/invisible economy takes up to one third of all the volume of production, in developed countries it is 5-15% of the official GDP value (McConnell, Brue 1990). Nevertheless, there is an opinion that there should be positive correlation between GDP and social welfare: the larger is GDP, the higher is the life quality of the society (McConnell, Brue 1990). There are two approaches for measuring GDP. The first approach – calculation according to the volumes of production or according to the total expenses induced in the process of production of services or goods. The second approach – calculations according to the total income induced by the process of production of services and goods. In both cases the result will be the same.

Life quality of people is evaluated as their provision with life welfares of certain quality and quantity. Indicators of economic welfare of the society in general are described by the total income. Such income makes the fundament for a certain life quality level. Life welfares can be quite various. Besides the income of inhabitants, their life quality is also influenced by the conditions of living. For estimation of the life quality level UNO recommends using a system of indicators consisting of 12 groups, which cover various characteristics of living conditions. The main categories include, for example, the following: mean income of inhabitants, level of employment, education, ecology, housing conditions, age of life and other demographic characteristics. Apart from the main indicators, a series of information data is used that are not the direct characteristics of life quality level. The most important and determinative one for life quality level is the GDP indicator per head of population. However, this indicator is not used as generalizing one, though, there were several efforts for this. According to experts' opinion, the common unified index of life quality level at macroeconomic level is not desirable.

Subject and relevance. The concept "life quality" is determined as a function of objective conditions and

subjective relations, which determines individual feeling of welfare or happiness, satisfaction and dissatisfaction (Gigch 1978). At first, the system of people life quality indicators started to appear in social researches in the USA in the 1970-ies. Such system included several tens of various factors, which influenced people's life quality. The concept "life quality" is a wider social characteristic than "life level" of people and it depends on large amount of factors. However, the "core", the essence of the both characteristics is formed by the same indicators. In the social-economic literature there is no unanimous and generally accepted definition of these two concepts.

One of the quantitative indicators, determining the level and quality of life, is income. Satisfaction of economic and other people's needs depend on the volume of expendable income. Firstly, people should satisfy the main vital need for food. According to the statistical data available for the Bureau of Labor Statistics and the Bureau of the Census (USA) during the period of time from the beginning of the XX-th century until the beginning of the XXI-st century, all the expenses for food and clothes decreased percentagewise in average by 2,5-3 times. During the same period the expenses for accommodation increased by more than 2 times (Engel, Blackwell 1995). All the other expenses are now more than 50% of all the expendable income (expenses for education, medical services, recreation, entertainment, etc.). In the budget of private households in Latvia the expenses for food take one third of expendable goods and this is by 2 times larger in comparison to the developed western countries (Kochetkov 2001). The share of food in the total composition of expendable income, which depends on real expendable income, largely describes the level and quality of life.

To satisfy their vitally important need in food, each human being, first of all, by using their knowledge, skills and experience, should work and receive money reward. Therefore, the great significance is given to the possibility to work, that is, to the level of employment in the country. In Latvia people often have to work in two or more places simultaneously due to underemployment or low salaries. This decreases the time people spend on recreation and refreshment, it has a bad effect on health and length of life. As the result, life quality, despite quite larger expendable income, decreases. Life quality of any state population is significantly influenced by health situation and medical costs. This to a large extent is determined by the state medical financial support in the country. Unfortunately, for medicine in Latvia the government gives only a half of the funding averagely assigned by EU countries – less than 3% GDP (Circene 2013).

In the period of crisis 2008-2010, according to data available to Eurostat, Latvia was among the EU countries with the largest decrease of economics and population welfare, and the purchase power of people decreased by two times under the average level in the EU. In 2011 GDP and population income started growing. Austerity policy conducted by the Latvian government firstly aggravated the heavy condition of the majority of the population, and then, from 2011, started giving positive results: increase of foreign investments into economy, growth of salaries. The World Bank, which forms annual rating of states in respect to gross national income per one person, according to the data of the year 2012, placed Latvia in the group of countries with large income (World Bank 2013). Such classification is used by this bank in order to determine possibilities of granting loans to states. According to the classification of WB, in the countries with high income the income indicator per one person per year should be 12616 $ or more. In Latvia in 2012 the income per person was 14180 $ and it places Latvia to the 66-th place in the rating. Latvia is followed by Lithuania with 13850 $. Estonia has the 62-th place (15830 $).

High gross national income per one inhabitant of Latvia still does not mean that the population automatically reaches high level of living. Foreign companies, which invest their funds in Latvia, particularly use low-cost local labour force. Manufactured goods of such investors as well as the income, generally goes abroad. The high mean income itself is not the indicator of high level of living. For example, the organisation for economic cooperation and development (OECD), when composing the rating of countries with the highest level of living, takes into account 11 categories. The main ones are: mean income of inhabitants, living conditions, level of employment, education, ecological condition and duration of life. In the top-list of 15 countries with the highest level of living in 2013 the first place was given by OECD to Australia, where mean household income is $ 28884 (Top-list… 2013). Canada, having average household income $ 38194, which is the largest in the top-list, was put in the third place. The USA, with the mean income $ 38001 has the sixth position. In another top-list - Prosperity Index of the most prosperous countries that is annually composed by the British organisation Legatum Institute, for the year 2013 the 1st place is taken by Norway, Canada has the 3rd place, Australia – the 7th, the USA has the 11th place (Latvia… 2013). When composing this ranking 90 indicators were taken into account (the main ones: economics, education, Healthcare Services, safety, condition for business etc.). Estonia take the 36th place in this list, Lithuania – the 43rd and Latvia – 48th among 142 counties. The worst values Latvian indicators have in the field of economical situation – 73rd position, personal freedom – 96th position and public capital – 93rd position.

It is necessary to pay attention to significant inequality in distribution of income of various groups of the population of Latvia (Kochetkov 2000). Quantitatively, the degree of inequality in distribution of income is expressed by the Gini coefficient. The less is the value of this coefficient the less is the degree inequality. In the first years after restoration of independence of Latvia Gini coefficient and the degree of inequality in the field of income distribution were respectively low: in 1996, 1997 and 1999 K_G=31% (Central… 2013). After the year 2000 Gini coefficient increases: the largest value is K_G=38,9% (2005), K_G=35,7% (2011). For comparison, in Russia the situation with inequality in the field of income changed more rapidly to the negative side: K_G=25,6% (1991) and K_G=37,2% (1995) (Ivashkovsky 2004).

The tasks of the paper are estimations of direct and indirect influence of Latvian GDP on inhabitant life quality. *The originality of the paper* is that for the first

time mathematical models for statistical data were used for analysis of how interdependence on GDP per one inhabitant of Latvia influences the main indicators of life level and quality, and grounded conclusions are made. *Object of the research:* the main indicators, which influence the level and quality of life of the population in Latvia. *Goal of the research* –to analyze how GDP per one inhabitant in Latvia influences the main basic indicators of the population level of living. *Methods of the research* are – analysis of Latvian statistics data, mathematical modelling, correlation and regression analysis.

Computations and analysis

For computation and further analysis statistical data about Latvia starting from the year 1995 were used in this work (Central… 2013). When carrying out econometric analyses and constructing models statistical data were re-computed according to the inflation, which took place in the economy of the country. The data about GDP were used in re-computation per one inhabitant of Latvia. All the equations of linear regression acquired by mathematical modelling and reflecting interdependence of various factors, are statistically important: the computed observable Fisher LSDs (F-tests) F act. are actually larger than the critical values F crit. (Table 1).

The significance level in computations was assumed to be α=0,05 (confidence is 95%). Almost in all cases the *Durbin-Watson* test for autocorrelation of residuals of the first order showed that DW statistics falls into the zone of uncertainty and into the domain of weak positive autocorrelation. The computed autocorrelation coefficients r_e in time for residuals show the insufficiently large power of correlation relationship of factors, but graphical tests showed almost chaotic placement of residuals. Therefore, correction of the acquired equations of linear regression according to the results of residual analysis was not performed.

The mean annual income per one equivalent consumer has been computed in Latvia since 2004. It directly depends on the mean salary of people working in the country. The results for computation of dependence of the mean annual income of equivalent consumer on the mean salary of people working in the country are shown in Figure 1 and in Table 1.

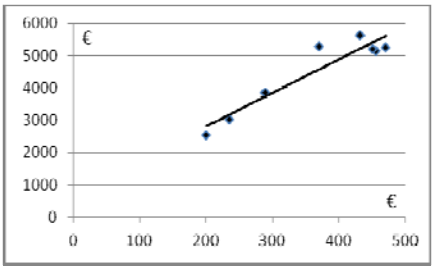

Fig.1. Dependence of the mean annual income (y) of equivalent consumer on the mean salary (x) in the country, 2004 – 2011

The share of variance, which can be explained by the acquired regression equation, in the total variance of the mean income of equivalent consumer, is almost 90% (R^2=0,892). The computed correlation coefficient r=0,944 is close to one and shows large power of correlation relationship between the mean salary in the country and the mean income of inhabitants. It is possible to say that within the considered time interval the acquired model of linear regression quite precisely reflects the existing direct proportion between the mentioned factors.

In conditions of consistently functioning economy the level of unemployment is usually low. Economists believe that natural level of unemployment, speaking about full-time occupation is about 6% (McConnell, Brue 1990). In Latvia in 2006 and 2007 the level of unemployment was close to 6% (6,8% and 6,1% respectfully). However, in the period of crisis, starting from 2009, it rapidly increased and became larger than 16% (2009 – 17,5%; 2010 – 19,5%). Only starting from the year 2012 the level of unemployment in Latvia started to decrease. When finding the dependence of the mean salary in the country on the level of employment, the years of crisis starting from 2009 were not considered due to within this period economy was unstable. In conditions of stable development employment of population grows, as well as the amount of produced goods and the mean salary (Fig. 2, Table 1).

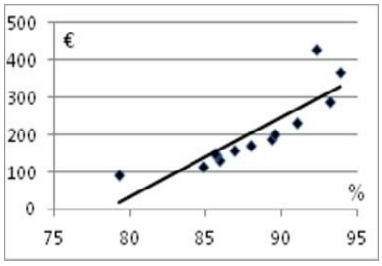

Fig. 2. Change of the mean salary (y) of workers depending on the level of employment (x) of the population, 1996 – 2008

Table 1. The results of computation of factor dependence

No	Dependence, years	Regression equation y=f(x)	R-squared	Correlation coefficient r	Fisher Statistics		Residual analysis	
					F act.	F crit.	DW statistics	Auto-correlation coefficient r_e
1.	Mean annual income of equivalent consumer (y) depending on the mean salary (x), Fig. 1. (2004-2011)	y=10,325x+753,82	0,892	0,944	49,6	5,99	1,066	0,414
2.	Mean salary (y) depending on the level of employment (x), Fig. 2. (1996-2008)	y=21,182x-1660,3	0,723	0,849	28,5	4,84	0,72	0,279
3.	Level of employment (y) depending on GDP (x), Fig. 3. (1996-2008)	y=0,0014x+81,99	0,779	0,882	38,7	4,84	0,859	0,205
4.	Mean salary (y) depending on GDP (x), Fig. 4. (1995-2012)	y=0,0448x+22,51	0,968	0,984	480,4	4,49	0,886	0,535
5.	Mean annual income of equivalent consumer (y) depending on GDP (x), Fig. 5. (2004-2011)	y=0,6125x-159,07	0,965	0,982	166,3	5,99	0,949	0,26

The coefficient of determination R^2=0,723 shows that the acquired regression equation explains more than 72% of variation of the mean salary when there are changes in the level of employment in the country. The coefficient of correlation r=0,849 shows quite strong correlation relationship between the mean salary and the level of employment of the population. The mean salary of the workers is increased in direct proportion to the growth of employment in the country.

When the state economy is on the rise, volumes of manufactured goods grow as well, new enterprises are opened, and the level of employment also increases but the level of unemployment decreases. With the beginning of the crisis in 2009 the level of unemployment in Latvia increased rapidly – almost by three times, and economy was unstable. Therefore, the research of the dependence between the level of employment and the value of GDP per one inhabitant of Latvia does not cover the crisis period, which is not usual and temporary. Construction of the regression model of the abovementioned dependence showed that it is directly proportional and positive (Fig. 3, Table 1).

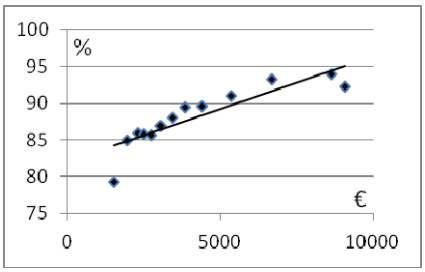

Fig. 3. Dependence of the population employment (y) on the level of GDP per one person in Latvia (x), 1996 – 2008

The determination coefficient R^2=0,779 shows us that the acquired linear regression equation explains almost 80% of variance of employment when GDP per person changes. The correlation coefficient r=0,882 shows quite strong power of correlation relationship between the given factors. Thus, within the period of stable development of economy the level of employment is directly proportional to the value of GDP per one inhabitant of Latvia.

The amount of the mean salary in any country has direct impact on the level and quality of life. The larger is the mean salary the larger is the level of living. The computed linear regression equation explains about 97% (R^2=0,968) of variance of the mean salary depending on the level of GDP per one inhabitant of Latvia (Fig. 4, Table 1).

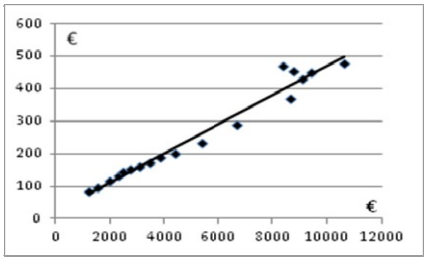

Fig. 4. Dependence of the mean salary (y) on the GDP per one inhabitant of Latvia (x), 1995 – 2012

The correlation coefficient r=0,984 shows the strong correlation relationship between the mean salary and the size of GDP per one inhabitant in Latvia. With the growth of GDP per one inhabitant the mean salary in the country grows in direct proportion.

It was previously determined that the mean annual income of the equivalent consumer is directly proportional to the mean salary in Latvia (Fig. 1, Table 1). The mean salary in its turn is directly proportional to the value of GDP per one inhabitant (Fig. 4, Table 1). It is natural that the mean annual income of the equivalent consumer will depend on the size of GDP per inhabitant and will also be directly proportional to it. This is confirmed by computations according to statistical data of the linear regression equation, the determination

coefficient R^2=0,965 (Fig. 5, Table 1). More than 96% of variation of the dependant factor are explained by this equation, the strength of positive correlation relationship of factors is large (r=0,982).

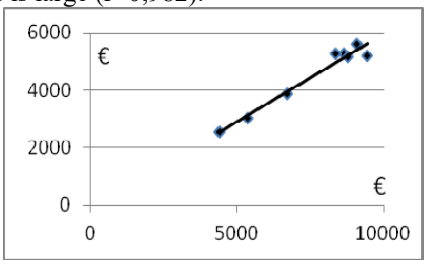

Fig. 5. The dependence of the mean annual income (y) of the equivalent consumer on the size of GDP per inhabitant of Latvia (x), 2004 – 2011

On the basis of the results of computations using mathematical models and analysis, conclusions are made.

Conclusions

All the regression models acquired by computations using statistical data are statistically important and quite well explain the significant shares of variance of the effective attributes. The determination coefficients are acquired within the range from R^2=0,723 to R^2=0,968, the strength of positive correlation relationships of factors is quite large (r=0,849 - 0,984).

Analysis of regression equations showed that the largest direct influence of GDP per one inhabitant of Latvia is done on the mean annual income of equivalent consumer. Without crisis in economy the least influence of GDP is done on the level of employment.

The mean annual income of the equivalent consumer directly and largely depends on the mean salary in the country.

The mean salary in Latvia to the large extent is directly proportional to the level of employment of the population.

The output indicator per one inhabitant of Latvia is quite reasonable characteristic of the economical welfare of the population. For the rise of the life level it is necessary to create favourable conditions for development of industry.

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INFLUENCE OF LATVIAN GDP ON THE MAIN INDICATORS OF INHABITANT LIFE QUALITY

S u m m a r y

The main indicator in the System of National Accounts is the Gross Domestic Product (GDP), which is determined as cumulative market value of all the volumes of final production of commodities and services in state economics for a period of one year. It is generally accepted that GDP is the best indicator of Economic health. However, GDP is not the direct characteristic of the welfare of the community. Nevertheless, there is an opinion that there should be positive correlation between GDP and social welfare: the larger is GDP, the higher is the life quality of the society. Life welfares can be quite various. Besides the income of inhabitants, their life quality is also influenced by the conditions of living. For estimation of the life quality level UNO recommends using a system of indicators consisting of 12 groups, which cover various characteristics of living conditions. Indicators of economic welfare of the society in general are described by the total income. Such income makes the fundament for a certain life quality level. The most important and determinative one for life quality level is the GDP indicator per head of population.

In the period of crisis 2008-2010, according to data available to *Eurostat*, Latvia was among the EU countries with the largest decrease of economics and population welfare, and the purchase power of people decreased by two times under the average level in the EU. In 2011 GDP and population income started growing. Austerity policy conducted by the Latvian government firstly aggravated the heavy condition of the majority of the population, and then, from 2011, started giving positive results. The World Bank, which forms annual rating of states in respect to gross national income per one person, according to the data of the year 2012, placed Latvia in the group of countries with large income. In Latvia in 2012 the income per person was 14180 $ and it places Latvia to the 66-th place in the rating. The high mean income itself is not the indicator of high level of living. It is necessary to pay attention to significant inequality in distribution of income of various groups of the population of Latvia.

The originality of the paper is that for the first time mathematical models for statistical data were used for analysis of how interdependence on GDP per one inhabitant of Latvia influences the main indicators of life level and quality. *Object of the research:* the main indicators, which influence the level and quality of life of the population in Latvia. *Goal of the research*

–to analyze how GDP per one inhabitant in Latvia influences the main basic indicators of the population level of living.
Methods of the research are – analysis of Latvian statistics data, mathematical modelling, correlation and regression analysis. For computation and further analysis statistical data about Latvia starting from the year 1995 were used in this work. When carrying out econometric analyses and constructing models statistical data were re-computed according to the inflation, which took place in the economy of the country. The data about GDP were used in re-computation per one inhabitant of Latvia. The significance level in computations was assumed to be α=0,05 (confidence is 95%).

All the regression models acquired by computations using statistical data are statistically important and quite well explain the significant shares of variance of the effective attributes. The determination coefficients are acquired within the range from R^2=0,723 to R^2=0,968, the strength of positive correlation relationships of factors is quite large (r=0,849 - 0,984). Analysis of regression equations showed that the largest direct influence of GDP per one inhabitant of Latvia is done on the mean annual income of equivalent consumer. Without crisis in economy the least influence of GDP is done on the level of employment. The mean annual income of the equivalent consumer directly and largely depends on the mean salary in the country. The mean salary in Latvia to the large extent is directly proportional to the level of employment of the population. The output indicator per one inhabitant of Latvia is quite reasonable characteristic of the economical welfare of the population. For the rise of the life level it is necessary to create favourable conditions for development of industry.

KEY WORDS: GDP, regression model, mean annual income, level of employment.

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COMPARISON OF PERFORMANCE OF VISEGRAD GROUP REGIONS

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Annotation
The aim of the developed countries is to increase the performance of their economies. It is determined by performance of their regions. Gross domestic product (GDP) is considered as the basic macroeconomic indicator, which reflects the economic performance and the strength of the national economy as a whole and also its regions. Another important factor determining the economic development of the state is situation on the labour market, namely the trend in employment and unemployment. Employment has a direct impact on the production, and thus the economic and social development in the country and its individual regions. On the other hand, the high level of unemployment has very adverse economic and social consequences. In this paper we examine and compare the performance of the regions of the Visegrad group (Slovak Republic, Czech Republic, Poland and Hungary). We evaluate the performance of the V4 regions using these indicators: regional gross domestic product per inhabitant in PPS, employment rate and unemployment rate. In this paper a region is defined as a territorial unit corresponding with NUTS II. This article was created in the frame of the project "Alexander Dubček University of Trenčín wants to offer high-quality and modern education", ITMS code 26110230099, based on the Operational Programme Education.
KEY WORDS: Visegrad Group, performance, regional differences, gross domestic product per inhabitant, employment, unemployment.

Introduction

The success of economy of some country can be assessed in accordance with the final results. The leaders of developed countries are trying to implement such economic policy that would ensure the growth performance of their economies. As Vojtovič and Krajňáková (2013) noted, the basic indicators of economic and social development of each country are gross domestic product, employment and unemployment.

The performance of countries is determined by their final results, which is determined by results of the individual regions. Every state and region has the resources, whose effective use affects the performance and living standards of its population. Performance of countries and regions can be evaluated on the basis of various socio-economic indicators.

The aim of this paper is to examine the performance of regions of Visegrad countries (Visegrad Four - V4) on the basis of selected indicators in the years 2001-2014 and to compare their performance using the scoring method in 2001, 2006 and 2011. The performance of the regions is evaluated through these indicators: gross domestic product per inhabitant in PPS, employment rate, unemployment rate.

We use the time series analysis to examine the development of GDP per capita, employment rate and unemployment rate in the regions of V4. We look these indicators from 2000 until 2014, in order to show the trend of their development in recent years. We use the scoring method to study the performance of the V4 regions using the selected indicators. We use the method of comparison to compare general tendencies in the areas of GDP, employment and unemployment in the regions of V4. We use the method of synthesis to summarize the findings and draw conclusions. In the paper, a region is defined as a territorial unit corresponding with NUTS II. Data is taken from regional database of Eurostat.

Performance of V4 regions

The Visegrad Group was formed on 15 th February 1991 at a meeting of the President of the Czechoslovak Republic, Václav Havel, and the President of the Republic of Poland, Lech Wałęsa, and the Prime Minister of the Republic of Hungary, József Antall. This high-level meeting in Visegrad, Hungary, created an imaginary historical arch linking the idea of this meeting to the idea of a similar meeting, which took place there in 1335 and was attended by John of Luxembourg, King of Bohemia, Charles I of Anjou (Charles Robert), King of Hungary, and Casimir III, King of Poland. The central motif of the two meetings was the desire to intensify mutual cooperation and friendship among the three Central European states. In the wake of disintegration of Czechoslovakia in 1993, the Visegrad Group has since then been comprised of four countries, as both successor countries, the Czech Republic and the Slovak Republic, are members of the Visegrad Group. All the V4 countries became members of the EU in 2004 (1st May). (Visegrad Group 2014) Already when entering the EU, the most regions of V4 lagged significantly behind the level of the regions of western and northern Europe, and in the most of them it is so today.

Slovak Republic (SR) is divided to NUTS regions as follows: NUTS I: the whole territory of Slovakia, NUTS II: Bratislavský kraj, Západné Slovensko, Stredné Slovensko a Východné Slovensko (Bratislava region, Western Slovakia, Central Slovakia and Eastern Slovakia). NUTS III regions are self-governing regions. "The regional structure of Slovakia is characterized by

significant spatial and constantly deepening disparities. The differences are given by geography, culture, history, economic development and other factors." (Šedivá 2012, p. 31) In general, west and northwest of the country is richer and more developed while the east and south remains less developed with insufficient instantaneous availability.

Likewise in Slovakia, the whole territory of the Czech Republic (CR) falls within the NUTS I. Furthermore, it has 8 NUTS II regions: Praha, Střední Čechy, Jihozápad, Severozápad, Severovýchod, Jihovýchod, Střední Morava a Moravskoslezsko (Prague, Central Bohemia, Southwest, Northwest, Northeast, Southeast, Central Moravia and Silesia) and 14 NUTS III regions. Most developed region of the Czech Republic is Prague region, other regions are at a significantly lower level.

The territory of the Republic of Hungary is already divided into 3 regions at NUTS I. Furthermore, it has 7 NUTS II regions: Közép-Magyarország, Közép-Dunántúl, Nyugat-Dunántúl, Dél-Dunántúl, Észak-Magyarország, Észak-Alföld, Dél-Alföld and the 20 NUTS III regions. Hungary is characterized by significant regional disparities which are aggravated by the economic transformation from a centrally controlled economy to a market economy. The most developed part of the Hungary is Central Hungary (Közép-Magyarország) which also includes the capital city of Budapest. The least developed region is Northern Hungary (Észak-Magyarország).

From the V4 countries, only the Republic of Poland is coastal country. At NUTS I, Poland is divided into 6 regions. At NUTS II, it is divided into 16 voivodships: Łódzkie, Mazowieckie, Małopolskie, Śląskie, Lubelskie, Podkarpackie, Świętokrzyskie, Podlaskie, Wielkopolskie, Zachodniopomorskie, Lubuskie, Dolnośląskie, Opolskie, Kujawsko-Pomorskie, Warmińsko-Mazurskie a Pomorskie. At NUTS III, Poland has 66 regions. In Poland, the biggest differences between the regions became apparent in connection with the transformation of the economy, mainly due to unsuitable structure of the individual voivodships economies. However, consistent regional policy and the use of funds from the EU helped Poland and its regions to raise the economy. The most developed region in Poland is Mazowieckie region (with the capital Warsaw), the least developed regions are situated in the east of the country: Lubelskie, Podkarpackie, Podlaskie a Warmińsko-Mazurskie.

Gross domestic product per inhabitant in the regions of V4

Gross domestic product (GDP) is considered as the basic macroeconomic indicator, which reflects the economic performance and the strength of the national economy as a whole and also its regions. According to Eurostat (2015a), gross domestic product at market prices is the final result of the production activity of resident producer units. The GDP generated in the region, on a per capita basis, is a fundamental expression of the economic performance of the region. It is the market value of all officially recognized final goods and services produced within a country in a year.

We examine gross domestic product per capita in the regions of V4 in current market prices in PPS. Regional GDP per inhabitant is a share of two indicators - regional GDP (which used the composition criteria according to the place of work) and average amount of populations with permanent residence in existing territory (based on the resident principle). This indicator used to be overestimated especially in regions with high job attendance (regions of the capital cities). On-going discussions in Eurostat are appointed to improve applicability of the indicator, especially by replacing the indicator of permanent residence in existing territory. (Statistical Office of the Slovak Republic, 2014)

We probe the development of GDP per inhabitant in the period 2001-2011. More recent data are not available because NSIS have 24 months after the end of the reference year for the transmission of basic data to Eurostat. In table 1 we present the minimum and maximum values of GDP per inhabitant in the regions of the V4 countries in the years 2001-2011.

Table 1. Minimum and maximum of GDP in the regions of V4 (PPS)

		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Slovak Republic	max.	22 800	25 000	25 800	27 800	32 900	34 800	40 000	41 700	41 600	43 700	46 600
	min.	7 900	8 400	8 500	9 100	9 600	10 300	11 600	12 700	11 600	12 300	12 800
Czech Republic	max.	29 300	30 900	33 200	35 200	37 300	39 800	44 200	43 600	41 300	42 200	42 900
	min.	11 300	11 700	12 200	13 300	13 800	14 600	16 000	15 700	15 600	15 500	15 700
Hungary	max.	18 000	20 300	20 500	21 700	22 900	24 400	25 300	26 300	25 600	26 500	27 600
	min.	7 600	8 000	8 400	8 900	9 100	9 500	9 600	10 000	9 400	9 800	10 000
Poland	max.	14 700	15 300	15 600	16 800	18 200	19 600	21 700	22 300	22 800	25 200	26 700
	min.	6 700	7 000	7 200	7 600	7 900	8 300	9 200	9 700	9 500	10 300	11 100

Source of reference: Eurostat (2015c), own creating

Bratislava region reached the highest level of GDP per inhabitant in the whole observed period in Slovak Republic. According to Havierniková and Janský (2014, p. 137), in Bratislava region there is the highest concentration of production with high added value and it is characterized by high mobility of the workforce that comes from another region and other related agglomeration factors. Bratislava region is located close to the other significant prosperous cities such as Vienna or Győr. Difference in results is extremely large between

Bratislava region and other regions of the SR. The weakest region is Východné Slovensko which reaches only about one third of the level of GDP per inhabitant of Bratislava region in early years. This proportion is even lower in subsequent years (2011: 27.5%).

In the Czech Republic, Prague is the most productive region. Moravskoslezsko reached the lowest level of GDP per inhabitant in 2001-2003, Stredni Morava in 2004-2007 and 2009, Severozapad in 2008, 2010 and 2011. The weakest region reaches in average 37% of the GDP per inhabitant of the Prague region.

In Hungary, there is the highest level of GDP per capita in Közép-Magyarország region. The weakest regions are Észak-Magyarország (2001-2004, 2008-2011) and the Észak-Alföld (2004 - 2008), which achieve on average 39 % of the GDP of the Közép-Magyarország region.

In Poland, there is the highest GDP per inhabitant in Mazowieckie region; the worst regions are Podkarpackie and Lubelskie. In the early years, the weakest regions reached more than 45 % of the best region's GDP; the proportion is about 42 % in the subsequent years.

In the evaluated period, the absolute differences (variation margin) between regions (in PPS) rose in every state. Initially, there were the biggest differences in the Czech Republic. In the last 5 years, the most significant differences are in Slovakia. The smallest difference between the highest and lowest performing regions is in Poland.

In the observed period, the relative variability (dispersion) increased in the V4 countries. Regional differences are the lowest in Poland, from 18.0 % in 2002 to 22.0 % in 2011, followed by the Czech Republic and Slovakia. The largest variability is observed throughout the period in Hungary, as much as 39.4 % in 2009.

Overall, there is massive spacing between GDP of Prague and Bratislava region and other regions, followed by the regions Közép-Magyarország and Mazowieckie. The overall trend in GDP per capita is growing, with the exception of years of economic recession. In regions of the Czech Republic the recession occurred in 2008, regions of other states suffered in 2009. In the aggregate, the GDP of Polish regions suffered the least during the recession.

Employment in the regions of V4

Important factor determining the economic development of the state is situation on the labour market. Trend in labour market is essential for the performance of individual states and regions. According to Ivanova (2010, p. 22), the labour market is sensitive to changes that are occurring within the economy of a country. Moreover, due to the widening process of the international division of labour, the labour market is also sensitive to processes that are taking place in the global economy. Characteristics and specificities of the labour market in different countries define its ability to cope with these effects.

Employment has a direct impact on the production, and thus the economic and social development in the country and its individual regions. According to Eurostat (2015b) employed persons are all persons aged 15 and over (15 to 74 in Hungary) who, during the reference week, worked at least one hour for pay, profit or family gain, or were not at work but had a job or business from which they were temporarily absent. The employment rate represents employed persons as a percentage of the population (from 15 to 64 years). The maximum and minimum of employment rate in NUTS II regions of V4 countries are analysed in table 2.

Table 2. Minimum and maximum of employment rate in the regions of V4 (%)

		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Slovak Republic	max.	69.5	66.9	68.8	67.3	69.6	69.8	71.0	72.1	71.2	68.5	70.3	71.6	70.6	70.9
	min.	52.1	52.9	54.4	51.1	51.5	53.7	55.5	56.7	55.9	54.1	53.7	54.0	55.0	56.4
Czech Republic	max.	71.8	72.0	71.0	70.2	71.3	71.6	71.6	71.5	71.7	71.5	71.5	72.7	73.7	74.8
	min.	57.7	59.4	58.0	57.4	59.3	59.5	61.4	62.8	61.5	61.2	62.2	62.1	63.9	65.2
Hungary	max.	62.7	63.9	62.7	62.5	63.3	63.1	62.9	62.7	61.3	60.0	60.2	61.7	62.7	66.0
	min.	49.2	49.0	51.1	50.2	49.5	50.7	50.3	49.4	48.0	48.3	48.4	49.1	51.6	55.7
Poland	max.	59.9	56.6	55.9	57.0	57.6	58.8	60.9	64.6	64.8	64.0	65.1	65.8	65.6	68.1
	min.	48.1	45.0	46.0	45.9	48.3	49.4	51.9	54.2	54.9	53.4	53.9	53.6	54.5	55.6

Source of reference: Eurostat (2015c), own creating

In the Slovak Republic, the highest employment rate was in Bratislava region in 2008 (72.1 %). The lowest employment rate was reached by Vychodne Slovensko, only 51.1 % in 2004.

In the Czech Republic, Prague region has the highest employment rate. The lowest employment rate is in the Moravskoslezsko region, except for the years 2008, 2009 and 2012, when the lowest employment rate was in the Severozapad.

In Hungary, there was the highest employment rate in 2001 and 2002 in the region Nyugat-Dunantul, in the region of Közep-Dunantul in 2003, and in the recent years in the region Közép-Magyarország (66% in 2014). On the other hand, the lowest employment rate was in Észak-Magyarország and Észak-Alföld region (48% in 2009).

In Poland, the highest employment rate was in the region Malopolskie in 2001, in 2004 in Podlaskie region, and in recent years in Mazowieckie (68.1% in 2014). The

lowest employment rate was in the region Dolnoslaskie in 2001, in 2002-2004 and 2012-2014 in the region Warminsko-Mazurskie, and in the period 2005-2011 in the Zachodniopomorskie region.

Variation margin in employment rate in the V4 countries has been developing erratically. In the period of 2001-2008, the differences between regions were decreasing, in 2009-2012 the differences had increasing trend and in 2013-2014 were the differences decreasing. The largest absolute differences are between regions of Slovakia, the smallest regional differences was in Poland in 2001-2007 and 2009, and in the Czech Republic in 2008, 2010-2014. The lowest relative measure of variability (dispersion) is in Poland and the Czech Republic, in the observation period it decreases and in recent years it is around 5%. In Slovakia and Hungary, the rate is fluctuating from 7 up to 10%.

To summarize, in the period under review, the employment rate evolved erratically, with an increasing trend in 2003-2008, followed by a decrease due to the economic recession, which emerged in the different regions in different years. According to Potužáková (2012, p. 22), the global economic crisis was reflected as an external shock in the Visegrad countries which could not be avoided because of the considerable openness of their economies.

The highest employment rate was in the Prague region (except in 2008), as much as 74.8% in 2014. Overall, the lowest employment rate was in the region Warminsko-Mazurskie in 2002: only 45%. In 2009-2013, the lowest employment rate is in the region of Észak-Magyarország. The highest levels of employment are being reached by the Czech regions, while some regions of Hungary and Poland and Vychodne Slovensko are the worst.

Unemployment in the regions of V4

Unemployment is defined as a situation where someone of working age is not able to get a job but would like to be in full time employment. It means that human resources are not being used to produce goods and services. The high level of unemployment has very adverse economic and social consequences. Unemployed persons comprise persons aged 15-74 who were (all three conditions must be fulfilled simultaneously): 1. without work during the reference week; 2. available for work at the time (i.e. were available for paid employment or self-employment before the end of the two weeks following the reference week); 3. actively seeking work (i.e. had taken specific steps in the four-week period ending with the reference week to seek paid employment or self-employment), or who found a job to start within a period of at most three months. The unemployment rate shows unemployed persons as a percentage of the economically active population. (Eurostat, 2015b)

Table 3 shows the progress of maximum and minimum values in the unemployment rate (15 years or over) in the regions of V4.

Table 3. Minimum and maximum of unemployment rate in the regions of V4 (%)

		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Slovak Republic	max.	24.4	22.3	20.8	25.0	23.1	19.1	15.3	13.2	15.9	18.5	18.7	19.0	18.5	16.6
	min.	7.7	8.7	6.9	9.1	5.3	4.6	4.3	3.4	4.6	6.2	5.8	5.7	6.4	6.0
Czech Republic	max.	15.2	12.4	14.0	14.6	13.9	12.8	9.5	7.8	10.3	11.1	9.5	10.7	9.9	8.7
	min.	3.8	3.4	4.2	3.9	3.5	2.8	2.4	1.9	3.1	3.7	3.6	3.1	3.1	2.5
Hungary	max.	8.3	8.2	9.8	9.5	10.6	10.9	12.6	13.3	15.3	16.2	16.4	16.1	14.2	11.8
	min.	3.8	3.7	4.1	4.2	5.1	5.1	4.8	4.5	6.5	8.9	7.3	7.5	7.7	4.6
Poland	max.	24.1	27.3	26.7	26.7	22.8	17.3	12.7	9.5	10.8	12.4	12.9	13.2	14.4	14.0
	min.	12.9	15.6	15.4	14.8	14.3	11.3	8.1	5.5	6.0	7.4	7.9	8.0	8.0	7.2

Source of reference: Eurostat (2015c), own creating

In Slovakia, the lowest unemployment is in the Bratislava region, only 3.4% in 2008. Vychodne Slovensko is the most affected region by unemployment (2004: 25%).

In the Czech Republic, the lowest unemployment rate over the whole period was in the region of Prague, only 1.9% in 2008. In period 2001-2005, the highest unemployment rate was in the region of Moravskoslezsko in 2001-2005 and 2013, in the other years in the Severozapad region.

In the first two and last four years in Hungary, the best results in unemployment were reached by the region Nyugat-Dunántúl, in the other years it was in Közép-Magyarország. On the contrary, the highest unemployment rate is in the region of Észak-Alföld in 2001, 2013-2014, Észak-Magyarország in 2002-2012 (up to 16.4% in 2011). According to Spišáková and Pétrová (2011, p. 243), Hungary is the only country of V4, which has been experiencing continuous growth in the unemployment rate since 2001. This macroeconomic indicator worsened from year to year regardless of whether the economic crisis has hit the economy.

In recent years, the lowest unemployment rate is in the region of Mazowieckie in Poland. The highest unemployment rate was in the region Dolnoslaskie and Podkarpackie in the recent three years.

Until 2008, there was overall declining trend in the unemployment rate, however, that time the unemployment rate rose in some Hungarian regions. In 2001, the highest unemployment rate was in the region of Vychodne Slovensko (24.4 %), in the consecutive years it was in the regions of Poland, 27.3 % in 2002 in the region Warminsko-Mazurskie. In the last 6 years, the highest unemployment was in Vychodne Slovensko.

Absolute differences in unemployment rates are significantly highest in Slovakia. Up to 2008 they had

been decreasing but started increasing later with the rise in unemployment. In the early years of the reporting period there were the smallest differences between the regions of Hungary, in later years in the regions of Poland, in 2014 in the Czech Republic. Relative differences are the highest in the Czech Republic, more than 45 % in 2005, although they decreased slightly in the subsequent years. The lowest coefficient of variation is in Poland, in recent years only 15%.

Evaluation of performance of the regions in V4

We evaluate the performance of the regions in V4 using the scoring method. For each parameter we assign the region, which reached the best value, 100 points, and other regions are assigned indicator points as follows:

- if the maximum value is the best value (GDP per capita, employment rate):

$$b_{ij} = x_{ij}/x_{jmax} \times 100 \quad (1)$$

- if the minimum value is the best value (unemployment rate): $b_{ij} = x_{jmin}/x_{ij} \times 100$ (2)

where:
x_{ij} - the value of j-th variable in the i-th region
x_{jmax} - highest value of the j-th variable
x_{jmin} - lowest value of the j-th variable
b_{ij}- the scores of the i-th region for the j-th variable.

Then we calculate the integral indicator, as the sum of the points for the indicators established for each region. The best result of observed variable reaches the region in which the integral indicator reaches the maximum value.

Performance of the V4 regions in 2001

In 2001, the best results were achieved by Prague region, where all evaluation indicators reached 100 points, as it was set up as benchmark for these indicators. With the difference of 70 points it was followed by region Közép-Magyarország, further Nyugat-Dunántúl and Bratislava region. The lowest score (110.28) was scored by the region Warminsko-Mazurskie. The highest points were awarded to individual regions for the employment rate indicator. Regions of Hungary had low scores due to low GDP per capita, while regions of Poland due to the unemployment rate (Figure 1).

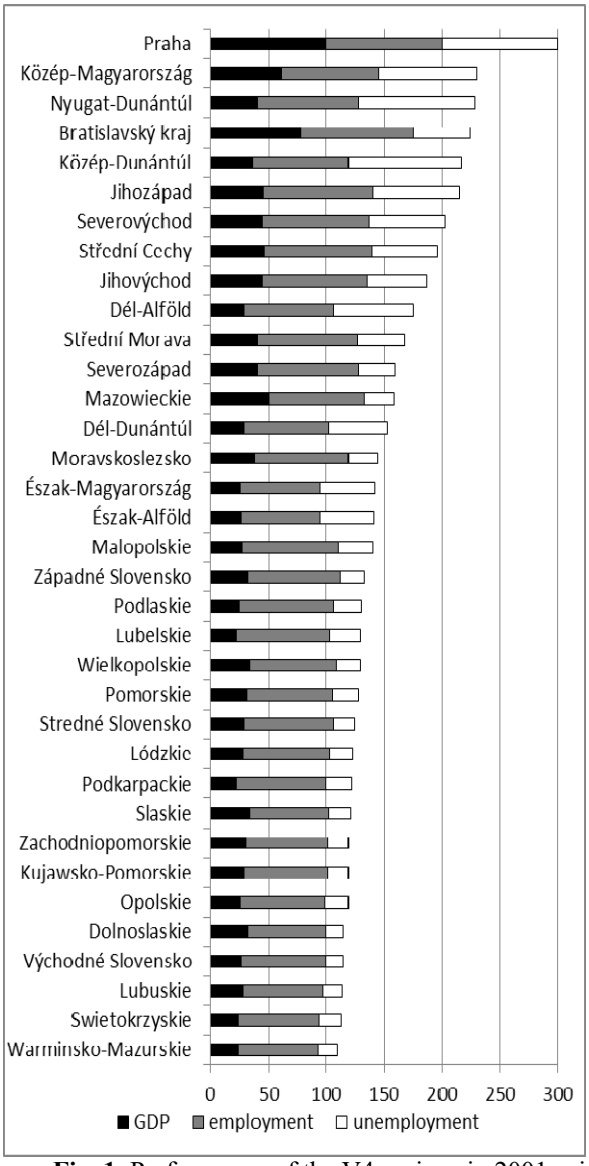

Fig. 1. Performance of the V4 regions in 2001 using the scoring method

On figure 1, the regions are ranked in descending order according to the number of points obtained. Among the top 10 regions, there are 5 Czech regions, 4 Hungarian regions and one region of Slovakia. Best Polish region is located on the 13th place. Among the 10 worst regions, there are 9 Polish regions and one Slovakian region.

Performance of the V4 regions in 2006

In 2006, the region of Prague confirmed its dominant position by earning the highest possible number of points once again because it reached the best values in all tested variables. With the gap of more than 54 points it is followed by the Bratislava region, followed by the region of Közép-Magyarország (Figure 2). Very low scores were awarded to Polish and some Hungarian regions, and also Stredne Slovensko and Vychodne Slovensko.

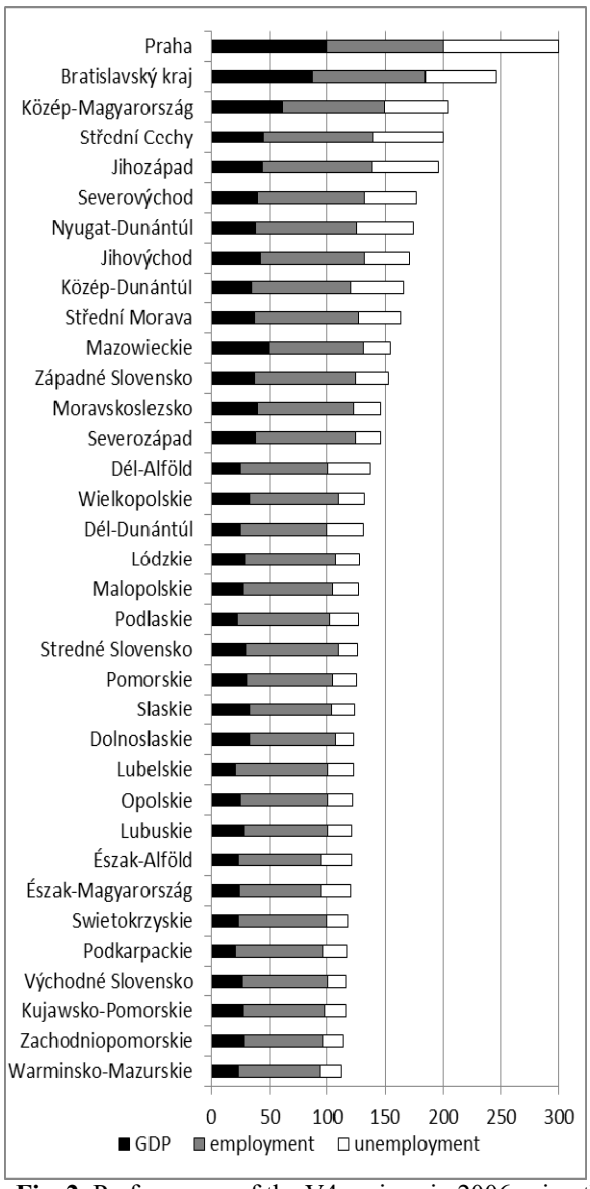

Fig. 2. Performance of the V4 regions in 2006 using the scoring method

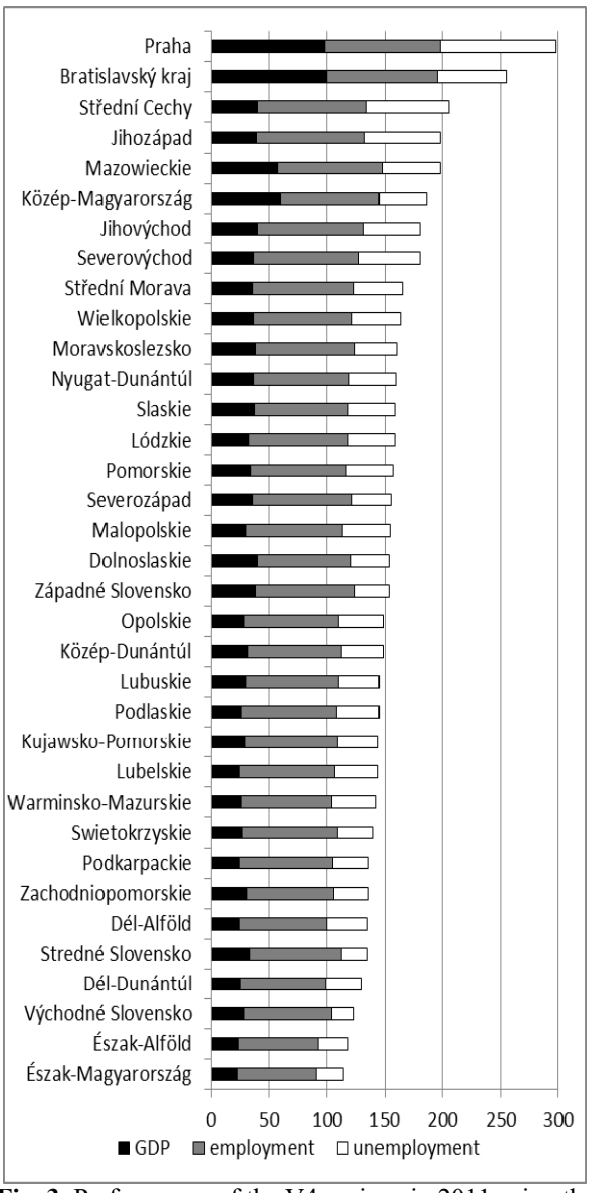

Fig. 3. Performance of the V4 regions in 2011 using the scoring method

Among the top ten regions there are 6 regions from the Czech Republic, 3 regions from Hungary and one region from Slovakia. Best Polish Mazowieckie region is placed on the 11th place. To compare to 2001, there are also 2 Hungarian regions among the 10 worst regions. It is clear from the Figure 2 that the 20 least performing regions have very similar score as there is only difference of 20 points.

Performance of the V4 regions in 2011

The third assessed year is year 2011 as this is the last year for which regional data on GDP per capita is available. Here again, the Prague region scored the highest points (292.06). Bratislava region was the best region in regard to the level of GDP per capita in PPS. They are then followed by some Czech regions and the regions with capital cities: Mazowieckie and Közép-Magyarország (Figure 3).

Among the top 10 regions, there are 6 regions from the Czech Republic and one region from Slovakia, one region from Hungary, and two regions from Poland. As many as 4 regions of Hungary, 4 regions of Poland and 2 regions of Slovakia are among the 10 worst performing regions.

Comparison of performance of regions of V4 in 2001, 2006 and 2011

The final comparison of the performance of the V4 regions in selected indicators is presented in Figure 4. Figure 4 does not show only score of individual regions for the years 2001, 2006 and 2011, but it also shows the spacing of individual regions and change in their performance.

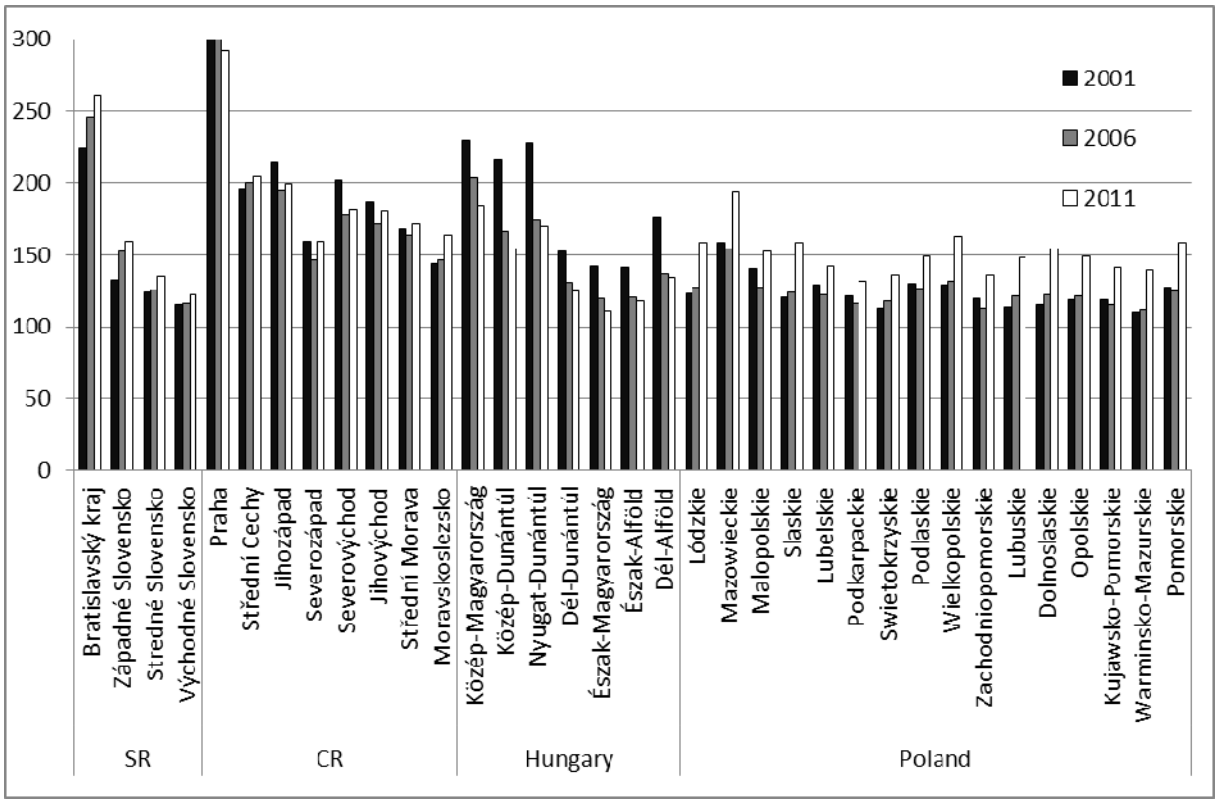

Fig. 4. Comparison of performance of regions of V4 in 2001, 2006 and 2011

The most productive region is Prague; Bratislava region improved its position from the 4th to 2nd place. Polish Mazowieckie region improved its position from the 13th place in 2001 to the 5 th place in 2011. On the other hand, Hungarian region Közép-Magyarország dropped from the 2nd place to the 6th. Furthermore Grmanová (2013, p. 35) in her research found out that in all four countries, the biggest economic performance is achieved by regions with capitals within.

Conclusions

Performance of regions determines the overall performance of national economies. The performance of state regions can be probed using a variety of indicators. In this paper we examined the performance of the regions of V4 through GDP per capita, employment rate and unemployment rate.

In the years 2001-2012 there was a positive trend in the indicators in question apart from economic recession which hit the regions of V4 in 2008 and 2009. The GDP per capita disparities between regions increased, while the employment rate and the unemployment rate differences slightly declined.

The performance of the V4 regions in 2001, 2006 and 2011 was evaluated using the scoring method. Prague region achieved the best results. In 2001, the Prague was followed by regions Közép-Magyarország, Nyugat-Dunántúl and Bratislava region. Warminsko-Mazurskie region achieved the lowest scores. In 2006, Bratislava region was on the second place, followed by Közép-Magyarország region. Some Polish and Hungarian regions showed poor performance as well as Stredne Slovensko and Vychodne Slovensko. In 2010, Bratislava region was ranked the second. The lowest scores were received by some regions of Hungary and Vychodne Slovensko.

By comparing the scores of individual regions of V4 in 2001, 2006 and 2011 we learned that the highest increase in performance was observed in regions of Poland and Slovakia. On the contrary, the performance of regions in Hungary has worsened significantly. Regarding the regions of the Czech Republic, some regions have increased their performance, some of them have decreased.

According to Tvrdoň and Skokan (2011, p. 13), in V4 countries there are wide regional disparities in GDP per capita which reflects uneven pace of economic development and there is noticeable increase in regional disparities mainly between metropolitan areas and the rest of regions in the countries.

To conclude, there are significant differences among the states of V4 but also among the regions within the same state in regard to GDP per capita, employment rates and unemployment rates. According to Koisova and Habanik (2012, p. 19-20), the differences between regions are subject to economic, social and structural changes, infrastructure, geography and potential of the region. Therefore, the representatives of the countries and regions seek to mitigate significant unjustified differences on the level of regions through regional policy and thus to get near the average level of states of European Union.

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TYPES OF FOUNDATION FEATURES SELECTION IN CONSTRUCTION

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Annotation
The foundation - this is the main part of the building or a structure, basis, which is responsible for building or structure condition. From them belong the longevity of the building, aesthetic beauty, operation quality, heating waterproofing. Modern construction pace is quite high as emerging new technologies, which make it easy to develop invented new types of foundations. There are quite a lot: belt foundation, screw foundation, planar foundation, pile foundation and other types of foundations. They all have pluses and minuses. But have common characteristics: all the foundations withstands stable and unstable loads - roof, walls, ceilings. In this work is submitted the foundation types, their advantages and disadvantages, why one foundation worse than other, types of foundations popularity Lithuania, from what begins all foundations equipment, why it is important to examine the ground before starting to install the foundation. Nowadays prevails residential and civil construction. In the industry using large size and mass technological equipment. From them the load transmitted to the ground, that's why in the construction of civil buildings, residential houses are widely used pile foundation, about who in this work is submitted detailed analysis of the installation, in research discovered significant advantages: minor excavation; many new construction piles are small bearing capacity, low weight, their manufacture consumes less concrete, reinforcement and other materials; pile foundation reduces the amount of the working land; relatively inexpensive and quick installation and good quality; do not need drainage; their strength allows to ensure the foundation disintegration, not do deform buildings, unlike other types of foundations. One of their unique properties - installation in the winter; and the biggest advantage – the ability to approve them in the soft ground, that you can not do with other types of foundations.
KEY WORDS: construction sector; types of foundations, foundations advantages and disadvantages.

Introduction

Sometimes listening to the self-taught builders you can think that it is enough to pour the foundation of the house only to dig as much as half a meter deeper than the ditch, because allegedly deeply frozen ground rarely reaches, so the foundation do not be lifted. However, such advice is not worth listening to.

Foundations - one of the most important elements of the building, causing the whole house condition. Builders often pay too little attention for the foundation installation, because most of them are invisible and underground. However, from the foundation depends house the durability, heat waterproofing, home aesthetic beauty. Belt, drilled or pile foundation, the main question, which is better? Modern construction rates are very high, as the invention of new technologies. According to the International Soil Mechanics and Geotechnical Engineering Society ISSMGE (2010), recently popular is drilled foundations, which are often used in the construction of individual houses, especially frame. These foundations are stable and quickly installed. Young Lithuanian researchers pay a lot of attention on polar research foundation Jankauskas, Gadeikytė (2010); Stankus, Martinkus (2013); Sližytė (2001). Belt prefabricated foundations constructed of blocks. For foundation sturdiness ensure placed foundation slabs, and on them are mounting blocks. And at this point there is soft ground problem, because if the soil is unsteady, they need to combine the foundation – on drilled you have to put belt foundation. Where drilled foundations can not guarantee the strength as an alternative constructions of the weak soils instead of belt and drilled foundations are usually designed one of the most robust foundation - pile foundation. Pile foundation consists of piles connected through monolithic beams or plates, known as the foundation cross (grillages), in which is supported over the foundation in construction. Building load is transferred to the grate, from it - to the piles, from piles - to the ground. As the new building piles can be high bearing capacity, they are sometimes installed faster and cheaper (but frequent are quite expensive), compared with other foundation structures, so they are often installed and in fairly good soils.

The research problem: investigating the foundations of the types, arising questions are:

- what are some types of foundations advantages and disadvantages?
- why is it better to choose some types foundations (although they are sometimes more expensive) rather than other types of foundations?
- why the foundation of one type superior to the other?

During the work will be discussed answers to these emerging issues in choosing the bet type of foundation.

The aim of research: to show why in the construction is better choosing pile foundation, what are their advantages, why they are more useful then other types of foundations.

Objectives of the study:

- compare foundation types;
- evaluate different foundation types pros and cons;
- analyze how to choose the proper type of foundation by the ground;

• a comparison between the types of foundations, prove pile foundations advantage.

Foundation types, their advantages and disadvantages

The foundation is of each building, structure basis. They transmit the load of the building or the building to the ground and distribute them evenly. The foundation is one of the most important parts of the building, because the foundation needed the most work and from them belong the building, structure, durability, and its service quality (Nakas *et al.* 1992 41p.). There is a widespread belief that the foundations must be massive and deep, as this will ensure that the house is stable. But everything must start from the ground survey. The different composition of the soil is frozen differently, it is affected by the ground water level. If the ground water high in the event of a frost, wet soil cold. In the ice frozen water expands about 10 per cent, so expanding and primer. In winter it is trying to push out the foundations of the earth, and vice versa - is trying to involve them in the spring when the ice melts. Because this process in different places on the foundation going different it can lead to cracks or deformation of the foundation. The difference in intensity at different locations of plot, expanding soil can lift even the entire building. Therefore, it is necessary to choose the correct type of foundation and vent their quality, as the foundation have to maintain the building, so they have to be strong. The main mistakes of the foundation laying is unexplored ground during omission, sometimes you can see the cracked walls of the house, because of declined foundation, because soil has not been tested. That is why you should always carry out research and to calculate the strength of the soil and the weight of the house. The designer doing calculations and then determine the most appropriate place for resting the foundation and the necessary substructure depth. This is doing in a very responsible manner, because otherwise the wrong way of the calculation, the house will sit down, lose their shape, become hooked. When choosing a foundation should be considered not only the strength of the soil, but the house load and other factors. But the most important is the soil, from his research starts all foundation construction. To build without geological surveys is not recommended, although neighborhood and possible investigations showed that there's a strong primer, should be testing their place, that you do not need to regret it for a big loss. Soil properties are developed using two techniques: field and laboratory. Outdoor approach - this is some special equipment hammered metal bars, which at the end of a cone-lock ground resistance. It is clear what kind of load can withstand the primer. Laboratory method - which is studied the sample came in geotechnical laboratory. There shall be the following soil properties as grit, porosity, moisture content, density, plasticity and mechanical characteristics. Including the extent to decrease the volume of the soil, depending on loads. Construction means the foundation deposition (Ramoškevičiūtė 2013).

The most important things to consider when installing the foundations for this:

• Soil type and characteristics;

• Are there plans to have the basement;

• Foundation waterproofing of ground and rain water;

• Substructure depth should be below the frost line depth. Lithuania - 1,2m (Tinkamo pamatų tipo... 2014).

The most commonly chosen Lithuania construction of belt or drilled foundation (Fig. 1), occasionally polar or tooled foundation, a very popular planar foundation. However, whether this is a good choice? This requires an overview of each type of foundation pros and cons.

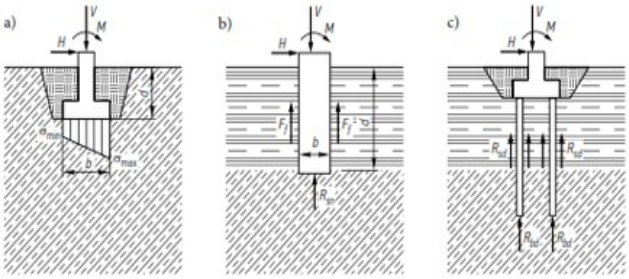

Fig. 1. Foundation types: a) shallow belt foundation b) deep foundation c) pile foundation (Ramoškevičiūtė 2013).

Belt foundation are made monolithic and prefabricated. More often choosing a prefabricated foundation of concrete blocks, because monolithic construction of foundations take up more time. Belt foundation is good that they are economical, quite strong and quick. Their sedentary is about 1,5 cm. However, they are equipped with the necessary lifting equipment (such as a crane) with which may not always be possible to reach some places. If in the plot is a high groundwater level, necessary drainage, which takes away even more time throughout the construction process because of the need to make a convenient access from all sides of the foundation, as the need to dig up the soil. That is why these foundations are recommended to choose the construction of buildings with a basement and a heavier construction. That as it may it is one of the better foundation.

Another type of foundation: *drilled foundation* . They are also very popular in our country. Popularity influenced by low labor and material cost, as well as fast installation. It is also very convenient, if in a building construction place are a lot of engineering lines. Drilled foundation choosing the right technology are heated from sides and bottom, so there is no cold bridge. That's why they are good. But as everywhere there are pluses and minuses. Because the price is quite low, drilled foundations disadvantage is that they are among the weakest, more suitable for strong primers. Their sedentary 2 - 2.5cm. Very often mistaken from builders constructing this type of foundations.

Another type of foundation - *pole foundation* They formed sharply hammering poles into the ground, but the foundations of the pole is best to use only for wooden houses. Such variant of foundation is the cheapest and easiest option, however foundation constructional scheme need to be made only after consideration of possible deformations soil. If they meet the requirements, then it is the only way to equip a house with such foundations. If the ground is expanding rapidly, walls can only be framed, if the soil is quite stable, can be other forms of wall construction. Such foundations are suitable more for the house size of not more than 80 square meters.

Planar foundation - the foundation of an integrated output structure, blended into the special foam forms, which completely isolates the reference card from direct contact with the soil. This helps to avoid the foundation deformation, cold bridges. This foundation plus is that the building built on the planar foundation remains sturdy and stable, because planar foundation hold the building the entire plane, rather than a number of individual parts. Also, the planar foundation is one of the warmest and strongest. They are designed especially for energy-efficient homes.

Table 1. Various foundations advantages and disadvantages

Type of foundation	Advantages	Disadvantages
Belt foundation 	• Installation time is not long; • Economical; • Has a good load-bearing capacity; • These foundations are advised to choose the design of the building with a basement or heavier structures.	• Needed Required lifting technique, which may not always be possible to reach; • If the high ground water level, necessary for drainage, which is time-consuming.
Drilled foundation 	• Low labor and material costs; • Fast installation; • Heated the bottom and sides, so there is no cold bridge; • Easy installation of the building instead of passing many engineering lines;	• One of the weakest types of foundations; • Compatible only stronger primers; • Common errors from builders installing these foundations;
Pile foundation 	• The only foundation of a defining characteristic that can be prepared in weak soil; • Low material costs: • Small earthworks volumes; • There is no need to prepare the base; • One of the strongest;	• Necessary technical equipment;
Pole foundation 	• The cheapest and easiest option of all foundation types;	• Applied mostly just for wooden foundations; • Supported only on a small ground; • Applicable only when home base size no larger than 80 square meters.
Planar foundation 	• Robust and stable foundation; • Warmest; • One of the strongest; • Quick installation, small earthworks.	• Required drainage.

Image source: Фундамент 2014.

The foundation of the thermal resistance *R* can reach 9.7 ($R = 9{,}7 m^2K/W$) or more. They are quickly installed, because the construction period is removable only vegetable ground layer, made little ground work, but necessary drainage (Pamatų įrengimas 2013).

And one of the strongest - *pile foundation*. Pile foundations appropriate when the upper soil layer very weak or very deformable, such as peat, sludge and bulk non compacted soil or high water table, and his humiliation expensive (Sližytė 2012 98p.). In the land to

a depth of 10-12 meters are minted piles, providing not only support, Used some strong soil is deep. Piles are reinforced concrete, wood, concrete, steel, soil, synthetic, combined cross-section. Minted every 1.0 to 1.5 m. but also for compacting soil (Kokybiški namo pamatai 2015). Pile foundations advantage is that their use reduces material costs (concrete - 40%), reduces the earth works (80% compared with the belt foundation), do not need to prepare ground floor or degrade groundwater (Kaip išsirinkti tinkamus... 2013). Bearing capacity of the pile and the number in foundation calculated on the basis of the characteristics of the soil and building loads, in this respect, it is calculated and pole diameter. Pile is working by the vertical and horizontal forces, and in them must be taken in consideration by foundation counstructors to apply certain coefficients calculations. Also in the project must be calculated pile foundation subsidence. Pile foundations are one of the most progressive, zero-cycle construction types. This would suggest that each type of foundation has many different construction methods, the mechanical and technical characteristics. Of course they have common characteristics: all the foundations withstands permanent and volatile loads from above – the roof, walls, ceilings, volatile - machines, people and equipment, which are constantly changing position. The foundation works and physical natural factors - cold water, heat, that's why installing the foundation needed to remember their thermal insulation and the surrounding soil drainage. Thus, there is no universal method suitable for everyone. However, the strength andvariety, installation methods, characterized by the strength of pile foundation, which will attempt to review.

Brief mention should be made for *stone concrete foundation* but they are already obsolete. Yes, they are the cheapest of all types, but they are the weakest, most problems that cause the foundation of a long construction time, largest amount of builders mistakes - inadequate concrete-stone ratio, the wrong type and shape of the stones. Saw the advantages and disadvantages presented in Table 1.

Pile foundation types and their peculiarities installation

Piling work technology had a long way of development - from wooden piling methods to modern pile works based on effective methods of work and mechanization instrument (Kriukelis 1981, 119p.). The construction of pile foundation, compared with other foundation structures, more than twice decreases the volume of earthworks and concrete costs.

Because as has already been mentioned, pile foundation can be built with low labor and materials costs, quickly and cheaply, they are often installed even in strong soils, not only weak. In modern industrial and civil construction, many buildings are built on pile foundations. According to the material piles can be: wood, concrete, concrete, metal, combined cross-sectional, synthetic ground (Sližytė 2012 98p.). Piles load can pass in two ways: weak primers for external friction (friction piles) (see. Fig. 2 a) and when it is supported by the strong primers (see. Fig. 2 b). To install pile foundation used poles like: 1)

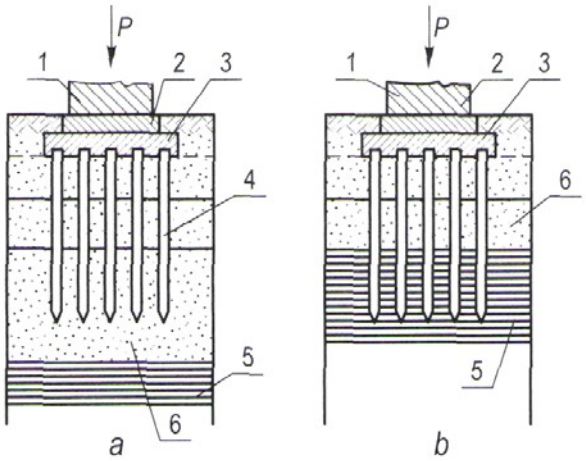

Fig. 2. Pile foundation scheme: a – friction piles, b – poles repel; 1 – Column, 2 – basis, 3 – grate 4 – pole, 5 – dense soil 6 – weak soil (Zavadskas et al. 2008).

Circular are made in factories and on construction sites, removing soil; 2) monolithic piles installed in soils bore-holes; 3) compound that possess characteristics of both groups pole; they can be installed using special techniques. In factories manufactured poles can be selected, depending on soil characteristics, computational load of the pile and the pile function, their price (Zavadskas *et al*. 2008, 112p.).

Before starting deepen pole, hace to do preparatory work: to level the pole outdoor area, mark pole field, installed temporary roads to bring piles and techniques, transported and mapped poles. Smooth out the field pole pitch, removing the vegetable layer is very important, because piling accuracy depends on the evenness of the area. This is done by bulldozers, graders. Pile Field Marking out - it is the foundation of polar axis transfer to the construction site. Future Polar foundation accuracy depends on the axis formatting accuracy, so marking is mainly done by surveyors. Rapper help set the height altitude and made outside pole marking scheme (see. Fig. 3). The scheme secured till the building's construction work is completed and forwarded to the customer.

Poles come equipped with a temporary roads. Bringing piles are tested to meet the parameters, marking. Piles are marked, so you can watch as they plunge. The same circular process consists of auxiliary operations such as pile-riding field pole, building the pile piling famous, attracting poles and installation, beaten superposition and installing basic operations: piling into its design altitude or response. The other surgery sometimes takes more than 50 percent of the total cycle time pile. It is therefore necessary to reduce the installation and support poles for attracting scheme, selecting them proper piling scheme. This is the pole and the equipment concerned preparation process (Nakas *et al.* 1992, 128p.).

Piles in the strong ground should be recessed:

• to gravel, wholemeal, medium grit sand and clay in the soil in which the flow rate of IL <0.1 - not less than 0.5m;

• other dispersion primers - not less than 1 m (Ramoškevičiūtė 2013).

The biggest plus pile foundation is the construction in the weak soils. Here they do not lose shape, then building

non deformating compared to other types of foundations. Circular piles into the ground using various methods and technical machines, which allow a foothold in the weak soils. These are: the shock method and brakes; vibrators and vibration method; static indentation method and embossing machines; screw method and screw machines, hydraulic method; combined vibratory grinding method. Piles sunk necessary pile, pile embossing, screw machine. Perhaps the only drawback pile foundation and is that in order to install monolithic and compound poles must be ensured that the work will be done holistically, and to them the necessary technical equipment (drilling, the sinking, tamping and other). And another drawback that if not professionals develops, it is often a mistake - wrong pole arrangement. Sometimes it is redundant, because this type of foundation lose one of its main advantages - save concrete, and therefore money. So in order to have a really high quality and effective pile foundation worth the investment and ask a professional for help.

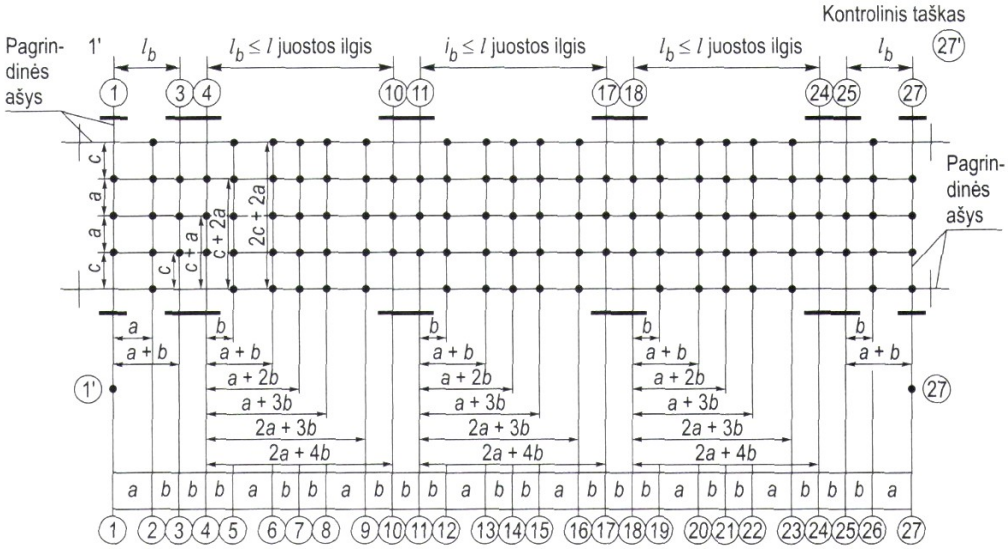

Fig. 3. Outdoor pole marking scheme (Zavadskas *et al*. 2008).

So pile foundation pluses are as follows:

• did not disturb adjacent or re-shaped by the soil;

• No vibrations do not cause disturbance of adjacent poles or structures (Bored pile advantages 2015);

• Small excavation. Their use reduces the amount of work the land;

• Many new structures are small piles bearing capacity, low weight, their manufacture consumes less concrete, reinforcement and other materials;

• The piles may extend deep below the frost penetration;

• No drainage;

• Perhaps the greatest advantage - the ability to approve the foundation in weak soil;

• Pile foundation strength allows not to deform buildings, unlike other types of foundations.

Another defining characteristic has a pile foundation, so that they can prepare in the winter. Piling area should be covered with insulation material, covered with snow. From the pile must be cleaned ice, frozen soil. When the ground is frozen only up to 30 cm depth, the pole can be guilty of prior preparation of soil. Deeper frozen soil piling areas or thawed or frozen layer is drilled by drilling machine. Over the frozen ground is difficult to drill more than 60 centimeters in diameter foundation wells. Therefore, the soil must be thawed. Future borehole is drilled through the center of frost 30-50 cm diameter drill, bore is filled to 120 to 170 degrees Celsius heated sand and warmly wrapped. Within 8-12 hours primer thaw around 1 - 1,2m. It can be thawed with electrodes. In winter, into the well shaken concrete mixture temperature should not fall below +5 degrees Celsius. Concreted the top of the pile is covered with insulation material (Krušinskas 1992 41p.). Already in 1981 the book "Construction technology", V Krušinskas mentioned that the then industry and civil construction about 20-25 per cent of the buildings were built on pile foundations. (Krušinskas, 1981, 120p.).

So for all these reasons: the pile foundation fastening weak soil, due to low material and labor costs for the foundation of other defects, the best construction of buildings, choose pile foundations. This is the cheapest and probably the best choice to ensure the quality.

Conclusion

The design of the building, the most appropriate foundation type is selected according to the results of geological engineering.

A comparison of various types of foundations, found that various types of foundations are suitable for the construction of certain terms. Many types of foundations, which can not be prepared in soft ground is an alternative - pile foundation, which is the biggest pile foundation plus.

They may be placed in strong soils. It has recently become rapidly popular type of planar foundation for its strength and heat. This is one of the strongest and warmest foundation. This is the reason why rapidly in popularity this type of foundation.

The evaluation of the various advantages and disadvantages of the foundation, noted that among the most important advantages of all types of foundations have pile foundations: the rapid construction of relatively inexpensive (for what many are choosing these

foundations not only soft ground), small excavation, drainage unnecessary.

The advantage pile foundation against other foundations that they may be held in the winter. If the foundation designed and installed in high-quality, full building ber equally and no cracking or fissures supporting constructions do not occur.

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TYPES OF FOUNDATIONS FEATURES SELECTION IN CONSTRUCTION

S u m m a r y

Often builders too little pay attention for foundation mounting, because the majority of them is invisible and is underground. But for real, foundation is the most important home base, most important part of building, because of most labor costs and they affect the longevity of the house, building, heat waterproofing, building aesthetic beauty. Everything in the foundation building area starts not from building but from ground investigation. In the winter, soil trying to push foundation from ground surface and in the spring, soil trying to draw in foundation, then the ice is melting. Also we need choose right foundation and to pour them quality, because foundation have to keep building. Foundation have to be very strong. Here is different types of foundations as belt foundation, screw foundation, planar foundation, pile foundation and other types of foundations. Everyone type of foundations have their advantages and disadvantages. Of course all types of foundation have common properties: each type withstands constant and volatile loads from above – roof, wall, overlays and etc.. Foundation is working natural factors like water, cold, heat. So there is no universal type of foundation. But from pluses and minuses we can choose the best option for our buildings. Belt foundation pluses are that they are most economical from all types of foundation, strong enough and quickly mounted. But they need special lifting equipment, with which they can not reach every places there they need to drive. Screw foundation is popular because of low cost materials and fast mounting. But they are one of weakness types of foundation. Planar foundation is one of strongest and warmest from all types of foundation. They have fast mounting, because during construction performing small amount of ground working, but for planar foundation is necessary drainage. But pile foundation is better than other types of foundations. Pile foundation is very popular, because of low material cost and price, because of quickly building, because piles can be extended to depths below frost penetration, and seasonal moisture variation, because of disadvantages of other types of foundations and because of building them on winter. Of course, the most important thing, why pile foundation is very popular is because of their ability to be fastened in weak soil. Other types of foundations just can't be built on weak soil, because then, the building can lose shape, appear some cracks in the building or just start to take. So that's why people have to choose right foundation. And as research shows, the best type of foundation is pile foundation, because they are better then others, don't have as many disadvantages as other types of foundations have, they have more pluses.

KEYWORDS: construction sector; types of foundations, foundations advantages and disadvantages.

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