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ORGANISATIONAL REASONS OF JOB BURNOUT

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ABSTRACT

The article contains theory-cognitive and empirical parts, which aim is to diagnose the organisational reasons of burnout being detected by managers in organisations, which they work in. The group of 45 representatives of managers who are the students of Executive MBA in INE PAN in Warsaw took part in the research. The managers' opinions about organisational risk factors of burnout which occur in their work environment were the subject matter. The tool used for research was questionnaire of polling. The following research problem was worded: What organisational factors which raise the risk of burnout are detected by representatives of managerial staff in their work environment?

The analysis of respondents' statements enable to emerge of the following categories of burnout risk factors: the pressure (of the time, responsibility, expectations), lack of possibilities to develop the occupational abilities and seat promotion, the reasons entrenched in wrong interpersonal relations, lack of appeasement of basic employees' need, blunders in motivational system and work organisation, lack of real possibility of making decisions. Vicariously, the research results indicate senior staff individualistic inertia. The respondents are conscious of burnout risk factors, but they do not take enough effective action building friendly organisational environment and promoting healthy lifestyle. They estimate that the impact of these things on mental hygiene improvement in enterprises is little. They are prone to detect potential resources of burnout in factors, which they do not have direct influence on, for instance in the rules enforced by the high level managers, in law of tough market competition etc. There are no statistically significant differences between the responses of men and women. The article develops knowledge in the area of organisational behavior.

KEY WORDS

burnout, organisational stress, managers' perception

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INTRODUCTION

People working in contemporary organisations often seem to forget that every individual is equipped in some resource of energy which it needed to be managed reasonably so as it will be the resource of professional achievements and sense of satisfaction for whole period of professional activity. The deep wisdom is in the saying that the more enthusiasm at

the beginning of professional career, the bigger risk of burnout later down the line. Burnout is a very serious mental crisis, often so deep that a human is forced into total re-evaluation of his or her professional life, including career change. It is worth it to remember that work is very important in modern person's life, but it is not the only one. Over-motivation, getting completely absorbed into one's work at the cost of

another life spheres can lead to cataclysmic effects for an individual. Vicariously, the employer is also the one who sustains because of such a situation. It can be visible in decreasing quality of employee's work; the surge of blundered mistakes number, the absence costs and staff turnover. In times when the standard of living is mixed up with quality of life and a man because of unhealthy hyperactivity seeks medicine for existential anxieties, the problem of burnout grows into serious challenge for theoreticians and practitioners of management.

The article contains theory-cognitive and empirical parts which aim to diagnose the reasons of burnout which are detected by surveyed managers in their work environments. Due to the lack of psychological knowledge of surveyed persons, the research findings are the opinions about the organisational reasons of burnout, i.e. those that arise from work environment attributes or work tasks points.

Forty-five representatives of managers who are students of Executive MBA in INE PAN in Warsaw were involved in research. The aim of the research was to get to know the executives' opinions about factors (processes, casus) appearing in their work environment that can raise the risk of burnout. Such conceptualization of the research aim arise from the assumption that improvement of organisation quality of functioning, including perfection of management processes requires, i.e. the consciousness of potential disfunctions' sources.

Due to small number of surveyed persons, it was not the representative of study sample, the research cannot form the footing for phrasing strong conclusions, but they are being treated rather as source of knowledge about accuracy, which are worth to confirm in research with study sample meeting requirements of representativeness.

1. LITERATURE REVIEW

There is no one, generally accepted definition of job burnout (Weber & Jaekel-Reinhard, 2000). In the 1980's burnout was described as dynamical process. Currently it is considered as a state characterizing by chronic and persistence (Schaufeli et al., 2011), therefore burnout is defined as an enduring, negative state connected with work which occurs in case of people that are generally healthy. The syndrome of burnout is marked with exhaustion that is accompanied with psychical and physical discomfort,

the feeling of diminished activity effectiveness, driven down motivation, and dysfunctional attitudes and behaviours at work. This state develops progressively and arises from variances between expectations and reality of profession. Burnout often has a character of self-powered mechanism owing to lack of effective strategies of coping with stress (Schaufeli & Enzmann, 1998).

The notion of job burnout has been used for the first time to describe group of symptoms which are the consequence of organisational chronic stress experienced by social service employees (Freudenberg, 1974; Maslach et al., 2001; Weber & Jaekel-Reinhard, 2000), teachers (Kyriacou, 2001) and health services (Katsounari, 2015; Newell & MacNeil, 2011). At the beginning of the research of that problem, the attention was concentrated on psychological threats connected with following so-called „missionary” professions in which the high values play crucial role, including sense of mission (Sabo, 2011; Cieslak et al., 2014). Today, this cause is appreciably treated more widely. It is claimed that the burnout can touch the representatives of the professions that cannot cooperate with strong emotions connected with their work (Maslach et al., 1996). Also, vital statistics as the age, the sex and the education level do not influence burnout and its consequences (Matin et al., 2012). The most vulnerable employees are the ones whose work requires constant contact with people who are in some way responsible for the other human whereby their work activity is so emotionally heavy (Gillespie, 2001). On the other hand, it is not possible to mark the names of definite professions or organisational roles, which make the man free from the risk of burnout. These days, according to holistic approach to diagnosing the complex mechanisms of human behaviours (Bergman & Lundh, 2015), it is claimed that the complex combination of individual, psychological and environmental factors underlies the burnout (Mojsa-Kaja et al., 2015).

Burnout is a multidimensional phenomenon (Schaufeli & Taris, 2005). There are at least three models of burnout. The first model describes the core of burnout based on three dimensions: exhaustion, depersonalization and inefficiency of activity (Maslach et al., 2001). In the second model the burnout is reduced to one dimension: physical and mental exhaustion (Kristensen et al., 2005). The third model is based on premises of social psychology of cognition and assumes that the critical element for burnout development is inability of constructive

coping with problems, reversals and failures. Therefore, the burnout is not only the consequence of stress' experiencing, but the lack of ability of adaptation to an environment where stress factors occur (Shirom & Melamed, 2006).

It can be said that slowly but still the enterprises and managers' awareness of dependence between employees' mental condition and results of their work rises (Moczyłowska, 2012). This regularity concerns also burnout that carries series of effects for an employee and also for an organisation which hires them (Moore, 2000). Among the individual effects the best examined are the healthy ones. An established strong correlation between burnout syndrome and depression exists (Bianchi et al., 2015; Schonfeld & Bianchi, 2016) as well as digestive system and cardiovascular disorders (Schaufeli & Enzmann, 1998). Burnout involves the consequences in the area of cognitive processes: decline of concentration ability (Sandström et al., 2005), memory disorders (Oosterholt et al., 2012), dropping of information processing speed (Österberg et al., 2009). Obviously these changes mean the decline of work quality, the risk of making mistakes surge, and being prone to accidents. The high level of cynicism evinced by persons, who are burned out, causes also clear disorders of interpersonal relations in work environments (Johnson & O'Leary-Kelly, 2003). From the management perspective it is also important that the burnout lies on the extremely contrary spectrum against organisational involvement (Leiter & Maslach, 2004; Schaufeli & Bakker, 2004; Mäkikangas et al., 2012).

2. RESEARCH METHODS

The group of forty-five representatives of managers who are the students of Executive MBA in INE PAN in Warsaw took part in the research. The study sample work in enterprises' segment which represents different trades. Due to comparatively little strength of study sample, the results of research marked some tendencies which are the basis to formulate hypothesis for further research in the group of people who meets the rules of representativeness.

The managers' opinions about organisational risk factors of burnout which occur in their work environment were the subject matter. The aim of research was to diagnose risk factors which can lead to burnout concerning the managerial staff but also these which – in managers' opinion – are experienced

by their subordinates. Thereby, the aim was to diagnose the way of perception the organisation by the managers at an angle of occurring disfunctions in their enterprises which raise burnout risk of employees who work there.

The study sample are the people with different educational background but all of them have experience in management (on average 4 years). In study sample 60% were represented by men. Although the place of conducting the research was Warsaw, the respondents represented all regions of Poland. The tool used for research was questionnaire of polling. The following research problem was worded: What organisational factors which raise the risk of burnout are detected by representatives of managerial staff in their work environment? The study sample had to response the open questions which let them freely make a judgement of their work environment at an angle of occurring risk factors of burnout there.

The survey research which results are included in this paper is based on introspection mechanism. The author is aware that this method do not permit to get intersubjective-verified knowledge and do not give access to real behavior reasons. Notwithstanding these critical comments taken by social science methodologists, the introspective research set in actual fact the grounding of all survey research. The use of that introspective research' results in diagnosis of burnout reasons is based on well-documented in literature statement that an employee is the best source of information about work character or organisation role served by the employee (Woźniak, 2006).

3. RESEARCH RESULTS

Research participants have mentioned diverse organisational risk factors of burnout: both these ones which are experienced by the managers and the ones experienced by their subordinates. On the basis of respondents' responses analysis, the author divide them into a few categories: widely understood pressure, lack of development possibility, reasons stuck in interpersonal relations, lack of basic needs satisfaction of people working in the organisation, mistakes in way of reinforcement and labor organisation, lack of real possibilities to make a decisions (cf. Tab. 1). Frequency of occurring particular responses has been assumed as criterion for division. Significant differences between responses of the men and women were not stated.

Tab. 1. The managers' opinions about organisational risk factors of burnout

THE CATEGORY OF RESPONSE	THE NUMBER OF RESPONSES [N=45]	% [N=45]
Pressure		
Too many duties against possibilities of employees (time possibilities, psychophysical possibilities)	27	60
Result motivation, pressure for results	25	55,5
Time regimentation, fixed deadlines	22	48,9
The pressure comes from responsibility	10	22,2
The pressure of oneness and uncritical acceptance of company management philosophy	7	15,5
Lack of employees' basic needs satisfaction		
Low level of salary, Lack of salary rise	27	60
Lack of stabilization sense	26	57,8
Lack of possibility to extract an owned knowledge	23	51,1
Lack of possibility to rest because of expectations of endless availability and persistent willingness to work (politics „never sleep“)	4	8,9
Lack of possibility/perspectives of development		
Lack of perspectives of perpendicular or seat promotion	28	62,2
Lack of possibilities of professional competences' development	23	51,1
Reasons in interpersonal relations		
Wasting energy on debilitating conflicts, bad climate in work environment	17	37,8
Lack of communicational abilities of managers	6	13,3
Politicization of the promotion	6	13,3
Lack of trust	6	13,3
Rare meetings with managers (limited possibility of knowledge flow)	5	11,1
Mistakes in motivation system		
Too little praises and possibilities to experience the success	21	46,7
Lack of possibilities to make decisions truly		
Lack of sense of real influence on what is happening in the organisation	12	26,7
„Terror“ of imposed procedures	5	11,1
Lapses in labor organisation		
Exhaustion because of general disorganisation	5	11,1
Too broad field of tasks	3	6,7
Lack of clear well-communicated strategy	3	6,7

The research participants, pointing the risk factors of burnout present in their work environment, have emphasized the meaning of pressure which the employees on different levels of organisational structure are reconciled to. It is both the pressure that comes from ever growing expectations of measurable work results, time constraints and the one connected with responsibility. The pressure of oneness and unthinking acceptance of steps enforced by line managers is thought as especially disturbing (it was pointed out by over 15% of study sample). The saying „if everybody thinks the same, it means nobody thinks“ is well-known. It is hard to make engagement

and innovativeness climate in situation when it is expected from the employees to passively „chime in“ and moreover the employees are chronically succumbed the pressure ergo they are exhausted because of persistent organisational stress.

The next element considered by managers as risk factor of burnout is lack of development perspectives. Flattening of organisational structures causes abatement of seat career chance. The limitation of funds for perfection of the employees' professional competence puts up in the air employees' possibilities for horizontal promotion. Such a situation creates, especially for ambitious people, justified frustration

and increasing feeling of lack of work satisfaction. This is quite a pessimistic image, replenished by fact that in opinion of over 50% of respondents, the employees hired in their enterprises cannot fully use possessed knowledge, performing their duties.

The situation is even harder if other needs' deprivation, including the most basic ones, co-occurs with lack of development perspectives. 60% of management representatives taking part in the research expressed the view that the employees hired in managers work place earn too less money when compared to work difficulty and work – related responsibility. Over 57% of respondents also pointed out chronic lack of security needs' satisfaction caused by lack of professional stabilization. Also motivational immaterial impulses are being used too rarely according to 46% of study sample and the employees' mental energy is too often being wasted on devastating conflicts and coping with bad workspace atmosphere. There are no statistically significant differences between the responses of men and women.

On the one hand the fact that managers are aware of threats might gratify. These threats come from disfunction of organisation operation marked by managers. Unfortunately, everything indicates that this awareness does not transfer on particular actions that reduce the rate and the strength of stress factors. The attitude of peculiar helplessness - which is visible in respondents' statements – importantly clashes with role of organisation manager perceived by them, i.e. the person who has to feel responsible for work environment quality of their and their subordinates. Large part of respondents believe that they have little opportunities to make changes which effect would be the improvement of mental hygiene in a workplace. That belief needs to be considered very disturbing. The management participating in the research is rather prone to cut off from the problem and detect potential sources of burnout in factors which direct influence on does not exist, for instance in rules imposed by the high level managers. In rules of hard business struggle on the market etc., this feeling of real decisional influence lack occurs also as a factor of burnout (it is indicated by over 37% of study sample). Therefore, it is needed for one more potential crucial burnout cause to be indicated: peculiar inertia and helplessness of management who – possibly because of insufficient interpersonal competence – does not take effective enough actions which build friendly organisational environment and promote healthy work style.

CONCLUSIONS

The managers see numerous and diversified factors which raise the risk of burnout and occur in the different levels of organisation structure. These factors are most of all the ones which cause chronic stress and frustration: time and responsibility pressure, lack of development and promotion opportunity, reasons stuck in wrong interpersonal relations, lack of employees' basic needs' satisfaction, including mainly living and security needs, mistakes in motivational and labor organisation system, lack of real opportunity to make decisions. Thus it can be assumed that managers participating in the research have knowledge about potential risk factors of job burnout. There are no statistically significant differences between the responses of men and women.

The awareness of burnout risk occurring in managers' workplace that was expressed by examined managers does not co-exists with actions on change of situation. The analysis of respondents' statements indeed permits for wording the conclusion about peculiar lack of feeling responsible for present situation. It is hard to agree with that they do not have influence on organisational culture, shape of employees' motivational system or system of labor organisation. The vast majority of respondents correctly diagnose the problems which occur in their workplace but they gloss over these problems, expressing the conviction that they are not responsible for that state of matters, but it is under influence of circumstances which do not depend on respondents or other people. The problem of lack of management responsibility sense for building the work environment consistent with mental hygiene rules requires further in-depth research but on the basis of data presented in this article it can be said that managers cut off from sense of responsibility for those organisational elements that have influence on mental condition of employees and managers themselves.

Due to fact that the study sample does not meet the expectations of representativeness, it is justified to continue the research that led to further, in-depth diagnosis of burnout risk factors. In particular it seems to be indicated to conduct comparative analysis of presented in this article managers opinion with opinion of employees who are not in the management.

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BUILDING PARTNERSHIPS WITH SUPPLIERS AS A NEW TREND IN MANAGEMENT

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ABSTRACT

The main objective of the paper is to show the importance of building partnerships with suppliers, and then present the results of their own tests verifying the following hypothesis: Most of the furniture industry companies in Lower Silesia takes into account the partnerships relation with suppliers in their formulated business strategy. The present studies were carried out using CATI method and they included a research samples consisting of 110 enterprises of Lower Silesia. Enterprises were selected for testing using a special purpose method, and the selection of companies was based on the factors such as: regional differences, Lower Silesia region is divided into cities and villages, basic products and the activity period, size of employment, organizational and legal form, basic profile of activity. An interview with companies' managers was based on an anonymous survey questionnaire. A time range of research took into account 2 phases: phase I – an exploratory phase: February – May 2013 and phase II – the essential phase: the period up to early 2014.

The Studies have confirmed the formulated hypothesis. Most of the companies of the furniture industry have developed an overall strategy in the form of official or unofficial document. They are characterized by a high degree of diversity, both in terms of accepted legal form, number of employees, year of establishment, business profile and range of operation. They see the impact of relationships with suppliers for the modernization of the products in the context of improving their quality. For theoretical contributions can be considered deepening and ordering problems in the field of building partnerships with suppliers in terms of the overall business strategy formulation. The results of the study should help companies in building partnerships with suppliers appropriately using the proposed roadman; conducting quantitative and qualitative research, to assess the impact of the company's overall strategy for relationships with suppliers.

KEY WORDS

partner relationships, suppliers, trends in management, company strategy

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INTRODUCTION

Two conditions inspired and led to considerations on building partnerships with suppliers as a new trend in management: first of them is a lack of broader discussion on this subject, and the second one is a desire to draw attention to the fact that companies' cooperation within the framework of mutual relations affect their ability to implement strategy, as well as to

adapt to change and innovation. It is a challenge to boost the development of modern enterprises. This is confirmed by B. R. Kuc (Kuc, 2012), stating that „...cooperation, which aims to ensure the organization's survival and development applies not only to the interior, but also to exterior partners”. Therefore, the key problem is a deeply thought-out mutual partner relationship in collaboration. It

should be properly managed in order to enable companies the continuous development, including the use of emerging opportunities and chances to obtain a competitive advantage.

Enterprises operating in today's economic reality, in order to obtain a competitive advantage, should have the ability to respond quickly to changes occurring on the markets in which they operate (Zrałek, 2007). Such phenomena, as growing demands of providers, dynamic globalization of markets, growing competition, activities of movements for consumers or for environment, lead to the situation that companies, which have a vision of their own development, try to find new ideas that could constitute their motor activity and that would allow to successfully compete in permanently changing environment. An answer to these expectations is to focus on building partnerships with suppliers in line with the objectives of the enterprise.

The partnerships with suppliers, due to the current reality of the businesses (Lambert et al., 1996) operation can be a kind of antidote to uncertainty and turbulence seen in a globalized external environment. In this context, they can be used as a basic factor of competitive advantage. As a result, business development policy concerning relations with suppliers is not any money wasting in enigmatic and unintentional initiatives nor a fad or difficulty of doing business, but the long-term strategy of forming partnerships. The close trade relations are not possible without the commitment of both sides. Important in the formation of relationships with suppliers is the knowledge of the conditions for the development of relations with customers (Sudoł et al., 2000). Understanding the factors shaping the behaviour of participants in relationships appears to be essential for an effective development of partnerships between companies. This underlines the need for supplier relationship management, which aims to simplify and increase the efficiency of these relations. Supplier relationship management is often linked with automation of ordering procedures and settlement of orders, quality assessment of suppliers and exchanging information with them (Odlanicka-Poczobut, 2006). It is a set of IT applications to enable companies a more comprehensive insight into data about suppliers and operations implemented by them (Odlanicka-Poczobut, 2007).

The article discusses the problem and searches for answers to the question whether the furniture companies of Lower Silesia comply with the formulated strategy of relationships with suppliers?

This was the research question of the article. In relation with the assumed problem one formulated the following research hypothesis: H: Most of the companies of the furniture industry of Lower Silesia comply with the formulated strategy of relationships with suppliers.

1. THE IMPORTANCE OF PARTNERSHIPS WITH SUPPLIERS

Building relationships with suppliers on a partnership basis is a decision of each company. The functioning of enterprises in conditions of uncertainty and problems of turbulent market environment fosters to establish the global partnerships – they become an important factor in building a competitive advantage on the market, and long-term partnership is one of the strategies of doing business and an important contribution to the development of appropriate relationships with suppliers.

The close trade relations do not require the involvement of both sides. Extremely important in formulating relationships with suppliers is the knowledge of the conditions for the development of relations with customers. Understanding the factors shaping the behavior of participants in relation seems by all means important for the effective development of partnership between them. The main criteria for selection of partners are (Humphreys et al., 2001):

- quality – measures of quality, ISO, continuous improvement programs, elimination of defects,
- cost – total cost, proactive elimination of waste,
- skills of management and compatibility of organizational cultures,
- logistics – geographical location, level of customer service,
- design possibilities – involvement in product development, compliance with the specification,
- investment plans – liquidity and investment stability,
- communication – used IT systems and telecommunications (Internet),
- ability to solve problems – relevance and flexibility in identifying and neutralizing problems and conflicts, analysis of customer satisfaction and value added,
- experience and efficiency of employees – training and workshops,
- packaging – process analysis of the impact of packaging on the environment, logistics processes and customer satisfaction,
- production capacity – compliance with current

and forecasted needs.

The partnership is a mature form of relationship, cooperation with others. It is the foundation of modern forms of organization, because today it is believed that amongst many of the characteristics of partnership, a high level of confidence is its potential. According to J. C. Anderson and J. A. Narus, the partnership between the customer and the supplier is based on mutual recognition and understanding that the success of each of the companies involved in relationships depend, partially, on the other, since the companies consistently take concerted action towards a common satisfying the target market.

Pure relations of cooperation include a process in which, over time, companies, recipients and suppliers create a strong, extensive social, economic, commercial and technical ties. In such conceived partnership, a joint strategic objective is to reduce overall costs and to increase the value which is a participation of businesses being involved in these relationship (Tyszkiewicz, 2012).

On the other hand, the concept of „partnership” is defined in the official description of the EFQM European Excellence Model. According to the EFQM Excellence Model (EFQM, 2010) „partnership” is for both parties a relationship that helps to develop and deliver added value. For partnership with suppliers one considers such work relationship between the recipient and the provider, which is built on mutual trust and provides added value not only to both partners, but also to end customers.

Autors Bennett and Jayes (Bennett & Jayes, 1998) devoted their work to building relationships and partnerships. According to them, a team of cooperating entities, partners in the project – made up of investors, contractors, professionals and advisors – builds its partnerships on the basis of: strategy, membership, justice, integration, comparison, procedures and feedback. In contrast, R. M. Kanter (Kanter, 1994) discusses the principles of forming relationships based on partnership, which include: individual involvement, interdependence, investment, information, coordination, institutionalization and trust.

Building a permanent and effective relationship between recipient and supplier often require a mutual commitment and mutual contacts between a number of employees from different departments, such as: marketing, production, quality control, logistics and finance. Such persons (called part-time marketers) execute double duties – implementation of operational objectives arising from the core business and

establishing, maintaining and developing relationships with customers.

A supplier, who gives the buyer the ability to communicate with the various competent people from his company, increases level of trust, in the opinion of a recipient's, and he is positively perceived. In order to attain a trusted status and dignified cooperation, a seller must have the appropriate skills to coordinate the activities carried out by the staff of the various departments involved in solving problems of a recipient.

Since the effectiveness of long-term cooperation between the parties depends largely on an efficient system of communication, one observes an increasing role of electronic information exchange systems. They allow for continuous interactive contact between a supplier and a customer. Thanks to on-line systems, it is possible to: direct acquisition of information about the partner, place orders and make payments, negotiate terms and conditions of delivery, submit complaints and provide guarantees. In turn, the development of electronic commerce reduces costs of reaching a partner and of a customer service (Gummesson, 1991).

Partner is a supplier, who in the long term cooperates with the recipient, and the relationship is mutually beneficial (Krupski, 2008). Each individual „partnership” is a combination of different options; in any partnership, there are five main dimensions: target, subject, time, place and method (Osborn, 2007). It should be emphasized that the objective answers the question: what aims the partnership? It requires the determination of whether the partnership is based on a strategic approach or project. In turn, the subject responds to the question: who is involved in the partnership and who are the main partners? It specifies a structure of their relationship in the partnership. Time allows to answer the question: what are the stages and timing of the development of partnership process? It allows to determine the scope in which relationships and activities change with the passage of time. While the place answers the question: what is the spatial dimension of partnership? The method, on the other hand, points the mechanisms for implementing the partnership (Ellinger et al., 2000).

Partnership with suppliers based on mutual trust can provide a response to the economic crisis. In such conditions, partners support the development of innovative products and processes, attract and retain the best employees, reduce the risk of legal problems, improve the company's image among customers and

the community, and finally, provide a higher quality of life (Hitchcock, 2007).

It seems that one must also have regard to the following factors determining the importance of partnerships with suppliers: a clear trend noted worldwide, especially in large organizations, is to focus on strategic business areas such as marketing, quality management, sales (other business areas they are moved to places that provide lower costs and higher profits), (Bhattacharya & Bulton, 2000). This trend ensures a steady increase of the supply in the total value of final products. Also, the share of material costs in total costs of the company is constantly increasing. For example, R. Maslen and D. Milne (Maslen & Milne, 1999) justify that material costs affect about 60% on the total costs of British organizations, thus approximately 25% are management costs and the remaining 15% generate labor costs (Maslen & Milne, 1999).

2. RESEARCH METHODS

For study there were selected 450 enterprises of the furniture industry of Lower Silesia. Responses were received from 130 enterprises, of which 110 surveys were analyzed in a quantitative and qualitative way. Due to the incomplete answers, the author rejected 20 questionnaires. In obtained group of replies, received pointer responsiveness were on the level of 24.4%.

Tab. 1. Number of employees in the surveyed companies

CATEGORY AND NUMBER OF EMPLOYEES	THE NUMBER OF THE SURVEYED COMPANIES	SHARE OF THE TOTAL NUMBER OF SURVEYED ENTERPRISES [%]
Micro enterprises (1-9 employees)	78	70,9
Small (10-49 employees)	21	19,1
Medium (50 to 250 employees)	9	8,2
Large: 250 and more	2	1,8
The total number of surveyed companies	110	100

Enterprises to research have been selected by gel method, taking into account the following criteria: year of establishment, number of employees, its organizational and legal form, business profile, basic products and range of their operation. It was decided to purposeful sampling method (Kuc, 2012), because this method belongs to the group of subjective selection methods (non-random). This kind of selection allows for a significant reduction of the cost and duration of the study (Sudoł et al., 2000).

The research revealed a picture of the way of taking

into account the relationship with suppliers in relation to the formulation of company strategies of the furniture industry in Lower Silesia. Conducted considerations allowed the author to formulate a hypothesis: Most of the furniture industry companies in Lower Silesia takes into account the partnerships relation with suppliers in their formulated business strategy.

3. RESEARCH RESULTS

The partnership relations are a kind of mixture of competition and cooperation. Therefore, all forms of partnership are manifestations of competition with other entities, which in consequences leads to competition with partners or a partner. The group of surveyed entities is primarily differentiated by the number of employees. The analyzed companies were classified into the following groups: micro enterprises, which employ 1-9 workers, small enterprises: 10-49, medium: 50-249 and large ones employing 250 people or more (Tab. 1).

In order to verify the correctness of the research hypothesis, there were analyzed the answers to the following questions:

1. Whether the surveyed companies have developed own strategy and in which form?
2. Whether the form of specified corporate strategy takes into account the relationship with suppliers?
3. What is the relationship between the form of

specifying the relationship with suppliers in the strategy of the company and the size of such company?

4. What is the relationship between the form of specifying the relationships with suppliers in the strategy of the company and organizational-legal form of the company?
5. What is the relationship between the form of specifying the relationship with suppliers in the strategy of the company and the activity range of the company?

6. What is the relationship between the form specifying the relationships with suppliers in the business strategy and the kind of realized strategy?

Analyzing the company's strategy (question 1), it is clear that the majority of respondents have developed such a strategy: 34.5% of respondents (38 out of 110) answered that the company has developed

and function by intuitive intentions of their owners. In a small companies the most common response was that „the strategy is in mind of the owner of the company”. Such approach provides a low level of knowledge about the tools of strategic planning, planning purposes, what makes impossible thinking and acting in terms of the strategic and operating

Tab. 2. The forms of specifying the strategies in the surveyed enterprises

FORMS OF SPECIFYING THE OVERALL STRATEGY OF THE COMPANY	THE NUMBER OF THE SURVEYED COMPANIES	SHARE OF THE TOTAL NUMBER OF SURVEYED ENTERPRISES [%]
The strategy in the form of an official document	38	34,5
Informal strategy	31	28,2
Strategy is currently being developed	17	15,4
It is planned to develop a strategy in the future	6	4,7
No strategy	18	16,2
Total	110	100

a written strategy as an official document, and 28.2% of the respondents (31) said that the company has a strategy, but informal one (Tab. 2) as the written rules of the long-term programming business. In contrast, 20.1% of respondents admitted that their company is in the process of preparation of such a strategy or just planning to develop it in the future.

With the response included variant of „no strategy” means, that in such companies has not been developed yet any strategy till now. It provides important information about the degree of popularity the form of strategy as a document in furniture companies from the province of Lower Silesia.

strategy language. The owners of these entities resign from building the strategy and focusing only on operational activities.

In the study micro enterprises dominate. It is worth to notify that these companies are applying for EU funds and for that, the strategy is necessary as an official document.

The relationships with suppliers in the developed strategy was analyzed taking into account the verification of the hypothesis. The data in table 3 show the distribution of the answers to this question (question 3). In 39.1% of the surveyed companies, the strategy in the form of an official document includes

Tab. 3. Forms of taking into account relationships with suppliers in the strategy of the surveyed enterprises

FORMS CLARIFYING RELATIONSHIPS WITH SUPPLIERS	THE NUMBER OF THE SURVEYED COMPANIES	SHARE [%] OF THE TOTAL NUMBER OF SURVEYED ENTERPRISES
Official document	43	39,1
Unofficial document	35	31,8
Not taken into account	32	29,1
Total	110	100

From the data of table 2 comes out that 16.2% of surveyed furniture companies (18) has not developed yet a formal strategy while complacent with their position on the competitive supported market. These observations suggest that CEOs of those companies are struggling to develop a clear and fine-tuning strategy. The distribution of answers confirms data from other studies and literature, that small enterprises in their operation are guided by a short-term perspective (Leszczyńska, 2007). Therefore, these companies do not have a formalized strategy

relationships with suppliers. In 31.8% of companies the relationships with suppliers were taken into account, but they are not clarified in an official document, and 29.1% of the companies does not take into account relations strategy with suppliers. These data allow to conclude that the majority of surveyed companies (70.9%) take into account the relationship with suppliers.

Comparing the data on the form of the strategy in the surveyed enterprises (Tab. 2) with data relating to taking into account the relationships with suppliers

Tab. 4. Forms of taking into account relationships with suppliers by the size of enterprise

FORMS CLARIFYING RELATIONSHIPS WITH SUPPLIERS	THE SIZE OF THE COMPANY					
	MICRO	SMAL	MEDIUM	LARGE	THE NUMBER OF THE SURVEYED COMPANIES	SHARE OF THE TOTAL NUMBER OF SURVEYED ENTERPRISES [%]
Official document	30	12	8	2	43	39,1
Unofficial document	21	4	1	0	35	31,8
Not taken into account	27	5	0	0	32	29,1
The total number of surveyed companies	78	21	9	2	110	100
Share of the total number of enterprises [%]	70,9	19,1	8,2	1,8	100	

in the strategy of the surveyed enterprises (Tab. 3), it was noted an increase in the number of companies in which the relationships with suppliers are contained in their general strategy: from 38 to 43 in official document, and from 31 to 35 in unofficial document. This strategy shows the way in which the company currently uses available resources to meet the changes occurring in the environment, while pursuing their own goals. The relationship between the form of specifying the relationships with suppliers in business strategy like: the size of the company, organizational-legal form and a range of activities, as well as the kind of realized strategy and position of the company at the market, was highlighted in empirical studies. These elements affect the forms of taking into account the relationship with suppliers, thus a deeper

verification of given hypothesis is possible.

Table 4 shows the form of relations with suppliers by the size of enterprise, which is measured by the number of employees (question 4). Analyzing these relations, it is noted that the smaller number of employees, the more relationships with suppliers are included in the official document. This conclusion is confirmed by the data of table 4.

Among the surveyed companies micro enterprises dominate (78), and 30 of them takes into account the relationships with suppliers, which are included in an official document, and 21 companies does not use such a document. It should be noted, however, that among the surveyed enterprises medium and large ones have the relationships with the suppliers included in the strategy as an official document.

Tab. 5. Forms of taking into account relationships with suppliers in the strategy of the surveyed enterprises according to its organizational and legal forms

FORMS OF CLARIFYING RELATIONSHIPS WITH SUPPLIERS	ORGANIZATIONAL AND LEGAL FORM								
	JOINT-STOCK COMPANY	IMITED LIABILITY COMPANY	GENERAL PARTNERSHIP	PARTNERSHIP	ENTRY INTO THE BUSINESS REGISTER	A COMPANY WITH FOREIGN CAPITAL	ANOTHER ORGANIZAL AND LEGAL FORM	THE NUMBER OF ENTERPRISES	PARTICIPATION [%]
Official document	1	8	1	4	29	0	0	43	39,1
Unofficial document	0	4	4	3	24	0	0	35	31,8
Not taken into account	0	1	3	2	26	0	0	32	29,1
The total number of surveyed companies	1	13	8	9	79	0	0	110	100
Share of the total number of enterprises [%]	0,9	11,8	7,3	8,2	71,8	0	0	100	

Tab. 6. Forms of taking into account relationships with suppliers in the strategy of the surveyed enterprises by activity

FORMS OF CLARIFYING THE RELATIONSHIPS WITH SUPPLIERS	THE RANGE OF COMPANIES ACTIVITY					
	LOCAL MARKET	REGIONAL MARKET	NATIONWIDE MARKET	INTERNATIONAL MARKET	THE NUMBER OF ENTERPRISES	PARTICIPATION [%]
In the form of an official document	13	10	9	11	43	39,1
Not in the form of an official document	14	15	2	4	35	31,8
Not taken into account	16	8	6	2	32	29,1
The total number of surveyed companies	43	33	17	17	110	100
Participation in total number of enterprises [%]	39,2	30	15,4	15,4	100	

The relationships with suppliers in the developed strategy is determinate by organizational and legal form the company (question 4). It is observed a growing tendency to place at the Entry in the register of economic activity, the business strategy as an official document. In this organizational and legal form 79 of the 110 surveyed companies presented relationships with suppliers as: an official document – 29 companies, unofficial document – 24 and 26 does not include relationships with suppliers (Tab. 5).

Entry in the register of economic activity prevails among the surveyed companies, and the research shows that more and more companies recognize the need to plan the future business, taking into account the relationships with suppliers in an official document.

market, in most cases recognize the relationship with suppliers in their strategy (11 companies in an official document and 4 at informal), local businesses make it in equal parts (13 in an official document, 14 in unofficial), while in companies operating regionally (10 official document, 15 unofficial) and at the national market dominate informal practice (9 in official document, 2 in unofficial). This may be proved by the fact, that companies operating in international markets, for which competitors are primarily foreign companies, are more aware of the importance of having the overall strategy confirmed at an official document. The strategies allow them to innovative reconcile many contradictions. These companies while acting on a very competitive, fast-growing markets, are exposed to new rivals.

Tab. 7. Forms of clarifying the relationships with suppliers in the surveyed enterprises according to the kind of realized strategy

FORMS CLARIFYING THE RELATIONS HIPS WITH SUPPLIERS	THE TYPE OF REALIZED GENERAL CORPORATE STRATEGY				
	STRATEGY OF COST'S LEADERSHIP	DIFFERENTIATION STRATEGY	CONCENTRATION STRATEGY	THE NUMBER OF ENTERPRISES	PARTICIPATION [%]
An official document	21	19	3	43	39,1
A nonofficial document	6	24	5	35	31,8
Not taken into account	8	15	9	32	29,1
The total number of surveyed companies	35	58	17	110	100
Participation in total number of enterprises [%]	31,8	52,8	15,4	100	

The scope of enterprises activity have impact on clarification the relationships with suppliers (question 6). In this issue, a trend is noticed. The data in table 6 show that companies operating in the international

The respondents answering the question of the scope of activities, marked the several answers (which is due to possibility of multiple answers), but preparing summary table, the answer includes the

Tab. 8. The effect of relationships with suppliers for the modernization of the products of surveyed enterprises

THE EFFECT OF THE RELATIONSHIPS WITH SUPPLIERS	THE NUMBER OF SURVEYED COMPANIES	SHARE OF THE TOTAL NUMBER OF SURVEYED ENTERPRISES [%]
Increase the quality of products	49	44,5
Streamline the distribution methods	31	28,2
Decrease the price	26	23,6
Improve the methods of promotion	23	20,9
Achieve a leading position in terms of quality	25	22,7
Allow you to make the product / service more innovative	28	25,5
They enable to find a new niche in market	10	9,1
Implement environmentally friendly solutions	5	4,5
Bring favorable service guarantee	15	13,6

widest range. For example, for companies that have indicated local, regional and national range, a reliable was the nationwide range.

Referring to the acceptance of the hypothesis, it was highlighted the way of clarifying the relationships with suppliers in the context of the kind of strategy in

of the products of surveyed enterprises. As seen in table 8, the largest number of enterprises (49 out of 110, which represents 44.5%) indicates that the relationship with suppliers improve quality, and 28.2% of companies (31) declared that they streamline the distribution methods, while 25.5% believe that

Tab. 9. The effect of changes in the overall strategy for the selection of suppliers

THE SYSTEM OF THE SELECTION OF SUPPLIERS	THE NUMBER OF SURVEYED COMPANIES	SHARE OF THE TOTAL NUMBER OF SURVEYED ENTERPRISES [%]
It has a technical nature and has not changed since the inception of the company, despite the changes in the organizational strategy	51	46,4
Changes of the selection system of suppliers are closely related to changes in the company's organizational strategy; system of selection of suppliers is strictly subordinated to the organizational strategy	29	26,4
The selection of suppliers is strategic and is on equal terms of organizational strategy	25	22,7
The selection of suppliers acts as a priority in relation to the company's organizational strategy	5	4,5
Total	110	100

the development of competitive advantage. Table 7 shows that the strategy of differentiation occurs in more than half of the surveyed furniture companies from the province of Lower Silesia (52.8%). The data show that 19 companies pursue a strategy of differentiation on the basis of an official document, 24 businesses have unofficial document, and 15 entities does have none of them.

As a result, the customer's relations with the supplier have a significant impact on the products upgrading and the market position of the „company-customer“. The study aimed to determine the impact of relationships with suppliers for the modernization

they allow to make the product / service more innovative. In contrast, 23.6% of surveyed companies (26) stated that the relationship with suppliers affect the price reduction, 22.7% believe that they allow to get a leading position in terms of quality, and 13.6% bring favorable conditions for service and warranty.

There is a surprisingly low number of responses recognizing the positive relationships with suppliers as the chance of finding a new niche in market – 9.1%. There are 4.5% opinions, that they allow the implementation of pro-ecological solutions. The study analyzed the impact of changes at the overall strategy for the selection of suppliers (Tab. 9).

Almost half of the surveyed companies (51 of 110) indicated that the system of selection of suppliers is technical in nature and has not changed since the inception of the company, despite the changes in the organization's strategy. 29 companies said that changes in the system of suppliers selection are closely related to the changes in organizational strategy of the company, but the system of selection of suppliers is strictly subordinated to this process. On the other hand 25 companies admitted that the system of suppliers selection is strategic and it is on equal terms of organizational strategy, and 5 companies believe that the system of suppliers selection acts as a priority in relation to organizational strategy.

CONCLUSIONS

As a result of obtaining the most desirable response, the given hypothesis must be accepted as legitimate in respect of the surveyed furniture companies of Lower Silesia, and the results show that:

- Majority of the surveyed companies have developed an overall strategy in the form of official or unofficial document, and the dominance of the strategy is the strategy of differentiation;
- Relationships with suppliers are taken into account in building an overall strategy, both in the form of official and unofficial document. The analysis of answers given by the company shows how the confidence and awareness of taking into account the relationships with suppliers in the strategy is widespread among them;
- Relationships with suppliers prevail in an official document in enterprises operating on the basis of an entry in the register of business activity and operating in the local market, which are dominated by a strategy of differentiation;
- Relationships with suppliers are recorded in the official document of primarily medium and large companies, even though that studies have shown that in small businesses also can exist such documents. The management in small businesses is occupied by the current business sales and investment, and does not have time or people to develop such relations strategy, and then to enforce them and to draw the consequences. There are companies that have the professional basis, but costs (regarded as unnecessary) are often too high to request such a task from them;
- Enterprises attach the great importance to the quality of performance of the furniture, considering the quality of a strong product page, and presented data also show that most respondents

pointed to weak product promotion in relation to key competitors;

- Enterprises see the impact of relationships with suppliers for the modernization of the products in the context of improving their quality;
- In most of the companies the affect by changes in overall strategy for the selection of suppliers is technical in nature and has not changed since the beginning of the establishment, despite changes in strategy.

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CHANGE MANAGEMENT IN LEAN ENTERPRISE

JOANNA FURMAN, MARZENA KUCZYŃSKA-CHAŁADA

ABSTRACT

The main purpose of the paper is the analysis of a process of change focusing particularly on the concept of slimmed production (Lean) and its implementation in the enterprise. A case study method was chosen as a research tool because it offers wide array of techniques and means of gaining and data analysis.

In the article a metallurgical company was evaluated as a case study. Thanks to implementing of Autonomous Maintenance the company reached a growth in skills and responsibility for work done and a reduction in malfunction of work places. Thus to the analysis one of the Lean concept tools was taken – total process maintenance (TPM) which implementation significantly influences industrial workers' competences. Referring to the subject bibliography within change management, the article focused on one of the changes in particular – the change in human resources management (it is within their skills) in steel and manufacturing companies.

KEY WORDS

change management, Lean Manufacturing concept, autonomous maintenance, employee involvement

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INTRODUCTION

Changes occurring in the environment as well as clients' growing requirements have led to increased interest in new methods and concepts of enterprise management. Enterprises introduce changes through the use of methods, techniques and tools adequate for their business activity and needs. It is essential to outline the importance of Lean Manufacturing (LM) concept which is common in many production enterprises. LM – created in 1950s in the Toyota company – assumes limiting both certain functions implemented by the enterprise and its resources. As a result of its implementation, enterprises achieve higher productivity, boost performance and quality of produced goods and provided services and – most of all – become client-oriented in every action they take. The concept involves putting an emphasis on

teamwork, increasing the autonomy of employees, taking care of their development, striving to constantly improve the organisation of work and elimination of mistakes (Gajdzik et al., 2011). The Lean concept is introduced in the enterprise through the use of tools such as the 5S method, kaizen, SMED or TPM. Change management in this case refers to an entirely different management of processes, where a significant role is played by the human factor, i.e. the employees of the enterprise. Without their involvement and cooperation it is impossible to achieve the desired results of the implementation of the concept.

This paper illustrates the gist of change management in organisations, putting a particular emphasis on lean production and its implementation

in the enterprise. One category of changes was focused on changes in the manner of employee management (i.e. within the scope of their skills).

Therefore, one of the Lean concept tools was selected for analysis – total productive maintenance (TPM), the implementation of which significantly influences

Tab. 1. Changes – basic notions and change features

SOURCE	CHANGE DEFINITION	CHANGE FEATURES
Griffin R. W.	<ul style="list-style-type: none"> – „a change is every significant modification of some part of the enterprise”, – a change concerns many aspects of the functioning of the enterprise and its environment, – „a change in the enterprise can lead to results falling outside the area of change” 	<ul style="list-style-type: none"> – change caused in the enterprise changes that enterprise, – change has unlimited scope, – a change influences other aspects of human life and existence, – a change is unpredictable, we cannot define the scope of influence of the introduced change
Stoner J. A. F.	<ul style="list-style-type: none"> – „(...) a planned change is systematic strive to redesign the enterprise in such a way so as to facilitate its adjustment to dramatic changes in the environment and to achieve new goals” 	<ul style="list-style-type: none"> – change can be planned, – change introduction requires systematic action, – change changes the enterprise, – change is a chance for the enterprise itself – the enterprise must adjust to the changes in the environment, not the other way round, – changes have radical nature, – changes are unavoidable, – changes in the surrounding are dynamic, – change is a new challenge for the enterprise
Clarke L.	<ul style="list-style-type: none"> – „change has to be treated as something inevitable and it should not be opposed” 	<ul style="list-style-type: none"> – one must subject oneself to change, – change is unavoidable in turbulent surrounding
Drucker P. F.	<ul style="list-style-type: none"> – „in turbulent times managers cannot assume that tomorrow will be the same as today” 	<ul style="list-style-type: none"> – change dynamics, – no stability in the contemporary world
Carr D. K., Hard K. J. Trahant W. J.	<ul style="list-style-type: none"> – changes have become the only certain aspect of the modern business 	<ul style="list-style-type: none"> – changes are irreversible, – changes must be monitored, – the change process cannot be stopped, – no stability in the global economy
Handy Ch.	<ul style="list-style-type: none"> – „(...) changes today are not what they used to be yesterday. Nowadays, maintaining the current status quo is not the best way to plan the future” 	<ul style="list-style-type: none"> – changes are unavoidable, – changes are dynamic
Zarębska A.	<ul style="list-style-type: none"> – a change is the ability to meet the requirements set by the competition – otherwise, the enterprise may fall 	<ul style="list-style-type: none"> – a change cannot be merely adapting in its character, it also has to be anticipatory – the enterprise should be ahead of changes, – a change itself is nothing new for the human, it is the rate at which it is introduced that is very fast.
Nizard G.	<ul style="list-style-type: none"> – „a change is a process, a statement of difference between one state and another, without indicating its causes, forms or effects” 	<ul style="list-style-type: none"> – process approach to change, – change result, new thing, form, new person

Source: (Griffin, 2000, p. 393; Stoner, 1998, p. 306; Clarke, 1997, p. 7; Drucker, 1993, p. 47; Carr et al., 1998, p. 9; Handy, 1996, p. 45; Zarębska, 2002, p. 19; Nizard, 1998, p. 107).

the competences of production employees (within the pillar of Autonomous Maintenance). The process of change was presented on the basis of a metallurgical enterprise.

1. ESSENCE OF CHANGE MANAGEMENT

Change management is a part of the science of enterprise management. The issue was developed on the basis of the practice and as a result of dynamic environment. That changes occur in the environment where the organisation has to have a certain action policy is a fact. An indication for change introduction is both the environment and enterprise itself – each area in the enterprise can generate changes (Tab. 1).

Nowadays, change management is an indispensable skill for managers. Their understanding of the essence of change in the enterprise is what its market success depends on. Changes introduced in the organisation are a result of many various forces. The external and internal factors stimulate change in the enterprise. It can be divided into four categories (Griffin, 2000):

- in the strategy of the enterprise (changes within strategic goals, strategic unit portfolio and functional strategies; mergers; joint ventures and internationalisation);
- in the structure and projects of the enterprise (redesign of work stations, structuralisation, changes in formal authority distribution, modernisation in the coordination mechanism, etc.);
- in technology and operations (new equipment, changes in working processes and working sequences, implementation of IT systems and control systems);
- in the manner of management of employees (changes in the scope of skills, performance, feelings, attitudes and values assumed by the employees in the enterprise).

The types of change shown in table 1 do not exhaust the possible classification. There are multiple approaches to the change classification. Different authors also have different approach to the process of change in the environment. A range of models of change introduction in the organisation have been developed through years. One of the first was the model developed by K. Lewin (1947) presented in figure 1.

Tab. 2. Types of changes in the enterprise

DIVISION CRITERION	CHANGE TYPES
Change degree	<ul style="list-style-type: none"> – reproductive (refer to the organisational level of the enterprise), – transformational (refer to the strategical level of the enterprise)
Repair impulse nature	<ul style="list-style-type: none"> – voluntary (the organisation itself sees the need for change), – compulsory (a reaction to a critical situation in the enterprise)
Relationship of organisational change time with change in the environment	<ul style="list-style-type: none"> – reactive (reaction of the enterprise to changes in the environment), – anticipatory (the enterprise anticipates changes in the environment and prepares for them)
Change nature	<ul style="list-style-type: none"> – adaptive (the adaptation of the enterprise to new conditions), – innovative (the organisation introduces new solutions and new products and often for the first time, as an experiment)
Change scope	<ul style="list-style-type: none"> – fractional (regards a fragment of the enterprise), – comprehensive (covers the entire enterprise)
Change subject	<ul style="list-style-type: none"> – technological (pertaining to the equipment, working processes or technologies), – structural (changes in the entire enterprise structure or its part), – people-oriented (improvement and development of the employees)
Change implementation method	<ul style="list-style-type: none"> – evolutionary (gradual, in small steps), – revolutionary (violent)
Change process continuity	<ul style="list-style-type: none"> – gradual (constant introduction of slight changes in the enterprise according to new circumstances), – in leaps (abrupt changes, usually irreversible)

Source: (Majchrzak, 2002, p. 15).



Fig. 1. Change management model in organisation acc. to K. Lewin

Source: (Lewin, 1947, p. 12).

The first step is the defrosting, i.e. the preparation of people and the enterprise for a change, the second step is the change itself and the third one – frosting, i.e. the consolidation of the change in the system, which is the enterprise itself.

A key part in the process of introducing changes in the enterprise is the so-called force field analysis, the essence of which is the confrontation of two opposite forces: facilitating and inhibiting the achievement of the set goal (Fig. 2).

(internal and external factors). Overcoming resistance towards the change is also very significant and can be done through frequent communication with the employees, removal of change blocking barriers, rewarding of positive attitudes of employees towards the changes, trainings, encouraging employees to cooperate in introduction of changes in the enterprise (Gajdzik, 2007). These problems can be encountered when implementing new methods and conceptions. One of them is Lean Manufacturing.

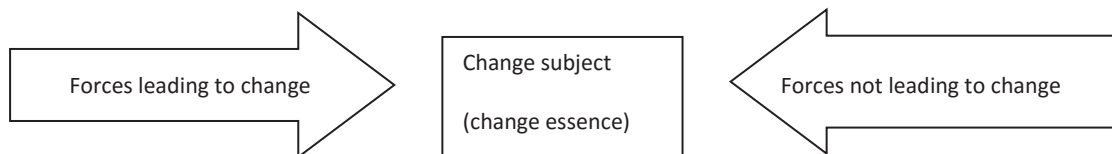


Fig. 2. Force field in the change management process

Source: (Griffin, 2000, p. 401).

According to Z. Mikołajczyk (2003), the process of changes in the enterprise and its consecutive stages are:

- diagnosis phase, covering determination and definition of the problem through diagnosis,
- search phase – proposals of various solution variants,
- decision phase, i.e. evaluation of solutions according to the assumed criteria (selection of an optimal solution), enterprise design, introduction of changes through author supervision,
- evaluation phase – assessment of effects of the change introduced in the enterprise.

Enterprise employing change planning uses, inter alia, the Copper and Lybrand's model (Carr et al., 1998), the basic stages of which are: estimation (analysis of the current situation, definition of the goal and nature of changes), change planning, implementation and renewal. Success of the introduced change is a sum of several components, i.e.: vision, need, means, rewards and team evaluation.

The changes introduced in the enterprise must be planned, they implementation must follow adopted procedures (evaluation, plan, implementation, renewal), and the enterprise must take into account multiple factors in this process, necessary for success

2. LEAN MANUFACTURING CONCEPTION

Lean manufacturing means making production less demanding in terms of necessary material resources, kept ready product stocks and production in progress as well as used area of production floors. It is a conception of enterprise improvement which, through continuous elimination of various forms of wastage, optimises creation and flow of value in the manufacturing process. There can be 7 categories of wastage distinguished: over-production, standstills, failures, redundant operations, improper processing, excessive stocks, redundant internal transport. This list includes also failure to use employees' creativity, as they can be a source of ideas regarding process improvement which contributes to a great extent to elimination of wastage (Furman & Burchart-Korol, 2008).

All employees take part in Lean Manufacturing actions including the company executive director and machines operators. With the help of trainers special teams are created, who analyze current wastage, plan its reduction and implement already planned actions.

By engaging more and more people in team-work activities and providing time for problems solving, the company undergoes transformation of its working culture and succeeds in implementing Lean Manufacturing idea.

The aim of Lean Manufacturing is to create simple and clear structures within a company and enlarge the importance of human resources in order to use them in the best way possible. The factor responsible for winding up the spiral of continuous development is five rules (Antosz, 2015):

- accurately define value of a certain product,
- identify the values stream for each product,
- guarantee untroubled flow of values,
- implement sucking system, drive to be perfect.

Enterprises introducing changes through implementation of the Lean conception must choose a proper LM tool, so that its use brings the expected results. The basic Lean Manufacturing tools include, inter alia: value stream mapping, 5S method connected with work station organisation, Kaizen continuous improvement method, reduction of engagement time based on the SMED method, maintenance management based on TPM. All these tools require engagement of employees and introduction of changes in their behaviors and daily work. AN example of change in the employee management method – within the scope of their skills – is the TPM conception.

3. TPM CONCEPTION AND AUTONOMOUS MAINTENANCE AS A CHANGE EXAMPLE IN COMPETENCE WORKERS

Total Productive Maintenance is defined as a continuous process of servicing machinery and equipment implemented within the entire enterprise by all operators and maintenance technicians. TPM focuses on maximizing the efficiency of the machinery by applying actions to prevent accidents during the whole period of use. Thanks to implementation of TPM every machine in the manufacturing process is capable to do tasks, as there are no disruptions in the production process (Furman & Małysa, 2015). TPM is a tool that helps to detect and reduce waste by means of three zeroes: zero breakdowns, zero defects, zero accidents at work. TPM program include actions in these five main areas (Gajdzik, 2009):

- educating all employees starting from top

management positions to production line workers in order to change their awareness concerning everything that constitutes an effective manufacturing system,

- creating a system which all implementation actions would be based on teamwork,
- starting from the introduction of 5S method i.e. introducing order through the removal of unnecessary things, thorough cleaning and visualizing the process of management,
- creating a system of impartial assessment and comparison of results for the individual workplaces,
- developing and implementing the continuous workers' awareness management in the health and safety systems.

TPM theory is built on seven pillars, where the most important is Autonomous Maintenance. These are activities which purpose is to enable workers to service machines by themselves, regardless of the maintenance department, e.g. detect anomalies, simple repairs, control precision. In the production plants with the traditional division of responsibilities, there is a belief that the maintenance department, is solely responsible for the maintenance of machinery and equipment even for the small incidents. Therefore, engaging operators in simple maintenance tasks of Autonomous Maintenance can offload the maintenance personnel and, above all, contribute to the progressive elimination of failure at the workplace. The main objectives of AM include, among others:

- identifying and eliminating the causes of variability of performance,
- striving to improve performance,
- increase of operators participation in the maintenance of machines which they operate, and thus development of their skills,
- increase of operators responsibility for the technical condition of the machines,
- integration of the production and maintenance,
- improving the quality of workplace.

The implementation of Autonomous Maintenance is carried out in seven steps, allowing workers to develop the right skills and what is expected of them (Fig. 3). The first five steps involve the so-called hard mechanical aspects of machine maintenance. These are activities which maintain suitable state of machines and prevent excessive wear and their activities related to the development of standards for cleaning, lubrication, tightening the fasteners, controls. Step six focuses on aspects related to organizing, standardization and visual management of machines maintenance. The last step is to conduct

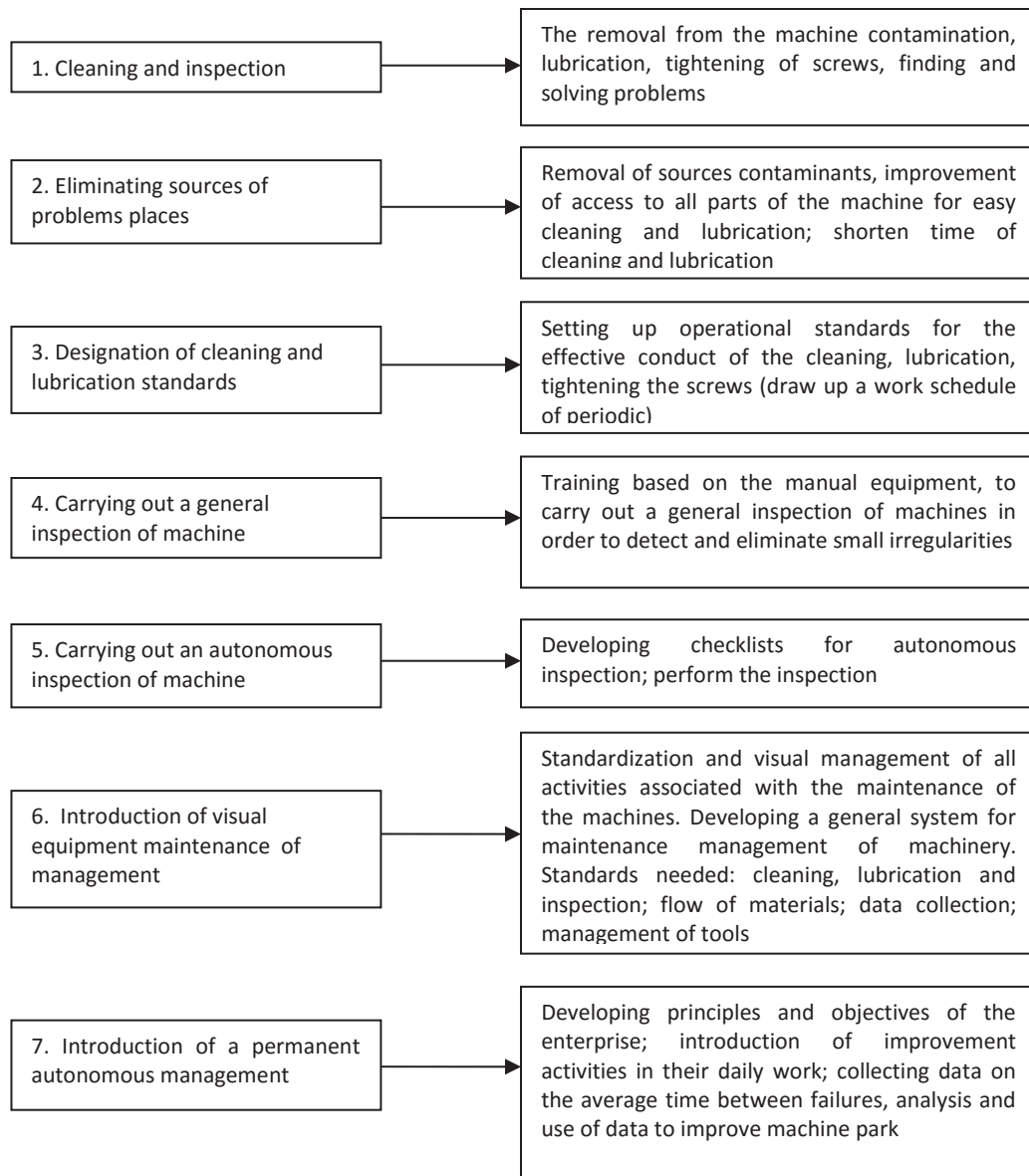


Fig. 3. Phases of Autonomous Maintenance

Source: study based on (The Productivity ..., 2012, p. 65).

independent operations by workers (Productivity Development Team, 2012).

During the implementation of the Autonomous Maintenance, the important role play the following factors (Kruczek & Żebrucki, 2012):

- employees expertise in safety conditions existing at the workplace,
- understanding of the principles of machines through the instructions and organized one-point lessons,
- knowledge and ability to identify the symptoms informing about the improper operation of the machines, the ability to respond and take corrective measures,
- ability of operators to perform maintenance activities.
- The important role of maintenance services in the communication and increasing knowledge and skills of operators, especially in the first four steps of the implementation of the Autonomous Maintenance should be emphasized – without their involvement and support it is not possible to acquire full autonomy by operators.

4. IMPLEMENTATION OF AUTONOMOUS MAINTENANCE RULES IN THE METALLURGICAL ENTERPRISE

In order to improve effective maintenance, the metallurgical enterprise has introduced Autonomous maintenance to develop operators' skills and engage them more in machine operation.

Stages of implementation of the TPM include: designation of areas of implementation and specifying the schedule of activities, training employees, developing a structure for the TPM system through the appointment of teams and their leaders responsible for implementation in specific area of the plant, the choice of pilot area with the determination of production machines, evaluation of effectiveness of actions.

Based on the assumptions of TPM the metallurgical enterprise has introduced the four pillars of improvement of the manufacturing process:

- Focused Improvement – assumption of work within the framework of multi-functional work teams. Specified operations are performed according to the work schedule to ensure the reliability of the machines. Operators take care of the machines, look for the ways to improve their efficiency;
- Autonomous Maintenance – inclusion of operators in comprehensive service of machines;
- Professional Maintenance – the essence is mainly to eliminate the breakdowns of machines by actions which improve the reliability of elements of metallurgical machines. Actions which are conducted are preventive repairs which are performed by specialized teams of workers;
- Early Equipment Maintenance – is associated with the construction of a system to ensure the design, purchase, production of equipment easy to operate and maintain.

In the implementation of TPM system in every industrial enterprise attention is drawn to the aspect of engagement and staff awareness, especially at the operational level. The pillar of Autonomous Maintenance, which was implemented in the enterprise, contributed to the increase of employees liability to operated machines and to the reduction of number of failures at the workplace. Operators within the AM are required to assess the efficiency of their work station before starting work, for maintenance of cleanliness and for the removal any dirt. In addition,

operators are required to maintain normal operating conditions of machines and equipment and restore the initial conditions of operation. Operators inspecting machines and equipment are able to detect and eliminate irregularities related to their work. Irregularities are subjected to identification by each employee who is required to complete the appropriate label. Labels are available in two colours: blue – when the employee repairs by himself or with the participation of technical service workers and red – when irregularities are repaired by workers of Professional Maintenance). Labels are used for classification of machinery and equipment into categories. Each production plant determines which machines are the most critical – that is, those whose failures result in complete stop or slowdown of production (referred to as Category AA). Other categories of machines are designated as A, B or C (Gajdzik, 2014).

An element aimed at increasing the efficiency of operating activities among operators was also the development of the competence matrix which is a set of key skills of the employees from the enterprise's point of view. The matrix covers and determines the scale of knowledge and skills that the operators must possess. The starting point in creation of the matrix in the enterprise was determination of the most important operator skills. At this stage, the following question was posed: „what knowledge and skills must an employee have, so that the tasks of autonomous maintenance can be performed?“ developing Afterwards, the descriptions of particular competences were defined first and then the marking scale was established (from 1 – beginner employee, to 4 – experienced employee).

The skills of the operators were evaluated in relation to the tasks required for performance at the work station. Analysing the current level of employee competences, the enterprise gains knowledge on the actions the operator must undertake to perform these activities (e.g. skill improvement trainings).

In order to increase the efficiency of the machinery, operators deepen technological knowledge on the functioning of the machines and gain new skills during the training. In addition, meetings of teams working with the use of „Brainstorming“ are organized to solve problems and prepare action plans providing solution to the problem on the production level. Thanks to the knowledge and skills acquired by the operators in the metallurgical enterprise, process improvement is observed as a result of the implementation of employees ideas. It effects in

reduced costs, repairs, less frequent replacement of parts, quick response to problems and cleanliness of work stations. Tables should be prepared according to the example (Tab. 1).

CONCLUSIONS

Introduction of new management methods and concepts is a response to the changing surrounding and increasing expectations of customers. Enterprises who fail to react to these signals cannot face the competition. Introduction of the Lean Manufacturing concept in the analysed enterprise (through TPM introduction) has contributed, first and foremost, to decreased failure rate of the operated machines (main goal of changes) as well as increase in skills and responsibility for the performed work. The Autonomous Maintenance implementation process required engagement of the entire team as well as changes in behavior and everyday habits. Introduction of changes in the enterprise was not an easy or fast process, but it provided the expected results.

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KNOWLEDGE MANAGEMENT VS BUSINESS PROCESS MANAGEMENT IN CONTEMPORARY ENTERPRISES

AGNIESZKA BITKOWSKA

ABSTRACT

The main objective of this paper is to identify the system of knowledge management in contemporary process organizations in business process perspective, especially with regard to technological and social conditions. Methodology is based on literature analysis and case studies. The integration of knowledge management technologies, concepts and methods into organizational business processes is challenging research issue today. The concepts of knowledge management and business process management should be analyzed jointly in the contemporary enterprises. Despite of the growing interest among researchers and practitioners of the concept of the knowledge management referring to business process management there is a lack of articles in this area. Appropriate approach to the modelling of knowledge management processes, as well as the use of IT tools, and a motivation system are of key importance for the introduction of this solution in organizations.

KEY WORDS

knowledge, knowledge management

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INTRODUCTION

Technological development has caused an enormous increase in the importance of knowledge possessed by companies. Enterprises that place emphasis on knowledge development have started to be successful, which has contributed to seeing knowledge as a very important resource that brings about measurable benefits. Therefore, a natural necessity to measure, describe, and manage knowledge has emerged, which resulted in the development of a term – knowledge management. Knowledge management itself had, of course, been present in organizations intrinsically for years, however, the need to name and examine this phenomenon more deeply has emerged.

Process management in an organization should

take into account the knowledge resources that the organization possesses in order to ensure that employees have access to knowledge regarding specific tasks which are part of particular business processes (Maier & Remus, 2002, p. 103). The key factors causing all processes in an organization to run smoothly are learning and cooperation. Support of IT tools is necessary too. Therefore, the processes occurring in an organization should be increasingly based on individual, team, and organizational knowledge and, consequently, become more and more flexible as well as adjusted to the changing environmental conditions (Richter-von Hagen et al., 2005). It is necessary to indicate knowledge resources, which are key in a contemporary organization, by way of creating an organizational knowledge management model. An appropriate attitude of

employees and willingness to transfer and share knowledge are also important.

1. KNOWLEDGE MANAGEMENT

The nature of knowledge management may be seen from at least four different perspectives. In the functional approach, it is a process consisting in performing the management function focused on knowledge resources and processes in which they take part and the conditions necessary to carry those processes out in a manner that ensures efficient accomplishment of an organization's objectives. In the process approach, it is normative and dispositional activity intended to create appropriate environment which allows effective performance of tasks related to knowledge management. In the instrumental approach, it denotes the selection and application of (social, technical, organizational, economic-financial, and legal) instruments that contribute to the course of the main processes that knowledge participates in at all levels and areas of an organization. Finally, in the institutional approach, it is a system of positions and employee teams that perform the functions related to knowledge management (Potocki, 2011). This shows the complexity of knowledge management and the abundance of its elements which need to be taken into consideration in the course of knowledge management. Taking all its aspects into account is an objective that should be aspired to in order for a modern organization with a system of knowledge management to be created.

The concept of a company based on knowledge (oriented at knowledge) seems to meet the contemporary challenges that a model of an organization is faced with, especially in terms of flexible mechanisms of reacting to instability and changes in the environment by way of efficient collection, development, and processing of knowledge about individual and institutionalised clients, existing and future competition, business partners, existing and potential suppliers, individual employees, resources, the inner capacity of an enterprise, the socio-economic conditions, political and legal circumstances, modern technologies, or new management methods (Morawski, 2006). In contemporary companies one may observe, in some sense, a decrease in the value of fixed assets, such as inventory or capital and an increase in the importance of non-material assets, such as competences or

professionalism which are constituents of knowledge. The number of enterprises whose worth is determined by their capital and material possessions is constantly decreasing; increasingly, however, success is ensured by the fact that a company has very special assets, such as: collected knowledge, know-how, or utility models. Knowledge management in a company allows to determine the value of an organization as a whole and not just its material assets.

In an enterprise engaged in knowledge management, considerable emphasis is placed on knowledge acquisition, its proper dissemination, application for the benefit of the company, and transformation of knowledge into a service or a product. An enterprise development plan contains knowledge management strategies, directions of development, and possibilities for introducing changes for the purpose of producing the desired results. Introduction of knowledge management allows to notice the processes taking place in a company. For instance, it is possible to observe the influence of knowledge acquisition by employees through various forms of education. The very possibilities of observing the stages of a process – first acquisition of knowledge, then dissemination and sharing – as well as the relationships between the stages and the obtained results from the specific nature of knowledge management in an organization.

Effective knowledge management in an organization allows to (Skrzypek, 2012):

- comprehensively aid organizations in collecting, analysing, and applying knowledge in order to make effective decisions strengthening the company's market position,
- apply employee knowledge for the purpose of producing – in line with the principle of reasonableness – optimal effects and market success in the long run,
- achieve managerial effectiveness which is the fundamental element of the striving for the effectiveness and the development of an organization,
- create an infrastructure which allows efficient use of knowledge resources by all the members of an organization,
- offer opportunities for identification and practical application of knowledge in an organization in order to ensure financial, market, dynamic, and operational effectiveness,
- effectively use theoretical knowledge and the experiences that an organization have gained,
- skilfully use knowledge in order to perform tasks correctly and thus avoid mistakes,

- effectively use the knowledge of all participants to the extent that contributes to the improvement of an organization's position,
- create a database that makes it possible to acquire, broaden, improve, and apply the available knowledge in practise,
- create an atmosphere facilitating the sharing of the information obtained by an organization among the employees,
- define and also solve problems and subsequently implement the solutions at an optimal level of costs as well as activate the learning processes in all the employees.

Therefore, the nature of knowledge management is comprised of the following stages: knowledge creation, dissemination, and application. These stages are supported by introducing management strategies oriented at people, which give them freedom to act and exchange knowledge. Management should encourage people to willingly share their knowledge, while taking into consideration their cultural needs, social values, aspirations, affinities, and tastes. If such factors are taken into account, it steers employees to create new knowledge in an organization. This is because it is impossible to create knowledge solely from the information that one has without the participation of people and thus people are a significant and necessary factor in knowledge management. A major role is also played by computer systems supporting decision-making and measuring the effectiveness of application of an organization's resources. Computer systems are tools allowing to transform large amounts of data into easily accessible information. The use of computer systems causes all the aspects of knowledge management to work smoothly and in a coordinated fashion. Knowledge management reduces the time that is needed to perform a task and prevents duplication of work; it also allows to obtain knowledge from the competition as well as find and counteract bottlenecks that hamper the flow of knowledge within an organization.

Knowledge is present in any company, however, not every organization manages knowledge in a formalized manner, which often leads to losing it. Effective knowledge management requires a proper method to be created. Division into revealed and hidden knowledge also causes trouble with respect to answering the question: how to manage knowledge? Knowledge management serves to use an organization's resources in the best possible way in order to improve its operation and accomplish its objectives. This contributes to an effective application of the knowledge resources that an organization

possesses. It also allows to organize the knowledge that an organization possesses and formulate a strategy for obtaining new knowledge as well as formalizes the principles governing dissemination of knowledge.

Knowledge management takes place with respect to individual employees and teams; hence it exerts influence all the management areas, including issues related to the staff, company development, or computerization. Comprehensive knowledge management produces the effect of reinforcement of the relationships among employees or groups and the structure of a company. C. Soo, T. Devinney, D. Midgley, and A. Deering (2012) describe a knowledge management system comprised of four subsystems:

- databases – allowing employees and manages to share information and efficiently shape the repositories of information,
- organizational language – enabling people to understand the state of affairs. It is connected with decoding the information obtained from databases, codification of ones' own knowledge into data that are easily accessible and used by others, and a language system that allows people in an organization to gain deep understanding of the messages received during the process of verbal and non-verbal communication,
- network links – enabling people to receive and digest information and knowledge from sources located inside the organization as well as outside it. The subsystem of net links services both the formal and informal levels of an organization,
- transfer – used to transfer knowledge among people, or as a result of a rare combination of pieces of information derived from an individual source of experiences, new knowledge is created.

In order to implement a knowledge management system and achieve best possible results on account of this system, it is necessary to use appropriate organizational and technological tools; ensure an ICT structure and a software structure embedded in the former. Such tools enable easier, faster, and, first and foremost, more efficient knowledge management. They also allow knowledge contained in documents, notes, reports, and employee communication to be created, organized, and shared. In the layer that is invisible for the end user, these tools are often based on such systems as SQL server, Oracle, SAP, Lotus Notes, Microsoft Server, and many more. Depending on the needs of a given organization, it may choose one of the systems available on the market. The selection of a given system or several systems

determines the manner of knowledge management in a particular organization. The methods may be divided into knowledge management with the use of: documentation management, a website, knowledge maps, databases, teams exchanging experience, or various forms of cooperation.

One of the means of knowledge management in an organization is using models, and the choice of a model depends on the character of the organization's operations. The resource-based model, where knowledge is treated as the key resource, is based on knowledge sources, qualifications, and competences. The process model used mainly by large organizations is based on methods proven in practice. There is also the so-called Japanese model.

It is immensely important to use knowledge that is very varied, acquired in various ways, often hidden or even out-of-date; it is thus necessary to adopt a systemic approach to knowledge and its everyday application. Knowledge should be managed by means of a system that may offer the possibilities for its application at the right time and by appropriate people. The management staff in an organization is of considerable importance for companies; it should hold a belief that knowledge is a very significant asset and it is worth managing it, for it may translate into the pace and power of growth and development of an organization. Motivation of employees to acquire and share knowledge is also important (Moczydłowska, 2015). A knowledge management system that is properly built, used, and supervised certainly contributes to the ultimate success of an organization.

Knowledge management systems in a company should meet the following requirements (Haraf & Wójcik, 2015):

- facilitate collection of knowledge,
- prevent loss of knowledge due to labour turnover,
- enable continual improvement of core skills,
- increase the effectiveness of managing the process of new knowledge acquisition,
- allow employees to share knowledge.

Therefore, the possibilities for using knowledge are largely determined by the processes of sharing and disseminating it. One should bear in mind that employees themselves possess valuable hidden knowledge that they might share with others. In order to improve the effectiveness of dissemination of knowledge, an organization should make staff members aware that the value of knowledge is relative (Probst et al., 2002). There are many reasons why a formal system of knowledge management should be introduced in a company. Undoubtedly, knowledge

management brings about benefits for contemporary enterprises. If companies have codified knowledge resources, they may reap the benefits of them, such as learning by individual employees as well as teams. As far as the internal advantages for the enterprise are concerned, the following may be observed:

- free flow of information inside the organization, exchange of experiences among employees and project teams,
- development of employees' skills, using their experiences, appropriate motivation of staff members, and sharing knowledge,
- using employees' creativity and ideas as well as innovative solutions,
- changes in terms of the flow of information between departments in a company, resulting from the introduction of appropriate procedures,
- reaction to changes occurring in the environment and faster decision making.
- Whereas the external benefits of knowledge management encompass:
 - development of an organization, creation of new organizational and product improvements,
 - competitiveness on the market and continuous improvement of employees' qualifications,
 - effective operation of an organization, cost cutting,
 - adjustment to market needs,
 - constant observation of clients' needs and the activity of the competition,
 - continuous enhancement of the quality of products or services and creation of new ones,
 - significant changes in the shaping of relationships with clients, suppliers, and partners on the market,
 - creation of a positive image.

Employees serve an important role in a company as they determine the way it is seen by clients. Therefore, companies should strive to develop the competences and qualifications of their staff. A rise in employees' competences exerts a positive influence on their frame of mind. A worker who has knowledge feels appreciated and integrated with the company. Such a situation influences the self-realization of an employee and their creativity. This causes an increase in competitiveness of staff members on the market. The benefits arising from knowledge management have an impact on the relationships with business partners and the competition. They are reflected in the exchange of experiences and willingness to share one's ideas (Bartol & Srivastava, 2002). This leads to a better understanding of clients' needs and influences the improvement in products or services.

2. BUSINESS PROCESS MANAGEMENT

Process management has become an inspiration and foundation of many research as well as application initiatives over more than a dozen recent years. As far as the theory of management is concerned, one of the trends in organization management is process approach which comprehensively and horizontally attends to the structure of an organization. In this approach, the selected elements of an organization are coordinated by a manager of a given business process, who is responsible for the supervision and coordination of the course of this process.

Business process management (BPM) is a field in operations management that focuses on improving corporate performance by managing and optimising a company's business processes. It can therefore be described as a „process optimization process”. It is argued that BPM enables organizations to be more efficient, more effective and more capable of change than a functionally focused, traditional hierarchical management approach. These processes can impact the cost and revenue generation of an organization. There are 4 Process Methodologies of BPM (Chong et al., 2010):

- Total Quality Management,
- Six Sigma,
- Lean,
- ISO 9001.

Organizations are traditionally designed and managed in a functional sense with the organization chart. Whether it may be a hierarchal, functional, and divisional or matrix system, the focus is on managing defined entities within the chart. However entities by themselves cannot deliver external value. Value is collectively created by the collaboration between these functional entities.

Hence the idea of looking „outside in” has been used as the basis for bridging the gap between corporate strategies and process strategies. From this, it can be identified that the precursors of corporate strategies are derived from external stakeholders, or customers (Selden & MacMillan, 2006). For instance business drivers such as efficiency, effectiveness and agility are examples of internal goals driven by the need to deliver value to customers.

Organizations across a wide range of market areas, in particular the highly competitive service sector, are realizing that core process are valuable assets. As a result they have embarked on projects based on

utilizing BPM to fuel the delivery of corporate strategies. This article will examine theoretical frameworks underpinning the management of strategies.

The improvement in clients' satisfaction and the effectiveness of services and decision making must also be highlighted. Knowledge is the inseparable resource processed as part of processes. Knowledge is generated when organizational processes take place, such as: distribution, marketing, designing, and preparation of production. As far as knowledge created in the course of the processes of designing and preparation of production is concerned, it is technical in character (Hofman & Skrzypek, 2010). One of the main reasons behind process deferral is lack of appropriate information or knowledge that are unavailable at the right moment, which causes a process to stop, employees to engage more fully, and costs to increase (Bitkowska, 2010). Knowledge is put to use by both the performers of processes – process team members – as well as the owners of processes. Moreover, information about the course of a process and the achieved results is becoming organizational knowledge. Any information related to processes, such as: process model, indicators, measures, and aims, should be collected and formalized in order to contribute to the improvement and consequently the development of the whole organization (Bitkowska, 2015). Modelling of the process of knowledge management is a tool for generating, collecting, and disseminating organizational knowledge.

A major role in knowledge management is played by information technologies, management systems, attitude of the staff, and organisational culture that arouses enthusiasm and eagerness of staff members, which contributes to knowledge sharing and creation of the so called „project teams”. The strategy pursued by an organization, its employees, technology, and organizational culture underlies the process of knowledge management, in particular: creation, codification, and transfer of knowledge. Knowledge management should be based on three fundamental pillars: people, technology, and processes.

CONCLUSIONS

Recently, deeper and deeper changes in both technology and politics, as well as social and economic advancement, have contributed to the emergence of a new type of the economy, the so-called knowledge-based economy. The above-mentioned mechanism

has compelled the development of a new way of thinking and forced organizations to seek novel manners of operation. In contemporary organizations, greater and greater stress is being placed on acquisition of knowledge, its proper sharing, and application. Since the immense significance of knowledge in process approach was acknowledged, it has become necessary to develop systems supporting creation and application of knowledge.

The benefits accruing from the implementation of the knowledge management in an organization are concerned with, among other things, creation and adoption of new ideas, making knowledge resources available to appropriate people at the right time and place, facilitation of seeking and application of specialized knowledge and know-how, support for cooperation, communication, sharing knowledge, and continuous learning and improvement by individual employees and the whole organization.

Knowledge management in an organization is closely related to process management. Identification, acquisition, presentation, and documentation of knowledge are not independent tasks but inner elements of economic processes. Therefore, the point of departure for management of knowledge resources in an organization is understanding of the processes taking place in the organization. Implementation of the model of the knowledge management process influences generation of innovation, stimulation of creativity of staff members, and support for internal communication. Appropriate approach to the modelling of knowledge management processes, as well as the use of IT tools, and a motivation system are of key importance for the introduction of this solution in organizations. Despite periodical shifts in interest evinced in the topic, the deliberations on process management in organizations and the analysis that has been carried out are both fascinating and needed. Wide interest in this field evinced by theoreticians and practitioners testifies to that. Process management is considered to be an up-to-date approach to an organization's operation, while process structures offer a sense of order. Knowledge management in organizations may not be separate from management of organizations' processes. It is easier for organizations using process management to model knowledge management processes; knowledge is collected in databases of processes in repositories. There are knowledge resources and they are used, modified, shaped, and perpetuated. There are also relations based on knowledge sharing, which are part of the informal organizational culture. The prepared

process of knowledge management is intended to systematize these informal rules and relations existing in process-based organizations and make them objective. The aim is to acquire, process, store, and distribute knowledge. The most significant actions in this contexts should be oriented at adoption of IT systems supporting the modelling of the process of knowledge management. IT tools are supposed to ensure that the knowledge management process is run effectively, the IT tools are introduced into the knowledge process management (planning, coordinating, monitoring, and accounting for), and organizational culture fostering trainings and cooperation among the staff members is being built. Coping with this sphere and its operationalization by means of specific strategic, structural, technological, and personal solutions constitute a challenge for each and every process-based organization.

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INNOVATIVE MULTIMEDIA PROJECT – THE EXEMPLIFICATION OF THE CONCEPT OF TECHNOLOGICAL ENTREPRENEURSHIP

EWA BADZIŃSKA

ABSTRACT

The scientific purpose of the study is an attempted synthesis of the concept of technological entrepreneurship. The cognitive aim of the publication is to present the functionality of an innovative technological solution the uses authorial applications and interactive devices designed and commercialized by the analyzed technology start-up. The application of the empirical method of a case study has made it possible to characterize the essence of technological entrepreneurship and illustrate the progress and development of the studied phenomenon in business practice.

The functionality of an innovative multimedia project has been presented as the exemplification of technological entrepreneurship in cooperation between commercial enterprise and business environment institutions. It has been pointed to measurable economic and social outcomes achieved by the company as a result of conscious implementation of the concept of technological entrepreneurship.

Case studies in the field of technological entrepreneurship should develop the existing theory and provide explanations of the hitherto unrecognized phenomena. The author proposes the understanding of technological entrepreneurship as a process that combines the elements of academic and intellectual entrepreneurship with the entrepreneurship of commercial organizations implementing new technologies in the market environment.

The designed innovative multimedia project supports the management of information for travelers and information regarding fleet management in public transport.

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KEY WORDS

technological entrepreneurship, technological innovation, multimedia solutions, technology start-up

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INTRODUCTION

The concept of technological entrepreneurship is based on increasing innovation, new assets and competitiveness through more efficient use of research results leading to development of products and services. The condition for the creation of this process is effective cooperation between commercial enterprises and business environment institutions in

order to diffuse knowledge and scientific potential into commercial solutions in the sphere of technological innovations (Badzińska, 2015, p. 112). This is a creative and innovative ability of knowledge-based companies and an adaptation response to the real business environment (Nacu & Avasilcăi, 2014). The basis for the development of technological entrepreneurship is formed, therefore, by interactions

between science, technology and the commercial world (Poznańska, 2010). The author of this paper emphasizes the important role of academic and intellectual entrepreneurship for the development of this complex phenomenon that encompasses multiple disciplines and levels of analysis. Academic entrepreneurship remains the source of technology transfer of both innovative solutions and knowledge into business practice, while the growth of innovative enterprises is a driver of structural changes and causes an increase in regional or even national competitiveness. Technology Start-ups represent the mainstream of academic entrepreneurship and one of the active mechanisms of the commercialization of research results. The ability to implement practical, technical, technological and organizational solutions by the employees of these innovative entities and the ability to cooperate with other companies and business environment institutions undoubtedly prove their competitive advantage (Badzińska, 2014, p. 14).

The scientific purpose of the study is an attempted synthesis of the concept of technological entrepreneurship. The attention was focused on the interpretation of the term and the multidimensionality of this phenomenon. The empirical part of the paper is based on a case study using an example of the technology start-up Glip Ltd. The application of this empirical method has made it possible to characterize the essence of technological entrepreneurship and illustrate the progress and development of the studied phenomenon in business practice. The cognitive aim of the publication is to present the functionality of an innovative technological solution – a multimedia bus stop. The innovative design uses authorial applications and interactive devices designed and commercialized by the analyzed technology start-up. It has been pointed to measurable economic and social outcomes achieved by the company as a result of conscious implementation of the concept of technological entrepreneurship (including the implementation of practical solutions in the area of ICT, the recognition of customers and the business environment, the rewards for innovativeness, the quality of service and promoting the culture of entrepreneurship).

1. LITERATURE REVIEW

The multidimensionality of the phenomenon of technology entrepreneurship raises a number of difficulties in assessing its size and effects. In the literature, the terms: technological entrepreneurship,

technology entrepreneurship, technical entrepreneurship and techno-entrepreneurship are used synonymously (Petti, 2012). It is a complex phenomenon that encompasses not only multiple disciplines and levels of analysis to be investigated using different perspectives, but also a case-by-case approach for the analysis to be meaningful. All the activities of this phenomenon relate to the identification of potential entrepreneurial opportunities arising from technological developments, and the exploitation of these opportunities through the successful commercialization of innovative products (Petti, 2012, p. xi). Entrepreneurial opportunities often have to be „created” by using the entrepreneurial imagination to embody human aspirations in concrete products and markets (Venkataraman & Sarasvathy, 2001).

According to Petti's approach (2009), the concept of technological entrepreneurship incorporates four main sets of activities relating to:

- the pragmatic criterion of availability of data,
- creating new technologies or identify existing technologies (but previously undeveloped),
- the recognition and matching of opportunities arising from the application of these technologies to emerging market needs,
- technology development/application, and business creation.

What distinguishes technology entrepreneurship from other entrepreneurship types is the collaborative experimentation and production of new products, assets, and their attributes, which are related to advances in scientific and technological knowledge and the firm's asset ownership rights (Bailetti, 2012, p. 5). The dominant theme of world articles on technological entrepreneurship focuses on small technology firms and on external factors that influence the formation of technology firms (Bailetti, 2012). Another theme addresses the consequences of technology based business and engineering entrepreneurship (Nicholas & Armstrong, 2003). An important theme is the interdependence between small-firm initiatives and the external infrastructure that contributes to science and technology advances. This theme describes the systems that support the foundation of new technology firms, establishment of a new technology venture and different types of technical entrepreneurs (Jones-Evans, 1995). Liu et al. (2005) represent ways in which entrepreneurs draw on resources and structures to exploit emerging technology opportunities. The history of technological

entrepreneurship is strewn with solutions in search of problems (Venkataraman & Sarasvathy, 2001). The other articles cover topics on: university and business incubators, firm spin-off and technology transfer mechanisms, government programs that support technological entrepreneurship and entrepreneurship education.

The results of research conducted by Bailetti (2012) suggest that the number of scholars contributing to the field of technological entrepreneurship is not large, so it is important to develop the established theory. The author argues that technology entrepreneurship is an investment in a project that assembles and deploys specialized individuals and heterogeneous assets that are intricately related to advances in scientific and technological knowledge for the purpose of creating and capturing value for a firm (Bailetti, 2012, p. 5). In turn, Lindenberg and Foss (2011) contend that technological entrepreneurship is about managing joint exploration and exploitation, where each individual has roles and responsibilities in cooperatively moving forward toward accomplishing shared goals. It focuses on investing in and executing the firms' projects, not just recognizing technology or market opportunities. Technological entrepreneurship is understood, therefore, as a joint-production phenomenon that draws from a team of specialized individuals from multiple domains, some or all of whom become embedded in the technology path they try to shape in real time (Garud & Karnøe, 2003).

The concept of technological entrepreneurship in Polish literature centres on efforts to connect the scientific potential of universities and research and development centres with capital market institutions and business activities (Flaszewska & Lachiewicz, 2013, p. 14). It is important to ensure optimal conditions for the commercialization of research results and their usage in enterprises in the form of new products and services through effective collaboration with research centres and the business-related sphere. Poznańska (2010) emphasizes that technological entrepreneurship provides more practical usability of research results through an effective collaboration between science, technology and the commercial world. Thus, the concept of technology entrepreneurship makes it possible to describe the phenomenon of increasing innovativeness and competitiveness of enterprises through a more efficient use of research results and the potential of scientific institutions and enterprises. The transfer of knowledge to private companies

increases their productivity and, consequently, increases investment and employment also in the areas of high technology (Banerski et al., 2009).

Technological entrepreneurship, which must be combined with innovativeness, is an ability to allocate resources efficiently and contains an element of efficiency, as well as the time factor, under the influence of which the shape of the optimum configuration of competitive advantages shifts. The development and implementation of innovations require cooperation with the institutions of business environment, including those that provide funding for such projects. In this respect, technological entrepreneurship is related to the basic pillars of knowledge-based economy (Lachiewicz & Matejun, 2010, p. 189). A special role is played here by business ecosystem, namely a wide range of cooperation ranging from consortia or research centres, through consultancy, organizational, funding and infrastructure services, up to relations with business environment institutions in the field of incubation (Badzińska, 2014, p. 28). Innovative companies recognize the importance of effective knowledge management, which constitutes an essential and dominant element in the entire innovation process. It is also important to enrich internal knowledge resources (which constitute the innovative potential of enterprises) with the external ones. There is a close relationship between an innovative potential and activity in this area and the quantity and the quality of knowledge resources accumulated by the company (Kurowska-Pysz, 2012, p. 519).

Technological entrepreneurship is in its essence based precisely on the cooperation of companies with both the science sector and the business environment. Moreover, the technological entrepreneurship formula combines both intellectual entrepreneurship and academic entrepreneurship. Here are taken into consideration spin-offs, also known as professorial or academic companies, as well as technology start-ups with academic origin. Academic entrepreneurship is an expression of new jobs and opportunities that open up for college community and research and development sector and is a manifestation of intellectual entrepreneurship. In Polish literature Kwiatkowski (2000) coined the term intellectual entrepreneurship to describe the creation of the material wealth of immaterial knowledge.

The author of this paper proposes the understanding of technological entrepreneurship as a process that combines the elements of academic and intellectual entrepreneurship with the

entrepreneurship of commercial organizations – owners, managers and employees implementing new technologies and innovative business solutions in the market environment. Case studies in the field of technological entrepreneurship should develop the existing theory and provide explanations of the hitherto unrecognized phenomena. This paper may provide a starting point for an in-depth empirical research and contribution to the discussion on the methodological dilemmas associated with conducting research in the area of technology entrepreneurship.

2. RESEACH METHODS

The cognitive aim of this research is to identify and analyze the qualitative functionality of the innovative ICT project, which is an example of technological innovation implemented within the concept of technological entrepreneurship. The subject of the research is a knowledge-based small company from the IT industry – Glip Ltd. The study is empirical in its nature. Primary data acted as a basis to identify the functionality of the multimedia bus stop and it was assessed from the point of view of the benefits for the user (both passengers and public transport companies). The wide problem area of entrepreneurship requires the acceptance of the limitations of the study area. The empirical method makes use of a case study involving the analysis of processes implemented in the selected enterprise (Dyer & Nobeoka, 2000). The rationale for the use of the case study is its usefulness related to the timeliness of technological entrepreneurship phenomenon and the dynamism of its effects. There is a need to conduct a practice-oriented empirical research for better understanding of reality and to help managers choose their own path (Czakov, 2011). The applied case study has helped to recognize the analyzed phenomenon under real conditions (Yin, 1984), and its purpose has been practical orientation (executive research) of the concept of technological entrepreneurship.

The case study should be a clear example to illustrate the studied correctness (Flyvberg, 2004). The purposeful selection of Glip technology start-up resulted from the pragmatic criterion of availability of data, clarity of the explained phenomenon of technological entrepreneurship, and the observed determinants of technological innovation. The above criteria lead to the conclusion that a single case study would help to attain the objectives of research. The

necessity to confront a variety of data sources forced the application of the principle of triangulation (Nazarko & Ejdy, 2011; Nazarko, 2013):

- qualitative data was obtained from direct (in-depth) interview conducted with the owner of the analyzed enterprise, who is responsible for innovation management. A semi-structured interview questionnaire was prepared;
- to expand the database on the company, an analysis of materials from the available secondary sources was also conducted. They included websites, publications and customers' opinions on opineo.pl website;
- an important source of data was the information obtained from Poznan Science and Technology Park of Adam Mickiewicz University Foundation, which is a strategic shareholder of the company.

The author adopted an iterative procedure, in which the stage of verification of data gathering tools is repeated because of the information obtained or problems encountered. The confrontation of multiple data sources justifies the cyclical nature of data collection procedures in the case under examination. Both descriptive and explanatory techniques were used in the presented case study. The obtained quantitative and qualitative data were the basis for creating the characteristics of the innovative ICT project. The multimedia bus stop's diagnosed functionality was presented in a synthetic way.

3. RESEARCH RESULTS

Glip Ltd. is a young Polish company manufacturing multimedia touch platforms (Glip Multitouch Solutions, 2013). The founders (two men) of the technology start-up are graduates of the Poznan University of Technology, who, on the basis of interdisciplinary knowledge and experience related to the IT industry and economics, have created a modern business model. The company has been on the market since 2013 and currently employs 8 full-time workers. In its solutions the company uses modern tools of interactive communication and focuses on the customization of services dedicated to individual customer needs. Glip offers equipment based on the technology of touch, motion detection and holographic projection. The products are dedicated for business customers, cultural and educational institutions and local government units.

An important aspect in the development of technological entrepreneurship is to create an attitude

of openness among employees regarding knowledge, study the environment in terms of demand for new ICT solutions and look for external sources of information to fill gaps in intellectual resources. In this context, the important role is played by cooperation with selected research institutions and organizations supporting technology transfer. Among the activities undertaken by the company in the field of cooperation with the business ecosystem it is necessary to mention strict scientific and research cooperation between Glip and Poznan Science and Technology Park of Adam Mickiewicz University Foundation. The project called InQbator Seed co-financed by the European Union under the Innovative Economy Operational Programme aided the company in 2013 with the amount of 500.000 PLN (Mam Startup, 2013). It was an important financial aid determining the development of the young technology start-up. The funds have enabled further research and progress on the construction of large-format touch surfaces and specialized software.

Another example of the implementation of technological entrepreneurship by the company is taking part in the prestigious competition called Poznan Leader of Entrepreneurship 2014 in the category Startup 2014. The competition is organized jointly by Poznan City Hall and County Office and is designed to support outstanding enterprises from the SME sector which have been building their strong market position. Technological innovations and the entrepreneurship of young people employed by Glip were fundamental for the company to win first place in the Poznan Leader of Entrepreneurship 2014 competition (Winner..., 2015). In 2014, Glip also won the VII edition of the Award of the Marshal of Greater Poland „i-Greater Poland – The Innovative for Greater Poland”. This is a special award for entrepreneurs who, through their creativity and openness to new scientific thought, bring innovative solutions to the market. The cooperation with the institutions of business environment in consulting, organizing and financing innovative ICT solutions constitute for the company the condition for development.

The innovative multimedia project is a modern media bus stop with GlipTable at its core. The solution

is dedicated to companies managing public transport. Touch screens, installed in the shelter and authorial applications developed by Glip, are the first such solutions in Poland in the area of public transport (Fijałkowski, 2014; Belcik, 2014). In the opinion of its makers the purpose of the designed solution is to optimize the distribution of information for travelers and information regarding fleet management in public transport. The multimedia bus stop was presented by Glip during Gmina 2014 fair (in October) at Poznan International Fair (Fig. 1).

This innovative solution was met with positive



Fig. 1. Multimedia bus stop with GlipTable
Source: (Janik, 2014).

response and great interest on the part of local governments, media and technology industry representatives (Janik, 2014). Glip has introduced several modifications to its touch surfaces, providing them with new functionalities and adapting them to modern urban spaces. Below are the synthetically diagnosed seven functionalities of the multimedia bus stop:

- Informative function. The innovative technological solution takes the form of an interactive City Light showcase installed at bus stop shelters. Authorial applications are tailored to the needs of public transport users. The creators of the project have set themselves the goal of creating both modern and quick access to the current information regarding the conurbation to make it easier for commuters to use public transport and get around the city. The designed bus stop has an external and internal media screens with both touch and movement recognition systems. The internal one is intended for services and applications directly associated with travelers (Fig. 2). In addition to basic information such as timetables, route change information, or the means of transport crossing sketch, the screens can be equipped with additional data and entertainment applications with an ability to carry out promotional activities;

- Promotional function. Based on the information obtained during the direct interview the screens can serve publicity purposes. Additional features include a city map and an interactive guide to the sights of the city and the information about cultural events. Another advantage of this innovative solution is an electronic bulletin board – especially attractive for local advertisers;
- Text magnifying function. There is an option to install a function to magnify text in the screens. It is particularly useful for people with poor eyesight, but also to magnify the object or destination;
- Sign language translator. A sign language translator has been installed for the deaf-mute people. With an application created by Migam.org service travelers can translate the timetable and communicate with others. A camera installed inside the shelter, in addition to the safety aspect, can be helpful if someone needs to call for help;
- The function of planning a route to an address and to a point. In order to improve the updating of timetables and the download of current information about the selected connections, cooperation with City-Nav has been undertaken. This company is the creator of „jakdojade.pl”, which is very popular in Poland. It is an innovative public transport planner that allows people to check the timetable, the number of stops and to plan an optimal route (City Navigation Systems, 2011). Thanks to the integration of the bus stop with „jakdojade.pl” public transport travelers gain an ability to easily set their route on an address and an exact point. It is a valuable functionality from the perspective of tourists;
- The function of updating the timetable remotely. An important advantage of the bus stop is its ability to remotely update the timetable by transport companies. In a case of unforeseen events in the traffic, an administrator can display specific messages on the screen. This functionality greatly simplifies data management and also makes it possible to generate savings in case of periodic changes to timetables. Introducing changes to timetables at individual stops can be done remotely without any need for time-

consuming and cost-intensive visits to each of them by a service technician. Depending on the requirements of the buyer bus timetables can be displayed on an interactive LCD display or an extremely energy-efficient display using ePaper technology. Additional functionality of the applied solution is the ability to communicate with ITS (Intelligent Transportation System) installed on buses and trams that continuously provides information about the time of arrival of the means of transport;

- Advertising function. The outer part of the interactive stop is a medium of commercial advertising activities. The authors of the ICT project assume that the advertising space on the external screen will be a valuable tool allowing shelter owners to amortize costs associated with its purchase. Moreover, an interactive screen equipped with touch, characters or gestures recognition system (Kinect) provides advertisers with a broad context for the application and the opportunity to create interesting promotional campaigns. A camera, motion sensors and an electronic management system all allow its users to customize the message to the target audience. In addition, the announcement time and its location may change several times a day depending on the advertiser's requirements. Glip also offers individual IT, graphics and marketing solutions tailored to the needs of the customer. The innovative product provides its users with a number of benefits so far inaccessible in such a form and on such a scale. This interactive bus stop is a new promotional tool, which will certainly be an interesting alternative to traditional outdoor media.



Fig. 2. Services and applications available with GlipTable
Source: (<http://startup.poznan.pl>, 04.03.2015).



As claimed by the initiators and creators of this innovative solution, modern technology and information-advertising applications are to make urban

bus stops more attractive and also carry economic benefits for urban transport companies. The type and the complexity of applications will determine the cost of the shelter. In case of a successful implementation of the project, Glip will act as manufacturer and supplier of software, providing IT support in the processes related to the implementation and coordination of the undertaken collaboration.

4. DISCUSSION OF THE RESULTS

Technology development is considered as a measure of the success of entrepreneurs who initiate the process of commercialization. In order to develop technological entrepreneurship, entrepreneurs should establish lasting relationships with scientists, which could be based on mutual motivation to study and to take risks while conducting business activities. The phenomenon of technological entrepreneurship applies particularly to small and medium-sized high-tech enterprises. They work in such areas as biotechnology, electronics, nanotechnology, information technology, etc. These entities are characterized by a tendency to innovate and are very active in launching new products and services. Aiming to develop their own technological and innovative facilities, they seek access to valuable resources of knowledge. If the company's own intellectual assets are not sufficient, there arises a need for knowledge transfer from the environment and to obtain information which is the most valuable for the needs of enterprises. It is important to be aware of support institutions and be able to draw relevant information, establish contacts with the sphere of scientific research and build networks for the exchange of knowledge between companies and the environment. Technological entrepreneurship is in its essence based precisely on the cooperation of companies with both the science sector and the business environment. Furthermore, the issue of project knowledge management is of high significance for companies operating in the multi-project environment, as there are numerous sources of knowledge which can be applied to ongoing projects. The continuous progress in the planning and execution of projects can be used to indicate areas for potential improvement and support the decision makers where and when to invest limited funds (Spalek, 2014, p. 164).

Equipment and authorial applications created by

Glip support interactive and engaging business communication, creating new customer needs and setting trends in the corporate image management. The company uses innovative solutions in its products, which are based on knowledge, latest technologies and the experience of IT professionals. A team of young entrepreneurs working for Glip is currently planning more innovative business solutions and applications for their devices, not only in the arrangement of urban space. Through dedicated applications, providing customers with a series of comprehensive tools and individual counseling, the company helps to identify and create opportunities for other economic operators. The involvement of the team, a shared vision of the present and the future of the company, the focus on technological innovations and paying attention to customer satisfaction constitute the basis for the development of the organization and directly translate into market success.

The search for savings is one of the major problems of modern public transport companies. The use of modern ICT solutions and telematics systems, which allow the processing of data or instance available via GPS make it possible to more effectively manage enterprise communication. The implementation of the solution – a media bus stop which earns its own money – should bring tangible economic benefits for the enterprise and improve the quality of communication services.

CONCLUSIONS

For the development of technological entrepreneurship in companies it is important to develop a strategy with the use of technical and intellectual capacity of organizations. One cannot miss here the external environmental factors related to technological entrepreneurship and its support instruments. Important stimuli are both the local climate and the commitment of local government and business institutions. Moreover, it is necessary to identify and eliminate barriers that may limit the implementation of the described concept. Supporting the development of innovative academic companies and accelerating the process of commercialization of intellectual property may significantly contribute to the further integration of academics and practitioners.

The rationale for conducting research on case studies is the timeliness of the issue and the need to orient the practice for a better understanding of the

phenomena of modern economic reality. Case studies in the field of technological entrepreneurship should develop the existing theory and provide explanations of the hitherto unrecognized phenomena. In addition, they will facilitate understanding and support development of the analyzed processes, taking into account the economic, social and cultural characteristics of the region. The presented case study can be a starting point for an in-depth empirical theory-creating research (for instance the multiple-case studies approach was followed by Yin (1994), and Eisenhardt and Graebner (2007) recommendations), providing hypotheses for quantitative research, or making room for exploration that was previously perceived differently or simply overlooked. The findings of case studies can help practitioners in designing processes more adapted to the characteristics of their projects and contingencies, which may lead to a better allocation of resources and better efficiency in general (Salerno et al., 2015).

Despite the fact that the research is based on a single case study, there are some interesting implications for business practice. Comprehensive and efficient management of a fleet of vehicles in a transport company requires today the implementation of modern ICT solutions. The existing problems of public transport and the effects associated with excessive traffic all require innovative solutions for sustainable mobility in the future (Telematik im Verkehr, 2015). The implementation of innovative multimedia bus stop project in conjunction with telematics systems to enable the processing of data (information generated by onboard equipment installed in vehicles, and from the road infrastructure i.e. ITS systems in cities) provide an opportunity for more effective management of the enterprise communication through effective management of its manpower and equipment. The bus stop is to be friendly to tourists, the elderly, and the disabled and, above all, provide the most recent information. Information management and its quality, timeliness and flow rate often account for competitive advantage. The co-founder of the innovative multimedia bus stop project stresses that the solution is ahead of the boom, which will eventually come in connection with the introduction of interactive devices in the urban space.

The implementation of modern telematics solutions undoubtedly supports the decision-making process in fleet management. There is a need for rational use of existing transport infrastructure and

improving the flows to increase economic efficiency, safety of passengers and respect for the environment. Moreover, new information and communication technologies determine the need for new organizational solutions, also within public transport companies. Technological innovations should contribute to the increase of their users' life quality and a wider use of economic and social potential of the region.

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CAR INDUSTRY ENTERPRISES IN POLAND: STRATEGIC PRIORITIES IN THE CIRCUMSTANCES OF DEPRESSION ON THE MARKET

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ABSTRACT

It is in the recent years that the automotive branch was remarkably affected by the global economic crisis. The companies that are located in Poland make up a significant element of the global system. The present paper analyses the most important data that describe the activities of these companies in the years of crisis (the research covered the period from 2005 through 2012). It is possible to formulate the thesis that this is the group of entities that relatively well coped with the difficult situation encountered in the environment. Thanks to the analysis that was made it was possible to point to the regularities that increased the possibility of making a success in this kind of circumstances.

KEY WORDS

firm goal (L210), organizational behaviour (L220), firm size (L250)

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INTRODUCTION

The generally advantageous situation of the Polish enterprises that represent the car industry branch, observed upon the ending of the recent economic depression, makes up a valuable example of how to effectively administer the possessed resources in similar circumstances. This subject has not hitherto been thoroughly explored although it potentially allows to achieve the knowledge that is of substantial practical significance with regard to the possibility of appearance of successive similar depressions. The major thesis of the present discussion which pronounces that the Polish car industry enterprises got through with the depression better than the entire car industry sector when viewed from the European perspective, was verified on the basis of the analysis of major data such as investments, the possessed assets, profits, employment and the achieved turnovers (the research covered the period from 2005 through 2012). In its theoretical part, the discussion

focused not only on the analysis of the effects of the depression itself for the European car industry branch but also on the description of the most significant phenomena that were determinative of the possibility of successful development of this kind of activity. In the final fragments of the text there were indicated the characteristic elements of the way along which the investigated entities had followed in order to reach the final competitively advantageous position.

1. LITERATURE REVIEW

The world economic crisis which came to the open in the second half of the first decade of the 21st century considerably affected the automotive branch (Brinkmann, 2011). In case of Poland this branch is univocally oriented toward the cooperation with the global system, particularly through its role of

a supplier of a wide assortment of sub-assemblies and, less frequently, of finished vehicles (Globalization..., 2003). The largest domestic enterprises of this sector make up a part of the great international concerns and are designed to satisfy their needs (Automobile..., 2006). On the basis of the data that were possible to obtain in EUROSTAT one may estimate that in mid-Eastern Europe the Polish companies generated 36% of turnovers of automotive branch. In the structure of Polish export, the automotive branch occupies one of the key places and is responsible for 15% of value of the entire Polish export. In the countries such as Poland, during the last crisis this branch was exposed to strong pressure resulting from the cyclical fluctuations in the economic situation (Keeley, 2010). For that reason one may expect that the difficult situation observed at the European Union market will unfavorably affect the leading companies which function in Poland and the tendency of these companies towards making investments (Peters, 2011). In order to understand the scale of the crisis that came to the open between 2005 and 2012 it is possible to use the data that are available on the European Automobile Manufacturers Association website (www.acea.be). According to the information published by this organization, in the years under investigation the following results were reported on the new passenger car registrations in Europe (EU27 + EFTA) as presented in million units: 15, 25; 15, 82; 16,00; 17,47; 13,67; 13,80; 13,61; 12,52. The fall of the new truck (GVW over 3,5 t) registrations in Europe (EU 27 + EFTA) in thousand units was even more dramatic, what is illustrated by the analogous data: 388,2; 412,5; 438,8; 428,7; 240,4; 256,3; 324,1; 305,2. It can distinctly be seen that the falling tendency started in 2008 while in 2012 the market in both cases was lower from the initial level by a dozen or so per cent.

What should also be taken into consideration is that car industry enterprises are subject to incessant pressure exerted also by other processes. Apart from the economic depression to the foreground there come the phenomena that force out of the producers a constant progress and adjustment to the growing expectations of the environment, also despite the complicated market situation. The discontinuing of the investments – even in hard times – is in this case tantamount to the slow winding up to the business. Therefore while trying to appraise the situation of the enterprise it is so important to investigate the level of the investments, of the accumulation of capital or the productive potential. Without understanding the

mechanisms that determine the development of enterprises of this sector it is impossible to honestly appraise the way that the discussed enterprises selected in order to survive the depression. The sources of potential growth which appear in the production level of the companies of automotive branch lie in the present day level of development of technologies exploited by these companies (Omar, 2011). One of the groups which – from that perspective – is significant is made up by the electronic sub-assemblies (Hollemeak, 2010). The latter – to ever larger extent – relieve the users of performing the control or regulating tasks (Ribbens, 2012). The second group is the group of pro-ecological solutions which affect the fuel consumption or help to meet the standards of exhaust gas cleanness or those that affect the level of noise (Wells, 2010). The next area is made up by the material engineering which is of significance for the resistance of materials, their weight and their responsiveness to various phenomena (Cantor, 2008). What favours the generating of innovations are the growing standards of passenger safety (Pimentel, 2006). Of significance is also the evolution of the process of vehicle projecting (Weber, 2009), both within the scope of complicated instruments applied for this purpose as well as within the scope of effects that are obtained and that determine the ergonomics, comfort and performance (Bhise, 2011). Another area is made up by the solutions that promote the flexibility of production, its automation, improvement of productivity or cost control (Comacchio, 2012). The above review allows one to realize the large scope within which the search for potential growth is made by the automotive branch companies. This consequently makes also visible the scale of challenges that accompany this search (Vogt, 2011). There is, therefore, a large probability that the economic crisis had an impact on the tendency among the respective entities to select some parameters of the way of their development.

2. RESEARCH METHODS

At the Polish market there function many companies which may be classified among the representatives of the automotive branch. Yet the situation of this sector is determined by the condition of the largest enterprises which are responsible for the dominant part of turnover in this branch of industry. What considerably limits the present analysis is the

lack of access to the indispensable data. The author assumed that there would be taken into account only those firms which made the suitable reports public in the entire analyzed period. It was possible to successfully arrive at the data that characterized the situation of the companies that were responsible for 25% of turnovers of automotive branch in Poland. Since these are ones of the largest companies in their own category they therefore determine the situation of their numerous smaller subcontractors. On the basis of the data that were possible to obtain in GUS (Chief Central Statistical Office in Poland) one could assume that the entire system (including the aforementioned economically dependent suppliers) is responsible for as many as approximately 75% of turnovers in the discussed branch. Thus, while investigating the situation of the selected group of the largest companies, we arrive at the picture of dynamics characteristic of the key phenomena that dominate in the entire branch. The analysis eventually comprised the following firms: Fiat Auto Poland (in the tables that are found in the further discussion the firm is referred to as FAP), Fiat Powertrain Technologies Poland (FPT), Inter Cars (IC), Inter Groclin (IG), Ronal Polska (RP), Sitech (ST), TRW Polska (TRW), Volkswagen Motor Polska (VMP), Volkswagen Poznań (VP), Volvo Polska (VO). The author is aware that in the above group there may be also found the enterprises whose supplies are partly directed towards the „after market”. It seems however that in order to depict the full image of the situation of the largest car industry enterprises in Poland in the years 2005-2012 such analysis is nevertheless of cognitive value.

In order to compare – one to another – the condition of the respective companies within one period of time, and also in order to examine the development of their situation within the successive eight years the following variables were exploited. They were referred to as those of turnover (t), net profit (p), assets (a), shareholders' equity (e), investments (i), employment (w). The listed parameters allow to easily estimate the scale of activities of the respective companies (the scale changing under the influence of the observed crisis phenomena) and the probable attitudes of the respective owners towards the prospect of continuing these activities.

3. RESEARCH RESULTS

The data for the year 2005 (Tab. 1) show a large

distance of the leader (FAP) toward the remaining companies as regards the scale of activity since the turnovers of the FAP amount to one third of the sum of all measured results. However, from the point of view of profitability the hierarchy presents itself in a totally different way. The enterprise that was characterized by the highest employment (VP) had also the largest profits and made investments within the widest scope although it was lagging behind as regards the turnover.

Tab. 1. The characteristic of the ten leading enterprises of the sector as viewed from the perspective of the beginning of year 2005 (from column „t” to „i” in mill of zloty)

	t	p	a	e	i	w
FAP	10077	105	4322	1868	79	3751
FPT	3251	154	2058	1035	94	1255
IC	613	19	324	91	19	602
IG	509	43	406	212	47	3545
RP	731	23	553	157	40	1133
ST	684	112	683	115	131	1223
TRW	1873	154	739	462	21	2891
VMP	4368	195	1131	603	40	1005
VP	7611	309	3256	935	305	4800
VO	1439	41	475	198	7	1469
sum	31156	1155	13947	5676	783	21674

Source: own research on the basis of National Court Register and newspaper publications.

In 2006 the firm that took the lead – according to the criterion of the scale of activity measured by the proportion of turnover – was one which, in the earlier period, made the most important investments (Tab. 2). What also contributed to this change of the lead was the weakening of the previous leader. The sector as a whole slightly improved its results although this was due to the effort of the active minority in the group of companies that were investigated. What was also characteristic was the limitation of the scope of the investments that were made.

While analysing the data for the successive year, we observe the appearance of one enterprise that reported a loss (Tab. 3). Likewise, we observe that the turnovers and investments grew despite the fall in profits. Therefore we may assume that the branch expects the improvement of the situation in the foreseeable future. The increase in employment also confirms this. In the comparison that was produced the one who occupied the position of the leader two years earlier returned to the top position.

In 2008 all companies in the investigated group of

Tab. 2. The characteristic of the ten leading enterprises of the sector as viewed from the perspective of the beginning of year 2006 (from column „t” to „i” in mill of zloty)

	t	p	a	e	i	w
FAP	8569	296	4380	1922	96	3622
FPT	3704	206	2291	1240	73	1356
IC	750	1	395	94	0	822
IG	466	12	404	229	36	3533
RP	759	20	529	211	23	1497
ST	819	96	634	210	18	1289
TRW	1983	155	930	617	39	3099
VMP	4358	127	1086	535	22	981
VP	8706	669	1415	1415	105	4771
VO	1365	36	453	193	19	1924
sum	31479	1618	12517	6666	431	22894

Source: own research on the basis of National Court Register and newspaper publications.

Tab. 3. The characteristic of the ten leading enterprises of the sector as viewed from the perspective of the beginning of year 2007 (from column „t” to „i” in mill of zloty)

	t	p	a	e	i	w
FAP	9225	251	4064	1865	182	3740
FPT	4520	248	2539	1488	82	1389
IC	1013	19	445	114	16	1030
IG	482	10	445	234	43	3597
RP	903	-17	538	194	18	1578
ST	809	78	551	288	7	1280
TRW	2181	166	1158	781	50	3848
VMP	4301	103	962	511	29	1087
VP	8776	527	2837	1703	122	5584
VO	1732	47	678	204	90	2312
sum	33942	1432	14217	7382	639	25445

Source: own research on the basis of National Court Register and newspaper publications.

enterprises where found to start with the positive financial result (Tab. 4). There is one result that in the analysis of the collected data draws our attention. This result describes the scale of investments made by the largest firm. This considerably raised the value of the global index. On the other hand also the remaining representatives of the sector increased their investment outlays (in spite of the general fall in profitability).

The data referring to the next of the analysed periods allow to make observations on a series of phenomena (Tab. 5). There were two companies

which improved their position with regard to the remainder, two of them reported a fall while six maintained the position they previously occupied. Two enterprises increased their turnover while eight

Tab. 4. The characteristic of the ten leading enterprises of the sector as viewed from the perspective of the beginning of year 2008 (from column „t” to „i” in mill of zloty)

	t	p	a	e	i	w
FAP	11584	349	5326	1964	963	4669
FPT	4459	175	2757	1663	143	1385
IC	1327	58	816	168	65	1168
IG	466	1	468	224	25	3869
RP	904	11	533	205	47	1508
ST	876	67	618	355	10	1416
TRW	2397	151	1367	932	71	4280
VMP	4374	107	940	618	118	1207
VP	7977	369	2929	2025	157	6020
VO	2409	39	868	243	48	2889
sum	36773	1327	16622	8397	1647	28411

Source: own research on the basis of National Court Register and newspaper publications.

Tab. 5. The characteristic of the ten leading enterprises of the sector as viewed from the perspective of the beginning of year 2009 (from column „t” to „i” in mill of zloty)

	t	p	a	e	i	w
FAP	15083	312	5709	2264	412	5526
FPT	3857	198	1832	1326	79	1382
IC	1738	25	1228	418	71	2041
IG	347	-27	360	190	17	2629
RP	746	-101	609	173	105	1271
ST	747	38	524	393	63	1440
TRW	2273	4	1503	937	83	4500
VMP	3796	74	813	590	123	1171
VP	7916	348	3086	2160	252	6133
VO	1981	28	861	272	37	2874
sum	38484	899	16525	8723	1242	28967

Source: own research on the basis of National Court Register and newspaper publications.

experienced a decrease in this respect. The net profit grew in one case (the remainder reported a result that was worse than the one reported a year earlier). Both the assets as well as the employment grew in half of the enterprises while they were falling in case of the remainder (in reference to the enterprises' own

capital and investments we can find the analogous relationship of six to four companies).

The sixth comparison shows the fall in ranking of the two firms, improvement in further two and stabilization of the relative position of the remainder (Tab. 6). The turnovers grew in four companies while they were falling in case of the rest (analogous proportions referred to the changes in the employment level). Six enterprises increased their profits while four reported the worsening in this respect. The enterprises' own assets were found to have been strengthened in seven firms. Also seven firms strengthened their own capital (while in three for the entire ten the capital and also the assets shrank). Three firms increased their outlays for the investments (other firms limited this category of expenses).

In the last but one of the examined years there was observed the improvement of the relative position of one company, stabilization was noticed in eight of them and there was observed one individual fall (Tab. 7). The turnovers and the size of the enterprises' own capital demonstrated a full concordance of changes (the upward movement in eight firms of the same type, the fall being observable in two). The profits improved in seven cases while they deteriorated in

Tab. 6. The characteristic of the ten leading enterprises of the sector as viewed from the perspective of the beginning of year 2010 (from column „t” to „i” in mill of zloty)

	t	p	a	e	i	w
FAP	19434	820	7408	2442	513	6422
FPT	3216	98	2214	1424	67	947
IC	2066	68	1273	499	35	2105
IG	171	2	284	182	2	2099
RP	702	46	562	218	26	1219
ST	858	39	586	438	78	1417
TRW	2808	210	1815	1225	21	4550
VMP	3317	72	943	560	38	1151
VP	7744	250	3375	2358	139	6194
VO	1219	-6	747	266	47	2419
sum	41535	1599	19207	9612	966	28523

Source: own research on the basis of National Court Register and newspaper publications.

three. The assets grew in eight enterprises and they fell in two. The increase in investments was noticed in three companies while its reduction was reported in seven of them. Four firms increased their employment while six introduced its limitation.

In 2012 the relative position of four companies was

Tab. 7. The characteristic of the ten leading enterprises of the sector as viewed from the perspective of the beginning of year 2011 (from column „t” to „i” in mill of zloty)

	t	p	a	e	i	w
FAP	16313	-82	6650	2409	664	6365
FPT	3731	169	2404	1386	53	890
IC	2413	64	1322	559	33	2258
IG	141	1	278	184	3	1563
RP	911	53	626	271	11	1218
ST	876	64	619	483	52	1547
TRW	2857	249	2040	1474	22	4606
VMP	4312	118	1032	606	29	1132
VP	7774	290	3502	2383	139	6120
VO	1601	33	762	319	27	2610
sum	40929	959	19235	10074	1033	28309

Source: own research on the basis of National Court Register and newspaper publications.

Tab. 8. The characteristic of the ten leading enterprises of the sector as viewed from the perspective of the beginning of year 2012 (from column „t” to „i” in mill of zloty)

	t	p	a	e	i	w
FAP	16471	84	7035	2467	854	5841
FPT	4748	13	3707	2341	175	1130
IC	2765	104	1547	665	45	2258
IG	181	1	288	191	3	1519
RP	1082	74	680	280	94	1242
ST	1191	105	728	524	39	1444
TRW	2776	121	2176	1594	37	4606
VMP	4466	107	1147	595	22	1161
VP	9822	281	3626	2036	202	6152
VO	2180	19	812	292	52	2652
sum	45682	909	21746	10985	1523	28005

Source: own research on the basis of National Court Register and newspaper publications.

changed (two of them were raised to an upper point while other two lost the places they previously occupied), (Tab. 8). Almost each company increased its turnover (and specifically nine of them did it while one experienced a decrease in this respect). Four companies improved their profits while five reported worsening (one company maintaining the situation of the previous year). The investments increased in seven cases, in two they fell and in one case their size remained intact. The enterprises' own capital was strengthened in seven firms, it was reduced in three of them but each firm collected more assets. Five

companies increased the employment while other three reduced it and two other left it intact.

4. DISCUSSION OF THE RESULTS

While analysing the joint results obtained by the enterprises under research (Tab. 9), we may notice a general growth of their turnovers in 2005-2012. Simultaneously, in the recent three years there has been observed the tendency to reduce the employment. Among various significant phenomena there is also visible an interdependence. It is detectable in the form of concordance of the line of changes adopted between the value of the sum of assets of all enterprises taken into account in the present comparison, and the scope of the investments jointly made by these enterprises.

As regards the turnover, between 2005 and 2012 the companies under research increased by about 50% which – while taking into account the inflation index at the level of 31% for that time – proves that the turnovers actually grew. With the exception of 2011, in each case we deal with the plus dynamics of changes. As regards the outlay of the analysed phenomena. That indicates the occurrence of soft, stable rising trend. While considering the dynamics of the turnover of each of the ten considered enterprises we can make some interesting observations. The biggest success can be attributed to IC. The worst result was found in case of IG. The results of the majority of the entities showed high level of variability. The most stable reading was observed for VMP.

Tab. 9. The comparison of aggregated characteristics of the group of enterprises representing the sector in 2005-2012 (from column „t” to „i” in mill of zloty)

	t	p	a	e	i	w
2005	31156	1155	13947	5676	783	21674
2006	31479	1618	12517	6666	431	22894
2007	33942	1432	14217	7382	639	25445
2008	36773	1327	16622	8397	1647	28411
2009	38484	899	16525	8723	1242	28967
2010	41535	1599	19207	9612	966	28523
2011	40929	959	19235	10074	1033	28309
2012	45682	909	21746	10985	1523	28005

Source: own research on the basis of National Court Register and newspaper publications.

In case of the data that describe the changes of the net profit level in 2005-2012 we deal with remarkable turbulent situation. After the maximum reached in 2006 there occurred the collapse the minimum of which was detectable three years later (this corresponding to the period when the problems of the sector reached their climax). Despite one-time correction made in the successive year the value of the profit obtained in the last period stabilized at the level that was far from the optimal one. While additionally taking into account the inflation index, we can say that these results demonstrate the weakening position of the group of enterprises under investigation. While considering the dynamics of the net profit of each of the ten discussed enterprises we can notice that an impressive progress was made by IC. Four enterprises (FAP, IG, RP, VO) one or more times showed negative results. But the most negative tendency was observed in case of FPT and IG.

The data that indicates the accumulation of the assets in 2005-2012 are determined round the rising tendency. While comparing the first year and the last year, we may say that in realistic handling of the subject (despite individual results that we are worse in 2006, 2009, 2011) we deal with the growth of the size resembling that which was reported in case of the turnovers. While considering the dynamics of the assets of each of the ten investigated enterprises we can find that the most impressive abrupt increase of assets was observed in case of IC. TRW was found to be most successful in continuing year by year systematic, stable growth of the amount of assets. While comparing the first and the last year, it is possible to find that only IG showed the worst result.

The analysis of the data that illustrates the change of the size of the own capital of all examined enterprises points – in absolute values – to the almost one hundred per cent growth. Even if we take the inflation index into account, this is the evidence of the size of capital accumulation that was carried out in the examined period. What is worth to emphasize is the fact that each year was – in this respect – always better than the previous one. Likewise, it is noteworthy that the rising tendency points to the exceptional stability and consequence in the behaviour of the companies under investigation. While considering the dynamics of the equity of each of the ten considered enterprises we can also make some interesting observations. The biggest increase was observed in case of ST and TRW. Remarkable decrease can be found only in case of IG but minimal increase was also observed in case of VMP.

In case of the analysed data that illustrates the investment level, there emerges the picture which indicates the highly turbulent nature of the behaviour of the enterprises in this respect. The observed changes point to the wave-like course illustrating how the investment efforts were made: after the period of violent growth and the making of intense outlays there followed the equally dynamic hold up (minima falling on 2006 and on 2010). The observed period of time is too short to allow the assessment of regularity of this phenomenon. Yet one may take into consideration the hypothesis that poses the question whether, in this case, we deal with the four-year cycle. While considering the dynamics of the investments made by each of the ten discussed enterprises we can notice that in case of about all of them the investment level was very high in the year 2008. The gradual reduction of investment (systematic tendency to reduce this rate) was demonstrated by IG. Generally the dynamics of the individual rate of investment was usually fairly variable from one year to another.

The order of the data that illustrates the changes in the employment level index (which came into being after the data characterizing the group of all investigated enterprises have been summed up) resembles the description of the phases of market development. After the period of opening growth we observe the acceleration, stabilization and diversion of tendency, that is initiating a slow decline. This may indicate the improvement in the employment in the last years, which should bring about the effects assuming the shape of increased effectiveness in operation. While considering the dynamics of the rate of employment in each of the ten investigated enterprises we can make some additional observations. Around the year 2008 the rate of employment was on the highest level in case of the majority of investigated entities and then usually stabilized around this level for a longer time (f.e. IC, ST, TRW, VMP, VP). But in some cases (RP and VO) the rapid increase was followed by similarly rapid decrease at the end of the period taken into consideration. Only in case of IG there was a permanent and deep fall of employment.

In case of the investigated group of companies, treated as a whole, the most difficult years of crisis in the environment (that is the years 2007 and 2008) proved to be the point that commenced the developmental phase (Tab. 9). It was exactly from that moment that there began to be observable systematic growth of turnovers while the level of investments and the employment level oscillated round the values

considerably higher than those characteristic of the initial period of observation. On the other hand, what was noticeable was the fall of average profitability of the companies of the branch. This fall of profitability was accompanied by the simultaneous growth of the assets and shareholders' equity. Obviously this picture, when split into the individual cases of the respective companies, may remarkably depart from the

Tab. 10. The percentage change of the level of the respective parameters as found between 2005 and 2012

	t	p	a	e	i	w
FAP	63	-20	63	32	981	56
FPT	46	-92	80	126	86	-10
IC	351	447	377	631	137	275
IG	-64	-98	-29	-10	-94	-57
RP	48	222	23	78	135	10
ST	74	-6	7	356	-70	18
TRW	48	-21	194	245	76	59
VMP	2	-45	1	-1	-45	16
VP	29	-9	11	118	-34	28
VO	51	-54	71	47	643	81

Source: own research.

averaged values. In this context the extreme cases are presented by the entities referred to as IC and IG (Tab. 10). What is characteristic, however, is that within the investigated period of time we generally deal with the noticeable conformity of the scope and the direction of changes of the respective parameters that describe the individual ups and downs of the given firm. The analysis of the coefficients of correlation as based on the above presented data allows to ascertain that all parameters that were taken into consideration have strong mutual reference one to another. Each time when the value of correlated coefficient is being obtained it is close to 1 (but in one case – that which involves the investment – we deal with the reference shifted by two years). It is therefore possible to discern certain consistency in the behaviour of the entire group of the investigated companies in each of the examined areas. During the global crisis affecting the discussed branch it was the dominating majority of entities that managed to enlarge the scale of conducted activities. This proves that the discussed companies were successful in selecting an effective strategy of progressing by the development in a safe market niche.

CONCLUSIONS

While concluding the analysis that was made, one can find that in the context of the market situation in Europe in automotive branch, the Polish enterprises were found to be in a fairly good condition by 2012 (after the climax of the economic

crisis). Obviously the profitability (particularly in comparison with the amount of turnover) was not so impressive but still each enterprise was profitable. During these eight years it was the priority for the enterprises to build their modern productive potential based on investments and preservation of the skilled working power. These enterprises were able to attract capital, branch investors and the attention of the staff of headquarters of the biggest automotive corporations. Of course it was easier to reach these ends by these enterprises which, as the Polish plants, were also parts of international automotive corporations. Their success was also connected with the process of competing with other plants involved in the discussed production of the given company and located in other European countries. But certainly also purely Polish enterprises were able to extend their activities (for example IC) in spite of the case of IG which diminished the proportion of the latter. Generally one can find that in case of each enterprise the rate of efficiency was on a very high level, which proved that the Polish automotive enterprises were – during all these years – very competitive and that their strategy to invest in production technologies, to control costs and to preserve skilled working power was the right way to strengthen their market position. The author also hopes to open further discussion which might provide a deeper insight into the situation of similar enterprises in other European countries in the same period of time.

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STEREOTYPES IN THE PERCEPTION OF CROSS-BORDER BUSINESS PARTNERS (ON THE EXAMPLE OF PODLASIE ENTREPRENEURS)

ANNA TOMASZUK

ABSTRACT

The aim of the study was to determine whether the Podlasie entrepreneurs think about neighboring nations (Belarusian, Lithuanian, Ukrainian and Russian) in a stereotypical way (assigning them certain negative characteristic) and, if it affects in any way the decision about cooperation. The theoretical part of the article concerns the concept of stereotype, its features and functions. In the empirical part the results of researches are presented. They were carried out on a group of Polish entrepreneurs (in Podlasie) in order to identify their attitudes and opinions on some neighboring nations (Russians, Belarusians, Lithuanians and Ukrainians). The research was a pilot study, the sample included two hundred entrepreneurs, the authors' questionnaire was used. In the light of the study negative national stereotypes seem to have a great importance in creating cross-border networking.

KEY WORDS

stereotype, national stereotypes, cross-border cooperation, entrepreneurs of Podlasie

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INTRODUCTION

In recent decades, due to the continuous technological progress and increasing globalization, the number of companies and organizations operating in the markets wider than national has significantly increased (Gurgul & Lach, 2014). We have been witnessing the globalization, which have taken different forms (Qiu, 2010). For Podlaskie Province – because of its unique location close to Belarus, Lithuania, Ukraine and Russia (Kaliningrad) – the aspect of cross-border cooperation and appropriate assessment of frontier markets is particularly important.

A border location can be seen in two levels – it is often the cause of economic underdevelopment, but it can also be a factor affecting the development, because it provides the opportunity to establish direct cooperation with neighboring regions that belong to

different national space, which in turn can be an asset for cooperating regions (Mierosławska, 2004). Cross-border cooperation entails a number of challenges in the form of economic, legal and social barriers. The social barriers include negative experience from historical development, lack of residents' psychological readiness to cooperate and differences in mentality (Pisarenko, 1998). Therefore, in order to strengthen the cooperation not only the burden of historical events, mutual prejudices and mistrust would need to be overcome, but also negative stereotypes (Soclab, 2013), which play an important role in intercultural communication (Fiske, 1988).

The article addresses the issue of stereotypes and their significance, with particular emphasis on the role of national stereotypes. The potential impact of negative national stereotypes on the possibility of creating cross-border cooperation was investigated.

The study aimed to determine which of the selected negative features discourage entrepreneurs from cooperation and whether these features were present in respect to the nations: Belarusian, Lithuanian, Ukrainian and Russian. The research was a pilot study; the authors' questionnaire was filled in by two hundred entrepreneurs from Podlasie.

1. SIGNIFICANCE OF STEREOTYPES

W. Lippmann was first who noticed the significance of stereotypes and define the term as „mechanisms ensuring the economy of description and perception of phenomena” (Lippmann, 1965). According to Lippman, people cannot achieve full mental representation of the outside world due to its complexity and react to it using simplified images, which are their window to the outside world (Kurcz, 1994). Stereotypes can be seen as beliefs about the attributes and behaviors of members of a social group (Hilton & Hippel, 1996). However, due to the fact that stereotypes may also describe the differences between two or more groups, they can be seen in the context of beliefs about group differences (Biernat & Candall, 1996; Ford & Stangor, 1992; Martin, 1987).

Guided by stereotypes you assign the same features to all members of a group and save yourself the trouble of noticing a different personality in each individual (Allport, 1954). In the early literature on the subject, stereotypes were generally condemned as excessively negative, over-generalizing and not corresponding to reality. However, in the later theories a conclusion appeared that stereotypes should not be regarded as morally evil and the people who use them should not be pointed out with an accusing finger. According to the new approach stereotypes are equated with the characteristics attributed to a particular social group without their evaluation (Stephan & Stephan, 2007).

Literature on the subject provides hundreds of definitions of the term stereotype (Reszke, 1998; Spencer-Rodgers, 2001). Differences in perceptions are conditioned by, among others, the kind of scientific discipline which the author of the definition represents (Countant et al., 2001). Psychologists generally understand the stereotype as „a schematic image of the representatives of a particular social group” (Kofta & Sędek, 1999), which reflects the traditional approach to stereotypes in social psychology – stereotypes are treated as „generalization relating to a group in which identical characteristics

are assigned to all its members without any exceptions, regardless of the real differences between them” (Aronson et al., 1997). In socio-cultural approach stereotypes are defined as „a collection of information about social groups, widespread among the members of a particular culture” (Macrae et al., 1999). However, in common usage, stereotype is „functioning in social awareness, simplified, shortened and colored by assessment picture of reality referring to groups, individuals, institutions, fixed by multiple repetitions” (Smolski et al., 1999). For some time now stereotypes are treated as a kind of „cultural cliché” (Hill, 2004), reflecting well-established attitudes and prejudices with roots reaching deep into the collective subconscious and conducive to deepening inter-group animosities and conflicts with ethnic, racial or religious background (Gawarkiewicz, 2011).

Stereotypes arise as a result of the mindless adoption of opinions widespread in the environment. Because their content is always tinged with assessment and emotions, the stereotype may transmit both sympathy and approval, as well as prejudice, disapproval or antipathy (Smolski et al., 1999) and therefore constitute value judgements (Kotler et al., 1999). This is a kind of historical scheme, in large part created and repeated by the media, literature or events and based on the behavior of individuals so expressive that their characteristics are assigned to others (Macrae, 1991). The risk of reality perception through a prism of stereotypes is associated with the fact that they are also a tool for achieving growth in cognitive control over the social environment and that they reduce cognitive processes as far as to complete freedom from thinking (Łukaszewski & Weigl, 2001) – construct and constitute the social universum (Berger & Luckmann, 2010), because by assigning the same features to all members of the group you save yourself the trouble of perceiving different personality in each individual (Allport, 1954).

The main functions of stereotypes can include a cognitive function (expressed in the tendency to simplification and economization through selection and reducing information overload), adaptive (for quick orientation in the world, facilitating prediction of the other people behavior and selection of the most appropriate behavior), social (involving the defense and strengthening of the values accepted by a given community) and emotional (which implies a rationalization of hostile attitudes and aggression against different groups and justifying a higher sense of value and self-assessment of our own group) (Gawarkiewicz, 2011; Ruble & Zhang, 2013). The

functions enable (Budyta-Budzyńska, 2010):

- organization of the social world image – when certain categories are separated within the social reality, each encountered individual belonging to a particular category is perceived through the characteristics of this category (Tajfel, 1981; Tajfel & Turner, 1986),
- creation and preservation of one's image and our own group – by indicating negative characteristics of others we boost our self-esteem and justify our own status,
- rationalization of prejudice and excuse of discrimination – we do not like certain people because they belong to groups undeserving sympathy, viewed through a negative stereotype;
- determining the conditions of social balance – rules of discrete exclusion, acceptance and tolerance,
- creation and strengthening of national identity in the group – using national stereotypes of foreign groups, own national identity is built on the principle of the opposition.

The concept of national stereotype is closely linked with the image of the nation. Sometimes these terms are even used interchangeably, which is not correct because of their connotative and denotative scope. National stereotype is a narrower concept which relates to a set of personal attributes in semantic memory associated with the name of a nation (Gorbaniuk, 2009). National stereotypes can be defined as shared beliefs about the characteristics of a representative of a particular nation (Terracciano et al., 2005). Thinking about other nations most people would probably say that, for example, the Americans really cherish financial success, while for the Japanese - their attachment to tradition and social harmony are important and for the Scandinavians – honesty and modesty (Lönnqvist et al., 2012).

In the twentieth century, there was the view that national stereotypes, similar to gender (Swim, 1994), race (McCauley & Stitt, 1978; Ryan, 2002; Jussim, 2012) or age stereotypes (Costa et al., 2001; Chan et al., 2012) include a „grain of truth” (Allport, 1978/1954; Brigham, 1971), but recent results studies do not seem to confirm that (Terracciano et al., 2005; Lönnqvist et al., 2012; McCrae et al., 2013) and there is a view that the stereotypes related to perception of different nations do not reflect the real truth about these nations.

2. RESEARCH METHODS

The aim of the study was to determine whether the Podlasie entrepreneurs think about neighboring nations (Belarusian, Lithuanian, Ukrainian and Russian) in a stereotypical way (assigning them certain negative characteristic) and, if it affects in any way the decision about cooperation.

Quantitative research using a questionnaire was chosen due to the necessity to reach a large number of respondents (Babbie, 2005; Dyduch, 2011). The questionnaire was anonymous in order to obtain more sincere answers (Sztumski, 2010). The pilot study was carried-out on the turn of 2013 and 2014.

The main part focuses on the negative characteristics, potentially discouraging cooperation. 24 features were selected: backwardness, dishonesty, indiscipline, lack of self-confidence, lack of creativity, lack of perspective thinking, lack of innovativeness, excessive delay, impatience, poverty, greed, avarice, laziness, cunning, prone to theft, resort to violence, distrust, keeping promises, vindictiveness, falsity, hypocrisy, lack of communication, lack of standards of behavior and maladjustment to Polish standards of behavior. These features were extracted based on a critical analysis of the literature with particular emphasis on J. Błuszkowski's publication.

Respondents were asked to decide to what extent particular characteristic applied to the Russians, Belarusians, Lithuanians and Ukrainians (on a scale of 1 to 5, where 1 – strongly disagree, 2 – disagree, 3 – neither agree, nor disagree, 4 – agree, 5 – strongly agree). At the same time the respondents decided about the extent to which a particular feature is important to them when making decisions about business cooperation (on a scale of 1 to 5, where: 1 – negligible feature; 2 – unimportant feature; 3 – feature of the average importance; 4 – important feature; 5 – very important feature) and whether any of these features exclude cooperation with a supplier, customer or cooperator.

Tabular data presentation and descriptive statistics proved to be useful to analyze the results. Thanks to them the following was specified: how were the individual categories distributed in the research sample and what was the relation of the answers given to a specific variant to all of the answers.

3. CHARACTERISTICS OF THE RESEARCH SAMPLE

The research was carried out on a sample of 200 Podlasie companies. Random selection was used in the sample, a condition for participation in the study was to have the headquarters in the province of Podlasie. The vast majority of the studied companies belonged to the group of micro-enterprises, only slightly more than 1/3 of the enterprises employed more than 9 persons, as illustrated in figure 1.

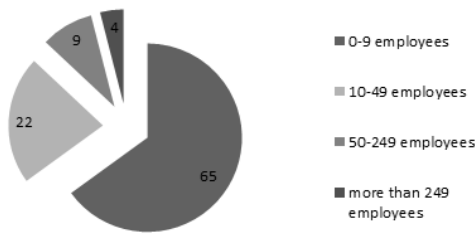


Fig. 1. Structure of the researched companies by number of employees [%]

Source: own study based on the research.

The period of company activity on the market, in the vast majority, exceeded five years, only a few companies were on the market less than a year, which is illustrated by Fig. 2.

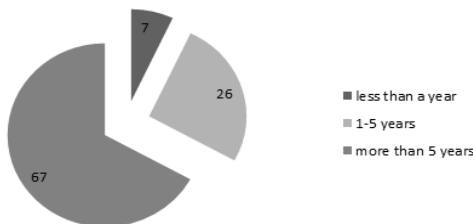


Fig. 2. The structure of the researched companies by the period of business activity on the market [%]

Source: own study based on the research.

The studied companies in a dominant part declared their business activity on the local market – 32%, but up to a quarter of the researched companies operated on the international market (Fig. 3), which is caused most likely by location of the Podlaskie region in close proximity to other countries.

The important issue from the point of view of the object of study was also cooperation with Lithuania, Ukraine, Belarus and Russia (past, current, and

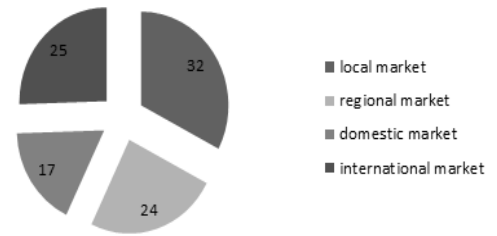


Fig. 3. The structure of the researched companies by the area of business activity [%]

Source: own study based on the research.

declared in a perspective of next 3 years), which is illustrated in Fig. 4.

Chart analysis leads to the conclusion that most companies (1/4) declared its cooperation with Ukraine and it is the only country where you can see a clear upward trend (however, it should be reminded that the survey was carried-out on the turn of the years 2013/2014, when Ukraine's situation in the international arena was different). For other countries, there was a slight decrease in co-operation with regard to the past, but at the same time declarations regarding future cooperation were optimistic taking into account all the neighboring countries.

When the continuity of the declared cooperation in the past, the present and the nearest future is analysed the greatest loyalty to Lithuania can be noticed. 22% of studied companies cooperated and cooperates with the Lithuanians and 23% work and intend to work with them in the future. For other countries, similar declarations were made by fewer respondents – the least of companies maintained continuity of cooperation with Ukraine, which is illustrated in Fig. 5.

4. ANALYSIS OF THE RESEARCH RESULTS

When the degree of importance of different characteristics significant to start business cooperation was analysed, it was noticed that the majority of them (54%) were considered to be of high importance (Tab. 1). The respondents considered very important the following characteristic: dishonesty, prone to theft, resort to violence, not keeping promises, vindictiveness, falsity and lack of communication, whereas important were: backwardness, lack of discipline, lack of perspective thinking, lack of innovativeness, greed, laziness, cunning and hypocrisy. Other characteristics were

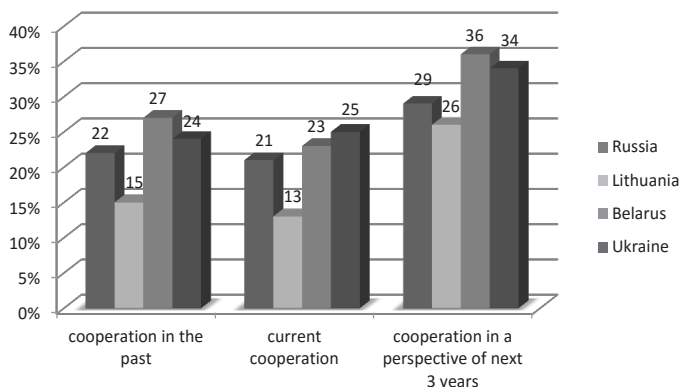


Fig. 4. Cooperation with Russia, Lithuania, Belarus and Ukraine in the past, now and in the nearest future [%]

Source: own study based on the research.

considered to be of moderate importance, none of them has been determined as unimportant or irrelevant when starting cooperation.

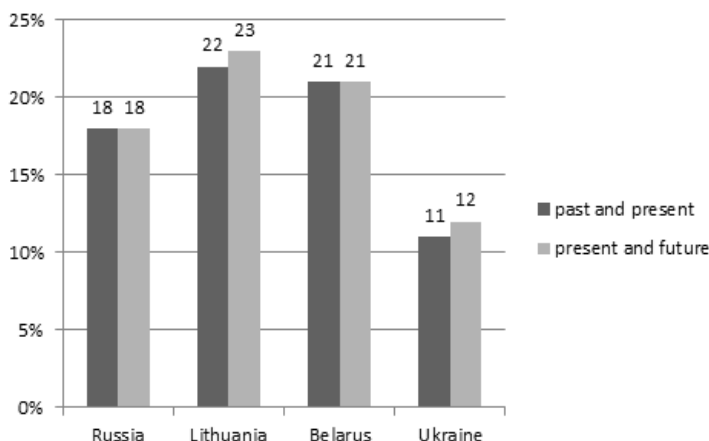


Fig 5. The percentage of respondents that maintain continuity of cooperation with Russia, Lithuania, Belarus and Ukraine [%]

Source: own study based on the research.

Respondents also declared whether the characteristic precludes starting any business cooperation (in regard to a supplier, a customer or a cooperator). Despite indicating many characteristics as essential when starting business cooperation, only a few have been identified as preventing cooperation. Two characteristics: dishonesty and prone to theft exclude cooperation in regard to a supplier, a customer and a cooperator; not keeping promises prevent starting cooperation with a supplier and a cooperator, but does not apply to cooperation with a client; while cunning makes it impossible to cooperate with a client. Other characteristics considered at least important in making decisions about cooperation did not determine its exclusion.

The survey also asked if the aforementioned traits characterise the neighboring nations. This is illustrated in table 2 (although it is worth noting that the table includes only those traits for which in at least one country the dominant answer was other than „neither agree nor disagree”).

Analysis of the respondents’ answers does not allow the conclusion that the studied entrepreneurs from Podlasie are guided by negative national stereotypes in relation to neighbouring countries. In respect to none of the characteristics, the analysis of indications shows that the trait definitely relates to any of the nations (also in respect to any of the traits definite disagreement was indicated). The majority of respondents marked the safest answer – „neither agree nor disagree”.

In relation to the Russians seven characteristics were negated, in relation to the Belarusians two traits, and for Lithuanians eight characteristics – it can therefore be concluded that the respondents had no negative associations with these nations. The biggest neutrality can be seen in the evaluation of the Ukrainian nation – the respondents could not agree with the presence or absence of any of the given characteristics.

It was also analyzed if there were differences in the perception of these nations through the lens of label traits – special attention was paid to the cooperation undertaken with individual countries, however, there was no difference observed in the dominant indications.

CONCLUSIONS

In the light of literature stereotypes play a considerable role in shaping attitudes, opinions and decision making. Because creation of cross-border cooperation seems to be important for the development of Podlaskie Province the subject of research was the attitude of Podlasie entrepreneurs to the neighboring nations – the study concerned the

Tab. 1. The degree of importance of different characteristics significant to start business cooperation (by analysis of the dominant responses)

MEDIUM	HIGH	VERY HIGH
lack of self-confidence	backwardness	resort to violence
lack of creativity	indiscipline	prone to theft
excessive delay	lack of innovativeness	dishonesty
impatience	lack of perspective thinking	not keeping promises
poverty	greed	vindictiveness
avarice	laziness	falsity
distrust	cunning	lack of communication
lack of standards of behavior	hypocrisy	
maladjustment to Polish standards of behavior		

Source: own study based on the research.

Tab. 2. The respondents' opinion about the Russians, Belarussians, Lithuanians and Ukrainians (by analysis of the dominant responses)

CHARACTERISTIC	RUSSIANS	BELARUSSIANS	LITHUANIANS	UKRAINIANS
backwardness	3	3	2	3
dishonesty	3	3	2	3
lack of discipline	2	2	2	3
lack of self-confidence	3	3	2	3
lack of creativity	2	3	2	3
lack of perspective thinking	2	3	2	3
lack of innovativeness	2	3	3	3
poverty	2	4	2	3
lack of communication	2	2	2	3
lack of standards of behaviour	2	3	2	3

Source: own study based on the research (1 – strongly disagree, 2 – disagree, 3 – neither agree, nor disagree, 4 – agree, 5 – strongly agree).

negative traits that the Poles attribute to their eastern neighbors, and whether these traits can influence decisions about cooperation.

The results of the study proved to be quite optimistic. Comparing the gathered opinions with the research carried out by Błuszkowski (2005), the opinions of Poles from Podlaskie Province on the perception of nations across the East borders are more neutral (according to Błuszkowski's researches). Referring to the traits which were studied in both cases, Błuszkowski's study showed that all four countries are perceived as poor and backward. In addition, the Russians, Belarusians and Ukrainians are seen as lazy and undisciplined, and the Russians and Ukrainians as dishonest.

The differences in perception can have various causes – primarily the presented research was merely a pilot study and the sample cannot be considered

representative, while Błuszkowski's research was carried out on a broader and more diverse sample, which is of great importance (Rogers & Wood, 2010), and the respondents were not only people who have (or may have) business contacts with representatives of the studied nations. In addition, over the years opinions of the Poles may have changed.

Another reason could be the reluctance of the respondents to disclose their true attitudes due to the fact that their task was to respond only to negative traits (it was done on purpose – because of the respondents' unwillingness to fill in extensive questionnaires the focus was on the negative traits which might reduce willingness to start (maintain) cooperation.

In conclusion, in the light of the pilot studies the stereotypes referring the perception of listed nations do not seem to be a major barrier in starting cross-

border cooperation, because although the respondents declared that the occurrence of specified traits is an important factor for them to start cooperation, they did not notice these traits in their Eastern neighbours.

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ANALYSIS OF CLUSTERIZATION AND NETWORKING PROCESSES IN DEVELOPING INTERMODAL TRANSPORTATION

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ABSTRACT

By analysing the processes of clusterization and networking, attention is drawn to the necessity of integration of railway transport into the intermodal or multimodal transport chain. One of the most widespread methods of combined transport is interoperability of railway and road transport. The objective is to create an uninterrupted transport chain in combining several modes of transport. The aim of this is to save energy resources, to form an effective, competitive, attractive to the client and safe and environmentally friendly transport system (Vasiliauskas, 2004). Under the modern conditions of globalization and integration into the European Union, the processes of networking are becoming increasingly more important, as perspective processes and the ones meeting the modern trends of development in various areas. In the context of intensive changes in the life of the society and business development processes, networking processes inevitably make influence on intermodal transportation. Therefore, the processes of clusterization, networking and integration have a significant impact on international economic area, including the development of a single social, scientific and technological advance, information and transport system.

KEY WORDS

Railway transport, clusterization, intermodal transportation, internationalization, networking processes, globalisation, con trailer

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INTRODUCTION

Under the conditions of modern social and economic development and technological advance, especially in the context of globalization, various networks are to be considered to be a very perspective and effective organization form (Melnikas, 2011).

With intensive processes of globalization, business environment is changing in the international arena, new specific needs of business entities are emerging with intensive development of economic ties in a different business and cultural environment. In

terms of developing intermodal transportation, there is a shortage of new approaches and decisions and application of new forms of organization for better coordination of the interests of business and intermodal transport. It is obvious that railway transport is traditionally more related to national railway networks and it is poorly developed in international arena and its operation is not coordinated due to the existing technical, organizational, technological obstacles among different regions of the world. These reasons preclude

the increase of the effectiveness of the intermodal transport operation, also becoming more competitive in organizing the transportation process on long distances. Therefore, it is important to analyse the processes of clusterization and networking as an alternative to the development of intermodal transportation.

1. THEORETIC ASPECTS OF CLUSTERIZATION AND NETWORKING PROCESSES

The processes of networking and network development in various areas of activities, including intermodal transportation, raise new challenges in global and international arena, including the European Union.

One of the networking processes by developing intermodal transportation is related to the theory of communication network, in which the importance of communication and exchange of knowledge between the suppliers and clients is emphasized. This communication network is made of companies which are engaged in the manufacturing of a product or service, dissemination and provision of it (Johanson & Mattsson, 1988).

According to the aforementioned theory, internationalization of the activity of a railway transport company means that the company is creating and developing its positions in the communication networks of foreign partners. This may be achieved in three possible ways: (1) by creating its positions in the communication networks of foreign partners – that is international expansion; (2) by expanding the positions and increasing the obligations in foreign networks in which the company already has its positions – that is penetration; (3) by increasing the coordination of the current positions in various communication networks abroad – that is international integration (Meyer, 2000; Coviello & Munro, 1997). Research shows that communication networks are especially important in developing international activity in Eastern Europe, first of all, in post-Soviet countries (Kapacev, 2008).

One of the main advantages of railway transport is related to the organization of transportation on long distances between large logistics and freight stocks in which large freight flows are transported and distributed, and their delivery to the final place of destination is organized. In this regard, it is expedient

to draw the attention to the fact that the interoperability of railway and road transport may be expressed in expanding contrailer transportation. Contrailer transportation is organized by carrying semi-trailers on specialized railway platforms between large logistics centers operating on a single railway network.

One of the forms of the development of communication networks which is to be attributed to the direction of internalization and collaboration are the processes of clusterization, which are not included into the theory of networks and it is relevant to intermodal transport.

According to the theories on communication network the development of the company largely depends on the positions it takes, therefore, in this case the process of internalization of the operation of the company is explained on the basis of the interoperability of the company and market (network) characteristics (Meyer et al., 2000).

In analysing the theories of networking and networks it is necessary to define the concept of railway networks.

The concept of railway networks is defined as the body of a state or part of its railway networks, lines and railway junctions, lines or branch lines (Juškaitė et al., 2006).

By analysing the literary resources about the causes of cluster creation one can state that it is expedient to implement the cluster initiative only where there are some problems in a certain sector of the market, which occurred due to limited collaboration that would be completed where certain subjects are connected into a cluster. The most frequent problems are: shortage of knowledge – market participants are short with knowledge about the opportunities of business development and collaboration in the market; shortage of communications – market participants have not made interrelations that would be useful in developing their activity and expanding into new markets; shortcoming of collaboration – there is a shortage of private business, science institutions and public authorities collaboration (which works in different directions, joint opportunities are not used).

These problems are related to railway transport. Despite the fact that railway networks have been developed, however, they are usually limited to physical connection of railway infrastructure and organizations of train traffic.

The clusters of companies, institutions, various organizations operating at international level, as

organizations of a network type, must be distinguished by certain characteristics (Melnikas, 2011).

One of the examples of clusters could be a single formation of railway, road transport and logistics service operator operating in a single system of information and international transportation and a single freight transportation market.

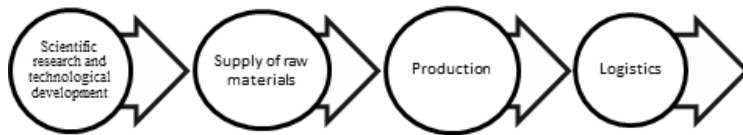


Fig. 1. A universal example of a value chain

Source: (Cluster study, 2012).

Jucevičius (2009) who has analysed the operation of clusters on an international scale singles out the role of a country in the formation of clusterization processes, which is often expressed by completing the functions of the main coordinator, which help coordinate the processes of the region or country, in which clusters are created.

Porter (1990) analysed the practice of operation of clusters in international trade networks and he draws attention to the contribution of the actions of the government, which are important in the creation of favourable conditions for business enterprises to operate both within the territory of their state by creating favourable conditions for business development, and in foreign countries by creating the conditions for business development having agreed with corresponding authorities of foreign countries on the conditions of development of business in them.

According to the conception of clusters of Porter, a number of scientists have developed their ideas in their works how cluster policy should be formed. For example, Dunning (1997) provides the list of measures of authorities that could help in developing a cluster. At the same time he also emphasizes the clusters are different, therefore, policy measures must be tailored to a concrete cluster.

Porter (1998) defines the conception of a cluster as a formation, in which companies of various sectors are intertwined, the activity of which is concentrated on concrete value chains from the areas, the participants of cluster direct their activities to which. According to Porter, one of the main conditions for the appearance of clusters and their efficiency is a value chain. In scientific resources this kind, universal value chain example is provided (Fig. 1).

Figure 1 depicts a value chain in the case of production, however, this value chain is also suitable for railway transport since it includes all the subjects participating in the transportation by railway process. Cluster management is one of the aspects, which are relevant in the creation of a railway transport cluster managed by a principle of a cluster (Jucevičius, 2009).

In terms of cluster guides, according to Jucevičius (2014), for management of clusters the usual management methods are not suitable since the networks of organizations and specialists are organized and operate according to other principles (Melnikas, 2011). Cluster management may have a variety of management centralization and decentralization and self-regulation forms. In this regard, centralization of railway and road transport sector activities and service provision processes and search for synergy processes may be relevant. Management focused on these processes could make conditions for the improvement of transportation services by connecting railway and road transport services into a single chain by organizing a continuous transportation process „From door to door”. Effective information and transportation process management in a single information and organization area may significantly improve the quality of transport services. To this end, solutions are necessary related to the search of proper organizational forms such as a cluster.

In analysing cluster management and its forms in the context of transportation services, attention should be drawn to the selection of an organizational form by evaluating the legal status, the nature of activity, functions, the conditions of administration (Jucevičius, 2014).

The following cluster management activity groups are singled out (Fig. 2).

Marketing and advertising must be implemented according to the objective of the cluster by equally advertising and introducing to the market all the services provided to the members of the cluster by revealing the uniqueness of the services of each of them, the quality and security. Training and qualification in the cluster are a very important element, which may ensure „growth” of all the members of the cluster on one level by using the same business organization methods, the same business and information exchange programmes, a single methodology of getting into the foreign markets and

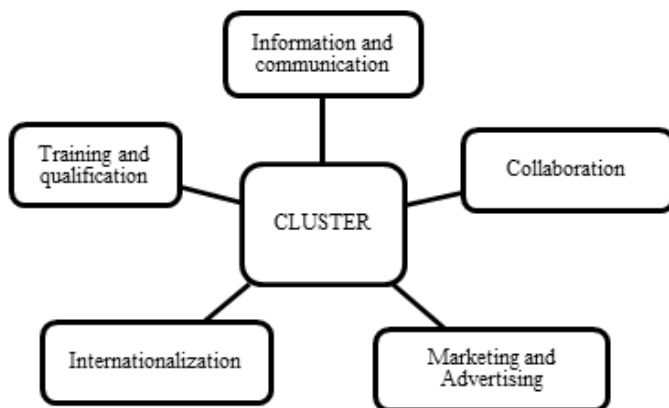


Fig. 2. The main groups of cluster management activities

Source: (Cluster guide, 2012).

by applying single solutions for them to become enshrined (Сыздыкбаева, 2014).

Appearance of intermodal transport clusters is important for individual regions. Appearance of this type of clusters may give significant competitive advantages for the transport sector of the region and it would create opportunities for growth of value added of the region by integrating into the global

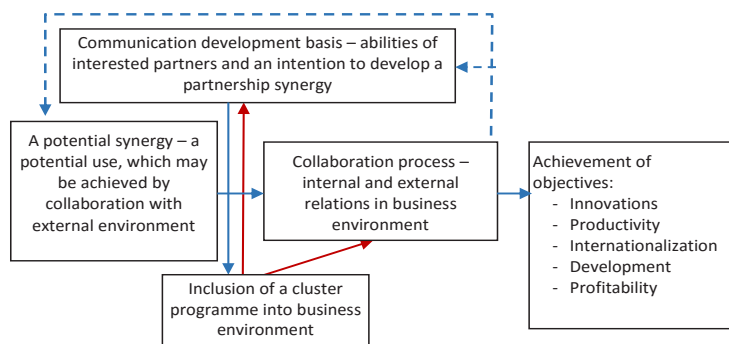


Fig. 3. Conceptual collaboration model based on a cluster ideology

Source: (The Miami..., 2012).

value added and economic activity networks and transport chains), (Элларян, <http://www.e-rej.ru>; Ellarian, 2014).

According to the analysis of the scientific literature, one can state the size of the formation of clusters must be decided by rationally selecting the interested business process participants that are interested in the formation of a cluster, by foreseeing strategic development and carrying out economic efficiency forecasts (Покофьева & Элларян, <http://www.e-rej.ru>).

Some scientists note that the existence of clusters is an especially relevant and perspective business

organization model for transit countries (Сыздыкбаева, 2014).

Figure 3 shows direct and constant relations between the subjects of the cluster, the relations that may appear in the long term perspective are pictured in dotted lines.

Another important aspect of collaboration is combining of resources (financial, mental, physical, etc.) The first aspect is innovations and international competitiveness – that of international (Cluster study, 2012). Improvement of competitiveness, relations between industry and science and appearance of new technologies. The second aspect is cluster growth – internal growth (for example, creation of new companies) and external growth (for example, new companies). The third element is the implementation of objectives – the level of implementation of objectives and meeting the deadlines, also the level of perception of activity initiatives.

One should note that the summary of clusterization and networking ideas and solutions allow making assumptions that these instead may have positive influence on the processes of development of intermodal transportation and may be expressed as an essential and very important factor in making business more active, by using the experience of the activities of new organizational forms.

2. THE IMPORTANCE OF DEVELOPMENT OF INTERMODAL TRANSPORT

Intermodal transport is defined as freight transportation by several modes of transport in a row from one mode of transport to another by reloading units of intermodal transport, but without overloading the very freights. Units of intermodal transport (UIT) are considered to be containers, semi-trailers of road transport or semi-trailers and the so called heating

tanks.

Intermodal transportation by roads. Railway transport has three main advantages as opposed to road transport:

- it is competitive on long distances due to its economy of scale by transporting a large amount of UIT,
- it may reach a high speed,
- traffic jams, accidents, air conditions have little influence on railway transport and this increases its reliability.

Railways do not ensure punctual delivery either, even though they have a fundamental advantage against road transport with regard to traffic jams, accidents and air conditions. In practice it is noted that it is only less punctual than road transport due to the organizational reasons of railways. On average, only 40-50% of intermodal freights are delivered at the time scheduled.

In the global arena it is expedient to analyse international transportation chains, which in the context of internalization processes are the most relevant today in case of railway transport. Therefore, in the case of intermodal transportation cooperation is very important between different modes of transport, allowing implementation of a smooth transportation process in international and global network between the supporting points of logistics and freight distribution (Iskalijev, 2015). Intermodal transportations are an effective instrument for achieving a maximum ration of transportation service effectiveness and price in combining the modes of transport one can achieve the best transportation service result in terms of the price and quality.

To find out the extent of influence of the mode of transport and the benefit that each of them produces, one should analyse their interoperability as intermodality. Rodrigue (2012) single out the following characteristics of intermodality:

- Flexibility of usage. By using an intermodal mode of transport one can transport the assortment of various goods and multimodal freights;
- Management. To serve the system between the consignor and consignee one person is enough since the freight is not divided, and this grants an opportunity to speed up and facilitate the implementation of the tasks of the process. IT technologies significantly facilitate tracking of the freight, provide an opportunity to use the transportation time to the maximum to forecast further actions;
- Economy of scale. The price of transportation of

the final product by transporting only by road transport, may reach 5-10%, and by using intermodal transportation mode this indicator may be minimized to 1.5%;

- The speed. Depending on the geographic location and the freight transported by using the advantages of various modes of transport, one can achieve maximum speed of freight transportation.

Fast intercontinental growth of trade has determined huge flows of freights. To achieve economy of scale, hub and spoke principle have been developed in freight transportation, freights are also transported between the main trade ports in very large quantities. This has determined the development of containerization, and that of intermodal transport.

The main container flows were formed from Asia to the West Coast of the USA and from Asia to the seaports of North Sea in Europe. Back flow of containers is nearly twice smaller. This kind of imbalance creates a problem of returning of empty containers. Effective grouping of freights and distribution is becoming decisive in the world, when the transition is to sending smaller parcels and individual orders.

This kind of transportation has been developed in the European Union. However, by evaluating the perspectives of freight transportation on long distances, one should look closer at the advantages of this mode of transport and suggest using it as an effective mode of transportation between the railway corridors between interim logistics terminals. It is expedient to organize contrailer transportation according to the principle of shutter train run, since it would produce an effect on the increase of freight delivery effectiveness with regard to the time and delivery to door (Sinkevičius & Jarašūnienė, 2015).

With intensive railway transport development processes in international arena, the most important railway transport areas play vital role, which mostly influence and are more intensively expressed. Those are intermodal transportation and logistics systems, in which railway transport sector plays an increasingly more significant role in serving the freight in international markets, as well as railway transport corridors connecting railway systems working in different regions in the world into a single system.

The role of railway transport in the system of intermodal transportation is determined by the level of integration of the railway transport into intermodal or transport chain. One of the most widespread modes of intermodal transport is the interoperability of railway and road transport. Its aim is to create an

uninterrupted transport chain by combining railway and road transport modes. In the context of development of intermodal transport services an essential role is played by the international transportation junctions integrated into transport corridors, in which large scale freight flow redistribution and reprocessing processes are emerging (Vasiliauskas, 2004).

In case of intermodal transportation cooperation between different modes of transport is very important, which allows implementation of a smooth transportation process in the international and global network between supporting logistics and freight distribution points. Intermodal transportation is an effective instrument to achieve maximum transportation service efficiency and price result in terms of price and quality (Rodrigue, 2012).

The carried out analysis of literary sources has revealed that it would be expedient to develop this mode of intermodal transportation on international railway corridors and this could be one of the elements of improving railway transport services and competitiveness. One can state that development of this mode of transport may be analysed in the implementation of intermodal transportation operating in the form of a cluster.

In development of intermodal transportation technology as an effective transportation instrument and a part of the integration process of the Lithuanian railways are shuttle trains.

In analysing the effectiveness of transportation by shuttle trains and management of the transportation process in different railway system areas, one should mention essential differences existing in each of the railway systems and precluding from producing the necessary results.

By implementing an integrated planning in the corridor highly effective running of the shuttle trains can be achieved. In other words, by making an integrated even distribution of the capacity of the entire corridor one can achieve a regular running of shuttle trains. This would provide railway transport a significant competitive advantages.

For analysing the use of shuttle trains for freight transportation, especially in the system of wide railway gauge, there is a shortage of academic sources, research works. According to practical experience it can be assumed that freight transportation by shuttle trains is not economically effective for railway companies or carriers, however, in terms of management, especially in the global context, in organizing multimodal business process by

transporting freights between large logistics terminals, such trains determine an essential advantage with regard to the quality, punctuality and client evaluation.

Under the conditions of modern globalization with international trade and intermodal transportation becoming more intensive in the global market, global freight flows are becoming apparent, which need to be managed, distributed, reoriented and accumulated (Игнатъева, 2008).

The principles of effective transportation organization provided make a „5 S” system (speed, service, price, safety, stability), which are the main elements for the creation of a logistics system working in a global area. The essence of this system is that it is based on the principles of standardized logistics activities by creating a synergy effect in the sectors of logistics and railway transport by having reached a maximum possible interoperability level (Iskaliiev, 2015).

Literary sources state that the most effective process of transportation by railways and a high quality coordination of logistics processes is achieved if it is controlled in a coordinated way, who analysed the evolution of the logistics processes and development in the global area, provides a conception of a unified management of the logistics sector (Пехтерев, 2011).

It should be noted that the principles of management of the logistics sector provided by (Пехтерев, 2011) is related to the management of a certain logistics segment and freight flows, including management of transportation processes in railway corridors and chains of logistics terminals. By ensuring a complex management of the transportation process in freight transportation route, a high level of transportation by railways may be achieved.

By evaluating the development of railway transport in the context of logistics systems in Lithuania, it should be mentioned that Lithuania needs radical decisions for ensuring a complex interoperability of logistics and railway transport. The main objectives of improving the interoperability should be focused on the fact how to improve the integral aspect of the Lithuanian railway transport sector into logistics chains, to create a single data processing and management system that would be able to process the freight flows moving in the global arena, to create mechanisms that would help to ensure a high level mobility of freights by using the potential of the Lithuanian logistics infrastructure and to create convenient junctions with railway transport

(Preparation..., 2011).

To summarize, it should be stated that the logistics system is important in the global arena in forming the decisions of the railway transport infrastructure and ensuring the development of the economic relations between large logistics and freight accumulation points of logistics terminals, by integrating the railway transport sector into global logistics, economic and transport communication networks. In the area of large scale logistics, an especially important element is the process of distribution of freight flow planning, which is based on consistent formation of freight flows, grouping and even distribution. This is also important for the distribution of the capacity, resources, throughput, etc. of transport services.

Another important area or object is the development of railway transport corridors in the context of railway transport expansion. Railway corridors are an effective instrument of transportation, information, technological processes, intermodal process management. Development of railway corridors suggest the need for creation of the necessary legal and technical conditions to substantiate their functioning and ensure the necessary level of competitiveness in the international transport system (Винокуров et al., 2009).

Railway corridors under the conditions of globalization and economic internalization have a role of the systems of transport junctions and freight flow movement arteries and are an element of integration of the global regions, connecting the markets and political systems. The system of railway corridors in the global arena has the function of connecting the logistics chains into a single system (Podberiozkina, 2015; Hibbs, 2003; Karrar, 2012).

One of the recent initiatives of the Russian Federation of recent years the development of the „Trans-Siberian Railway” by connecting the regions of Asia and Europe. Russia is intensively reinforcing the capacity of railway artery crossing the Russian territory and offers transit services (Бюлетень..., 2011; Brodin, 2002; Kissinger, 2009). According to academics, railway transport corridors are an effective tool for the restructurisation of the political and economic process worldwide. These processes are accompanied by the processes of trans-nationalization and integration (Лебедева, 2013). In this context, integration processes with focused orientation are formed in various regions of the world and supranational regulatory bodies emerge, which have got powers in the context of globalizations processes

and may change the global trends of economy, international trade (Косолапов, 2005).

The regulation on freight corridor provides for technological interfaces with other modes of transport, that is circumstances are foreseen for planning freight reloading onto other modes of transport and their delivery „to door”. High quality planning and ensuring compatibility is very important in aiming at greater railway transport attractiveness and reliability. These key elements usually determine clients’ decision in choosing the mode of transport (White paper, 2011).

To further improve management of the railway corridor, the European Commission has expressed an initiative to establish a single traffic control centre, which would control train traffic in the entire EU transport TEN-T network. Currently, an infrastructure managers’ platform has been established (CER, 2015).

The highest quality of the railway system interoperability is achieved when each of the railway companies participating in the corridor chain may provide a full spectrum of services, which makes the value chain of transportation by railways, which is usually applied in a continuous route. To ensure a high quality chain effectiveness, railway companies must coordinate their actions and decisions, to manage the transportation process and apply the planning methodology of the resource management joint actions.

Upon implementation of an integrated planning in the corridor, one may achieve a high degree of shuttle train operation effectiveness. By ensuring of an integrated even distribution of the capacity of the entire corridor, one can achieve a regular operation of trains. This would provide railway transport with competitive advantages (Gereffi & Fernandez-Stark, 2011).

CONCLUSIONS

The analysis of the academic resources has shown that one of the most evident links of railway and road transport services may be contrailer transportation in combining railway and road transport systems into a single transportation process. Contrailer transportation is economically efficient since to ensure this kind of transportation less material resources and time costs are needed.

To ensure the development of this mode of transport, state assistance is needed as well as

initiative of the private capital companies, agreement of the railway and road transport sectors on the division of activities and influence. For closer collaboration links to emerge, joint organizations measure are to be considered by connecting the railway and road transport service chain into a single system and to use the advantages of the organizational forms such as cluster in achieving a synergy effect allowing improvement of the quality of transportation service and organizing the provision of the service „From door to door” and to improve the effectiveness of the services by operating in a single information and organization area.

The most effective process of transportation by intermodal transport and coordination of high quality logistics processes is achieved when it is controlled in a coordinated way.

The logistics system is important in the global arena in forming the decisions of the railway transport infrastructure and ensuring the development of economic ties between large logistics and freight accumulation points. In the area of large scale logistics, the freight flow planning process is especially important, which is based on consistent formation of freight flows, grouping and even distribution. It is also important in distributing the capacity of transport service segment, resources, throughput, etc.

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