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CHAOS AS A CHALLENGE FOR MODERN MANAGEMENT

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Abstract: Management, which thrived as a science as a result of the economic and social development, became a field that effectively uses achievements of sciences that have been developing their methods and theories for ages, e.g. philosophy, strategy or exact sciences. In recent years, we have observed theories connected with exact sciences being transferred into management studies. One of such theories is chaos theory, which is visible in mathematics and physics. This paper presents general principles connected with using chaos theory in management. It presents basic definitions, such as chaos edge, time edge and rhythm of changes. It also systematises views and achievements of both foreign and Polish theories. While discussing the role and importance of this relatively new concept of management, the author tried to show its utilitarian character.

Keywords: chaos, management, chaos edge, theory, change, organisation in motion.

1 Introduction

At the beginning of the 21st century, management as a science faced numerous challenges brought by sudden changes taking place at all levels of the life of modern societies. This refers to the spheres of customs, social behaviour and systems, as well as changes in the economy, management. Many changes or attempts to create new, modern, theories were forced by the crisis, which significantly redefined the modern world. It has turned out that management, which for years had been improving its methods, especially those connected with planning, building a strategy and mission, failed to properly read the signals sent by the world economy which was heading for a crisis. It seems that today it is most difficult to build and plan, or create strategies which can be used for many years. It became clear that it was necessary to look for new paradigms of management, which will work well in uncertain, changeable situations, in times of crisis and chaos. In this context, based on chaos theory, the concept of an organisation on edge of chaos was created in the field of management studies.

This theory appeared in academic literature in 1990s. In Poland, it is propagated, among others, by R. Krupski and P. Nesterowicz. The aim of this paper is to present the basic terms and problems connected with chaos theory. It was perceived by representatives of management studies as an answer to current problems. Chaos is intended to help to overcome some difficulties, to create new quality of an organisation. It has become obvious that current market challenges can be risen to by an organisation that is changeable, in motion, open, where the structures, scopes of activities or competences have not been fully defined or established, which can seize emerging opportunities and take risk. In short, an organisation that is able to act on chaos edge.

2 Basic definitions and assumptions, representatives

The term chaos, introduced into the study of management, is intended to be, first and foremost, another element, step, maybe stage, to increase the effectiveness of an enterprise, or, more broadly, an organisation. In such a context, chaos and its role is addressed in management by S.A. Kauffman (Kauffman, S.A., 1993) – a man that is credited with the general interest of the study of management in chaos. According to Kauffman, balance, or ability to maintain appropriate balance between improvisation and enterprise on the one hand and strong, structured operation of an organisation (edge of chaos) is the source of maximum effectiveness, capability of making outstanding profits. This refers in particular to the functioning in conditions that are difficult, changeable, turbulent, impossible to determine and

define. Other authors that apart from S.A. Kaufman write about chaos in the context of management in similar way are: S.L. Brown and K.M. Eisenhardt (Brown, S.L., Eisenhardt, K.M., 1998), whereas in the area of Polish management studies this issue is addressed, among others, by: R. Krupski (Krupski, R., 1999; Krupski, R. (ed.), 2005), P. Nesterowicz (Nesterowicz, P., 2001) and J. Rokita (Rokita, J., 2005; Rokita, J., 2009). It is however not difficult to notice that this issue, though interesting and attractive from the perspective of science, has not been described in a sufficiently precise way and is still waiting for a complete and broad interpretation.

As already stressed, chaos is something unordered, where it is difficult to find rules, relations between specific elements. In this case, a system (organisation) is very sensitive to even small changes to the initial conditions, whose effects are difficult to predict, cause difficulties, and everything is functioning in the state of instability, where it is difficult to find cause and effect relations. So, the aspects of stability and instability are opposing and often described as negative and positive feedback (Thietart, R.A., Forgues, B., 1995). This coexistence of stability and instability, sometimes in specific proportions, is the basis for identification of a certain area that became known as edge of chaos. We can thus assume that there are three states: stability, instability and the intermediate state (on edge) – edge of chaos. Appropriate functioning in this area, balancing on this edge, being in constant motion, or dynamics, may be the key to the new way of the functioning of an organisation, a way to survive in the conditions of constant changes and to achieve important objectives such as: profitability, building permanent advantage, creating own brand and recognition.

3 Characterisation of an organisation operating on edge of chaos

Although one of the determinants of chaos is difficulty in defining, describing or planning anything, in the case of an organisation operating on edge of chaos an attempt was made to define principles according to which such an organisation should function. The most popular and most often cited model of this type is the model by S.L. Brown and K.M. Eisenhardt (Brown, S.L., Eisenhardt, K.M., 1998). The authors assumed that an organisation is continuously functioning in a changeable environment, and constantly has to respond to signals coming from its turbulent environment. Therefore, an organisation may function properly when it learns how to manage change, and accepts that such management of change is the central and most important challenge facing it and its managers. Thus, a strategy of operation and management should be oriented towards building such an organisation that will be able to effectively and constantly change. This means that objectives of such an organisation will be different than in the case of classical theories of strategically management. The theory uses the concept of semicoherent (i.e. flexible) objectives, which are not always logical, coherent or comprehensive. Rather, they constitute a loose set of unspecified or undefined plans and intentions that an organisation should implement. This lack of definition and precision of plans makes an organisation, and its structure, more flexible. Such an organisation is characterised by specific features (Brown S.L., Eisenhardt K.M., 1998), such as:

- unpredictability;
- limited control;
- short-term ineffectiveness;
- activity;
- continuity;
- diversification.

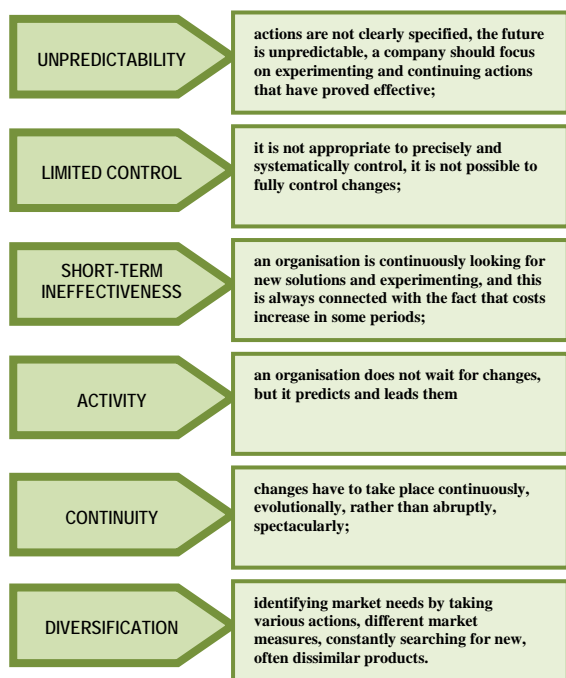


Fig. 1 Specific characteristics of an organisation
Source: own work.

A model of an organisation operating on edge of chaos consists of three categories (fig. 2.)

- chaos edge – an organisation has a structure, although it is not sufficiently ordered and stable to stop or limit the occurrence of changes, some structure must however exist,
- time edge – an organisation has to operate across various time horizons; right combination of experiences from the past, present and attempts to predict the future is an element guaranteeing success,
- rhythm of changes – in an organisation, changes should occur at certain intervals, not only as a reaction to events that appear.

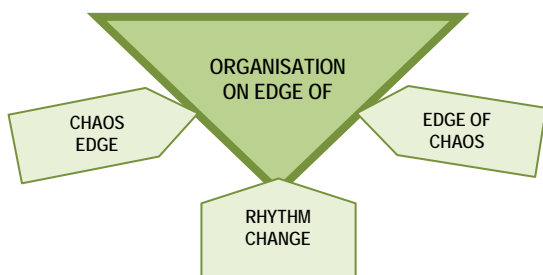


Fig. 2 Categories in the model of an organisation operating on edge
Source: own work.

An organisation that functions in accordance with the new principles is in opposition to the familiar and often tried-and-tested schemes of functioning. First of all, an organisation on edge of chaos resigns from rigid restrictions or rules and suddenly prefers breaking the existing order that has been built based on schemes. The organisational structure is not fully defined, and such an organisation is characterised by:

- unclear scopes of responsibilities,
- unspecified basic objectives of activity,
- undefined time needed to complete specific projects.

Further, communication in an organisation of this type focuses on instant, not very formal message where priority objectives

and tasks are not very precise or clearly formulated (Brown, S.L., Eisenhardt, K.M., 1998). It is thus rejection of what has been priority for a long time in the study of management, namely:

- solid, stable and identifiable organisational culture (everybody knew their place in the organisation and their responsibilities, considered himself an important part of this community),
- unchanging (even rigid) structure (specified, defined and described unchanging processes; established position, principles; the whole is fairly predictable),
- established, precise communication, clearly defined communication channels, informal communication is limited to a minimum.

Of course, the assumptions of the model developed by S.L. Brown and K.M. Eisenhardt can be perceived as insufficient or heading in the direction of too much freedom of all actions. Nevertheless, the issues of chaos, functioning on edge of chaos and challenges that organisations face as a result of that are also addressed in works of some (although not many) Polish theoreticians. P. Nestorowicz (Nestorowicz, P., 2001) argues that edge of chaos is a point between anarchy and stabilisation, a very important area where various options of development are created, organisational conceptions are born and a few variants or models are implemented at the same time. The model developed by P. Nestorowicz consists of four elements, i.e. mechanism of constructive confrontation, process of learning, open information system and organisational culture (fig. 3). In the mechanism of constructive confrontation, the existing actions, principles and methods are questioned. This mechanism is characterised by information disorder and readiness to take risk.

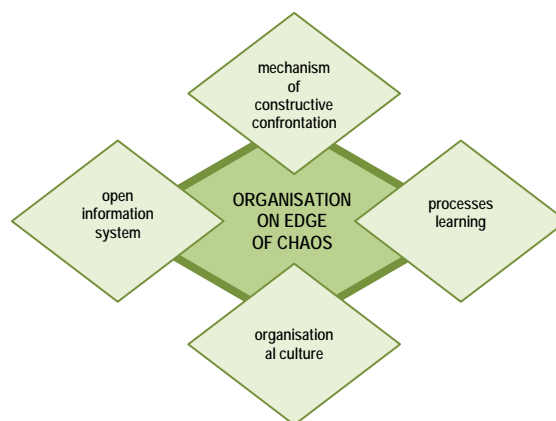


Fig. 3 Model of an organisation on edge of chaos according to P. Nestorowicz

Source: own study based on P. Nestorowicz, Organizacja na krawędzi chaosu, Wydawnictwo Profesjonalnej Szkoły Biznesu, Kraków 2001, p. 65.

Speaking about chaos, we usually think of something that is disordered, but also in constant motion, changing its place. Thus, the concept that we can relate to chaos theory is organisation in motion, which within the Polish theory of management is analysed by E. Masłyk (a.o. Masłyk E., 2003). Basically, the author started from the concept of organisational development, stressing that the concept of organisation in motion is the obvious response to unpredictable movements of the environment. This is also where we should seek the source of the potential of an organisation which, being in motion, change, can better adapt itself to changes and has greater potential ability to innovate and gain competitive edge (Skowron-Grabowska B., 2013).

In the Polish works, the problem of chaos is most intensely explored by R. Krupski (Krupski R., 1999; Krupski R. (ed.), 2005; R. Krupski, 2011, no 3). He stresses that when analysing this problem one should apply certain main categories of

strategic management, such as attractors, intermittency or bifurcation. In the theory and practice of management, attractors are life cycles of products, markets or an organisation. Thus, an attractor refers to certain courses of system behaviour, beginnings (different points) and ends of the courses. This is important in that each such course indicates the stage at which an organisation currently is, what potential next stages will be. Another category of chaos is bifurcation; in some points, so-called bifurcation points, a system (organisation) starts to behave in a different way, it develops new properties, becomes a different organism, so it may assume new roles and tasks, take up different challenges. Intermittency in management refers to possibility of identifying certain periods in which any regularities occur and periods where it is impossible to identify such regularities either in time or in space. This is important when creating predictions, developing plans.

R. Krupski highlights important features taken into account in the case of chaos and operation of an organisation on edge of chaos. He sees some paradox in the fact that suddenly chaos started to be related to management, as management is associated with order, and an organisation (enterprise) is usually perceived as an ordered system, i.e. anti-chaotic. However, taking advantage of emerging opportunities, involvement shown by people, which not always is planned or predictable, but creative – these factors may cause an organisation to change, develop, become flexible. Chaos may improve communication between employees, trigger partnership, capability of fast cooperation and the right links (Krupski, R., 1999). All this should serve one purpose, i.e. ensure that an organisation will increase its effectiveness, will make profit and gain competitive advantage that will last.

4 Future of an organisation in the context of chaos

Operating on edge of chaos involves resignation from the classical objectives of an organisation, i.e. survival and development, and assumption that nothing will be clearly and simply defined, nothing will be given forever. Organisations have to go away from what was the foundation of their existence: stabilisation, statics, relative predictability, durability of processes, established organisation, defined borders. Orientation towards chaos makes the following more important: unpredictability, „island” phenomena, individualisation, atomisation, closed systems, lack of borders (Perechuda, K., 2007). The decision to start to introduce chaos into the functioning of an organisation makes it necessary to go away from certain well-trying rules. It means the end of the stage of stability, of what is known and well-tested, even in the negative sense. The organisation and its members start their life almost from fresh, rejecting everything they have built and taken from others.

5 Conclusion

Any problems connected with introducing chaos theory into management are at the stage of analyses or experiments. This theory, first of all, attempts, in an unusual way, to solve the problem of increasing an organisation's effectiveness in a quickly changing environment. The times of relative stabilisation, established rules and long-term principles of acting have probably gone forever. It has become clear that the old classical views of theory or science are not in tune with the reality. It is thus to some extent logical that an attempt was made to take advantage of chaos theory, even if it is examined only from the perspective of theoretical or philosophical discussions. In the case of an organisation, it forces certain behaviour which may prove to be very important for its further functioning. A modern organisation has to be able to seize opportunities, properly assess market expectations, change its interests, and redefine earlier goals and priorities. Nothing in it should be constant or changeless. In short, it needs some chaos, a very difficult ability to function somewhere at the borderline between order and chaos, statics and dynamics, planning and spontaneity

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Primary Paper Section: A

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CONFIGURATION OF FLEXIBILITY OF LOGISTIC SERVICES

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Abstract: The phenomenon of modern logistics is caused among other things by the fact that it is treated as the epicentre of business transformation. In the difficult conditions of the 21st century, referred to as the century of uncertainty and hypercompetition, globalising economic systems have never been more in need of modern logistics. It is even said that the world economy sees logistics as the last chance to decrease production and marketing costs. In this situation, building key logistic competences is a necessary condition for enterprises to achieve competitive advantage, which largely determines their functioning and development. An important role in this process is played by a generally desired and accepted characteristic, i.e. flexibility. The aim of the paper is to identify and assess the functioning and development of an enterprise's logistics in the empirical aspect in the context of making it flexible.

Keywords: Logistics, logistic system, enterprise, flexibility.

1 Introduction

The pace of changes taking place in their environment forces enterprises to constantly adapt themselves to the conditions, otherwise they will lose on the increasingly competitive market. However, the increasingly changeable and dynamic market on which today's enterprises operate makes the existing adaptation methodology less and less effective. It becomes necessary to implement solutions that ensure more flexibility. Strong market competition in the global economy forces modern enterprises to search for new solutions, e.g. reducing business costs, increasing effectiveness and reaching a new target group. One of proactive mechanisms guaranteeing achievement of the objectives above is to optimise logistic processes and adjust them to the conditions of the economy.

A lot of changes should be also made in the supply area of logistic services, where development of new business solutions is one of innovative activities (more in: Lichtarski, J., 2003: 10-12). New requirements faced by enterprises providing logistic services force them to use new organisational solutions and implement modern technologies. Such enterprises have to invest in advanced IT systems and logistic infrastructure so that their efficiency and effectiveness at every stage of a supply chain could constantly increase. It is equally important to decrease the risk level in supply chains (Machowiak, W., 2012: 277-285) and develop good relations with customers, which are based on complete and efficient information exchange.

Given that flexibility is a generally desired and accepted feature, the paper is an attempt to answer the question of how this feature can be implemented. For that purpose, results of empirical studies on the scope and flexibility of logistic services were presented.

2 Flexibility of logistic services and increasing customer needs

The pace of changes taking place in their environment forces enterprises to constantly adapt themselves to the conditions, otherwise they will lose on the increasingly competitive market. However, the increasingly changeable and dynamic market on which today's enterprises operate makes the existing adaptation methodology less and less effective. It becomes necessary to implement solutions that ensure more flexibility. Strong market competition in the global economy forces modern enterprises to search for new solutions, e.g. reducing business costs, increasing effectiveness and reaching a new target group. One of proactive mechanisms guaranteeing achievement of the objectives above is to optimise logistic processes and adjust them to the conditions of the economy.

Enterprises operating on current markets are required to have an integrating approach to supply chain management, consisting in obtaining value for end customers and participants of the

management process (Romanowska, M., 2011: 16-20). In this sense, supply chain management starts earlier than distribution, because it is connected with purchasing appropriate production factors, efficiently changing them into finished products and shipping to destination points, i.e. ensuring transport. An even broader view of how supply chain is managed is to find out how the suppliers of a manufacturer obtain their factors of production. Formulation of a supply chain strategy helps to identify the best suppliers and distributors, and to support them in increasing efficiency, which reduces costs of an enterprise as the final result (Franc-Dąbrowska, J. 2014: 3507-3516).

It is worth noting that enterprises start to notice the necessity of responsible management of a supply chain, which is determined by a range of social and economic factors. As the latest research shows (Hofmann, E., 2014: 125-144), risk connected with supply chain management is the biggest global challenge for business, because in the face of a crisis enterprises cannot afford to fail to monitor and check work standards of their suppliers (Nogalski, B., Niewiadomski, P., 2013: 277-292).

In view of the above, it is important to note that a customer has a dominating role in a supply chain management. It is the customer that constitutes the most important link in a supply chain, and ensuring that customer service meets certain standards is the main goal of management, whereas the main objective of a supply chain that an enterprise should strive to achieve is to fully meet the customer's expectations. It is also important to pay attention to other, equally important areas connected with (Brzeziński, S., Brzozowska, A., Korombel, A., 2014: 28-30):

- time of the cycle of replenishing stocks (orders),
- availability of goods (stocks),
- limiting the size of an order,
- convenience of placing orders,
- delivery frequency,
- delivery reliability,
- documentation quality,
- complaint procedures,
- order completeness,
- technical support,
- information about the status of an order delivery.

The discussion above shows that transport plays a significant part in a supply chain. That's why we can see a constant development of transport services, which is connected with social development and the need for mobility and a change of the principles of a direct transaction between a seller and buyer, based on a model of a logistic service system, which comprises carriers, forwarders, companies providing warehousing services and other companies participating in the delivery process (Bräkling, E., Lux, J., Oidtmann, K., 2014: 25-122). Far reaching specialisation, and consequently market division in the area of production, contributes to the increase in the flow of loads. Demand for transport services is largely a consequence of development and integration in the area of international trade in technology and commodity. An important thing in the sphere of changes in the mentality of entrepreneurs is focus on the customer's needs, which involves elimination of transport-related nuisance and transfer of responsibility for these activities to a forwarder or logistic operator (Tarasewicz, R., 2013: 20-25).

A very important element in the market economy is also flexibility of a carrier's adaptation to the demand for transport services. Demand flexibility is intensity of reactions between a customer and consumer of a transport service to change of the price of this service, as well as reactions of a carrier to change of cash of this customer (Długosz, J., 2014: 49-60). Therefore, to fully maintain these relations, it is important to:

- provide a customer with higher quality services (products) on better sales terms,

- concentrate on the strengths of activity, avoiding at the same time dispersal across little known areas,
- develop well-known areas of activity to better use opportunities, and offer new solutions on an already captured market,
- systematically look for innovations and constantly improve the process of providing services,
- care about high quality to improve relations with customers, and at the same time increase the competitiveness level on the market.

Another issue is technical and organisational flexibility with respect to a customer's requirements (Jelonek, D., 2012: 175-184). One can say that demand for transport services depends on the one hand on the social and economic needs of a specific region, while on the other hand on a service availability to a customer, price, as well as quality, technological and organisational standards. Below are factors occurring within the enterprise of a service provider that facilitate or hinder the practice of provided services. The factors presented also show the potential of enterprises providing transport services (Skowron-Grabowska, B., 2014): 35-39):

- activity of an enterprise with respect to customers,
- a well-thought-out scope of the range of services,
- capability of allocating resources,
- use of the latest IT technologies,
- ability to learn from the best in the transport, forwarding and logistics industry.

The positive thing is the fact that all these factors facilitate the provision of transport services and have a strong influence on enterprises providing such services. These factors contribute to increasing awareness of organisational activities that lead to full satisfaction of the customer with the quality of services provided.

3 Configuration of the flexibility of logistic services - survey results

The questionnaire survey was carried out in enterprises located in Silesian Voivodeship in 2014. The subject of the survey was analysis of the current state of logistics and assessment of logistics in enterprises and directions of its development. The aim of the survey was to identify and assess the current state and directions of the development of an enterprise's logistics in the aspect of making it more flexible. 150 enterprises were examined to obtain study material. The enterprises were classified according to the criterion of size.

The distribution of participants of the survey by size is as follows: 37% of large enterprises, 42% of medium-sized enterprises, and 21% of small enterprises. The description of enterprises classified according to size is presented in figure 1.

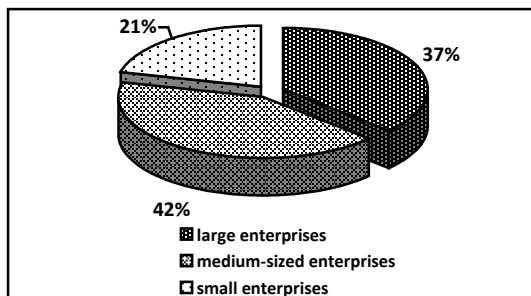


Fig. 1. Structure of surveyed enterprises by size
Source: Own work based on survey results.

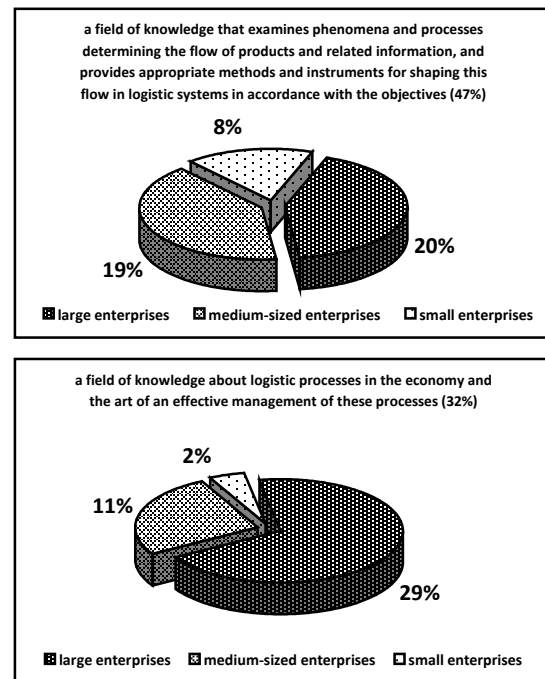
First, the survey checked how the term "logistics" is understood in selected enterprises. The following definitions were proposed:

- 1) a field of knowledge that examines phenomena and processes determining the flow of products and related

information, and provides appropriate methods and instruments for shaping this flow in logistic systems in accordance with the objectives (47% of enterprises, with 19% of medium-sized enterprises, 20% of large enterprises and 8% of small enterprises);

- 2) a field of knowledge about logistic processes in the economy and the art of an effective management of these processes (32% of enterprises, with 11% of medium-sized enterprises, 29% of large enterprises and 2% of small enterprises);
- 3) a term signifying management of transfer and storage operations designed to facilitate the flow of products from the places of origin to the places of final consumption, as well as related information, in order to offer the customer an appropriate level of service at reasonable costs (69% of enterprises, with 13% of small enterprises, 20% of medium-sized enterprises and 36% of large enterprises);
- 4) a process of planning, implementing and controlling an effective and efficient flow and storage of goods, services and appropriate information from the place of manufacture to the place of consumption in order to meet customers' requirements (49% of enterprises, with 11% of small enterprises, 17% of medium-sized enterprises and 21% of large enterprises);
- 5) a process of strategic management of procurement, storage and transport of materials, parts and finished products (along with appropriate documentation) within an enterprise and through its marketing channels, to ensure maximisation of current and future profits and most effective delivery of orders (37% of enterprises, with 14% of medium-sized ones, 19% of large ones and 4% of small ones).

Figure 2 shows how logistics is understood in the enterprises surveyed



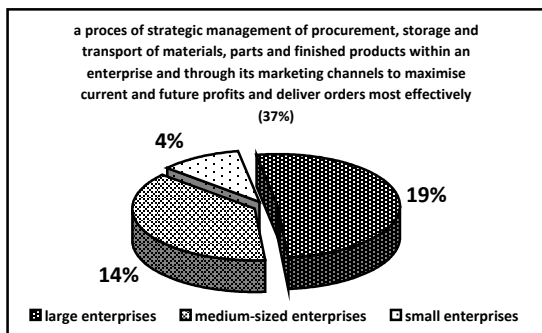
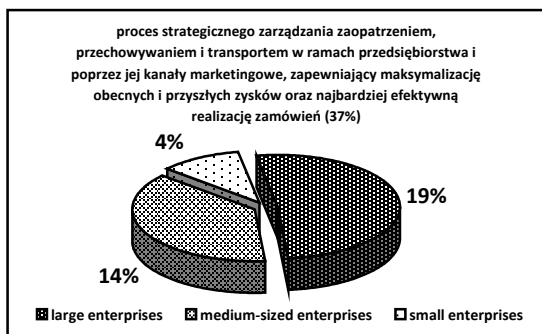
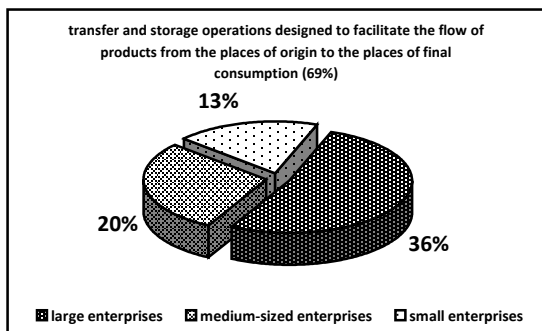


Fig. 2. Understanding of logistics in the enterprises analysed
Source: Own work based on survey results.

The information included in figure 2 shows that the understanding of logistics in the economic practice correlates with definitions of this term presented in academic literature (Pisz, I., Sęk, T., Zielecki, W., 2013).

Most medium-sized and large enterprises show very advanced understanding of this term, i.e. as a field of scientific knowledge, practical discipline, in the strategic and operational aspects. On the other hand, small enterprises understand logistics as a practical discipline in the operational dimension.

As the understanding of logistics is reflected in its orientation, an attempt was made to find out on what problems the logistics of the enterprises surveyed focuses. The answer to this question is - it focuses on:

- strategic and operational problems (56% of enterprises, with 2% of small ones, 23% of medium-sized ones and 31% of large ones),
- operational problems (21% of enterprises, with 13% of small ones, 7% of medium-sized ones and 1% of large ones). Orientation of logistics towards strategic and operational problems is presented in figure 3.

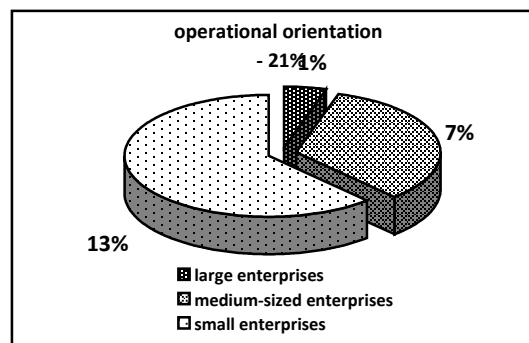
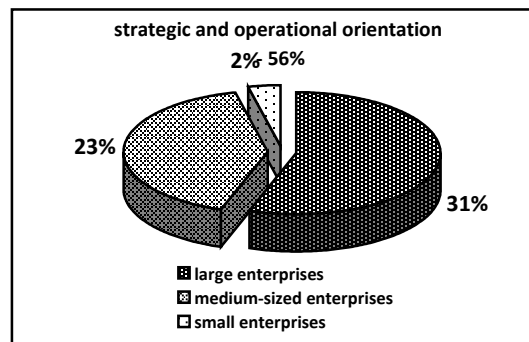


Fig. 3. Orientation of logistics in the enterprises surveyed
Source: Own work based on survey results.

Information in figure 3 shows that orientation of logistics is connected with the size of an enterprise, i.e. logistics of most medium-sized and large enterprises is oriented towards strategic and operational problems, whereas logistics of small enterprises is oriented towards operational problems.

Orientation of logistics towards only operational problems complies with the understanding of the term logistics, as enterprises do not define logistics in the strategic dimension. Orientation of logistics towards exclusively strategic problems was not declared by any of the enterprises surveyed.

Another aspect of the survey focused on subsystems in which logistics functions, namely:

- procurement (72% of enterprises, with 17% of small ones, 21% of medium-sized ones and 34% of large ones),
- production (59% of enterprises, with 12% of small ones, 21% of medium-sized ones and 26% of large ones),
- distribution (69% of enterprises, with 17% of small ones, 21% of medium-sized ones and 31% of large ones),
- reprocessing (31% of enterprises, with 7% of small ones, 11% of medium-sized ones and 13% of large ones).

Subsystems in which logistics operates are presented in figure 4.

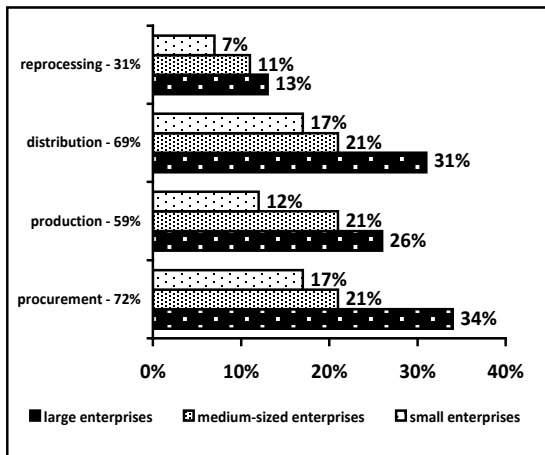


Fig. 4. Phase division of a logistic system in the enterprises surveyed
Source: Own work based on survey results.

Information presented in figure 4 shows that logistics is present mainly in the subsystems of procurement, production, distribution, and less in the reprocessing subsystem.

The functioning of logistics presented here constitutes basis for its assessment. The subject of the assessment of logistics in the enterprises surveyed were competences of logistics employees and existing solutions in the area of logistics.

Competences of logistics employees were assessed as:

- good (48% of enterprises, with 15% of small ones, 6% of medium-sized ones and 27% of large ones)
- very good (14% of enterprises, with 2% of medium-sized ones, 8% of large ones and 4% of small ones)
- sufficient (17% of enterprises, with 3% of small ones, 12% of medium-sized ones and 2% of large ones)
- insufficient (5% of enterprises, with 2% of medium-sized ones, 1% of small ones and 2% of large ones)

The assessment of the competences of logistics employees is presented in figure 5.

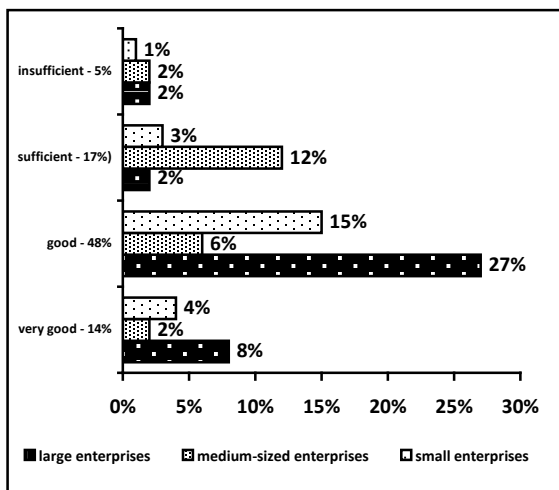


Fig. 5. Assessment of the competences of employees of a logistic system in the enterprises surveyed
Source: Own work based on survey results.

Another assessment shows that the existing solutions in the area of logistics are perceived as:

- good (62% of enterprises, with 17% of small ones, 19% of medium-sized ones and 26% of large ones),
- sufficient (7% of enterprises, with 2% of medium-sized ones, 4% of large ones and 1% of small ones),
- very good (8% of enterprises, with 5% of large ones, 2% of medium-sized ones and 1% of small ones),
- insufficient (1% of enterprises, with 1% of small ones).

The assessment of the existing solutions in the area of logistics is presented in figure 6.

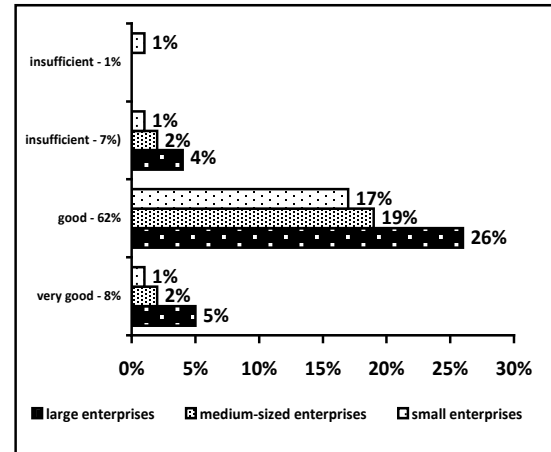


Fig. 6. Assessment of the existing solutions in the area of logistics in the enterprises surveyed
Source: Own work based on survey results.

An important issue are directions of the development of logistics of enterprises. An overwhelming majority of enterprises (67% of enterprises, with 7% of small ones, 28% of medium-sized ones and 32% of large ones) intend to make changes in the area of logistics. Only 15% of enterprises, with 5% of small ones and 10% of medium-sized ones, declare no willingness to make changes in the area of logistics.

The directions of the development of logistics are presented in figure 7.

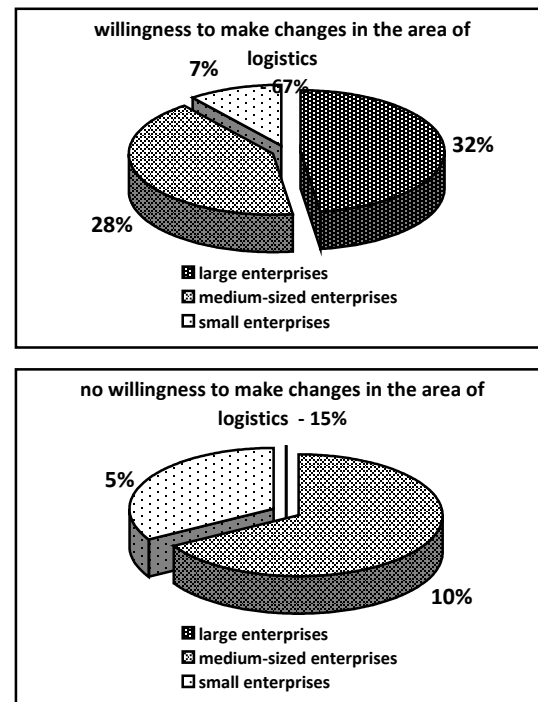


Fig. 7. Directions of the development of logistics in the enterprises surveyed
Source: Own work based on survey results.

Companies with very good and good solutions in the area of logistics are thus more willing to make changes in this area. On the other hand, enterprises whose logistics is assessed as sufficient or insufficient are less prone to implement changes which are necessary for their development.

Changes will be made in the following subsystems of logistic systems of enterprises:

- distribution: 45% of enterprises, with 4% of small ones, 18% of medium-sized ones and 23% of large ones,
- procurement: 31% of enterprises, with 4% of small ones, 11% of medium-sized ones and 16% of large ones,
- production: 24% of enterprises, with 8% of medium-sized ones and 16% of large ones,
- reprocessing: 6% of enterprises, with 2% of medium-sized ones and 4% of large ones.

The subsystems in which changes will be implemented are presented in figure 8.

Despite a positive assessment of logistics, the directions of the development of enterprises assume introduction of changes in this area. Changes will be implemented mainly in the area of the distribution subsystem. In some enterprises, the subsystems of procurement and production will be the areas subject to implementation of changes. Changes in the reprocessing subsystem are part of development directions of relatively few enterprises.

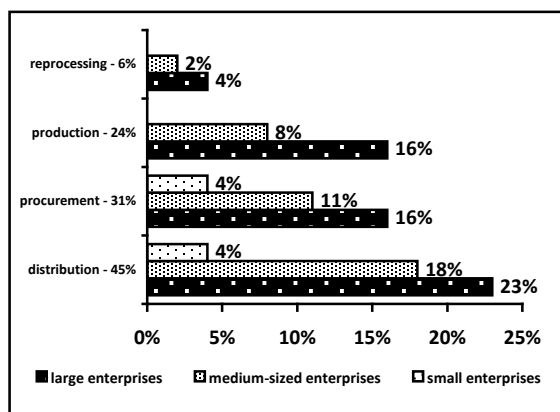


Fig. 8. Subsystems of changes in the enterprises surveyed
Source: Own work based on survey results.

The subject of the survey were also factors constituting the basic source of competitive advantage of an enterprise and its product, as presented in figure 9.

- Fast and flexible acting: 97% of enterprises, with 20% of small ones, 28% of medium-sized ones and 49% of large ones,
- product availability: 69% of enterprises, with 14% of small ones, 10% of medium-sized ones and 45% of large ones,
- High quality of products: 72% of enterprises, with 15% of small ones, 29% of medium-sized ones and 28% of large ones,
- Low price of a product: 95% of enterprises, with 17% of small ones, 31% of medium-sized ones and 47% of large ones,
- Goodwill and product brand: 79% of enterprises, with 12% of small ones, 41% of medium-sized ones and 26% of large ones,
- Adjustment of sales network and system: 83% of enterprises, with 14% of small ones, 28% of medium-sized ones and 41% of large ones,
- Modern and attractive product: 87% of enterprises, with 19% of small ones, 31% of medium-sized ones and 37% of large ones.

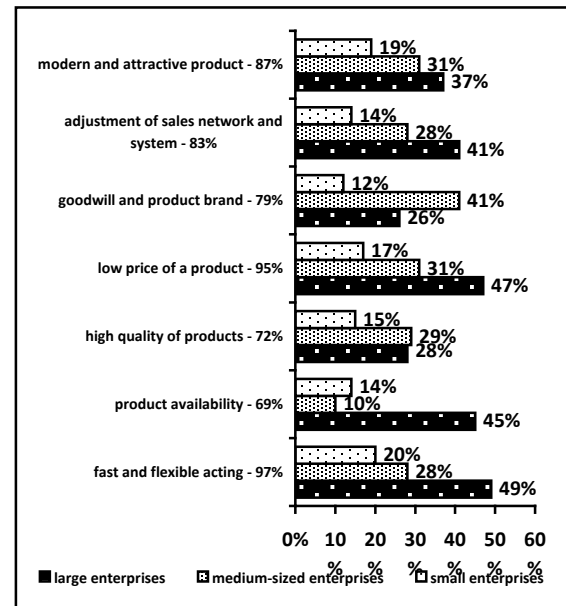


Fig. 9. Factors of competitiveness in the enterprises surveyed
Source: Own work based on survey results.

The above-mentioned factors of product competitiveness indicate an important role of supply chain management, determining appropriate speed and flexibility of activity, product availability, quality of used materials, adjustment of sales network, and cost management in a complete supply chain, which allows an enterprise to dictate low prices of a product on the target market. Analysis of the above presented factors of competitive advantage confirms invariability of two fundamental directions in achieving a competitive position of a product on the market, i.e. achieving cost leadership or product differentiation with respect to other players on the market. Achieving the effect of competitive advantage through cost leadership, enterprises use low prices thanks to cost minimisation in a supply chain and an acceptable level of customer service. This is usually an effect of selling large quantities of products, for which logistic systems and supply chains are designed taking into account capacity of large quantities of goods, using economies of scale with possible low costs (Nowakowska-Grunt, J., 2011: 291-300).

4 Summary

Modern logistics is becoming an increasingly effective instrument for business management. It enables cost reduction, accelerates trade in goods and financial flows, allows new jobs to be created, and makes it possible to save on spendings connected with traditional production and distribution of goods.

The results of empirical studies on the functioning and development of logistics of enterprises in terms of making it more flexible, as presented in this paper, show that logistics functions both at the strategic and operational levels. Strategic and operational dimensions of logistics are characteristic of medium-sized and large enterprises. Logistics in the operational dimension is characteristic of small enterprises and correlates with the understanding of this term.

A phase division of logistic systems of enterprises mainly includes the subsystems of procurement, production and distribution. Logistic systems of the selected enterprises also take into account the subsystem of reprocessing.

Assessment of the functioning of logistics viewed through employees' competences shows that small, medium-sized and large enterprises evaluate such competences as good. Few enterprises evaluate employees' competences as very good. Similar tendencies are seen in the case of sufficient competences

and refer to few enterprises. Insufficient competences occur in a very small number of medium-sized enterprises.

Existing solutions in the area of logistics are good. Few enterprises assess the existing solutions in the area of logistics as sufficient or very good. A very small group of small enterprises gave logistics a fail.

The empirical studies show that we can observe redefinition of certain concepts and tasks in the area of logistics, which nowadays has to face constant changes and influences of the environment. Most actions and decisions are taken in the conditions of uncertainty and hard to predict behaviour. In order to survive on the market and be competitive in the long run, modern logistics should be characterised by innovativeness, creativity as well as ability and easiness to make changes, which is associated, or even equated, with flexibility.

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Primary Paper Section: A

Secondary Paper Section: AE

THE HUMAN FACTOR AS ONE OF ELEMENTS OF MANAGING THE COLLEGE

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Abstract: They notice that the human factor is a store enabling to increase not only economic, financial capital (as regards private colleges) but it is also possible to consider him in the category of the value (private and state colleges). Moving closer the subject matter concerning the forming of the human factor at the college on such principles is a purpose of the article so that he is prepared for action on the strict and ruthless labor market. In the article a speech not only about students as stakeholders of education services but also employees of this peculiar organization is oriented on the education. And so managing the college in the context of the human factor as one from main elements are being given her to be very essential.

Key words: human factor elements of university management, human capital development, determinants of competitiveness, competitive labor market

1 Introduction

Educating the society should be a priority in action of the state, with vested interest of every country, rather than personal matter of the human individual. The costs of this training should be borne by the State and treat them as an investment in economic development.¹ Human capital is a resource that is the source of human capacity, and thus the earnings, as well as in the immediate satisfaction resulting from the expansion of horizons, greater ability to perceive and make choices. A person can't be separated from each capital, regardless of the type of activity that leads.² A state should incur costs of this education and to treat them as investments in the economic development. The human capital is a store which is the source of the ability of the man, but because of that and up to earnings, as well as also in the direct satisfaction of the possibility resulting from expanding the limits of its mental abilities, bigger of perceiving and making of choices. The person cannot separate capital from itself, irrespective of the kind of activity, is leading which. A major role in this respect plays a college. Determines the quality and quantity of opportunities and run the country. On the development of the country is also influenced by the efficiency and effectiveness of the various areas and sectors of the economy. Advantage in this respect is the private sector is not always willing to carry out functions of the state, because it is geared mainly to maximize their results. Therefore, most of the tasks that directly or indirectly affect the formation of human capital in the country, is done in the public sector or regulated by the state. It follows that the State by activities in various sectors of the economy has a decisive influence on the level and development of human capital in the country, the capital is also preparing for the private sector.³ Thus, it is clear that it is the State (as the external environment) acts directly on higher education, on his system.

2 Elements of managing the college

The literature indicates that human capital has an impact on nearly all aspects of a country's social and economic life. Nothing happens without the involvement of humans, so the economy's capability of generating scientific and technical progress and effectively utilizing all resources is dependent on the human factor. Capital-generating elements are also used as measures of the level of the country's regional development. The most important areas of impact of this capital include: economic growth, (innovation in the economy and society, capability of assimilating and implementing global achievements in various fields, labor market), international division of labor, institutional transformations, modernization of state structures, as well as

propagation of modern models of consumption and citizens' quality of life, and creation of modern infrastructure.⁴

- In the management process, human capital can be approached from the individual and organizational dimensions. This distinction is purposeful because of the different structure and factors determining the value of human capital in these approaches. "The human capital of an individual is: knowledge, skills, attitudes, goals, motivations, and ethical norms, as well as the resource of health and vital energy".⁵ Human capital in the individual dimension is made up of factors such as:⁶
 - knowledge and skills;
 - learning capabilities: talents, imagination, creativity;
 - attitudes and qualities brought to work, which comprise, among others: intelligence, entrepreneurship, involvement;
 - motivation to share knowledge, cooperation skills, and orientation towards goals;
 - health condition and psychophysical condition.

The model of the structure of human capital in the organizational dimension, called the "4K" model, contains the following components:⁷

- competencies, that is knowledge, skills, talents, physical condition, styles of action, personality, professed principles, interests, and other qualities that, when used and developed in the process of work, lead to the achievement of results that are compliant with an organization's strategic objectives;
- interpersonal contacts, including interpersonal relations and the system of communication and information in a company;
- organizational culture, or the informal system of thought patterns and procedure within an organization;
- organizational climate, that is the climate in an organization that is subjectively sensed by employees, dependent on the individual personal qualities of employees and conditions within the organization".

The components of an organization's human capital enter into interactions with one another in the value creation process. This is why this capital is formed as an effect of the mutual dependencies and relationships of the aforementioned components.⁸

A series of factors, conditions, as well as the actions and decisions of government institutions, employers, and society as a whole, have an impact on the quality of capital on the scale of the entire economy. Most of them have the nature of direct or indirect, immediate and long-term investments. The most important among them include:⁹

1. Quality of education within the framework of the existing system of public and private education. Higher education plays a particularly important role, because an increase of the resources of this capital is linked to the supply of specialists answering the needs of the economy (maladjustment to needs reduces the effectiveness of this capital, and in the case of the unemployment of certain graduates, it even causes waste of capital). There is a strong relationship between investments in capital and the socioeconomic transformations taking place in the country, and this fosters absorption by the economy of modern technologies and solutions, accelerating its growth. The

¹G. Wronowska, *Koncepcja kapitału ludzkiego - ujęcie historyczne*, Wydawnictwo Katedry Mikroekonomii Uniwersytetu szczecińskiego, Szczecin 2005, s. 124

²K. Piotrkowski (red. nauk.), *Zarządzanie potencjałem ludzkim w organizacji XXI wieku*, Wojskowa Akademia Techniczna, Warszawa 2006, s. 56

³Z. Czajka, *Gospodarowanie kapitałem ludzkim*, Wydawnictwo Uniwersytetu w Białymstoku, Białystok 2011, s. 30-35

⁴Z. Czajka, *Gospodarowanie kapitałem...*, op. cit., s. 49

⁵M. Juchnowicz (red. nauk.), *Zarządzanie kapitałem ludzkim procesy, narzędzia, aplikacje*, Wydawnictwo PWE, Warszawa 2014, s. 34

⁶j. w., s. 35

⁷j. w., s. 36

⁸j. w., s. 37

⁹Czajka Z., *Gospodarowanie kapitałem...*, op. cit., s. 43-46

availability of education at the secondary and higher levels is also important.

2. Raising of professional qualifications, which includes further education at various levels in schools as well as in non-school forms, such as: post-graduate studies, courses and seminars, internships and professional training. An employee may take advantage of these forms under the employer's initiative or their own initiative. By means of legal regulations, the government may mobilize employers to provide employees with the means for professional improvement (labor code, ordinance of the minister of labor and education) and to guarantee facilities in education for employees (leave, vacations), and it may also support training financed by EU funds, e.g. PHARE, EFS. Improvement of workers figures among the basic obligations of an employer provided for in the labor code. The employer should direct employees to training, grant leave during training, and cover the costs of training if training is compliant with the company's needs. An employee may not refuse participation in such training.
3. Incentives to develop capital and its optimal utilization should be present at the level of the economy as a whole as well as in organizations. The government should outline incentivization concepts by managing salaries in the scope of the budget, determining compensation strategies linked to the growth strategy, and modernizing the economy.
4. Emigration of human capital. It is generally assumed that emigration reduces the level of capital in the native country and increases capital in the host country. Expenses from the national budget for educating these persons do not bring benefits, only losses, because educated employees, unable to find work in their profession, leave the country. This is why the government should undertake various measures limiting emigration, particularly long-term emigration. While the consequences of emigration are most often negative from the perspective of the government, they are positive from the perspective of workers, who have access to a wider range of job offers and the opportunity to gain higher income.
5. Family input in the development of the young generation. Supporting the family in its functions should be treated as an investment in human capital with an effect on its quality, particularly under conditions in Poland, where education is underfunded by the government. The creation and development of human capital is related to the realization of individual functions of the family - upbringing, procreative, emotional, and guardianship functions. The family provides resources for the achievement of objectives related to upbringing and satisfaction of educational and cultural needs related to child development. Even at a low income level, the needs of children, mainly educational, are satisfied first. Education that develops human capital is not only school education, but also extracurricular activities that develop interest, skills, and talents. Due to additional costs, not all children take advantage of them. Furthermore, the family shapes the personalities of children and their aspirations in life to a great extent, imprinting them with a specific value system, which has an effect on pro-effectiveness attitudes and on the attitude of future employees towards work and involvement in the country's development. The size of families may also have an impact on the quality of capital. In general, a smaller number of children translates to better education. The family also has an impact on the quality of capital in adults. Family strategies with the purpose of combining family roles with professional roles, are also decisive to the possibilities and forms of multiplying this capital. Thus, expenses for development of capital should be supplemented with time devoted by the family to various activities related to raising the quality of this capital.¹⁰
6. The value systems preferred by the state, family, and other institutions, such as school or church, as well as by the mass media, have a favorable effect on pro-social attitudes and

pro-effectiveness attitudes in society. The shaping of civic attitudes, respect for honest work, and responsibility for one's actions have a direct and indirect effect on the quality of human capital.¹¹

7. Changes in the structure of human capital caused by aging of society and obsolescence of knowledge. For many years, due to low population growth, the slow process of aging of the population has been taking place in Europe. The human capital consumed biologically, by aging, is, in truth, generally renewed at a higher level, because successive generations are characterized by a greater percentage of persons with secondary and higher education, but unfavorable tendencies are exacerbated in the long term. The percentage of older employees grows, and, with the exception of certain professions, they are generally less creative than young employees. However, moral obsolescence caused by progress and changes in management methods is also unfavorable and accelerates the need to systematically supplement knowledge. Until recently, the knowledge gained over the course of higher education was sufficient, in many fields, for a long period of professional activity, but now, it must be supplemented in the form of self-education or post-graduate studies, often after several years.¹²

It is also important to predict economic trends and manage economic change. In relation to this, the development of the adaptive potential of enterprises, through support for small companies in the scope of their adaptivity, investments in professional improvement of human resources, improvement of the quality of employment, and support of knowledge transfer in companies, is very important. In the scope of education, it is planned to develop the educational system throughout the entire life of an individual and to ensure a high quality of education at all of its levels, adapted to the needs of the labor market. Modernization of the educational system, with the purpose of adapting the educational offer to the needs of the knowledge-based economy and the requirements of the labor market, assumes actions oriented towards equalizing educational opportunities and promoting lifelong education, including distance education, and supporting the educational system through research and analytical activities. Within the framework of this Operational Programme, it is planned to ensure the resources for creating conditions for the development of schools of higher learning and academic centers.¹³ The objective of HCOP is also to strengthen the capacity of Polish administration to fulfill the public mission in a modern way, in partnership with society, and to create conditions for the development of the institution of a civic society actively involved in public affairs. Projects with the purpose of building an efficient and partnership-oriented government will be realized within the framework of the programme, including by raising the competencies of government employees and officials in the justice system, implementing modern management, and developing the cooperation of public administration with socioeconomic partners.¹⁴ The priorities of the Human Capital Operational Programme include, among others:¹⁵

1. Employment and social integration.
2. Development of human resources and adaptive potential of enterprises, as well as improvement of the health condition of the working population.
3. High quality of the educational system.
4. Higher education and science.
5. Good management.
6. A labor market open to all.
7. Promotion of social integration.
8. Regional human resources for the economy.
9. Development of education and competencies in regions.
10. Technical support.

¹¹ Z. Czajka, *Gospodarowanie kapitałem...*, op. cit., s. 47

¹² j. w., s. 48

¹³ j. w., s. 32

¹⁴ j. w., s. 33

¹⁵ K. Michałek, B. Master, *Jak Fundusze Europejskie zmieniają Polskę. Scenariusze zajęć*, Katowice 2009, s. 32

¹⁰ K. Piotrkowski (red. nauk.) *Zarządzanie potencjałem ludzkim w organizacji XXI wieku*, Wojskowa Akademia Techniczna, Warszawa 2006, s. 19

The primary objective of the programme is to increase employment and social cohesion, and the realization of six strategic objectives will contribute to its achievement, including:¹⁶

1. Increasing the level of professional activity and the capacity to employ the unemployed and professionally passive.
 2. Improvement of the adaptive capabilities of employees and changes in the face of the changes occurring in the economy.
 3. Reduction of areas of social exclusion.
 4. Propagation of learning in society at every level of education, with simultaneous improvement of the quality of educational services and creating stronger ties between education and the needs of the knowledge-based economy.
 5. Increasing the potential of the public administration to develop policies and render high quality services as well as reinforcing partnership mechanisms.
 6. Growth of territorial cohesion.
- HCOP provides for the realization of projects in two modes - systemic and competition. In the systemic mode, projects will be realized by beneficiaries indicated by name in the programme or in additional documents providing specifications for the programme. In competition mode, projects can be realized by all entities, including:¹⁷
 - labor market institutions;
 - units of government administration and local government;
 - training institutions;
 - institutions in the business environment;
 - enterprises;
 - non-governmental organizations;
 - institutions of the school system and higher education system;
 - other entities.

Summary

In summary recognize the fact that the education of students in universities in Poland should include in their curricula such training to meet the needs, demands and needs of employers in the labor market. According to the Law on Higher Education Council of Higher Education defines the list of official names of fields of study available in Polish universities. Council of Higher Education also sets the minimum software requirements for each field of study called "minima programming." Determine the minimum curriculum required for the direction of objects, their duration (in hours, weeks) and overall program graduate competence profile and possible competition, in the direction which it is educated. It is hoped that the cooperation of the state with universities in Poland, a well - educated workforce results in graduates of many companies, indicating the labor market their skills and knowledge.

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¹⁶ A. Szymańska, *Fundusze unijne i europejskie 2007-2013 dla samorządu terytorialnego*, Wydawnictwo PLACET, Warszawa 2008, s. 30

¹⁷ j. w., s. 30-31

THE ROLE OF THRUST IN KNOWLEDGE MANAGEMENT ORGANIZATION

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Abstract: Organizations operating knowledge properly understand what's the source of their success. Knowledge management in business is related to the creation, dissemination and use of knowledge for the organization's competitive advantage. To be able to effectively use the knowledge, it is necessary to meet the basic condition involving the building of trust. Therefore, it should be noted that trust is an important factor for the efficient flow of knowledge.

In this article, the author focuses on the role of trust in knowledge management in contemporary organizations.

Keywords: trust, organization, knowledge management

Introduction

In a knowledge-based organization is particularly important to trust, because it is scarce and extremely valuable in the management of the organization. It is worth examining the role of trust in knowledge management due to the fact that it can be for the organization provides practical benefits. From the point of view of the organization of the trust is an intangible asset affecting maximize its economic value, as it helps to improve the efficiency of the system and produce more goods and this leads to achieve profitability.

The purpose of this article is to present the role of trust in knowledge management organization based on the review of the literature in the field of management.

1 Trust in knowledge management

In the subject literature, trust is interpreted in many ways. W. Grudzewski, A. Sankowska, M. Wańtuchowicz direct attention to several approaches to defining this concept. This, it can be accepted that trust is¹:

- a disposition, and this a mental approach of a subjective nature towards another person,
- a decision that can be relied upon, which causes the trusting person to remain dependent on a second party,
- a behavior that results from entrusting something to another person.

In the workplace, a state of trust where there is a common conviction of the mutual reliability of subordinates and management staff, as well as acceptance of attitudes and decisions, which results from such conviction, is desired. Agreement occurring in any relations within an organization has an effect on achievement of benefits in business as a result of trust².

It turns out that the factor conditioning the flow of knowledge in an organization is trust. It is the basic element based on which the learning process can take place successfully. Many knowledge management models can be found in the literature on the subject of knowledge management, and in these models, the importance of trust in the proper progression of processes related to the exchange of knowledge is emphasized. According to modern concepts of knowledge management, trust is a critical component. In his knowledge system, D. Snowden distinguished four primary elements comprising it, namely:

- hidden or overt knowledge,
- knowledge assets,

- trust,
- certainty or uncertainty of decision concerning objectives and causal relationships³.

The subject literature provides many approaches to tasks of an operational nature performed within the framework of knowledge management, which are present in the form of a process. The cyclic approach to the knowledge megaprocess developed by A. Kowalczyk and B. Nogalski is deserving of attention. Within the framework of the knowledge management system, they lay out the following main tasks realized at the operational level: localization, acquisition, development, sharing of knowledge, utilization and maintenance of knowledge⁴. The processes listed above form an integrated system supporting knowledge management. The process approach is considered to be functional because it is based on experiences and practical solutions that find applications even in large organizations.

Localization of knowledge makes it possible to maintain already existing and easily accessible knowledge in both the internal and external environment. Sometimes people are not aware of which knowledge resources may be available. It is difficult to simply determine where experts that can be helpful in specific fields can be found, while also considering information concerning the available competencies and experiences gained by employees⁵. Localization of knowledge can serve not only for finding required information, but it also provides the capability of finding out which sources are worthy of trust. Organizations are capable of utilizing methods of knowledge localization so that they do not lose time searching for knowledge of interest, and these methods should be adapted to structures so that they do not generate excessive costs compared to expected benefits. J. Paliszkievicz enumerates several methods enabling localization of knowledge sources⁶:

- two-dimensional knowledge matrices, by means of which intellectual assets and the persons having them at their disposal are presented;
- knowledge maps, enabling graphical representation of mutual relations between the intellectual links found within an organization and knowledge sources and their structures.

The knowledge maps used most often by organizations are: information resource maps (helping to determine their layout and method of storage), knowledge source maps (enabling identification of persons possessing knowledge resources of particular value that can be used if the need arises), typographic knowledge maps (provide the capability of locating persons with specific skills and levels of knowledge), geographical information systems (make it possible to determine the geographical distribution of knowledge resources), fast reaction system (finds applications in management of knowledge gained during the execution of projects), revealing of the communication network, intangible and legal values, compilation of data about experts in a given organization (in the form of address books).

Knowledge acquisition is a process within the framework of which knowledge flows from the organization's external environment to its internal surroundings. This is also the process by which employees gain knowledge based on internal sources, that is, from their colleagues, from documentation, databases, generally available books and periodicals. Organizations gain knowledge by utilizing the benchmarking method, based on searching for knowledge about competing products or even

¹W. Grudzewski, A. Sankowska, M. Wańtuchowicz, Zarządzanie zaufaniem w przedsiębiorstwie, Oficyna Wolters Kluwer Business, Kraków 2009, s. 17.

²B. Józefowicz, Zaufanie jako determinanta organizacyjnego uczenia się przedsiębiorstw, (w:) B. Olszewska, M. Czarniecki, E. Piwoni-Krzyszowska (red.), Przedsiębiorstwo jako organizacja ucząca się, Wyd. Uniwersytetu Ekonomicznego we Wrocławiu, Wrocław 2013, s. 204.

³W. Grudzewski, A. Sankowska, M. Wańtuchowicz, Zarządzanie zaufaniem w przedsiębiorstwie, Oficyna a Wolters Kluwer Business, Kraków 2009, s. 123.

⁴A. Kowalczyk, B. Nogalski, Zarządzanie wiedzą. Koncepcja i narzędzia, Difin, Warszawa 2007, s. 81.

⁵G. Probst, Zarządzanie wiedzą w organizacji, E-mentor nr 3/2004.

⁶J. Paliszkievicz, Zarządzanie wiedzą w małych i średnich przedsiębiorstwach – koncepcja oceny i modele, Wyd. SGGW, Warszawa 2007, s. 87.

processes. Knowledge acquisition most often takes place through active participation in training or over the course of establishment of informal relations with other people. One of the basic sources of knowledge acquisition from the external environment can be knowledge from persons who are participants in the market. This, it becomes necessary to remain in constant contact with shareholders, suppliers, customers, and recipients of the company's services. Experts from outside the company, that is consulting companies and market research agencies, are a valuable source of knowledge acquisition. Organizations remain in constant contact with them when they are unable to acquire and update information. One of the main channels of knowledge acquisition is its purchase. Certain companies decide to purchase patents and software with applications in individual branches of the organization. A specific type of software is selected to match the nature of the organization, so that it is implemented in an effective way in a specific sector of the company's activity⁷

The Internet is a basic tool for knowledge acquisition. Organizations with broad access to the internet acquire information en masse. However, an excess of knowledge is a serious problem, and the skill of selecting relevant information is important. Broad access to information is linked to the incapability of securing information that has been introduced into the network as well as to a lack of total control over uploaded information⁸.

Ensuring the availability of knowledge is a significant problem in an organization. In order for employees to voluntarily share information, trust is imperative. Organizational trust is considered to be an important factor encouraging the transfer of knowledge. This results from the fact that sharing of knowledge, particularly hidden knowledge, is related to the risk of its improper application and low quality. Thanks to trust, there is a high probability that people will exhibit readiness to share information and utilize the benefits this information brings without being forced to and without doubts as to unethical behaviors. Besides this, a lack of trust causes employees to store knowledge out of fear of losses resulting from its exchange⁹. Building trust in the process of sharing knowledge takes place in several dimensions: personality, calculation, institution, and perception. Individual dimensions can be described as follows:

- trust in the dimension of calculation is based on calculation of the costs and benefits resulting from specific relations. The advantage of this dimension is that it has a well thought out motivational system and engages employees in the activity of the organization and in organizational identity;
- trust in the dimension of personality is dependent on the personality structure of members of the organization. The tendency to trust is indicated by such qualities of an individual as: empathy, based on the ability to put oneself in another person's shoes, responsibility, sensitivity, emotional restraint;
- institutional trust is formed based on formal regulations. It is based on the tendency to provide oneself with a sense of safety based on safeguards of a formal nature;
- perceptual trust is a process based on tendencies to perceive the behaviors of co-workers. This dimension relates to human cognitive qualities and characterizes trust resulting from observation of mutual behaviors and reactions¹⁰.

The essence of knowledge management should be to utilize knowledge productively in order for the organization to achieve

constant profit. In this light, knowledge in an organization should be perceived in categories of potential planned for utilization for the purpose of achieving the high standards desired in the organization's activity¹¹.

There are many possibilities of encouraging employees to utilize knowledge. Usually, organizations strive to achieve this objective by:

- conducting workstation training, which fosters the application of knowledge in practice,
- building informational centers where employees participate in the exchange of information and views,
- utilization of legible documents (e.g. with a clear graphical layout),
- creation of the appropriate working conditions for employees.

A good solution, in this respect, is to properly arrange workstations, which will translate to improvement of communication between employees and exchange of knowledge. For the individual knowledge of employees to become the property of the organization, it is purposeful to record it in an IT system. Knowledge maintenance releases specialists from routine inspection activities and causes them to focus directly on improving and perfecting the processes entering into the scope of this system. Organizations undertake to maintain their own knowledge, so that it is utilized in the future. For this purpose, they initiate three processes: selection of the knowledge worth maintaining, endowing the selected information with the appropriate form, in which it will be stored, and updating of the organization's memory¹².

When considering maintenance of knowledge, care should be taken that it does not lose its value and is not reduced to the role of information or data. For an organization to prevent this, B. Wyrzykowska and K. Karbowski indicate the necessity of adhering to basic principles in the knowledge maintenance process, formulated by G. Probst, S. Raub, K. Romhadt. Here are several principles to which the cited authors direct attention¹³:

- The management staff should establish the objectives that will be fulfilled by the maintained knowledge,
- Management staff should identify the various forms of knowledge used by the organization without difficulty;
- Management staff is obligated to assess knowledge in terms of its usefulness and the possibility of its maintenance;
- Management staff should identify a medium that may contribute to safeguarding and disseminating knowledge.

Conclusion

Organizations basing their operations to the ever growing dependence on the knowledge to understand that factor in its proper flow is an atmosphere of trust. Relationship of trust with the management of knowledge is undeniable. The trust has a significant impact on the normal processes of knowledge management. Demonstrated a strong dependence on the basis of an analysis of the literature should be the starting point for the management of the organization, for which development based on knowledge is a prerequisite for business.

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⁸J. Paliszkievicz, *Metoda oceny pozyskiwania i rozwijania wiedzy w małych i średnich przedsiębiorstwach*, *Problemy Jakości*, nr 4/2007, s. 27.

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MOTHER-CHILD ATTACHMENT SECURITY AND SYMPTOMS OF DEPRESSION IN MIDDLE CHILDHOOD

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Abstract: This study examined the role of mother-child attachment security in the development of children's depressive symptoms in middle childhood. The quality of attachment was assessed in a sample of one hundred and thirty-nine 9-12 year-old children using self-report questionnaire Security Scale (version for mother). Depressive symptoms were measured by Children's Depression Inventory. When child's sex and age were controlled for, mother's availability was a particularly important predictor of lower levels of depression and the majority of symptoms, whereas mother's reliance was not. Findings are further discussed within the context of normative changes in attachment in middle childhood and previous research on associations between attachment and internalizing problems.

Keywords: attachment, availability, reliance, middle childhood, depression

1 Introduction

The most frequent behavior problems in childhood and adolescence can be categorized in two broad categories, namely internalizing and externalizing problems. Internalizing problems (in general) are inner directed and present with symptoms that are related to overcontrolled behaviors (In-Albon, 2012). Internalizing symptoms refer to feelings of loneliness, anxiety and depression. Family factors, including attachment, are particularly important for explaining the origins of these behavior problems.

Attachment theory emphasizes the importance of attachment relationships in shaping an individual's views of him- or herself and the world around them. Attachment is referred to as a long-lasting affective bond between a child and a caregiver that provides the child with feelings of security, comfort and support (Liebermann et al., 1999). The quality of attachment relationships reflected in terms of psychological expected availability of the attachment figures and reliance on their help stems from early interactions with the caregivers. Attachment theorists claim that early family experiences that are dysfunctional, through insensitive or non-responsive parenting lead to the development of insecure attachment, whereas attachment security is fostered by sensitive care and consistently responsive caregivers (Bowlby, 2010).

Attachment theory also suggests that greater positive and fewer negative individual's outcomes are related to secure attachment. The quality of attachment relationship is considered to be a factor that may influence emotion regulation difficulties and subsequent problems. Internalizing problems may result from actual or threatened loss of attachment relationships. According to Bowlby (2013), securely attached children use the attachment figure as a secure base from which to explore and to return in times of distress. Further, they perceive their caregivers as available, responsive and reliable. In contrast, insecurely attached children perceive their caregivers as unavailable and unresponsive and cannot rely on their help in times of distress. Therefore, insecurely attached children are more susceptible to developing feelings of fear, anxiety and depression due to the lack of the confidence in their caregivers' ultimate accessibility (Bowlby, 2013). When the child is confident that the attachment figure is readily accessible, he/she will be less prone to feel anxious, lonely or depressive than the child who is uncertain what to expect from the caregiver.

According to attachment theory, the quality of attachment relationships has a continuing effect on patterns of adaptation

(Bowlby, 2012). Associations between maternal attachment relationships and internalizing behaviors (in general) throughout a lifespan are well established. Evidence linking the quality of attachment relationship to internalizing problems suggests that there is the main effect of attachment security (Dallaire, Weinraub, 2007). More specifically, recent studies indicated that securely attached children, adolescents and adults, compared to those with insecure attachments, show lower levels of internalizing symptoms (internalizing problems were conceptualized as a broad category of symptoms including anxiety, loneliness, depressive feelings etc.) (see Brumariu, Kerns, 2010; Deklyen, Greenberg, 2008; Dozier et al., 2008, for reviews).

However, Brumariu and Kerns (2010) postulated that attachment security is more consistently related to symptoms of depression or anxiety than to global internalizing symptoms. According to depression, links with the quality of attachment relationships are well documented only in the developmental period of adolescence and adulthood (Brumariu, Kerns, 2010; Dozier et al., 2008). In particular, insecurity in attachment relationships was associated with higher prevalence of non-clinical and clinical levels of depression in adolescents and adults (Bifulco et al., 2002; Constantino et al., 2013; Kullik, Petermann, 2013).

Our understanding of the role of mother-child attachment security in the development of depressive symptoms in middle childhood is limited, however, as relatively few empirical studies exist. Many symptoms of depression do not become prevalent until later middle childhood (9/10-12 years of age). That is why in the period of middle childhood, global internalizing problems are assessed, instead of specific forms of emotional maladjustment, including depression.

Recent research indicates that associations between secure attachment and depression in middle childhood are similar to those found for adolescents and adults. In particular, researchers found that higher levels of security in mother-child attachment relationships are related to lower levels of depression in 8-12 year-old children (Brenning et al., 2011; Brumariu, Kerns, 2010; Gullone et al., 2006). The current study attempts to replicate and extend these findings. Given the theoretical and empirical links between insecurity and internalizing behaviors, we expect children with secure attachment to be less prone to the development of depression.

Of particular relevance to the present study is the very limited investigation of the role played by perceived availability of the attachment figure and perceived reliance on the attachment figure's help in adjustment of children in middle childhood. Indeed, research examining the influence of these crucial components of attachment on the development of internalizing behaviors is almost totally non-existent. One notable exception is Richaud de Minzi's (2006) study. Her study involved the sample of 1019 children between 8 and 12 years of age and examined the relationship between attachment, parenting, self-competence, loneliness and depression. Her findings revealed that mothers' and fathers' availability and reliance protected children from internalizing problems. Children who perceived their parents as available and relied on their help felt less lonely and depressive. Further research investigating whether perceived availability and reliance predict the development of internalizing problems is needed. Thus, in the present study, we investigated children's perceptions of mothers' availability and reliance as predictors of symptoms of depression.

1.1 The present study

In summary, attachment security is considered to be the important factor of psychological development throughout the lifespan. Secure attachment relationships support adjusted behavioral strategies and healthy emotional development,

whereas insecurity is related to greater negative outcomes. However, there is the lack of empirical evidence linking the quality of attachment relationships to specific forms of emotional maladjustment, especially symptoms of depression, in the developmental period of middle childhood.

Therefore, the focus of the current report is on the links between concurrent mother-child attachment and internalizing problems in the sample of Slovak children in middle childhood. Building on the work of others (Brenning et al., 2011; Brumariu, Kerns, 2008; Gullone et al., 2006; Richaud de Minzi, 2005), we investigated the role of perceived attachment security in prediction of symptoms of depression at school age, accounting for children's characteristics – age and gender.

Though other studies examined associations between attachment and internalizing problems in middle childhood, the present study is an improvement over previous studies in a number of ways. First, internalizing problems are not conceptualized in general. We focus specifically on behaviors relating to depression to better isolate depression from more general withdrawn and somatic symptoms and from more general feelings of inferiority, inadequacy or negativism. Second, in addition to examining depression in children in general, specific emotional, behavioral and social symptoms are examined. Third, main effects of the key aspects of attachment (perceived availability of mother and perceived reliance on mother's assistance in situations of distress) are investigated.

2 Method

2.1 Participants and procedure

The sample consisted of 139 children in 4th, 5th and 6th grade, 72 males and 67 females. The mean age of children was 10.79 (range 9-12 years). The sample was recruited from elementary schools in Nitra region. Parental permission was obtained for participation.

2.2 Measures

The *Security Scale* (Kerns et al. 2006) is a self-report questionnaire designed to assess children's perceptions of security in parent-child relationships in middle childhood. Children are presented statements about two types of children and asked to choose which type of children they are more like and to indicate the strength of endorsement (really true or sort of true). Each item is scored on a four-point scale. Items on the Security Scale tap the following dimensions – key components, of attachment representation in middle childhood: availability of the attachment figure (perceiving parent as available) and reliance on the attachment figure (seeking or valuing parental help in times of stress). The subscale items scores for Availability and Reliance are averaged to produce single scores on continuous dimensions. Higher scores reflect children's perceptions of greater reliance on parents or greater availability of parents. Slovak version of the Security Scale displayed adequate levels of validity and reliability (Barátová, Popelková, 2015). Children completed the items only for mother. Alphas obtained for Availability and Reliance subscales in this sample were $\alpha = .70$ and $\alpha = .71$, respectively.

The *Children's Depression Inventory – CDI* (Kovacs, Slovak version Preiss, 1998) is a self-report instrument designed to measure depression in childhood and adolescence. The child is asked to endorse the one of three descriptions that best applies to him or her during the last 2 weeks. Responses are scored on the 0-2 scale. Items are divided into 5 subscales: Negative Mood, Interpersonal Problems, Ineffectiveness, Anhedonia and Negative Self-esteem. Items scores are summed so that higher score indicates greater frequency and severity of depressive symptoms. The total depression score is derived by summing all items scores. The psychometric properties of the CDI are adequate. Alphas reported for the present sample ranged $\alpha = .78$ - .81.

2.3 Statistical Analysis

SPSS (The Statistical Package for Social Sciences) version 21.0 was used for computing descriptive statistics, correlations and six separate hierarchical regression analyses with CDI total depression score and subscale scores as dependent variables. The relevant assumptions of this statistical analysis were met. According to previous research, child's age and gender were included as control variables on step 1. As a block on step 2, mother-child attachment security – Availability and Reliance subscales scores were entered. Significant changes in amount of variance accounted for (ΔR^2) are noted and significant predictor variables are noted with asterisks next to the standardized regression coefficient (β). In addition, the effect size Cohen's f^2 is presented – values of .02, .15 and .35 are considered small, medium and large effects, respectively (Cohen, 1992).

3 Results

Descriptive statistics (means and standard deviations) for all variables are presented in Table 1. All variables are distributed normally.

Correlation analyses revealed that higher levels of availability and reliance were related to lower levels of overall depression, $r = -.416$, $p < .01$ and $r = -.224$, $p < .05$, respectively, and negative self-esteem, $r = -.478$, $p < .01$ and $r = -.207$, $p < .05$, respectively. Further, correlations revealed that higher levels of availability were related to lower levels of negative mood, $r = -.235$, $p < .01$, ineffectiveness, $r = -.309$, $p < .01$ and anhedonia, $r = -.248$, $p < .05$, whereas higher levels of reliance were related to lower levels of interpersonal problems, $r = -.288$, $p < .01$. Other correlations between availability and reliance and the CDI subscales were small in magnitude or nonsignificant. In addition, the subscales of the Security Scale were moderately correlated, $r = .543$, $p < .01$.

Table 1: Descriptive statistics of variables used in the present study

Variable	M	SD
1. Availability	3.37	.53
2. Reliance	3.25	.35
3. Total depression score	10.27	6.31
4. Negative Mood	2.04	1.79
5. Interpersonal Problems	.74	.88
6. Ineffectiveness	1.76	1.62
7. Anhedonia	3.24	2.31
8. Negative Self-esteem	1.78	1.21

Note: M – mean, SD – standard deviation

The results of the analyses regressing depression and negative mood are summarized in Table 2, the results of the analyses regressing interpersonal problems and ineffectiveness in Table 3 and the results of the analyses regressing anhedonia and negative self-esteem in Table 4.

When predicting depression in general, the overall model was significant and accounted for 19.2% of variance in depression. When gender and age were entered into the regression equation in step 1 as control variables, they explained 1.8% (ns) of variance. The addition of mother-child attachment security (step 2) predicted depression significantly, $\Delta F(2,134) = 14.417$, $p < .001$, $f^2 = 0.22$, with mother's availability predicting uniquely, $\beta = -.341$, $p < 0.001$. That is, the more children perceived their mother as available, the less depression they reported.

When predicting specific symptoms, final models were significant and overall variance explained by predictors ranged 9.9 – 23.1%. When age and gender were controlled for (step 1), attachment security (step 2) predicted depression symptoms significantly, accounting for additional 10.2% of variance in negative mood, $\Delta F(2,134) = 7.830$, $p < .01$; 9.8% of variance in interpersonal problems, $\Delta F(2,134) = 7.361$, $p < .01$; 7.0% of variance in ineffectiveness, $\Delta F(2,134) = 5.390$, $p < .01$; 8.9% of variance of anhedonia, $\Delta F(2,134) = 6.641$, $p < .01$; and 21.4% of variance of negative self-esteem, $\Delta F(2,134) = 18.624$, $p < .01$.

.001. The effect sizes ranged from $f^2 = .08$ to $f^2 = .29$ and were small to medium in magnitude.

Both attachment security variables had significant zero-order correlations with analyzed symptoms, but their partial effects in full models were different. Mother's availability predicted four categories of depressive symptoms – negative mood, $\beta = -.331$, $p < .01$; ineffectiveness, $\beta = -.209$, $p < .01$; anhedonia, $\beta = -.235$, $p < .01$; and negative self-esteem, $\beta = -.447$, $p < .001$. On the other hand, mother's reliance predicted only symptoms related to interpersonal problems, $\beta = -.221$, $p < .01$. The results indicate that children who viewed their mother as available reported less symptoms associated with negative mood, anhedonia, ineffectiveness and negative self-esteem, whereas children who perceived their mother as reliable reported less interpersonal difficulties.

Table 2: Hierarchical regression analyses predicting children's overall depression and negative mood

Predictor	Depression		Negative mood	
	ΔR^2	β	ΔR^2	β
Step 1.				
Control variables	.018		.019	
Age		.135		-.033
Gender		-.014		.135
Step 2.				
Attachment security	.174***		.102**	
Availability		-.140		-.011
Reliance		-.341***		-.327**
Overall R^2	.192***		.121**	

Note: gender – 0 = male, 1 = female, β – standardized regression coefficient, ΔR^2 – changes in amount of variance accounted for, R^2 – coefficient of determination, ** $p < .01$; *** $p < .001$

Table 3: Hierarchical regression analyses predicting children's interpersonal problems and ineffectiveness

Predictor	Interpersonal problems		Ineffectiveness	
	ΔR^2	β	ΔR^2	β
Step 1.				
Control variables	.002		.051*	
Age		.039		.193*
Gender		.018		-.127
Step 2.				
Attachment security	.098**		.070**	
Availability		-.221*		-.098
Reliance		-.145		-.209*
Overall R^2	.100**		.122**	

Note: gender – 0 = male, 1 = female, β – standardized regression coefficient, ΔR^2 – changes in amount of variance accounted for, R^2 – coefficient of determination, * $p < .05$; ** $p < .01$

Table 4: Hierarchical regression analyses predicting children's anhedonia and negative self-esteem

Predictor	Anhedonia		Negative Self-esteem	
	ΔR^2	β	ΔR^2	β
Step 1.				
Control variables	.010		.017	
Age		-.018		.110
Gender		.100		-.077
Step 2.				
Attachment security	.089**		.214***	
Availability		-.110		-.061
Reliance		-.235*		-.447***
Overall R^2	.099**		.231***	

Note: gender – 0 = male, 1 = female, β – standardized regression coefficient, ΔR^2 – changes in amount of variance accounted for, R^2 – coefficient of determination, * $p < .05$; ** $p < .01$; *** $p < .001$

3 Discussion

The purpose of this study was to examine concurrent associations between mother-child attachment security and depression among children in the developmental period of middle childhood. Two major findings derived from the study. First, the evidence converged to indicate that secure attachment to mother is related to lower frequency and intensity of symptoms of depression in school-aged children. Second, perceived maternal availability seems to be more relevant for the development of internalizing problems in middle childhood than seeking mother's proximity in stressful situations.

An additional unique aspect of the present investigation is the use of the Security Scale questionnaire for the assessment of attachment security. Given limited instruments and measures to assess attachment during the post-infancy- pre-adolescent period, our findings provide valuable construct validity evidence for the Slovak version of this tool.

Overall associations provided in our study seem to be in agreement with foreign longitudinal and cross-sectional studies showing links between attachment and internalizing problems. Evidence linking attachment to internalizing symptoms, including depression, suggests that there is the main effect of attachment security (Brumariu, Kerns, 2010). Results of this study indicate that secure attachment relationship with mother may protect children in middle childhood against the development of depressive behavior. Children, who were insecurely attached, reported higher levels of depression and related symptoms than children who were securely attached. Secure attachment towards mother was associated with lower scores on symptoms and signs of depression. Results suggest that secure attachment representations continue to influence children's adjustment in positive ways beyond infancy. Security and stability in the mother-child relationship promotes the development of adequate coping, regulation and interpersonal strategies, whereas the lack of the secure base creates feelings of depression, inadequacy and sadness. Therefore, emotional maladjustment may be a consequence of children experiencing caregivers' unavailability and unresponsiveness.

Results indicate that perceived availability might play the unique role in the development of symptoms of depression. When demographics were controlled for, mother's availability predicted lower levels of depression and symptoms associated with negative mood, ineffectiveness, anhedonia and negative self-esteem, whereas mother's reliance did not. Higher reliance on mother's help contributed only to less interpersonal problems. Findings are in line with normative developmental changes in the attachment behavioral system that have been reported earlier in the literature (Kerns, 2008; Kerns et al., 2006; Liebermann et al., 1999). In middle childhood, the set goal of the attachment system shifts from proximity to availability of the attachment figure, including open communication, responsiveness to attachment needs and accessibility of the caregiver (Bowlby, 2010). Further, empirical evidence suggests that parental commitment, rather than parental assistance, remains crucial in the period of middle childhood. Kerns et al. (2006) and Liebermann et al. (1999) found that sixth graders reported relying on their parents less than did third graders. Results of these studies indicate that perceptions of utilization but not availability decline with age. The maintenance of the attachment figure's physical proximity is less essential in older children due to increased physical and mental capacities such as improved capacity for reasoning ability, self-reflection and regulation or greater attention to psychological traits and states (Liebermann et al., 1999). Children in middle childhood develop better coping strategies and become more capable and less dependent on parents; therefore, they might need to rely on their assistance less often over time. In accord with our findings, children's expectations and beliefs about attachment figures – perceived availability of the caregiver, affect the development of maladjustment importantly, whereas attachment figures' proximity and utilization do not seem to be the crucial factors of adaptive behavior beyond infancy.

In addition, although the effect sizes we report are small to medium, they are nevertheless important. It is important to notice that current etiological models of the development of internalizing problems, including depression, are complex and involve numerous factors and influences. Avanci et al. (2012) found several potential psychosocial variables associated with depression in childhood: poor relationship with parents, high frequency of victimization, externalizing behavior problems and negative family life events such as parental divorce, financial problems or serious health problems. Another study showed that children's depressive symptoms are predicted by numerous community, demographic, familial and personal factors (Dallaire et al., 2008). These findings suggest that parent-child relationships, other aspects of the family context and child characteristics are potential risk factors that might account for depression in middle childhood simultaneously. Multiple risk factors and possible interactive effects may be further examined.

When interpreting the results of this investigation, it is important to be aware of certain limitations. First, the measures of both the mother-child relationship security and depression are based on only the child's perspective. In future studies, it would be beneficial to gather reports from children as well as from significant others. Second, the nature of the sample should be considered in interpreting the findings. Participants of this study were from a community sample; therefore, factors related to depression may differ for children with the diagnosis of depression disorders.

In conclusion, the present study provided evidence that mother-child attachment relationship contributes to the development of depression in middle childhood. It is important to note that children's perception of mother's availability was related to lower levels of overall depression and the majority of symptoms, whereas reliance was not. Feelings of security connected with mother's expected emotional support seem to be more essential for child's psychological development than mother's practical help and assistance. As the next step, it will be necessary to examine other factors (e. g. emotion regulation) which may explain these effects.

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Primary Paper Section: A

Secondary Paper Section: AN

LIMITATION OF THE RIGHT TO PRIVACY DUE TO THE REQUIREMENTS OF FREEDOM OF INFORMATION (FOI)

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Abstract: The aim of this paper is to present the limitations of the right to privacy resulting from the right of access to information. This paper presents the characteristics of the right to privacy, with particular emphasis on the sources of these rights and methods of their protection. The next part of the study discusses specific examples of overlap between these rights and resulting situations where the right to privacy is restricted by the right to information. The summary presents an attempt to answer the question about the mutual relation between both rights and their future hierarchy.

Keywords: right to privacy, freedom of information, FOI

1 General information

The reference books indicate that the beginnings of the protection of the right to privacy may be traced back to the turn of the twentieth century in the United States in the form of *the right of privacy* consisting in the limitation of third parties' interference in individuals' personal lives and *the right to be alone*.¹

In international law this issue has been mentioned in a number of legal documents, including art. 8 of the ECHR, where this regulation does not guarantee the right to private life, but only the right to respect one.² The convention pertains not only to vertical but also horizontal relationships – it is a tool of protecting an individual from violations by the country – non-intervention in the private sphere of individuals' lives.³

The right to privacy has also been regulated in the Constitution of the Republic of Poland (art. 47). As Z. Zawadzka argues, on the basis of this regulation privacy is usually understood in two ways:

- the broader meaning – it means freedom from intervention in the sphere inaccessible to other people and freedom to decide on one's life, views and beliefs. In a broad perspective, the right to privacy is guaranteed by a number of regulations of constitutional importance, which specify and complement one another.
- the narrower meaning – privacy is identified as a right to decide on the range of information about oneself made available to others.⁴

It means that privacy guarantees a certain condition of independence, in which an individual may decide on the extent of communicating and making information about his or her life available to others.⁵ In other words, the right to privacy is the right of an individual to autonomously and exclusively decide on the degree to which he or she would like to preserve his or her anonymity.⁶ As noted by E. Nowińska while analyzing the limits of this right, at the same time demarcating a publicly-accessible domain, one points out to the fact that it is composed of information which a given person wants to keep for himself or herself or reveal only to specific people, that is information related to one's family, home, social and community life, colleague relations, interests, likings as well as religious and

political beliefs, ways of spending free time, personal situation.⁷ Importantly, the Constitutional Tribunal of Poland applies different scopes of guaranteed protection depending on the sphere to which a given violation pertains; therefore, the respect to an individual's personal sphere deserves more protection than in the case of his or her economic or financial sphere.⁸

Constitutions of numerous countries, including the Republic of Poland, contain provisions of the protection of personal life without defining this term – the scope and effectiveness of the protection depend largely on the established norms and jurisdiction.⁹ One may notice a similar phenomenon in the legal doctrine; A. Kopff, just as A. Szpunar and many other authors, assumes that this sphere is not uniform.¹⁰ *The extent of an individual's life requiring legal protection is each time determined by social needs governed by the condition of the society's sense of law, tradition and the changing state of endangerment of the sphere of private life.*¹¹

As D. Fleszer rightly argues, in the doctrine there is no agreement as to the mutual relationship between the right to privacy and the right to personal data protection.¹² According to some authors, privacy has broader meaning than personal data protection – the direct function of personal data protection is protecting the right to privacy.¹³ D. Fleszer emphasizes that another notion is also advocated, according to which between the protection of the right to privacy (inherent in constitutional norms) and personal data protection occurs an overlapping relationship – those are two independent legal regimes. However, one may notice that the Polish Constitutional Tribunal frequently considers the right to privacy in relation to art. 51 of the Constitution enacting the right to an individual's informational autonomy, that is a right to autonomously decide to reveal information pertaining to a given person to others as well as a right to control such information possessed by other entities, as protection of an individual's informational autonomy is part of the right to privacy.¹⁴ As A. Sakowicz argues, it has prevented the right from being derived from traditional civil legal instruments of protection of personal rights regulated in art. 23 and 24 of Civil Code.¹⁵ It means that the Constitutional Tribunal considers personal data protection as an element of the right to privacy¹⁶ and such understanding of the abovementioned term is also accepted in this article.

From literal interpretation of this regulation it arises that this right pertains to every person residing in Poland, regardless of his or her nationality¹⁷. The right to privacy is not a mandatory right and may be subject to restrictions as set up in art. 31.3. of the Constitution. As it has been emphasized in the doctrine, restriction of a right or freedom may take place only when another norm, rule or constitutional regulation supports such an action and the degree of this restriction must remain proportional to the significance of the purpose which this restriction is to serve.¹⁸

¹ E. Nowińska, *Wolność wypowiedzi...*, Lex no. 63094.

² Z. Zawadzka, *Wolność prasy...*, Lex no. 168972.

³ A. Mednis, *Prawo do prywatności a interes publiczny*, Zakamycze 2006, LEX no. 58276.

⁴ E. Nowińska, *Wolność wypowiedzi...*, Lex no. 63094.

⁵ *Ibidem*; also: Z. Zawadzka, *Wolność prasy...*, Lex no. 168972.

⁶ D. Fleszer, *Zakres przetwarzania danych osobowych w działalności gospodarczej*, ABC 2008, LEX no. 89763.

⁷ *Ibidem*.

⁸ Z. Zawadzka, *Wolność prasy...*, Lex no. 168972.

⁹ A. Sakowicz, *Prawnokarne gwarancje prywatności*, Zakamycze 2006, LEX no. 53884.

¹⁰ Also: A. Wilk, *Akt urodzenia*, Lexis Nexis 2014, LEX no. 207434.

¹¹ W. Skrzydło, Komentarz do art. 47 Konstytucji Rzeczypospolitej Polskiej [Commentary to art. 47 of the Constitution of the Republic of Poland], Legislation in force as on: 2013/3/1, LEX.

¹² A. Sakowicz, *Prawnokarne gwarancje...*, Lex no. 53884.

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² Z. Zawadzka, *Wolność prasy a ochrona prywatności osób wykonujących działalność publiczną. Problem rozstrzygnięcia konfliktu zasad*, LEX 2013, no. 168972.

³ *Ibidem*.

⁴ *Ibidem*.

⁵ *Ibidem* and laws cited there, including the Constitutional Tribunal's Judgment of June 24, 1997, K21/96, OTK 1997, no. 2 item 23; the Constitutional Tribunal's Judgment of May 19, 1998, U6/97, OTK 1998, no. 4, item 46.

⁶ D. Fleszer, *Zakres przetwarzania danych osobowych w działalności gospodarczej*, ABC 2008, LEX no. 89763.

2 Protection of privacy – legal remedies

Administrative-legal regulations (law on personal data protection), legal-civil regulations (tort liability), and criminal law regulations are indicated as the systems of protection of the right to privacy.

2.1 Personal data protection¹⁹

A. Drozd argues that the right to personal data protection is a legal institution aiming at protection of privacy, in accordance with art. 47 of the Constitution of the Republic of Poland, which is independently regulated in art. 51 of the Constitution.²⁰

Article 51

1. No one may be obliged, except on the basis of statute, to disclose information concerning his person.
2. Public authorities shall not acquire, collect nor make accessible information on citizens other than that which is necessary in a democratic state ruled by law.
3. Everyone shall have a right of access to official documents and data collections concerning himself. Limitations upon such rights may be established by statute.
4. Everyone shall have the right to demand the correction or deletion of untrue or incomplete information, or information acquired by means contrary to statute.
5. Principles and procedures for collection of and access to information shall be specified by statute.

The literature and jurisdiction specify this legal institution as an individual's information autonomy,²¹ the essence of which is reduced to leaving every person the freedom to specify the sphere of accessibility of information about himself or herself for others.²²

The scope of application of the regulations on personal data protection encompasses not only horizontal relationships between individuals but especially vertical relationships between an individual and state (public) authorities.²³ For the purpose of the present paper the vertical relationship is of great significance, as in Polish law a principle is accepted forbidding the acquiring, collecting and sharing of information about the citizens by public authorities.²⁴

It must be also mentioned, that system of personal data protection is governed by the rule: you are not allowed to do that, what is not expressly stipulated in law. In other words processing personal data, like for example sharing personal data or enclosing personal data always needs legal basis. It means that legal basis is also required when public authorities process personal data. Personal data protection is limited in a number of ways, including the scope of the right to access public information.²⁵ In the jurisdiction of the Polish Constitutional Tribunal it is emphasized that the infringement of information autonomy can only be accepted when it is directly provided for by other constitutional regulations or when the need to

harmonize this freedom with other constitutional laws or values arises, where this restriction must always be proportional in character.²⁶ On the other hand, J. Barta argues that every interference in the sphere of information privacy must bear signs of necessity, characteristic for a democratic rule of law.²⁷

In the analysis of the present issue one should also refer to the European Union law. Article 16(1) of Treaty on the Functioning of the European Union (TFEU), as introduced by the Lisbon Treaty, establishes the principle that everyone has the right to protection of personal data concerning him or her. The most significant international legal act related to personal data protection is Directive 95/46 of the European Parliament and the Council on the protection of individuals with regard to the processing of personal data and free movement of such data.²⁸ Directive 95/46 was transformed into national laws of UE – in Poland – Act of 29 August 1997 on Personal Data Protection.²⁹

In accordance to this Directive, Member States shall protect the fundamental rights and freedoms of natural persons, and in particular their right to privacy with respect to the processing of personal data. Directive 95/46 has been established to protect fundamental rights and freedoms, notably the right to privacy, which is recognized both in Article 8 of the European Convention for the Protection of Human Rights and Fundamental Freedoms and in the general principles of Community law; whereas, for that reason, the approximation of those laws must not result in any lessening of the protection they afford but must, on the contrary, seek to ensure a high level of protection in the Community.

It should be emphasized that Directive 95/46, in accordance with the dominant opinion of the representatives of legal science, does not determine minimum standards, in spite of the fact that the right to personal data protection is of great importance in the community legal order.³⁰ Nevertheless, it is also believed that a national legislator should not depart from the provisions of this directive if the body does not directly accept such possibility,³¹ because it has been found that since the directive is an act of secondary European law, it still is in force in the Member States as regards the result, at the same time leaving the Member States the freedom to choose its form and the applied measures.³²

Directive allows the principle of public access to official documents to be taken into account when implementing the principles set out in this Directive. The principles of protection must be reflected, on the one hand, in the obligations imposed on persons, public authorities, enterprises, agencies or other bodies responsible for processing, in particular regarding data quality, technical security, notification to the supervisory authority, and the circumstances under which processing can be carried out, and, on the other hand, in the right conferred on individuals, the data on whom are the subject of processing, to be informed that processing is taking place, to consult the data, to request corrections and even to object to processing in certain circumstances. The processing of personal data by official authorities for achieving aims, laid down in constitutional law or international public law, of officially recognized religious associations is carried out on important grounds of public interest.

However, one should note that the Commission has concluded that the EU needs a more comprehensive and coherent policy on

¹⁹ This part is based on: A. Cebera, D. Horodyski, *Personal data protection and access to public information - the mutual influences and directions of development* [in:] *Pravni Rozprawy 2015 mezinárodní vědecká konference oblasti práva a právních věd – právní rozprawy 2015 s podtitulem "vývoj práva"*, Hradec Králové 2015, p. 354-356.

²⁰ A. Drozd, *Ustawa o ochronie danych osobowych – Komentarz, Wzory Pism i przepisy*, Warszawa 2008, p. 13. Also: P. Barta, P. Litwiński, *Ustawa o ochronie danych osobowych – Komentarz*, Warszawa 2013, p. 3.

²¹ A. Drozd, *Ustawa o ochronie danych osobowych – Komentarz, Wzory Pism i przepisy*, Warszawa 2008, p. 13 and jurisdiction quoted there, including: the judgement of the Constitutional Tribunal of November 10, 1998, K39/97, OTK 1998, no. 6, p. 9.

²² The judgement of the Constitutional Tribunal of November 12, 2002, SK 40/02, OTK-A 2002, no. 6, item 81, as cited in: P. Barta, P. Litwiński, *Ustawa o ochronie danych osobowych – Komentarz*, Warszawa 2013, p. 3.

²³ A. Drozd, *Ustawa o ochronie ...*, p. 13.

²⁴ M. Wyrzykowski, *Ochrona danych – zagadnienia konstytucyjne*, Warszawa 1999, p. 25.

²⁵ P. Barta, P. Litwiński, *Ustawa o ochronie ...*, p. 10 and jurisdiction quoted there, e.g. the judgement of the Constitutional Tribunal of June 19, 1992, U 6/92, OTK 1992, no. 1, item 13.

²⁶ The judgement of the Constitutional Tribunal of November 21, 1995, K 1295, OTK 1995, no. 3, p. 14, as cited in: P. Barta, P. Litwiński, *Ustawa o ochronie ...*, p. 11.

²⁷ J. Barta, *Komentarz do ustawy o ochronie danych osobowych – System informacji prawnej LEX ...*

²⁸ Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data, Official Journal L 281 , 23/11/1995 P. 0031 – 0050, "Directive 95/46".

²⁹ Journal of Laws No 02.101.926 with further amendments; further: PDP Act.

³⁰ A. Drozd, *Ustawa o ochronie ...*, p. 17.

³¹ E. Ehmman, M. Helfrich, *Datenschutzrichtlinie. Kurzkomentarz*, Kohl 1999, p. 56, as cited in: A. Drozd, *Ustawa o ochronie danych osobowych – Komentarz, Wzory Pism i przepisy*, Warszawa 2008, p. 17. Also: P. Barta, P. Litwiński, *Ustawa o ochronie danych osobowych – Komentarz*, Warszawa 2013, p. 6.

³² P. Barta, P. Litwiński, *Ustawa o ochronie ...*, p. 4.

the fundamental right to personal data protection. In the European Parliament legislative works are underway aiming at creation of a regulation concerning personal data protection, that is an act, which will produce legal effects directly in the legal orders of the member states. Legal basis of this proposal is based on Article 16 TFEU, which is the new legal basis for adoption of data protection rules introduced by the Lisbon Treaty.

The right to the protection of personal data, enshrined in Article 8 of the Charter of Fundamental Rights, requires the same level of data protection throughout the Union. The absence of common EU rules would create a risk of different levels of protection in the Member States and create restrictions on cross-border flows of personal data between Member States with different standards.³³

2.2 Civil-law regulations (tort liability)

The right to privacy is also protected on the basis of private law regulations, like e. g. provisions of the Polish Civil Code.³⁴ In accordance to art. 23 CC,³⁵ personal interests of a human being, such as in particular health, freedom, dignity, freedom of conscience, surname or pseudonym, image, confidentiality of correspondence, inviolability of home as well as scientific, artistic, inventive and reasoning activities shall be protected by the civil law regardless of the protection provided for by other provisions. Abovementioned regulation does not expressly indicate the right to privacy because the catalogue of protected values is exemplary. However, in the doctrine and jurisdiction there are no doubts that the scope of this regulation extends also to right to privacy.³⁶

Article 24 CC sets forth that a person whose personal interests are jeopardized by another person's action may demand that the action be abandoned, unless it is not illegal. In the case of actual violation, he/she may also demand that the person who committed the violation perform acts necessary to remove its consequences, in particular that the latter make a statement of a relevant content and in a relevant form. On the basis of the principles provided for by the Code he/she may also demand pecuniary compensation or payment of an adequate amount of money for a specified community purpose. If, as a result of a personal interests damage to the property was inflicted, the injured party may demand it to be redressed on the basis of general principles.

The limitations of the right to privacy protected on the basis of CC provisions result from numerous legal institutions, including one of the freedom of expression, especially - disclosure claims in the press law. This issue will be set out in the next part of this paper.

2.3 Criminal law regulations

The right to privacy is also protected by another independent legal regime - criminal law. In this branch of law protection of privacy is usually understood in two ways:

- a) protection of privacy of the accused;
- b) penalization of conducts violating privacy of an entity.

Re. a) protection of privacy of the accused

Protection of privacy on the basis of criminal law may be considered as an element of the presumption of innocence rule,

and in consequence consist of protection of privacy of the accused - especially his identity, until being found guilty.³⁷ Such understanding of the abovementioned issue is also accepted in doctrine.

The Constitution of the Republic of Poland of 2nd April, 1997 in article 42, provides, that everyone shall be presumed innocent of a charge until his guilt is determined by the final judgment of a court. The same principle is stipulated in art. 5 of the Code of Criminal Procedure of 6 June 1997 (hereinafter referred to: CPC). Importantly, W. Wróbel argues that, presumption of innocence might be analyzed in internal and external meaning.³⁸ The criterion of such distinction is based on the catalog of entities and public authorities, which are obliged to act in compliance with this principle. The internal meaning is addressed to authorities conducting the criminal proceeding, and the external meaning to all other entities, with particular emphasis on press and mass-media.

In accordance to art. 13 of an Act of 26 January 1984 on the press law, no one is allowed to publish in a press personal data or picture of a person, when a criminal proceeding against this person is conducted. This prohibition is also applicable to witnesses and victims of a crime. M. Brzozowska-Pasieka emphasizes that the prohibition of enclosing personal data of accused also refers to public officials and civil servants, even when they are exercising public authority.³⁹

However, the scope of this regulation is restricted - court and prosecutor are entitled to enclose personal data of the accused due to the requirements of important public interest. In doctrine there is no agreement as to the compliance of abovementioned regulation with Polish Constitution, because of the possibility of the arbitrariness of such permission and lack of stipulated guidelines of interpreting the term - public interest.⁴⁰ One may notice, that Polish Constitutional Tribunal in judgment of 18 July 2011 established that exceptions from the prohibition of publishing personal data of accused are generally allowed, but the accused must be granted the right to appeal from such decision.⁴¹

It must be also pointed out, that as J. Sobczak rightly argues, publishing such data without due permission is penalized by art. 241 § 1 Criminal Code.⁴²

There are no restrictions in publishing personal data and picture of sentenced by the final judgment of a court. Importantly, in legal orders of foreign countries another notions are also advocated, for example in Sweden there are no restrictions in publishing personal data of accused.

Re. b) penalization of conducts violating privacy of an entity.

One may notice, that Criminal Code⁴³ penalizes a few conducts violating particular legal values from which right to privacy is structured. For example, in accordance to art. 190a of the Criminal Code, whoever, by persistent harassment of another person or this person's immediate family member, induces in this person a sense of danger that is reasonable under the circumstances or substantively violates this person's privacy, is subject to the penalty of deprivation of liberty for up to 3 years. If the consequence of an act referred to in § 1 or 2 is the harmed party's attempt on his own life, the perpetrator is subject to the

³³ Proposal for a Regulation of the European Parliament and of the Council on the protection of individuals with regard to the processing of personal data and on the free movement of such data (General Data Protection Regulation), http://ec.europa.eu/justice/data-protection/document/review2012/com_2012_11_en.pdf, 10.03.2015.

³⁴ S. Dmowski, S. Rudnicki, *Komentarz do kodeksu Cywilnego*, Warszawa 2007, p. 101.

³⁵ ACT of 23 April 1964 Civil Code; hereinafter referred to „CC”.

³⁶ See: The judgment of the Court of Appeal of June 10, 1995, I ACr 143/95, LEX no. 23659; The judgment of the Supreme Court of April 28, 2004, III CK 442/02, LEX no. 1125280; The judgment of the Supreme Court of February 25, 2014, I CSK 532/13, OSNK 2015/5/61.

³⁷ K. Mamak, *Everyone shall be presumed innocent of a charge until his guilt is determined by the final judgment of a court*, e-Czasopismo Prawa Karnego i Nauk Penalnych, no. 17/2013.

³⁸ W. Wróbel, *O dwóch aspektach konstytucyjnej zasady domniemania niewinności* [w:] *Nauki penalne wobec problemów współczesnej przestępczości*. Księga Jubileuszowa z okazji 70. Rocznicy urodzin Profesora Andrzeja Gaberle, Warszawa 2007, p. 324.

³⁹ M. Brzozowska-Pasieka, *Komentarz do art.13 ustawy - Prawo prasowe*, 2014.01.01, LEX. See also The Judgement of the Supreme Court of the March 18, 2008 r., IV CSK 474/2007, LEX 1867126.

⁴⁰ E. Ferenc-Szydelko, *Komentarz do art.13 ustawy - Prawo prasowe*, 2013.07.19, LEX.

⁴¹ K 25/09.

⁴² J. Sobczak, *Komentarz do art.13 ustawy - Prawo prasowe*, 2008.04.02, LEX.

⁴³ Statute of 6 June 1997 Criminal Code.

penalty of deprivation of liberty for between one year and 10 years. The crimes provided above are prosecuted upon the harmed party's motion.⁴⁴ M. Mozgawa rightly argues, that abovementioned provision is the one and only one in Polish Criminal Code, which directly refers to the term "privacy".⁴⁵

What is more, on the basis of art. 193 of the Criminal Code, whoever intrudes into someone else's house, apartment, premises or a fenced area, or despite a demand of an authorized person does not leave such place, is subject to a fine, the penalty of limitation of liberty or the penalty of deprivation of liberty for up to one year.

Also art. 212 of Criminal Code protects privacy, and governs that whoever imputes to another person, a group of persons, an institution, a legal entity or an organizational entity without a legal personality, such conduct or characteristics that may degrade them in public opinion or expose them to the loss of confidence necessary to occupy a given position, practice a given profession or operate a given type of activity, is subject to a fine or the penalty of limitation of liberty. If the perpetrator commits the abovementioned act via means of mass communication, he is subject to a fine, the penalty of limitation of liberty or the penalty of deprivation of liberty for up to one year. These crimes are privately prosecuted.

3. Freedom of information

3.1 FOI - introduction

The catalog of human rights established by international treaties and acts does not contain a right to be informed.⁴⁶ M. Zaremba assumes that such state of mater has political and historical background,⁴⁷ but nowadays – after the period of transformation and democratization – one may notice the changing role of the state. In consequence, a lot of states have established legal regulations concerning the transparency of public life, in other words legislation in FOI type (freedom of information).⁴⁸

3.2 Legal institutions implementing FOI

In terms of the right to information, the following legal institutions to implement this right are hereunder discussed:

- a) access to public information;
- b) information disclosure claims in the press law, e.g. the right to demand information from companies and entities from outside the public finance sector
- c) the right to access environmental information
- d) the right to access information on court cases

3.2.1 Access to public information⁴⁹

Access to public information is an elementary feature of a democratic government, which apart from granting clear and reliable rules for electoral competition and the rise to power, provide organizational channels of access to information enabling the society to constantly know, participate and evaluate the government management and the performance of public servants.⁵⁰ Access to information creates a mechanism that fosters government's accountability and has a direct impact on improving the democratic system as it contributes to a multiplicity of players, among which are non-governmental organizations, civil society, academia, media and even the powers of the State themselves, acting as social controllers, reduce costs associated with overseeing and monitoring the exercise of power. At the same time, access to government

public information favors the creation of communication channels between State institutions and society, which allow constituents to perform a critical, knowledgeable and permanent scrutiny of the government's actions.⁵¹

In Poland access to information finds its protection in the Polish Constitution from 1997. Art. 61 of the Constitution sets forth:

Article 61

1. A citizen shall have the right to obtain information on the activities of organs of public authority as well as persons discharging public functions. Such right shall also include receipt of information on the activities of self-governing economic or professional organs and other persons or organizational units relating to the field in which they perform the duties of public authorities and manage communal assets or property of the State Treasury.
2. The right to obtain information shall ensure access to documents and entry to sittings of collective organs of public authority formed by universal elections, with the opportunity to make sound and visual recordings.
3. Limitations upon the rights referred to in paras. 1 and 2 above, may be imposed by statute solely to protect freedoms and rights of other persons and economic subjects, public order, security or important economic interests of the State.
4. The procedure for the provision of information, referred to in paras. 1 and 2 above shall be specified by statute, and regarding the Sejm and the Senate by their rules of procedure.

When it comes to the scope of application of this provision, it is argued that it should be interpreted widely. Provided limitations, mentioned in section 3, constitute a closed catalogue and cannot be construed extensively. They are meant to protect interests that may collide with the right to access to public information and, due to their particular place, they deserve exemption from the list of documents (information) that should be publicly accessible.⁵² It must be also noted that the term "a citizen" in section 1 does not limit the right to access to information only to Polish citizens. In fact, the Polish Act of 6 September, 2001 on access to public information (further: Act on access to public information) in art. 2 section 1 stipulates: "Every person shall, subject to Art. 5, have the right of access to public information, hereinafter referred to as the right to public information." However, it may appear that the wording applied in the Act on access to public information does not conform to the Constitution as to who is eligible to obtain access to information, in fact these regulations are in accordance because the Act on access to public information extends the right to obtain access to information to everyone.⁵³

Act on access to public information provides further regulations as to what is public information (art. 1), who and in under what conditions is entitled to obtain access to public information (art. 2 and 2a), what rights are included into the right to access to public information (art. 3), which institutions are obliged to grant access to public information (art. 4) and what are the limits of access to public information (art. 5).⁵⁴ Generally, it can be summarized that the access to public information encompasses all actions, documents and data that are produced by or concern the activity of public entities particularly public administration. In this regard, it appears that focal points concerning crossing opposite interests of protection personal data and access to

⁴⁴ See M. Filar, *Komentarz do art.190(a) Kodeksu karnego*, 2014.11.01, LEX.

⁴⁵ M. Mozgawa, *Komentarz do art.190(a) Kodeksu karnego*, 2014.09.01, LEX.

⁴⁶ M. Zaremba, *Prawo dostępu do informacji publicznej – zagadnienia praktyczne*, Warszawa 2009, s. 15.

⁴⁷ *Ibidem*.

⁴⁸ *Ibidem*.

⁴⁹ This part is based on: A. Cebera, D. Horodyski, *Personal...*, p. 356-360.

⁵⁰ B. Bińkowska-Artowicz, *Informacja gospodarcza. Informacja kredytowa*, Lex online, 2014, chapter 2.1.

⁵¹ <http://privacyconference2011.org/includes/IntroductionIFAIEngles.pdf>, p. 2; A. Zoll, *Informacja prawna a prawa obywatela* [in:] K. Grajewski, J. K. Warylewski, *Informacja prawna a prawa obywatela. Konferencja z okazji XXXV-lecia informatyki prawniczej w Polsce i XV-lecia Systemu Informacji Prawnej LEX. Gdańsk, 19-20 czerwca 2006*, Lex online.

⁵² W. Skrzydło, *Konstytucja Rzeczypospolitej Polskiej. Komentarz*, LEX online, 2013, commentary to art. 61; Z. Zawadzka, *Wolność prasy a ochrona prywatności osób wykonujących działalność publiczną. Problem rozstrzygnięcia konfliktu zasad*, Lex online, 2013, chapter 4.1.

⁵³ M. Kłaczyński, S. Szuster, *Komentarz do ustawy z dnia 6 września 2001 r. o dostępie do informacji publicznej (Dz.U.01.112.1198)*, Lex online, 2003, commentary to art. 2.

⁵⁴ <http://isap.sejm.gov.pl/DetailsServlet?id=WDU20011121198>.

public information are not numerous but may and do occur.⁵⁵ The limitations as to application of the Act on public access to information set forth in art. 5 section 2 concern the privacy of natural persons and the secret of the entrepreneur. Therefore, these limitations are primarily in accordance with art. 61 section 3 of the Constitution but also they conform to the standard of protection resulted from art. 31 section 3 of the Constitution, which should be applied to every situation of limiting access to public information prescribed in art. 5 of Act on access to public information. Among limitations to access to public information covered by art. 5 the protection of privacy of natural person falls within the scope of abovementioned standard of protection. It means that under Polish law in case of conflict between these two principles the right to protect personal data should prevail over the right of access to public information.⁵⁶

3.2.2 Information disclosure claims in the press law

The reference books indicate the significant role of press in strengthen and developing democracy. Article 1 of the press law stipulates, that according to the Constitution of the Republic of Poland the press enjoys the freedom of speech and realizes citizens' rights for being honestly informed, openness of public life and social control and criticism. It means, that press has a great impact on affecting public opinion, because of its informational function, and in consequence - enable controlling the public authorities by society⁵⁷. In other words the role of press is related to freedom of information. However, it may be restricted by the right to privacy, but this issue, will be stipulated in the another part of this paper.

As noted by M. Zaremba,⁵⁸ press law established three different information disclosure claims:

- a) Access to public information due to provisions of Act on access to public information (art. 3a Act on press law);
- b) State organs, state enterprises and other state organisational units, and in the range of social and economic activity also cooperative organisations and persons running business activity on their own account are obliged to supply information to the press about their activity. Refusal of furnishing information may occur only for the reason of preserving state and official secret and other secret protected by the Law. On the request of the editor-in-chief a refusal is delivered to the interested editorial staff in a written form in the term of three days; the refusal should include indication of an organ, organisational unit or a person it comes from, the date of a refusal, editorial office it concerns, indication of information being its object and the reason for a refusal. (art. 4 Act on press law);
- c) demand of responding on press critics (art. 6 Act on press law).

However, one may notice that information disclosure claims set out in point b) and c) are not related to public information, and as so – the scope and effectiveness of the freedom of information is wider than the scope of protection based on the access to public information.

3.2.3 The right to access environmental information

In accordance to article 74 of Constitution, everyone shall have the right to be informed of the quality of the environment and its protection. In doctrine there is no agreement as to the mutual relationship between abovementioned art. 61 (right to access to public information) and article 74.

From literal interpretation of this regulation it arises that right to access to environmental information pertains to different state of matter than art. 61. Due to this interpretation the right to access to environmental information is addressed not only to public authorities but also to private entities.⁵⁹ Another notion is advocated by B. Rakoczy, who notes, that the right to access environmental information is address only to public authorities, and is classified only as a part of right to access to public information from art. 61.⁶⁰

Importantly, the Act of 3 October 2008 on providing information on the environment and environmental protection, public participation in environmental protection and on environmental impact assessments,⁶¹ governs that only public entities are obliged to enclose environmental information. Although the mutual relationship between article 61 and 74 is not obvious, there are no doubts that right to access to environmental information may be classified as a part of FOI.

3.2.4 The right to access information on court cases

The right to access information on court cases may be analyzed as a part of freedom of information rule. It is also related to protection of privacy.

On the one hand, the right to privacy limits the access to information on court cases – only a specified group of entities in entitled to access this data, but on the other hand the right to access information on court cases may be - surprisingly - classified as a part of the right to privacy. This thesis has been found in a number of publications, because the right to privacy also contains the right to access information about myself. I can protect my privacy efficiently, when I am aware of the scope of information about myself processed by other entities.

The Code of Criminal procedure in article 156. § 1 and 5 governs that parties as well as their defence counsels, attorneys, legal representatives and statutory agents may be permitted to examine the files pertaining to the case and to copy them. These records may also be made accessible to other persons with the consent of the president of the court. Unless provided otherwise by law, permission by the person conducting the preparatory proceedings shall be required for the inspection of files of the preparatory proceedings in progress,, making copies and photocopies of the same by parties, defence counsels, legal representatives and statutory agents, and for the issuance of certified copies. With the permission of the state prosecutor, access to files in the pending preparatory proceedings could be given to other persons.

Similar regulation is provided by Act of 17 November 1964 - Code of civil procedure ("CCP"). In accordance to article 9 § 1 CCP, cases are heard in public, unless otherwise provided for in specific provisions. The parties to and participants in proceedings have the right to insight into the case files as well as the right to receive copies thereof. However, one may notice that wider scope of protection is provided in non-contentious proceedings (art. 525 CCP). Due to this regulation, case files shall be available to parties to proceedings and, subject to the consent of the presiding judge, to each person who reasonably substantiates his need to see the files.

Act of 14 June 1960 Code of Administrative Procedure⁶² also regulate the access to files. At each stage of the proceedings a public administration body shall allow parties to view the file and to make notes or copies thereof (art. 73).

The right to access information on court case or administrative files is considered in this paper as a legal regime separate form access to public information regime. However, when disclosure

⁵⁵ Judgment of the Polish Supreme Court of 8 November 2012, I CSK 190/12; P. Winczorek, *Komentarz do Konstytucji Rzeczypospolitej Polskiej z dnia 2 kwietnia 1997 r.*, 2008, p. 114; Judgment of Voivodship Administrative Court in Szczecin from 30 October 2014, II SA/Sz 502/14; Judgment of Polish Supreme Court of Administration from 19 August 2014, I OSK 2859/13.

⁵⁶ M. Kłaczynski, S. Szuster, *Komentarz...*, commentary to art. 5.

⁵⁷ Z. Zawadzka, *Wolność prasy* ..., LEX no. 168972.

⁵⁸ M. Zaremba, *Prawo dostępu do informacji publicznej, Zagadnienia praktyczne*, p. 239.

⁵⁹ M. Zaremba, *Prawo dostępu do informacji publicznej, Zagadnienia praktyczne*, p. 257

⁶⁰ B. Rakoczy, *Komentarz do art.74 Konstytucji Rzeczypospolitej Polskiej*, 2013.11.25, LEX.

⁶¹ Journal of Laws 2008 No. 199, item 1227.

⁶² Journal of Laws 1960 No. 30, item 168.

demand is made not by the party of the proceeding and concerns public information, act on access to public information is applicable.⁶³

4. Examples of overlap between these rights and resulting situations where the right to privacy

The next part of the study discusses specific examples of overlap between these rights and resulting situations where the right to privacy is restricted by the right to information. First, the paper explains the restrictions on the right to information resulting from the protection of personal data. Secondly, it discusses the restrictions resulting from the freedom of expression and, at the end, the restrictions resulting from the criminal law and the protection of the accused.

4.1. FOI and personal data protection⁶⁴

The literature indicates a conflict between the right to personal data protection and the right to access to public information, which takes place when the right of an individual to protect his or her personal information and every person's freedom to collect and process information collide.⁶⁵ With a view to the above, in the present reflections the following will be proven:

1. the right to personal data protection is one of the elements determining the maximum scope of the application of the right to access to public information;
2. the right to access public information may, in justified circumstances, restrict the application of the right to personal data protection.

It is significant in the legal orders of the Member States of European Union that in spite of harmonization of the regulations pertaining to personal data protection, those rights are given different priority. As an example Polish legislation, in which the right to personal data protection essentially has priority over the right to access public information, as well as Swedish legislation, in which the hierarchy of the rights is reversed, will be cited. The reasons for the emergence of this difference will also be explained. However, the right to protect personal data may be challenged pursuant to provisions of Act on access to public information for example when it concerns the personal data of natural persons who exercises public functions. Polish Supreme Court of Administration stated that the address of residence of a mayor of the city is public information and hence is subject to revealing.⁶⁶ Nevertheless, it should be noted that the natural person who exercises public function may seek protection of his/her personal data under the provisions of Act of personal data protection.⁶⁷

In European Union law access to public information in Member States is regulated only as to issues relating to the protection of environment.⁶⁸ Because the environmental policy is one of the most important and most regulated domains in European Union the principle of access to information in this area is pivotal. Pursuant to Directive 2003/4/EC of the European Parliament and of the Council of 28 January 2003 on public access to environmental information and repealing Council Directive 90/313/EEC⁶⁹ any natural or legal person requesting environmental information is entitled to have the right of access

to environmental information held by or for public authorities and to set out the basic terms and conditions of, and practical arrangements for, its exercise. Environmental information shall mean any information in written, visual, aural, electronic or any other material form on environmental matters described in art. 1. This right, however, is not limitless. Pursuant to art. 2 letter f of the Directive: Member States may provide for a request for environmental information to be refused if disclosure of the information would adversely affect the confidentiality of personal data and/or files relating to a natural person where that person has not consented to the disclosure of the information to the public, where such confidentiality is provided for by national or Community law. This regulation suggests that also on EU level the principle of protection of personal data of natural persons is protected over the rule of access to public information. Of course this protection does not result directly from the Directive but is dependent on Member State's national regulations that may provide adequate regulation.⁷⁰

Taking into account the European Union's legal system it must be pointed out that unlike to the personal data protection that is harmonized on a minimum level by the Directive 95/46, the access to information (excluding environmental issues) is not harmonized nor unified. For these reasons the legal systems of Member States vary and reflect national approaches as to these matters.⁷¹

As it was described above in Poland the scopes of applications of these two principles are meant in general to be separate. However, despite apparent distinction between personal data protection and access to public information it is often not easy to distinguish when each principle applies.⁷² For example name and surname of a natural person constituting personal data that are subject to relevant protection and exemption pursuant to art. 5 section 2 of Act on access to public information. Nevertheless, the decision of exempting such data is not mandatory and in fact depends on particular case.

According to the Supreme Court of Poland and Polish Constitutional Tribunal the right to personal data protection stems from the personality rights such as the dignity of human being and privacy right.⁷³ It is argued that contemporary gathering and processing personal data is technically easy and thus it is necessary to provide adequate protection of natural person from uncontrolled using his/her personal data, which is often performed without his/her consciousness and consent. For this reason in the Act on protection of personal data the legislator regulated carefully issues regarding gathering, processing, using and protecting personal data of a natural person. When interpreting these provisions one should not omit the Directive 95/46/WE, in which it is underlined that systems of personal data protection are created to serve people and thus they must respect elementary rights and freedoms of human being in particular the right to privacy. In the judgment from 28 April 2004, III CK 442/02 the Supreme Court of Poland highlights that when assessing weather, by asking for access to public information, it has been an intrusion into domain of private life, this notion should not be absolutized because due to its level of generality it requires interpretation including particular circumstances of every case. To private sphere of life should be included events and elements constituting personal and familial sphere. It does not mean that every piece of information concerning a natural person constitute his/her private personal life.

Hence, it appears that the regime of personal data protection and access to public information are or at least should be viewed

⁶³ Judgement of Supreme Administrative Court of 16th December 2005, OSK 1782/04.

⁶⁴ This part is based on: A. Cebera, . Horodyski, *Personal...*, p. 353-360.

⁶⁵ A. Sibiga, *Postępowanie w sprawach ochrony danych osobowych*, Warszawa 2003, p. 16, as cited in: P. Barta, P. Litwiński, *Ustawa o ochronie danych osobowych – Komentarz*, Warszawa 2013, p. 3.

⁶⁶ Judgment of Polish Supreme Court of Administration from 2 July 2002, II SAB/LU 10/02; M. Kłaczyński, S. Szuster, *Komentarz...*, commentary to art. 6.

⁶⁷ M. Jaškowska, *Dostęp do informacji publicznych w świetle orzecznictwa Naczelnego Sądu Administracyjnego*, Toruń 2002, p. 32 after Kłaczyński, S. Szuster, *Komentarz...*, commentary to art. 6; H. Szewczyk, *Ochrona dóbr osobistych w zatrudnieniu*, Lex online, 2007, chapter 3.2.2.

⁶⁸ M. Kłaczyński, S. Szuster, *Komentarz...*, commentary to art. 1.

⁶⁹ Directive 2003/4/EC of the European Parliament and of the Council of 28 January 2003 on public access to environmental information and repealing Council Directive 90/313/EEC, Official Journal L 041, 14/02/2003 P. 0026 - 0032 http://uecelex.lex.pl/celex/2003/32003i0004_en.html.

⁷⁰ Report from the Commission to the Council and the European Parliament on the experience gained in the application of directive 2003/4/Ec on public access to environmental information, p. 9.

⁷¹ G. Edelstam, *What about integrity? National Traditions of Registration and Transparency* [in:] M. Ruffert, *Administrative Law in Europe Between Common Principles and National Traditions*, 2013, p. 103-104.

⁷² Judgment of Constitutional Tribunal from 20 March 2006, K 17/05.

⁷³ Judgment of Constitutional Tribunal from 19 February 2002, U 3/01, OTK-A 2002, No 1, section 1 and from 12 November 2002, SK 40/01, OTK-A 2002, No 6, section 81.

separately. Of course there are mutual interactions and relations between them because in certain situations processing public information may interfere with or even breach personal data protection, i. e. the right to privacy or the protection of right to privacy will require rejecting using personal data.⁷⁴ Thus, it is hard to decide if for example granting access to the name and surname of a natural person by state authorities breaches the right of this person to privacy.

On the other hand, there are different legal systems that present divergent approach to abovementioned issues. For instance, legal system in Sweden tends to be less susceptible for presented above concerns. The Swedish tradition is strongly oriented on access to official documents and national registration to the extent that might be considered as breaching people's integrity and right to privacy. For example through national registration number of an individual everyone can easily find information about this individual such as his/her income or taxes. There is public access to such data.⁷⁵ In Sweden due to its long-lasting tradition, the access to official documents prevails over the personal data protection and is strictly bound with promoting democracy and controlling the state. The access to information about citizens is vast and include ordinary documents, for example in connection to decisions on individual cases such as architectural drawings of a person's home in a building matter. In addition there is access to information in database where information on many individuals can be obtained. Taxation of individual citizens as to how much a citizen earns and the taxes he/she pays are official documents. Such information is considered as harmless by the legislator and it is obviously deemed as important for the democracy as transparency is supposed to serve democracy.⁷⁶ Such approach may be intrusive as to personal data protection and places at risk individual's integrity. In this system the personal data protection might appear illusory and cannot serve its function properly. Apart from the personal discomfort resulting from public disclosure of personal documents there are serious criminal problems associated with very broad definition of official documents.

In fact, this dispute concerns basic constitutional values. On the one hand Constitution declares the right of citizens to obtain information about the activities of public authorities (Art. 61 section 1), including, among others, access to documents (Art. 61 section 2), which can be restricted i. a. due to the protection provided in laws for rights and freedoms of other persons (art. 61 section 3). On the other hand, the Constitution provides legal protection for private and family life, honor and good name (Art. 47), and prohibits the disclosure of information concerning a person otherwise than pursuant to the Act on personal data protection (Art. 51 section 1).

As it has already been set out, the national regulations are given different priority to here abovementioned constitutional legal values. In Polish legislation, the right to personal data protection essentially has priority over the right to access to public information, as well as in Swedish legislation it does not. The reasons for the emergence of this difference results from the fact, that up till now, provisions concerning personal data protection were only harmonized, and what is more – Directive 95/46 did not indicate the minimum level of protection.

This state of matter will change, because Commission has concluded that the EU needs a more comprehensive and coherent policy on the fundamental right to personal data protection. In the European Parliament legislative works are underway aiming at creation of a regulation concerning personal data protection, that is an act, which will produce legal effects directly in the legal orders of the Member States. The direct applicability of a Regulation in accordance with Article 288 TFEU will reduce legal fragmentation, improving the protection of fundamental

rights of individuals⁷⁷. The conflict between right to personal data protection and right to access to public information will be resolved on the same basis in all EU because the proposed Regulation will unify the different approaches as to restricting the scope of application of access to public information by imposing uniform standards of protection of personal data. As for now, we are presumed, the right to personal data will prevail in EU and in consequence restrict the wide scope of right to access to public information in Member States where this order is reversed, for example in Sweden.

4.2 Right to privacy and restrictions resulting from the press law

The restrictions of a right to privacy may take place due to the regulations of press law in hereunder mentioned situations. First of all the right may be subject to restrictions as per art. 13 of Act on press law, because there are no restrictions in publishing personal data and picture of sentenced by the final judgment of a court.

Secondly, in accordance with art. 4, state organs, state enterprises and other state organizational units, and in the range of social and economic activity also cooperative organizations and persons running business activity on their own account are obliged to supply information to the press about their activity. They are also obliged to answer the press critics.

And finally, restrictions regarding public activity. Article 14 point 6 Act on press law notes, that no one is entitled to publish information or data subjected to someone's private life, unless this information directly refers to public activity of this person, with particular emphasis on exercising public authority. E. Ferenc-Szydelko assumes that this regulation does not apply to entities commonly recognized.⁷⁸

For example one is allowed to publish information about divorce, because it does not refer only to private life – divorce cause consequents also for third parties - for example creditors.⁷⁹ What is more, divorce judgment should be announced in open court (art. 326 CCP).

Finally, the reference books indicate that the amount of salary is not protected on the basis of right to privacy, when it concerns public authorities.⁸⁰

4.3 Right to privacy and restrictions regarding to court proceedings

The scope and effectiveness of the right to privacy is restricted by the provisions regarding court proceedings, with particular emphasis on transparency rule. Article 148 § 1 CCP states, that unless otherwise provided for in specific provisions, court sessions shall be open and the court of trial shall hear cases in trial. What is more, due to the art. 326, a judgment should be announced in open court. A Similar regulation is provided by Code of Criminal Procedure, however article 39 of Criminal Code establishes an additional penal measure limiting the right to privacy - a publication of the sentence.

Summary

The aim of this paper was to present the limitations of the right to privacy resulting from FOI. The summary presents an attempt to answer the question about the mutual relation between both rights and their future hierarchy.

⁷⁴ Judgment of the Polish Supreme Court of 8 November 2012, I CSK 190/12; A. Żygadło, *Wylączenia tajemnicy bankowej a prawo do prywatności*, Lex online, 2011, chapter 3.1.

⁷⁵ G. Edelstam, *What about integrity?*... p. 104.

⁷⁶ *Ibidem*, p. 112.

⁷⁷ Proposal for a Regulation of the European Parliament and of the Council on the protection of individuals with regard to the processing of personal data and on the free movement of such data (General Data Protection Regulation), http://ec.europa.eu/justice/dataprotection/document/review2012/com_2012_11_en.pdf, 10.03.2015.

⁷⁸ E. Ferenc-Szydelko, *Komentarz do art.14 ustawy - Prawo prasowe*, Lex online 2013.

⁷⁹ *Ibidem*.

⁸⁰ J. Sobczak, *Komentarz do art.14 ustawy - Prawo prasowe*, Lex online 2008.

One may notice a phenomenon, that legal institutions related to right to privacy and FOI constitute two independent legal regimes protecting contrary values. In consequence, restrictions from both principles must remain proportional of the purpose, which this restriction is to serve. Difficulties appear in situation of conflict between those two principles, because there are no guidelines as to decide which principle prevail.

In theory of law it is said, that in such state of matter, one should harmonize both principles in order to make both of them as efficient, as it is possible. Another notion is also advocated, according to which personal rights (right to privacy) should prevail political rights (FOI). It means that resolving conflict between those two principles, the scope and effectiveness of the protection of privacy prevails. As far as we are concerned the second resolution was adapted by Polish legislature.

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MARKETING IN TOURISM

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Abstract: Marketing involves anticipating, stimulating, recognizing and meeting demands. It means understanding of what can be sold to whom, when and in what quantity. Moreover, it involves searching for what the consumer wants, and further creation of a product that meets these demands. The aim of the present paper is to present the systems of tourism promotion. Particular attention was given to tourism marketing, its role and meaning in tourism, as well as functions and influence on development of tourist areas. The article has been written mainly with the use of information included in publications connected with international tourism. In the process of preparation of this paper, there has been used a source of statistical data – the Internet.

Keywords: tourism marketing, tourism industry, tourist product

1 Introduction

Promotion and activities aimed at granting prestige to a project or a product have accompanied economy from the dawn of history.

After transformation from statist economy system to free market economy, its influence became visible also in Poland. It gave a completely new dimension to the promoted products. Promotion has increased the significance of the products. Enterprises are one of the driving forces of the tourism-economy area. It is often that the products of a given company, advertised in a variety of ways, are meant to be associated with an interesting and original tourist object or a region. Tourism is a significant means of implementation of various political objectives such as, for instance, shaping the image of a given country abroad, or the nature and sphere of international relations (Kruczek, Walas, 2010, pp. 7-8). It is also a phenomenon of large and varied content. Moreover, it is of great importance as one of the elements of international economic international relations.

However, marketing is a broad concept. The name comes from the word "market" (Kruczek, Walas, 2010, pp. 7-8). The end of the XX century is when people became sympathetic towards marketing. They started using this term more often.

Marketing means anticipating, stimulating, recognizing and, finally, meeting demands. It involves understanding of what can be sold to whom, where, when and in what quantity. It means searching for what the consumer wants, and creating a product that fulfills these needs.

A company that is marketing-oriented is one where the marketing philosophy is present in the whole enterprise. If the board's decisions are made on the product level or the president of the management board isn't sympathetic towards marketing, the marketing manager's task is infeasible. Marketing will also not work efficiently if other departments work in an inefficient way. If company costs are too high, or there inappropriate control of product quality leads to its low value in comparison with the price, no marketing amount will bring company success. The needs of many customers remain unfulfilled, no matter if the given product is well-advertised or sold (Kruczek, Walas, 2010, pp. 19-20).

2 Scope of the tourism industry

In simple words, the term "tourism industry" is a varied, exceptional collection of all the functioning tourism institutions in the market. If we look at it this way, the tourism industry is influenced by a large number of international tourism organizations.

The tourism industry involves suitable infrastructure and services for handling of tourism activities and fulfilling the

needs of tourists from their arrival to their departure (Alejziak, Marciniak, 2003, pp. 27-28)

In Poland the term "tourism industry" is not very popular. Probably it is due to, to a large extent, the resistance connected with its application for determining the operating area of companies conducting their business activities in the service sector, among others (Alejziak, Marciniak, 2003, p. 31).

Tourism is a large economic organization which includes a great number of companies and institutions. In order to described these business activities, the term "tourism industry" is often used. This term, however, needs to be treated as informal, agreed, not a particular part of the economy. It does not constitute a separate area of business activities and is not included as such in the International Standard Industrial Classification (ISIC), and the tourist products are not listed in its corresponding Central Product Classification (CPC). This division covers only the products and businesses connected with tourist services and tourism-related industries (Altkorn, 1994, p.11).

3 Introduction and development of tourism marketing

The reason for development of tourism marketing was, among others, rapid growth of the tourism alone, which became, in many countries, the main branch of economy, and even the source of income.

In the 60s, there have been introduced some changes in market strategy of companies operating on the tourism market. At first, in the USA and a little bit later in Western Europe. In the previous era the entrepreneur's strategy focused on designing a tourist product with a conviction that the consumer should buy it. The condition for market success in the new situation was analyzing customer needs in order to anticipate what the potential customer will be eager to buy. Product-oriented operations were substituted by need-oriented approach (Altkorn, 1994, pp. 13-14).

However, tourism marketing wasn't autonomic, as the practices and theory of tourism marketing were, to some extent, borrowed from industry and trade. This transfer wasn't an easy operation. Despite the benefits that were to be ensured by the new strategy in the developed countries, its transformation into practice was conducted unequally. In the countries with centrally planned economy, characterized by low living standards and seller's market, marketing in national tourism had never existed, and its fragments appeared solely in the process of promotion of foreign inbound tourism treated as the source of foreign currency acquisition.

Although the terms and basic marketing technique methods are shared by various kinds of business activities, particular markets have certain unique qualities, at the same time. For instance, the production means market differs to a certain extent from the market of consumption means, and material goods differs from service market. Particular markets can be influenced by environmental, social or political conditions. All this caused that, on the grounds of previously mentioned unity of basic premises of this theory, as well as because of various conditions of space, time and the exchange subject, marketing concepts have been gradually developed in multiple areas of economy (Chudoba, 2011, pp.41-45).

One of these sub-theories of marketing is marketing in tourism. Although this kind of marketing was developed on the ground of creative adaptation of the general theory, the specific nature of the tourism market caused that in the 60s there were developed unique simplifications, taken from experiences. In 1959 at the University in Bern, Switzerland, there have been conducted first lectures on the subject of marketing (Altkorn 1994, p.14).

The development of tourism marketing confirms the regularities characteristic for every scientific field and the concept of management, where there is a need to distinguish unique regularities from the core of the system. Therefore, for many years now, marketing has been developed according to industry criteria, for instance transport marketing, sailing marketing, aircraft marketing, hotel marketing etc.

4 Functions of tourism marketing

The functions of tourism marketing may be treated from four points of view: regional, micro-social, social and individual consumer.

The independence of the consumer is what connects all the points of view in the market economy conditions. It means that the consumer decides how the social resources should be used, taking a vote on the market through purchasing particular goods and consumer services, deciding what should be manufactured and offered, and on what scale it should be done. They can choose not only from the already manufactured goods and offered services, but also refuse to make a purchase and share information about their needs and preferences, on which they would be willing to spend money. Thanks to marketing research, the market information contributed to efficient fulfillment of customer needs, as well as to rational resource allocation (Chudoba, 2011, pp. 53-55).

From a rational point of view, marketing may play an important role in directing tourism demands towards the places where they could be more efficiently met. The methods of selling of tourist attractions, suitable price policy, psychological means of influencing consumers via advertisements may encourage to discover places and regions that are less popular. Diverting consumer attention from the areas where the reasonable amount of tourist interest has been exceeded is based on explanation of rationality of changing former habits in order to introduce new ways of meeting demands.

Promoting new tourism areas favors their economic growth. Decentralization of the tourist flow has led to foreign currency flow, created new workplaces and allows for maintaining the connection between tourism economy and natural environment protection.

Marketing influence on the consumer is connected with realizing information functions. They are based on delivering information concerning value in use of the product offered on a tourism market, the place and means of acquisition.

Spreading information that relates to the calculations done by the consumers, enables shaping preferences determining the choice of a given product and protects against transactions that could be a source of dissatisfaction. Delivering tourists the information concerning time and place of a purchase protects them against unnecessary waste of time. People have various notions of traveling and leisure standards. These views are subjective but dependent on patterns encountered in the surrounding environment, as well as on the ability to create relevant notions by the entrepreneur. A tourist who uses an enterprise's offer searches for a question whether he is an object of the desired attention and care (Holloway, Robinson, 1997, pp. 92-121).

All the actions are aimed at achieving disclosure of behavior that meets the entrepreneur's demands, aiming at developing sales in order to increase income. Marketing creates a criterion that enables adjustment of an enterprise to a present and future market situation.

5 The nature and kinds of tourist product

Tourists are consumers who buy a particular amount of various tourist services. If people working in this department are able to better understand why there is demand for their products, they could adjust them to their customers' needs and chose better

advertisements in order to inform and convince the consumers to buy the advertised products.

The tourist product has been a subject of marketing operations shaped according to the consumers' needs. A "product" means every subject of market exchange or everything that can be offered on the market, every place, material good, organization, service, or an idea. Market value of a product is the ability to meet particular demands. The purchased product should bring certain benefits. Therefore, a product is often defined as a set of benefits for the buyer (Panasiuk, 2013, pp.62-66).

A "tourist product" is everything what tourists buy independently (transportation, accommodation) or, in a company, a service package, a set, or what tourists do, as well as the advantages of devices and services which they use.

A tourist product involves:

1. Tourist goods and devices:

- basic: natural, cultural
- complementary: material goods and services for the tourists (accommodation, transportation, catering facilities)

2. Tourist services:

- basic: facilitating transport to a temporary place of stay, the stay itself and commute back to the place of living
- complementary: services connected with tourist attractions (guidance, leisure activities, sport equipment rental facilities).

The collection of tourism services that aim at fulfilling the comprehensive needs is called a "service package". Such a package is a combination of two or more elements offered by a seller as one product at a set price. Many sellers tend to, apart from packages, ensure that the tourist can purchase various complementary services, as tourists often want to individualize their stay in the destination place (Panasiuk, 2013, pp.62-66).

A product involves three levels:

1. The basic product – service which is a basic benefit, its purpose is to satisfy particular target demands of a market segment, for example: relaxing, resting, entertainment etc.,
2. The real product – material sales offer, stating what the customer will receive in exchange for his money,
3. The enhanced or extended product – involves all the forms of complementary benefits, which the manufacturers may build into the real products in order to add variety to them.

Practical shaping of all the elements of the tourist product and their external connections may be altogether defined as creating integrated tourist product. One of the most important features of the product is its complementary nature. It is based on the fact that the needs in the scope of tourism are met via the chain of tourist goods and services (Panasiuk, 2013, pp.62-66).

An integrated tourist product is the outcome of the process of analysis of natural and anthropogenic features, market opportunities and the consumers' advantage. The tourist product is a main line of goods and tourist services, constituting one unique product that is attractive for a tourist. An attractive product adds value to the tourism assets and provided services, by integrating them and singling out the value for the customer, and their higher sales.

In the era of information society a crucial role in creating tourist products is played by human resources. Even the abundance of environmental and anthropogenic resources does not grant success in commercialization of a given tourist region. However, skillful aggregating or resources, according to the "from idea to a product" principle, creates the possibility of marketing resources

of a given region. Only comprehensive market offers such as products, their careful management and skillful promotional activities are the guarantee of success in tourism operations (Oleksiuk, 2007, pp.121-128).

Conscious and intentional use of tourism resources is possible only with an appropriate level of education of both human resources and members of tourist flows. It requires specialists shaping the environment for the sake of tourism, as well as employees directly connected with tourist flow handling.

6 Promotion of tourism regions

A region has become a tourist product due to the development of the Internet and marketing operations. The competition between mountain, sea, province areas, requires from the local representatives decisive actions. Thanks to that the region has the opportunity to achieve high sales level and attract new tourists. The promotion of regions is not a simple task, but is still possible. There are also various institutions that deal with the promotion of regions. Cooperation with such institutions may bring multiple benefits. Determination of tourism regions in the world is a very hard task mainly because of the necessity to meet various criteria. World Tourism Organization, making the analysis of tourist flow, determined six tourist macro-regions including twelve sub-regions. Due to the tourist flow, the biggest region of the world is Europe, where there are four sub-regions determined: north, east, south and west. Second area is North and South America, divided into three sub-regions: North America, Middle America, South America and the Caribbean. Eastern Asia and the Pacific area, together with Australia are another macro-region. The macro-region of Africa has been divided into five sub-regions: east, middle, south and north. South Asia and the Middle East are classified by WTO as independent macro-regions (www.world-tourism.org).

Tourist flow mainly concentrates on particular areas with natural tourist assets that attract tourists.

The basic source of data in the issues concerning tourist flow in the world is WTO. According to WTO, the international tourist flow in the world in 2005 amounted to 808 travels abroad (www.turystyka24h.pl).

A tourist region constitutes a part of a tourist area which consists of geographic space and socioeconomic space where the tourist-related actions take place.

In the economic sense, a tourist region is a multi-branch area with significant intensity of tourist functions. In the region, tourist activity competes with other economic means of utilizing space – industry, agriculture, which are crucial in terms of functionality. Often there are conflicts between tourism and other fields of local development, which may constitute a threat to its development. This happens when people inhabiting a tourist region are employed, on a large scale, in professions that are not directly, or not even indirectly, tied with tourist management, and the benefits of tourism development accrue to a small group of entrepreneurs. On the other hand, development of tourist activities, due to its heterogeneity, may bring effects in the form of creating, enriching, or at least completing other fields of tourist region management, which also becomes a factor determining economic activity, driving force of economic and social development. Undoubtedly, however, the constant need of achieving compatibility between functions of tourist regions, may be the cause of the drop in their competitive position. Municipalities and small regions find it hard to achieve a significant position on the tourist market, which is highly competitive. Often, the places that haven't been discovered yet become like a rough diamond worth unraveling and fascination. In the world there is plenty of such places in unappreciated regions that offer unblemished nature, unique cuisine and exceptional local climate (www.przewodnik.onet.pl).

The promotion of region, due to the diversity of goals that are to be achieved thanks to it, has to be aimed at various groups of

consumers. Because of that, various transmission techniques should be applied, and it should be directed (Zmysłony, 2008, pp.13-14):

- outside the region, country-wise or abroad;
- to the inhabitants of the region, employees and employers of the region;
- to the employees of regional authority offices and their subordinate units.

External actions are based on increasing capacity and economic efficiency of the region or a city in both direct and indirect manner (Zmysłony, 2008, pp.13-14):

- attracting investors;
- creating new workplaces – growing affluence of the inhabitants,
- development of inbound tourism – local budget flow, development and increase in local tourist and semi-tourist business incomes;
- attracting promotion-related assets – from the government, from abroad.

The effects of such operations merge, as the increase in workplaces causes, for instance, the decrease in expenditure on social care. The increase of income to city budgets, with right policy, may cause increase in workplaces and lead to new investments in infrastructure. Means of region promotion are, among others:

- creating a logo and slogan in order to build image and recognizability;
- membership and lobbying in local authority organizations within the country and abroad. It creates formal and informal connections, resulting in joint ventures: exchange of experiences, acquisition of investors and opportunities to organize cyclical events, upgrade culture or even political skills;
- rating provided by specialized companies that draw up ranking lists in given categories of business life. This tool is one of the strongest ones;
- ISO or other certificates that are quality measures recognized worldwide;
- trade promotion (tourism, culture, economy, education).

Internal actions towards local communities are focused on educating the inhabitants of a region on the nature of functioning and directions of development of local government which creates a certain climate around the pursued socioeconomic policy. Without proper information policy it can be anticipated that people will not react on authority actions, or even protest against these activities due to their lack of understanding of their intentions.

Conclusions

Marketing is a tool that now only works in large enterprises, but also in start-ups. Today's tourist market is mostly related with increase in consumer demands and needs, as well as growing competition. Therefore, an important factor is marketing activity of businesses. All the marketing operations such as organizing events, multimedia advertisement, trade fair and exhibition organization, creating websites, cooperation with various tourist agencies or hotels, contribute to the development of tourism worldwide, which generates income and influences professional activeness of human kind.

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Primary Paper Section: A

Secondary Paper Section: AE

INFLUENCE OF THE MOTIVATION OF ENTREPRENEURS ON THE WILLINGNESS TO TAKE RISKS

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Abstract: The evaluation of the willingness to take risks of the entrepreneurs is a key element for the decision of venture capitalists to invest in entrepreneurship. In this study, the relationship between the motivation of the entrepreneur and the willingness to take risks is analyzed. The multiple regressions analysis between the motivational factors and expenses of new venture in the PSED II dataset shows, that several motivational factors have a significant effect on the expenses of the new ventures. Entrepreneurs who start a business with the motivation for flexibility in life and freedom over their own work approach, have increased spending on the company and are taking a greater risk. This also applies to entrepreneurs who have the desire to influence an organization.

Keywords: entrepreneur, entrepreneurship, motivation, risk, expenses

1 Introduction

Starting a business is a risk for every entrepreneur. The entrepreneur invests her or his time, energy and resources to set up a company. If the foundations fails, the resources are lost in most cases. Despite these risk, there is a high number of entrepreneurs. This leads to the assumption, that entrepreneurs are more willing to take risks than other people. According to Das and Teng, the readiness to take risks is the most striking personal characteristic of an entrepreneur (Das, 1997).

In particular, investors and government agencies want to minimize the risk of their investments in start-ups. Therefore, the risk-taking propensity of entrepreneurs is evaluated for analyzing potential investments. Especially in the first 3 years of the entrepreneurship, the entrepreneur has a direct impact on the company's development since the entrepreneur is very much involved in operating the company's development in this period. The willingness to take risks increases the risk of the investment of investors.

Entrepreneurs start a company for a variety of reasons. These reasons are reflected in the motivation of the entrepreneur. The motivation of the entrepreneur has an influence on the founded company. Therefore, the hypothesis can be established that the motivation to start a business has an impact on the risk of the entrepreneur. A relationship between the motives of an entrepreneur and the willingness to take risks, makes it more accurate and easier to evaluate the risk of an investment in companies.

2 Theoretical framework

The characteristics of entrepreneurs have been extensively studied in the literature (Hornaday, 1982). In particular, the risk-taking propensity of entrepreneurs was examined in several studies. According to Sitkin and Pablo, the risk-taking propensity is defined as the willing to take steps which are considered as risky (Sitkin, 1992).

In a study of 239 entrepreneurs, Begley found out, that the risk-taking propensity was the only unique characteristic of entrepreneurs and non - entrepreneurs in which they differed significantly (Begley, 1995). Koh confirms this in his study. He found out that entrepreneurs have a higher propensity for risk-taking than other people (Koh, 1996). These studies indicate, that entrepreneurs will more likely take risks. The willingness to take risks, can be seen as necessary characteristic traits for entrepreneurs. At the same time, this characteristic trait can endanger the survival success of the founded companies.

The scientific findings do not show a consistent picture of the willingness to take risks between entrepreneurs and other people. McClelland for example found out, that entrepreneurs have an

average expression of the risk-taking property (McClelland, 1961). Kahneman and Lovallo come to an equal result. They have found, that entrepreneurs are not more willing to take risks than other people. The tolerance for risk is not higher of entrepreneurs than with people who are not active in entrepreneurial activities (Kahneman, 1993). Corman, Perles and Vancini came to the conclusion, that entrepreneurs have the same risk as the rest of the population, but do not perceive the risk as a risk. The perception of risk differs between entrepreneurs and other people (Corman, 1988). The studies come to a unified picture of the risk-taking propensity of entrepreneurs in comparison to people who are not entrepreneurially active. In the following, the willingness to take risks of entrepreneurs is compared to managers.

A special focus lies in science on the study about the differences between entrepreneurs and managers. In particular, the willingness to take risks of entrepreneurs and managers was examined. Lane argues in his book from 1982, that the willingness to take risks is the most significant difference between entrepreneurs and managers (Gasse, 1982).

Brockhaus came to a different conclusion 2 years earlier. He found out, that the willingness to take risks does not differentiate between entrepreneurs and managers. He came to the conclusion, that entrepreneurs have only an average degree of risk (Brockhaus, 1980). The difference between the risk-taking propensity of entrepreneurs and managers has also been studied by Babb and Babb and Palich and Bagby. No significant differences between entrepreneurs and managers for the willingness to take risks was found (Babb, 1992) (Palich, 1995). This has already been found in a study of Litzinger in 1961. Litzinger also found no significant difference in the willingness to take risks among owners of motels and hotel managers. (Litzinger, 1961) The operation of managers and entrepreneurs are similar in a number of aspects. Within an organization, managers must act entrepreneurially without owning shares of the company in most cases.

The different risk-taking by entrepreneurs and other people is based, according to a variety of authors, on the different perceptions of risk. Studies show that people perceive identical situations differently. For example, Nutt was able to show that people assess situations as riskier than others (Nutt, 1993). Begley also describes in his article, that the risks of entrepreneurs is regarded only as a moderate risk (Begley, 1995).

Sheppard argues that entrepreneurs are optimistic people who underestimate the risk of an enterprise. They have a greater belief in their own success of the company than the result of an objective assessment of the situation of the company (Shepperd, 1996). This reasoning follows Simon, Houghton and Aquino. Through a changed perception way, entrepreneurs estimate the risk for the company founders significantly smaller as it is regarded by other people. This has a major impact on a company's development (Simon, 1999).

Therefore, the question arises whether the assumption of risk, and thus the willingness to take risk is the decisive characteristic, if the risk of a situation is not perceived as a risk. That is why entrepreneurs distinguish from non - entrepreneurs rather in the perception of risk and in the willingness to take risks (Palich, 1995).

Cromie and O'Donoghue point out, that entrepreneurs take a manageable and achievable risk. Entrepreneurs evaluate and calculate the risk which they take and weigh up the advantages and disadvantages (Cromie, 1992). These risks are calculable because entrepreneurs can rely on their own skills and experience. This gives them the opportunity to assess the risk properly (Cunningham, 1991). Other authors even go a step further in the way that it is one of the most successful features of entrepreneurs to avoid risks (Miner, 1990). Literature review

shows that entrepreneurs have a higher willingness to take risk, which is based on a differentiated perception of risk. In order to get a differentiated picture on the willingness to take risks as well as to predict it better, it will be set into relationship with the motivation of entrepreneurs.

In literature, there is no study which investigates the influence of the motivation on the risk willingness. In this paper, the relationship between the willingness to take risk and the motivation is analyzed. In addition to that, the research question is investigated, if different motivational factors have a sophisticated influence on the willingness to take risks.

2 Methodology

2.1 Research Goal

The aim of the study is to investigate the relationship between the willingness to take risks of entrepreneurs and the motivation of entrepreneurs. The willingness to take risks is examined in particular on the basis of the willingness to invest in the new company.

Hypothesis

Different motivational factors of entrepreneur have a sophisticated influence on the willingness to take risks.

2.2 Sample and data collection

To investigate the relationship between the motivation of the entrepreneur and the willingness to take risks, in this scientific article the data from the PSED II dataset is used for secondary analysis. The PSED II data set comes from the University of Michigan. In 2006, 31,845 persons were called in the US and 1,214 people were identified who were in the process to start a new company. In the first year, the motivation of entrepreneurs was recorded and then for 5 years, financial data was recorded each year of the established company.

The PSED data are an indicator of 12.6 million nascent entrepreneurs in the US. The PSED II data set was also weighted based on US Census data to be nationally representative. PSED II was performed without a control group. The data from PSED II consists of a total of about 8000 variables.

The PSED II record contains the motivation of entrepreneurs in form of 14 motivating factors was initially recorded at the time the company was founded.

The scale had 5 items to choose from and included the following response options: 1. No extent, 2. A little 3. Some 4. A great, 5. A very great extent. The exact question was identical for each motivation cofactors. "To what extent was that important -- no extent, a little, no extent, a little, some, a great, or a very great extent?" The question was put in front of the motivation factors which were as followed.

W1. To achieve a higher position in society.

W2. To have greater flexibility for your personal and family life.

W3. To continue a family tradition.

W4. To be respected by your friends.

W5. To have considerable freedom to adapt your own approach to work.

W6. To give yourself, your spouse, and your children financial security.

W7. To follow the example of a person you admire.

W8. To build a business your children can inherit.

W9. To earn a larger personal income.

W10. To achieve something and get recognition for it.

W11. To develop an idea for a product.

W12. To have a change to build great wealth or a very high income.

W13. To fulfil a personal vision.

W14. To have the power to greatly influence an organization.

In a multiple regression analysis, the relationship between the motivation of the company founders and the expenditure is

analyzed. The expenditure is the geometric mean of the expenditures over 3 years. A significant correlation indicates the fact that certain motivational factors have an impact on increased spending on business start-up and thus have an impact on the risk of the entrepreneur.

3. Results

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	4,608E+12	14	3,291E+11	1,425	,158
Residual	2,056E+13	89	2,310E+11		
Total	2,517E+13	103			

Table 1: Result of the multiple regression analysis of the motivational factors and the expenses of the entrepreneurship

Table 1 shows, that the model is not significant with a p value of 0,158. The relationship between the motivation of an entrepreneur and the expenses of the founded company is therefore not significant.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0,428	0,183	0,055	480624,2152

Table 2: Analysis of variance of the motivational factors and expenses of the entrepreneurship

The model explains 18,3% of the expenses of founded companies. With all factors, which influence an entrepreneurship, the motivation of an entrepreneurs explains a big part.

Model	B	T	Sig
(Constant)	193723,075	,721	,473
AW1.IMP: HIGHER POSITION IN SOCIETY	-89425,760	-1,543	,126
AW2.IMP: GREATER FLEXIBILITY IN LIFE	119060,968	2,070	,041
AW3.IMP: CONTINUE FAMILY TRADITION	15391,087	,392	,696
AW4.IMP: RESPECTED BY FRIENDS	-34381,032	-,630	,530
AW5.IMP: FREE. TO ADAPT WORK APPROACH	-98580,331	-1,902	,060
AW6.IMP: FINANCIAL SECURITY	40772,045	,776	,440
AW7.IMP: FOLLOW EXAMPLE PERSON ADMIRE	22923,850	,487	,627
AW8.IMP: BUILD BUS KIDS CAN INHERIT	10275,225	,278	,782
AW9.IMP: EARN LARGER PERSONAL INCOME	-12805,507	-,226	,822
AW10.IMP: ACHIEVE AND BE RECOGNIZED	40952,886	,789	,432
AW11.IMP: DEVELOP IDEA FOR A PRODUCT	-62579,065	-1,255	,213
AW12.IMP: BUILD GREAT WEALTH	-31585,031	-,586	,560
AW13.IMP: FULFILL A PERSONAL VISION	-73799,251	-1,645	,104
AW14.IMP: POWER TO INFLUENCE AN ORG	127675,541	2,313	,023

Table 3: Coefficients of the relationship between motivational factors and the expenses of entrepreneurship

There is a significant relationship between the desire of greater flexibility in life and the expenditure for the company. The p-value is 0.041 with a value of $B = 119060,968$.

Another motivation factor has a significant impact on the company's expenses. The desire of power to influence an organization has a significant ($p = 0.023$) influence on the established company. The impact is positive and $B = 127675,541$. The desire for freedom to apply the own work approach in life, also has a low P - value of 0.060 and a B value of 119060,968.

There is no significant relationship between the other recorded motivational factors and the expenses in the PSED II data set. No significant association was observed with the remaining 11 motivational factors from the PSED II data set. These are the factors "Higher position in society", "continue family tradition", "respected by friends", "financial security", "follow example person admire", "build business did kids can inherit", "earn larger personal income", "achieve and be recognized", "develop idea for a product", "build greater wealth", "fulfill a personal vision".

3 Conclusion and discussion

The results provide information on the risk of investments in entrepreneurship. The risk of the investments can be evaluated among other factors based on the motivation of the company's founder. The study shows, that there is a relationship between the motivation of entrepreneurs and the expenses of the founded companies. Therefore, a relationship between the motivational factors of the entrepreneur and the willingness to take risks can be established.

The model of the 14 motivation factors and the expenses of the founded country is not significant. Looking at each of the motivational factors separately, a different result can be concluded. Entrepreneurs who start from the motivation for flexibility in life and freedom over their own work, have an increased spending on the company and are taking a greater risk. This implies, that people who are motivated by the independence in life, are more willing to invest in their companies and take a higher risk. It can be assumed, that people who are striving for independence do not focus on the return on investment. These entrepreneurs are ready to invest more money and take a higher risks to achieve the goal to become independent.

Entrepreneurs who focus on financial rewards, like the motivational factors "financial security", "earn larger personal income" and "build greater wealth", focus on the return on investment and therefore take less risks. Another category of entrepreneurs are striving for social recognition like entrepreneurs who are motivated by the motivational factors "higher position in society", "respected by friends" and "follow example person admire". Taking too much risk would ruin the reputation of the entrepreneur and therefore lower the social standing in the society. Only if entrepreneurs are successful and their companies survive, they can achieve their goals.

The significant relationship between the desire to influence an organization and the expenses of companies can be explained by the fact that the organization is bigger and the influence of the entrepreneur is higher when there is a high investment in the company.

The motivation of an entrepreneur can predict the willingness to take risks. Especially three motivational factors of an entrepreneur have an influence on the expenses of companies. Venture capitalists as well as government agencies should consider the motivation of entrepreneurs to evaluate the risk of their investment.

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Primary Paper Section: A

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REGIONAL LOGISTICS PROJECTS - THE IMPLEMENTATION CONDITIONS AND IMPACT ASSESSMENT

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Abstract: The main objective of the article is to present the selected conditions of implementation and preferred directions of action of regional logistics projects in the context of their effectiveness and efficiency. The first part of the article presents essence and types of regional logistics projects. Next the stages and actions of implementation of the effective and efficient project solutions in the field of regional logistics systems are presented. The second part of the paper includes the classification of regional logistics projects, taking into account factors such as the size of investment expenditures and the necessity of legislative and administrative changes to implement them.

Keywords: regional logistics project, assessment, effectiveness, efficiency.

1 Introduction

In the conditions of contemporary economy the correct and sustainable socio-economic development of a region and its inhabitants, accompanied by maintaining adequate social responsibility in managing its processes, frequently requires the application of an appropriate set of actions and tools, as well as an integrated and systemic approach. Therefore, the broadly understood care for better life quality of region dwellers should appear and be well noticeable in many aspects of its development. The absence of such approach, as well as proper mechanisms and actions at the level of the decision making bodies, may result in the fact that such development will be brought to a halt and, in consequence, lead to region stagnation, which can have an adverse influence on meeting its residents' needs in an economic, social or environmental sphere.

The specific nature of a region, results in the occurrence of numerous problems in competition for limited infrastructure ensuring mobility and storage which, on the other hand, influences the growing costs of functioning and living in a region. Such situation requires proper region management and the crucial role in achieving both, effectiveness and efficiency of the actions performed is played by implementation and management of regional logistics projects. The solutions, in the form of various projects and ventures, undertaken in this area can become an important tool in improving the life quality of region dwellers and constitute the manifestation of managing its area in a socially responsible manner.

Therefore, it can be stated that regional logistics projects covers activities depending on movement, consisting in a daily life cycle of a region, its economic, social and cultural space. It can constitute a tool for solving problems resulting from such movement within region areas, i.e. villages, cities, tourist reception areas, etc.

2 The essence and types of regional logistics projects

Various types of projects constitute a practical dimension of solutions which should be implemented in order to avoid or alleviate problems resulting from development. Among them the significant role is played by the regional logistics projects, the objectives of which are focused on, among others, goods, people and information flows optimization in a region area.

According to J. Witkowski and B. Rodawski [2008, p. 87-89] logistics projects represent individual, limited in time and budget ventures, the implementation of which aims at the improvement of effectiveness and efficiency in the flow of goods and the accompanied information in enterprises, supply chains or spatial systems.

Among them the following ventures can be distinguished: distribution of manufacturing plants and warehouses, transport, storage, development or modernization of linear logistics infrastructure components, stock management, customer service [Witkowski J., Rodawski B., 2007, p. 3].

Therefore, one can state that a regional logistics projects presents a specific type of a project which can be defined as unique, one-time venture featuring the specifically defined time frame and budget, the execution of which aims at the improvement of both, effectiveness and efficiency in the flow of goods, people and the associated information in regional logistics systems [cf. Meredith J. R., Mantel Jr. S. J., 2003, pp. 8-9]

While discussing the concept of a regional logistics system, defined as regional facilities indispensable to function and manage both, supply and network chains effectively in its area, as well as the infrastructure used for serving and managing flows of goods, people and the associated information in a region, a wide spectrum of projects can be indicated. In this respect the regional logistics projects can be divided into ventures related to infrastructure construction and modernization covering as follows:

- tracts of the particular modes of transport in a region (roads, inland waterways, passage networks, railroad tracks, etc.),
- transport nodes and points in a region (cross-roads, road junctions, depots, railway or bus stations, relay stations, interchange centre, sea and river ports, regional airports, etc.);
- storage processes (intermodal hubs, depositories, warehouses, distribution centers, landfills, freight villages, intermodal terminals, etc.) and also their technical equipment [Pawęska K. (ed.), 2008, p. 15];
- telecommunication and data transmission (telecommunication and information networks and hubs, regional databases, etc.).

The supporting role of this kind of projects (so-called "hard projects") is played by the implementation of ventures and carrying out information, training, education or legislation oriented activities (so-called "soft projects"). [Drobniak, 2008, p. 26].

The scope of activities, and thus also the subject matter of potential regional logistics projects, is subject to extensive diversifications. It also has a direct impact on the list of entities which can initiate them. Therefore, the following projects are taken into account: public, quasi-public, private or based on public-private partnership (e.g. by applying BOT model) – table 1.

Table 1. Summary of regional logistics projects due to the visions/goals and sources of financing

		Vision and goals	
		Having a public character	Having a commercial character
		Description	
		The main objective is the realization of social needs and achieve environmental and economic benefits	The main objective is to maximize the benefits for private investors
Type of entity	Public sector entities	Dispose of public funds	<i>Commercial projects implemented by public authorities (quasi-public)</i> carried out by utility companies with a regional authorities participation eg. operate of regional transport system
		<i>Public projects - initiated and implemented by the regional authorities eg. project for the construction of public roads, ring roads of cities.</i>	

	Private sector entities	Dispose of private funds	Public-private projects eg. construction and operation of railway for agglomeration	Private (commercial) projects planned and implemented by economic entities and residents functioning in a region eg. project to build a new warehouse that supports regional companies
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Source: author's compilation.

3 The implementation conditions of regional logistics projects

Obtaining particular results of regional logistics projects requires meeting several specific conditions from the entities involved for the purposes of effective implementation. In general terms, they can be analysed from the perspective of two levels:

- research and conceptual,
- analytical and practical (figure 1).

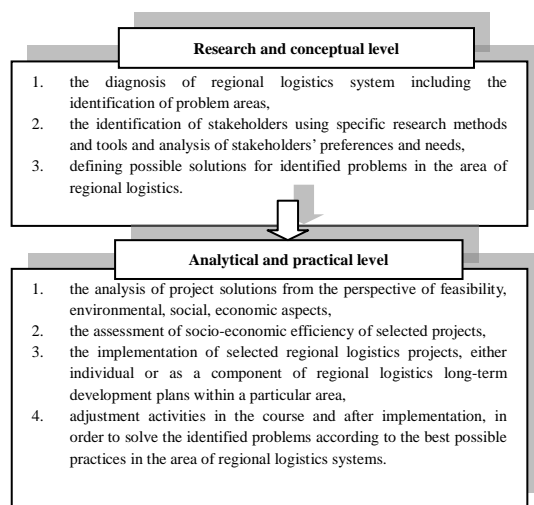


Figure 1. The levels of project solutions implementation in terms of regional logistics systems.

Source: author's compilation

Within the framework of research and conceptual level several phases of activities implementation can be identified. The first consists in the selection of adequate methods and research tools allowing to diagnose, in reliable way, the existing regional logistics system in a given area and also to identify problem areas. These activities result in defining potential stakeholders and their needs related to the improvement of logistics systems covering a region area. This stage should be initiated and coordinated by regional and local authorities along with the simultaneous specification of the remaining stakeholders' roles in the subsequent part of the process.

The next phase, at the discussed level, is the selection of potential solutions in terms of regional logistics, the implementation of which would allow for solving the identified problems. The following components may prove helpful at this stage: adequate classification of the analysed project solutions and the best practices (projects), which were used in the improvement of logistics systems in other regions. At this stage regional and local authorities, in cooperation with manufacturing enterprises, trade businesses, freight carriers, companies providing services in the area of collective transport, etc., perform a joint review of the solutions possible to implement. The conducted social consultations in the form of workshops or panel meetings, their scope and frequency, constitute the manifestation of social responsibility by regional authorities in terms of regional public management.

The second level consists in both, analytical and implementing activities. The selected solutions should be subject to analysis of their environmental, social and economic impacts. This stage also covers the assessment of the analysed project solutions regarding the synergy and conflicts which can occur between stakeholders after their implementation. If the risk of possible conflicts occurrence is identified, the preventing measures should be defined or, at least, the ones which are capable of alleviating their effects. The selection of an ultimate solution, in the form of a substantive project, should be made by the group of stakeholders having direct influence on its implementation. One should, however, remember that if practical implementation of a project solution is supposed to be successful, all stakeholders should be included in tasks implementation at the particular levels of its implementation process, whereas the solution itself should be reflected in the content of the regional strategic documents. The need to make adjustments or changes, to reorganize the adopted processes or to implement more advanced technologies than it was initially assumed, may occur in the course of the adopted strategic project solution implementation. In case of such ventures, frequently quite complex ones, the need for making adjustments can occur at every implementation stage [cf. OECD, 2010, p. 8].

It should be emphasized that the analysis, assessment and implementation of individual actions require the use of appropriate instruments in terms of their analysis and appraisal. Table 2 shows the levels and activities that determine the efficient and effective implementation project solutions in the field of logistics at the regional level, indicating possible to use the methods and tools of analysis at each stage of the proposed path of action.

Table 2. Levels and actions that determine the efficient and effective implementation project solutions in the field of regional logistics systems.

Level	Action	Methods, analysis, techniques, tools suggested for use
Research and conceptual level	1. the diagnosis of regional logistics system including the identification of problem areas	Brainstorming, cause and effect diagram (Ishikawa, fishbone), Problem tree analysis, SWOT/TOWS analysis
	2. the identification of stakeholders using specific research methods and tools and analysis of stakeholders' preferences and needs	Stakeholder analysis (primary, secondary and other). Identification of people, groups of people, institutions and companies that have or may have a relationship with the project, from the point of view: <ul style="list-style-type: none"> - Socio-economic aspects, - Interests, objectives, expectations, etc., - Sensitivity to the connection with the implementation and functioning of the project. - capacities, knowledge, experience - for the project. - Implications and conclusions for the project
	3. defining possible solutions for identified problems in the area of regional logistics	The classification of project solutions considered by criteria: size, range of impact, way of financing, the period of implementation, etc. Use of the information contained in the good practice databases - searching for best practices (projects) that were used in the improvement of logistics systems in other regions. The use of methods: benchmarking, benefits transfer methods.
Analytical and practical level	1. The analysis of project solutions from the perspective of feasibility, environmental, social, economic aspects	Variants and options analysis: DGC analysis, project impact analysis, i.e.: ECIA, SIA, FIA, EIA, etc., multi-criteria analysis (MCA).
	2. the assessment of socio-economic efficiency of selected projects,	Estimation of efficiency and profitability of the project using indicators: ROI, PP, NPV, IRR, BCR, CEA, etc.; Cost-benefit analysis (CBA); Sensitivity analysis of the project; Risk identification (brainstorming, risk sharing by PESTLE) and estimation and evaluation of risk (decision trees, Expected Monetary Value - EMV, probability/impact matrix, Monte Carlo analysis)
	3. the implementation of selected regional logistics projects, either individual or as a component of regional logistics long-term development plans within a particular area,	Implementation of the project using standard project management methodologies such: PRINCE 2, PMBoK, PCM, etc. The use of tools: product breakdown structure, work breakdown structure (WBS), project scheduling (Gantt chart, Precedence Diagram Method, Critical Path Method, PERT method), schedule of works and expenditures, etc.
	4. adjustment activities in the course and after implementation, in order to solve the identified problems according to the best possible practices in the area of regional logistics systems	In the implementation of the projects solution may be necessary to conduct revisions and changes. Analysis of the changes, for example: the rule of "MoSCoW" - must, should, could, will not. Techniques for assessing the progress: milestones diagram, S-curve analysis, earned value method - EVM, etc.

Source: author's compilation

At this point a very important aspect underlying regional logistics projects implementation should be emphasized. The regional logistics projects planned for implementation by regional authorities and also other interested entities are usually quite expensive which, from the financial standpoint, makes them unprofitable. Such projects frequently have the nature of ventures not generating any revenues, since their products are provided free of charge. Therefore, potential investors, including regional and local authorities in particular, very often resign from carrying out the discussed activities giving low or no efficiency as the underlying reason. As a result the identified problems in communication and transport covering regional areas deepen, which may result e.g. in the increase of disproportions between particular areas of region.

Performing an economic analysis of a project may turn out helpful in eliminating such situations to a certain extent. An economic analysis of a project covers economic values which reflect the social willingness to pay for a particular good or service, and therefore the valuation is performed in accordance with their value in use or an alternative cost for the community [European Commission, 2014, p. 43 and next]. As a result it can turn out that the implementation of the above mentioned projects confers numerous additional socio-economic advantages. An investor, and especially regional authorities, while assessing efficiency, should take into account, apart from the direct revenues earned by a project, also its external effects, which frequently cannot be estimated directly and which also present an economic value. It refers to considering not only the value resulting from direct usage, but is also related to an indirect one, however, included in the overall project assessment. It can be quite large and result from social, environmental, historical, aesthetic, cultural, or other aspects.

Small projects, limited to a single entity and a small area (e.g. city), are relatively easy to define and to assess their efficiency. The problem can occur at the moment of specifying the entire project efficiency with a few entities participating and the crucial element of such assessment remains the analysis of costs and benefits distribution between the project participants. It is most difficult to define and therefore assess, as well as plan the projects having impact of a wider environment (mezzo- and macroeconomic ones), i.e. entities which do not participate directly in implementing these projects, but are influenced by their impact. [Kurowski, 2004, p. 199 and next].

In case of economic analysis as a result of conducting it an answer to a question should be found: whether and to what extent a particular project is worth implementing from a public (social) perspective, even if from a financial one it generates net costs? For this reason economic analysis differs from a financial one in two key areas:

- at the level of both identification and valuation of input and output project components (i.e. expenditures and products),
- methods for project benefits and costs measurement and valuation [ADB, 1997, p. 8].

W. Frenkiel and A. Drobniak [2005, p. 120] indicate that currently the assessment of investment projects should cover any project impact on three basic areas: economic, social and environmental, since as a result of direct economic impacts, exerted by investment projects, external social and environmental effects (costs and advantages) can occur quite often.

In case of regional logistics projects taking into account these components (making adjustments for externalities) is of particular importance while conducting economic analyses. Such projects, on the one hand, enhance, among others, the improvement of logistics systems in a area of region and influence directly a given area investment attractiveness and, on the other, exert impact on the level of life quality and functioning in a region.

The final project efficiency assessment is an important stage in the basic economic analysis procedure. In this case the popular profitability indicators can be applied for efficiency assessment, e.g. NPV, IRR or BCR [Friedlob G.T., Schleifer L.L.F., 2003, p. 123 and next]. The scope of input data will cover additional, compare to the financial analysis, benefits and external costs. Moreover, a defined economic (social) discount rate (s) is applied. The formulas and descriptions of the above listed indicators are shown in table 3.

Table 3. Selected indicators of project efficiency assessment in economic analysis procedure.

Indicators	Formulas	Interpretation and conclusions	
		The choice in the situation when one project is carried out	The choice of one most effective project out of all available variants of mutually excluding projects
Economic net present value of a project (ENPV)	$ENPV = \sum_{t=0}^n \frac{ENCF_t}{(1+s)^t}$	$ENPV \geq 0$	$ENPV \rightarrow \max$
Economic internal return rate (EIRR)	$\sum_{t=0}^n \frac{ENCF_t}{(1+EIRR)^t} = 0$	$EIRR \geq s$	$EIRR \rightarrow \max$
Benefit-cost ratio (BCR)	$BCR = \frac{\sum_{t=0}^n \frac{EB_t}{(1+s)^t}}{\sum_{t=0}^n \frac{EC_t}{(1+s)^t}}$	$BCR \geq 1$	$BCR \rightarrow \max$

Where: t – period; s – economic discount rate; $ENCF_t$ – economic net calculation flows; EB_t – economic benefits in t period; EC_t – economic costs in t period.

Source: author's compilation based on [Fugutti D., Wilcox S.J., 1999, p. 81; Friedlob G.T., Plewa F.J. Jr., 1996, pp. 211-212; Fabozzi F. J., Peterson P.P., 2003, p.400].

In the third case the decision may come down to making it in the situation of dependent and independent projects, with and without budget limitations. In case of dependent projects, i.e. the ones the results of which depend on the implementation of other projects, with no budget limitations, this project variant should be chosen (or its combination with other projects) which can maximize ENPV.

However, in case of independent projects, i.e. when the selection of one of them does not limit the possibilities of another project implementation and when budget limitation are absent, the decisive criterion refers to the choice of projects where $ENPV > 0$. In the situation of budget limitations these projects should be chosen in case of which ENPV is the largest. BCR should be considered here as a supplementary indicator in accordance with which these subsequent projects should be carried out which area characterized by the highest ratio of economic benefits and costs (having assumed that they all satisfy the acceptance condition, i.e. $BCR \geq 1$) [Drobniak, 2008, pp. 154-155].

4 The socio-economic approach in the assessment of regional logistics projects

Proper categorization of a given venture acts as an element enhancing effective and socially acceptable decisions regarding the choice of project solutions. In such form it is later presented to a wider regional community as a most realistic one to implement in particular financial, time, legal, administrative or environmental conditions. In the discussed dimension it also takes the form of a dialogue between regional authorities and a regional community and also constitutes the manifestation of social responsibility in its management processes. The information collected in the course of the study allows regional authorities to perceive the residents' needs and expectations much better. In consequence, the data obtained as a result of the conducted research represent an important factor facilitating higher effectiveness and efficiency of the activities performed by regional authorities. It may turn out of particular significance while categorizing it in a certain group of projects specified based on two criteria which can have impact on the venture planning and organization in the subsequent stages of its implementation, i.e.:

- the scope of indispensable activities and legal-administrative regulations necessary to implement the planned venture, etc.) – legal-administrative complexity of the project,
- the value of investments necessary to cover at the start-up of the project (also covering the pre-investment

expenditure) and the number of financing sources – project financial complexity.

Adopting the above listed criteria, as the dimensions for projects division, analysed by the decision makers, allows for defining four basic groups of ventures, i.e. characterized by:

1. low level of legal-administrative and financial complexity,
2. low level of legal-administrative complexity and high financial complexity level,
3. high level of legal-administrative complexity and low financial complexity level,
4. high level of legal-administrative and high financial complexity level.

The review of potential solutions in this matter¹, presented by the author, allows for distinguishing four thematic groups of ventures covering the most popular solutions and projects in the area of broadly understood regional logistics, i.e.:

- in the area of quality improvement and higher efficiency of mobility by means of collective regional transport,
- in the area of limiting vehicle traffic in a selected field of region, including also the organization of goods deliveries to regional logistic centres and hubs,
- in the area of alternative means of mobility in a region area, as opposed to the existing transport, of both people and goods,
- in the area of disseminating behaviours, among regional residents, facilitating the implementation of new solutions related to regional logistics systems (e.g. pro-ecological ones – selective waste collection, using collective means of transport, using vehicles and equipment propelled by the power of muscles, intermodal transport, etc.) [Kolakowski, 2014, pp. 108-117].

Each of the above-mentioned groups is characterized by a diversified scope of financing and legal-administrative complexity. Combining the listed thematic groups of projects with the above described division criteria facilitates defining a four-field matrix. Each field of such matrix covers group of projects featuring a relatively homogenous nature and scope of activities necessary for their implementation. The details are presented in table 1.

¹ The review based on solutions suggested or implemented within the framework of the European initiatives in the area of city logistics, e.g.: Bestufs (<http://www.bestufs.net>), Civitas (<http://www.civitas.eu>), Polite (<http://www.polite-project.eu>), Sugar (<http://www.sugarlogistics.eu/>), C-liege (<http://www.c-liege.eu/>), Enclose (<http://www.enclose.eu/content.php?p=1>), Trailblazer (<http://www.trailblazer.eu/content.php>). In the author's opinion, a similar approach can be applied in the case of regional logistics projects.

Table 4. Matrix presenting legal-administrative complexity / financial complexity of regional logistics projects – the main groups and their aims

Financial complexity of a project	high	<p>Technical and adaptive projects</p> <p>Aim: Adaptation of the region, to develop on its area, projects which are related to alternative, against the existing means of communication and transport, ways of mobility and transportation both people and goods in a region's area</p>	<p>Infrastructural projects</p> <p>Aim: improvement and development of traditional communication and transportation systems (and/or infrastructure) in the framework of regional logistics system</p>
	low	<p>Information and promotional projects</p> <p>Aim: communication with society, development of new types of behavior in the field of transport and communications in the area of the region</p>	<p>Organizational and legislative projects</p> <p>Aim: development of organizational governance in the field of communication and transport: the whole region, selected areas of the region, etc.</p>
		low	high
		Legal-administrative complexity of a project	

Source: author's compilation

The presented matrix is of demonstrative nature only and the adopted division was provided based on the standard projects referring to a particular group and identified in the course of literature review and the European initiatives in the discussed subject matter. Combining a given group of projects with a particular matrix field is, therefore, just conventional since, obviously, within the framework of every field (area) one can identify projects characterized by different budgets or the required legal regulations. Moreover, the scale for qualifying to a group, i.e. low or high dependence level in both categories, should be adjusted every single time to individual possibilities of entities undertaking investment decisions.

The suggested matrix, in the system of legal-administrative complexity / financial complexity can constitute, for the decision making entities, a preliminary tool useful in analyzing all possible activities related to regional logistics systems in a given area. Owing to it, already at the planning stage, the entities while making decisions are capable of specifying the real areas for conducting project activities in a given time and place considering, simultaneously, the underlying financial, as well as legal and formal aspects. Additionally, such results can become the basis for social consultations regarding the suggested solutions in the discussed area.

5 Final remarks

The correct realization and implementation of project solutions focused on regional development, also in terms of regional logistics projects, requires adequate strategic, planning, legal and organizational framework created by regional authorities. Adopting a particular development model and covering ventures in the key regional documents, such as: development strategy, long-term investment plan, etc., has crucial impact on practical implementation of the strategic regional objectives and facilitates the realization of social responsibility concept in the area of region management.

In the course of the discussion the important role of proper planning, the analysis and assessment of project solutions in the implementation of actions to improve regional logistics systems, was emphasized. The methods, analysis, techniques and tools presented in the study can serve this purpose. The crucial role is also played by the correct diagnosis of stakeholders involved in the discussed projects. Assigning proper functions and activities to particular stakeholders at each stage of an implementation process can speed up and improve the realization of solutions in terms of regional logistics

systems. The most important role is, however, played in this area by regional authorities. Owing to adequate legal regulations they can develop regional logistics systems and reduce the external cost of them. Regional authorities also have a certain budget at their disposal and thus they represent the key stakeholder of activities in terms of regional logistics systems and in most cases it is them who should initiate project solutions.

In conclusions, it should be note that:

- creating the set of preferred solutions and projects,
- applying proper methods, techniques and tools of their analysis and assessment,
- consulting the obtained results with the other stakeholders,

constitutes the manifestation of carrying out the assumptions underlying the socially responsible management of region. Such approach is definitely a strong incentive for the improvement of an overall life quality in the area of any particular regions.

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KIRZNER'S CONCEPT OF ENTREPRENEURIAL ACTIVITIES IN THE CONTEXT OF MULTINATIONAL COMPANIES

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Abstract: The aim of this paper is to introduce a relatively new theory of Entrepreneurial discovery of Israel Meir Kirzner as an alternative or supplement to mainstream economics as well as point at the importance of entrepreneurs in the market. Within individual parts of this paper is the theory of Entrepreneurial discovery compared with approaches of mainstream economics. Ideas of Kirzner are applied in selected parts on the issue of multinational companies and the localization of foreign direct investment which is exploring new market opportunities closely linked as well as lack of information, uncertainty and speculative behavior – that are, main features of Kirzner's theory.

Keywords: competition, entrepreneur, foreign direct investment, institutions, multinationals companies, the Austrian school, the Theory of Entrepreneurial discovery.

1 Introduction to researched matter

The combination of Keynesian macroeconomics and the neoclassical microeconomics is denoted as a neoclassical synthesis or the mainstream economy. One of its distinguishing features is the creation of models and transforming economic phenomena in mathematical forms. The success of mainstream economy is in its theoretical power, based on the simplification of reality and the resulting simplifying assumptions. Considering this background, this major economic stream is becoming increasingly different from reality and practice. That is the reason why mainstream economics has many supporters and critics.

Divers of the main critics of standard economy are representatives of the Austrian school, which is also Israel Meir Kirzner. Followers of the Austrian approach unlike the neoclassical synthesis look at the economy with realistic view, as the science of real human behavior in a market environment.

The aim of this paper is to introduce a relatively new theory of Entrepreneurial discovery of I. M. Kirzner as an alternative or supplement to mainstream economic theory as well as to highlight the importance of entrepreneurs in the market. Within particular parts of allowance progress compared with the theory of Entrepreneurial discovery approaches mainstream economics. From a methodological point of view, the work uses several scientific methods, especially methods of analysis, description and comparison.

2 Theoretical foundations

I. M. Kirzner included the main features of the Austrian school in his theoretical approach. Man does not live on a desert island, but it is part of society. Each individual decision is influenced by the actions of others. As well as the decision of an individual acts on the deeds and actions of others. Development of particular economies is therefore the result of individual actions of individuals, and therefore should according to Austrian economics approach address precisely analyzing the behavior of individuals (Otáhal, 2008). Every day a man make choices based on their personal preferences. A related key feature - subjectivity, it means - what is valuable to one may not be valuable for other (Holman, 2001).

From the other concepts, the Austrian school distinguishes consistent and unambiguous liberalism and defending the free functioning of the market. One of the characteristic features is the consistent rejection mathematization of phenomena that is so characteristic of mainstream economy. The Austrian school places emphasis on dynamism of the market economics,

therefore, rejects the use of static models, especially the model of perfect competition (Sojka, 2010).

Among the other characteristics of the Austrian School, that were reflected in Kirzner's concept of entrepreneurial activities may include individualism - an understanding of economic phenomena and the functioning of market processes is only possible through understanding the behavior of individuals; liberalism and liberal fully competitive free markets without intervention of the central institutions; protection of private property, an essential prerequisite for the functioning of a healthy economy; pricing system that is due to a fully functioning liberal market, best demonstrates the position of producers and consumers and businesses function as a major player in economic happening (Holman, 2001).

Kirzner's theory of Entrepreneurial discovery is based on the speculative dynamic behavior of individuals emphasized by Mises, because only the individual is consciously able to set their goals. The individual works under conditions of uncertainty, lives at a certain time in a certain place, and could not have comprehensive information. It is therefore not able to even get a comprehensive idea of the state, the world, which is surrounded and can not even be sure of future developments. Each individual only predicts which way the immediate future development will take and act accordingly. Every decision is therefore speculation, therefore, every act is a kind of a entrepreneurial decision (Otáhal, 2008).

Besides L. von Mises can discovery be seen in the theory of Entrepreneurial significant influence of Hayek's ideas. Discovery of entrepreneurial opportunities, according to Hayek, means the acquisition of new knowledge. Competitive advantage stems from the ability of entrepreneurs uncover hidden opportunities and analyze information. However, they are scattered due to the fact that a given individual at a given time moves in only one place (Hayek, 1996).

Kirzner's theory developed as a synthesis of the complementary ideas of Hayek and Mises. I. M. Kirzner considers these two schools of thought as two sides of the same coin (Kirzner, 1998).

3 Entrepreneur of Kirzner

In contrast to L. von Mises, Kirzner's entrepreneur is an exceptional person (Holman, 2001). F. e. J. A. Schumpeter by the entrepreneur person highlights efforts to fight and a will to win. Schumpeter's entrepreneur is a creative being, is happy when he sees that his plans are realized, if it does not waste his energy and he is able, thanks to their achievements, to move the company forward (Říkovský, 2004). Kirzner's entrepreneur is just as Mises's entrepreneur does in conditions of imperfect information (Mises, 1990).

L. von Mises and von Hayek F., of which presumption Kirzner works, point out that a given individual lived at a certain point at a certain place (Holman, 2001). In order to individuals could communicate together, they need to find a common ground. Price works as a communication tool and everyone can take their individual position to it. He does not need to evaluate all with relevant information which contains price, takes his subjective attitude toward price (Otáhal, 2008).

Another typical feature, which is combined with Kirzner's entrepreneur, is the uncertainty that faces every time when he makes his decisions. And any positive discovery represents for entrepreneur pleasant surprise. On the other hand, in the neoclassical theory the owner of a firm maximizes the difference between revenues and costs. Revenues and costs are given. Profit that maximizes owner of the firm is fully expected and known before the actual decision is made. In the neoclassical model is no surprise, to maximize of profit suffices just to perform a plan,

which is compiled in advance. But in the reality the decision-making of the entrepreneur is completely different. The entrepreneur, who discovers and exploits profitable opportunity, suddenly saw a possibility that you have not seen yet neither he nor anyone before him. If someone had seen him before, it would be utilized (Kirzner, 1998).

4 Entrepreneurial discovery

This theory presents "Austrian" view of the market functioning. The theory of entrepreneurial discovery acts as a complement to mainstream theories because it is based on criticisms of its models; in particular by the model of perfect competition, perfect information assumption and concept of equilibrium.

Kirzner argues that mainstream economics does not explain how markets actually start. Only explains in detail the relationships that arise on already functioning markets but it does not deal with the essence of the processes that lead to their formation (Kirzner, 1998).

Kirzner's theory explains the functioning of markets through the decisions of entrepreneurs, which are made in terms of imbalance. Due to these decisions, changes on the quantity of goods and services on the market are made. The success what the market economies show consists in the constant discovery - there is substitution of inefficient manufacturing and production good prospects newfound opportunities to meet customer needs is through more effective options such as f.e. producing better goods or using previously unknown sources.

In contrast to mainstream economics, a person in the theory of Entrepreneurial discovery can mistake and based on "discovery" corrects its wrong decision. Kirzner criticizes neoclassical approach that in terms of neoclassical economics, the individual did not freedom decide (Kirzner, 1997).

According to Kirzner, an individual decides in the real world through instinct or concerns, therefore factors that the neoclassical approach ignores. Kirzner's theory has a strong emphasis on individual choice.

The entrepreneur discovering market gaps fill them with their creativity and innovation. His entrepreneurial creativity changes and transforms the current economic reality. The market process is not according to the Kirzner's theory the process that cleans the markets, as is the case in the neoclassical synthesis models, but an ongoing process of learning and discovery. The central concept of this theory is not equilibrium, but rather imbalances and market imperfections, whose discovery leads to continual streamlining and correcting these deficiencies (Holman, 2001). Because the theory of Entrepreneurial discovery sees an equilibrium as a kind of unattainable ideal as well as model of perfect competition, which in practice does not exist. The key Kirzner sees the fact that on the market should exist such institutional conditions that do not prevent market participants recognize profitable opportunities.

Thanks to the entrepreneurial activities shifting resources is constantly taking place, from less efficient production toward the desired productions. Because of these shifts needs of consumers are to meet. Secondly, this happens in the sense that it is produced, what the customer wants, but at the same time, thanks to these transfers toward more effective productions products are manufactured in better quality, using new technologies and new sources etc. The same can be said about the services. Thanks to the entrepreneurial discovery attend to permanently improve offered services in two ways: the quality and composition. Discoveries in entrepreneurial activities causing the improvement of products and services, due to this satisfying the needs of consumers, but also at the same time there are changes in consumer preferences (Kirzner, 1998).

In the context of Kirzner's entrepreneurial discovery an analogy with foreign direct investment and the expansion of multinational companies can be found. Given the institutional

conditions of individual economies is to explore new revenue opportunities via the use and utilization of investment incentives, rebates or subsidies, or in terms of transfer of production and construction of so-called Greenfields or the use of so-called Brownfields in regions with higher capitalization options, labor productivity or conversely with less production costs and cheaper labor force. In the sphere of cross-border investment and particularly foreign direct investment is the theory of Entrepreneurial discovery exercisable practically since the very location of these investments.

Investor's motives are associated with finding a new location, new additional profits and business activities. He can be motivated for example by a conquest of new markets, cheap workforce and the search for tax reliefs. Nowadays the country do not attract potential investors only thought the potential of his country - whether it's qualified workforce, good infrastructure links to the main sea routes, plenty of mineral wealth or other benefits, but now the country also tend to attract institutional conditions for using business.

4.1 The concept of profit and loss

The net profit is from the perspective of this theory perceived as a motivation for entrepreneurial activity. Entrepreneurial profits can be identified when Robinson found that he had discovered the value of its own resources, which for him had so far scant weight. Robinson until the present day spent time by catching fish with bare hands. But today he found out that he could spend time by making of ship or net. He discovered that his time so far attributed wrong too low value. Reallocation of time spending by catching the fish toward making the net and building ship, represents a entrepreneurial decision that imply a net profit in the form of additional discovered the value of free time. The discovery means that the potential of the case or resources have been underrated. Act of discovery presents a discovery of hitherto unsuspected value of unsuspected resources (Kirzner, 1997). Another example of a discovery comes when a worker moved from a sector where wages are low in the other industry where it is evaluated under the same performance better. In this case, the discovery of the net profit is in the form of wage differential.

Kirzner mentions that if an entrepreneur reaches the loss, it means that he made a wrong decision. This decision is a chance for other entrepreneurs who have opportunity to correct this mistake and make a profit now. Business loss is therefore an essential part Kirzner's theory of Entrepreneurial discovery and innate part of the market process. Because the economy where the companies do not go bankruptcy, is not naturally and healthily evolving society.

In contrast to the neoclassical model, in this theory it may not arrive to usage of profitable opportunities. Individual profit opportunities may not be recognized or are long time overlooked. Such an opportunity may remain unused e.g. due to lack of information or when the information necessary to seize this opportunity are expensive too. Consequently, it may happen that after some time the individual will recognize the opportunity and will act of discovering the profit, which was previously untapped.

Earlier wrong decisions can be gradually discovered as a result of the ability to sense and feel where can be achieved some profits. This feature of the market process is based on the human ability to intuit (without deliberate search), in which situations are hiding unused potential. Under the right recognizing of proper conditions can so-called the Entrepreneurial alertness (Kirzner, 1998).

4.2 Lack of awareness and living in ignorance

Any market participants do not have comprehensive information. From reasons of lack of awareness participants live in ignorance which may take the form of excessive optimism when the entrepreneur expected that buyers will be eager for their goods

and services. However, it appeared that there was the opposite. The excessive optimism of entrepreneurs caused incorrect determination of the price of their goods and services. Nonequilibrium prices caused by the thwarting of his optimistic plans. It is expected that thwarted plans to force the entrepreneur to change the prices which will encourage buyers to make purchases his goods and services and consequently there is equilibrium.

The ignorance may also take the form of excessive pessimism. Just pessimism represents an opportunity for one another. The fact that someone is too pessimistic causes that some options are not used. The fact that anybody thinks that the situation is not favorable, that the industry is not profitable or that to implement certain plans simply did not dare, there is consequently a scope for discovering these opportunities other entrepreneurs.

The Kirzner's concept of living in ignorance which underlies undue optimism or undue pessimism can be likened to decide the localization edging direct investment: investor living in ignorance is able to collect only limited data on the situation in the host economy. On the basis of which the finals will be excessively optimistic in terms of locating in the form of e. g. construction of Greenfield investments or unduly pessimistic in the form of withdrawal from the investment plan.

However, in the real world of constant change, it may happen that entrepreneurial discovery new revenue opportunities can be interrupted or even thwarted. It may happen that due to a lack of information may be individual efforts on discovering new possibilities to disturb or confuse each other. Because the discovery is connected with the error, thwarting a surprise.

Surprise and happiness are factors associated with the discovery (Kirzner, 1998). In this regard exists another stark difference between mainstream economics and the Kirzner's theory. In contrast to neoclassical synthesis in this concept play these factors an important role as Kirzner mention happiness and surprise are an essential part of being human, therefore of entrepreneurial activities¹.

4.3 The concept of competition

The ideal in the mainstream economics is a model of perfect competition where an endless amount of buyers and sellers exists. Sellers offer an identical product, buyers move away from advertising and other marketing factors.

Although Kirzner is a strong critic of this model, the model of perfect competition and the theory of entrepreneurial discovery has common one condition, namely the freedom of entry and exit from the sector. Just the dynamic competition is one of the basic features Kirzner's theory.

To behave entrepreneurially means to enter the market with a new idea, with a new concept, with a more interesting service, with more attractive price, with a better product or with a breakthrough manufacturing process. Any such act necessarily competes with the behavior of others.

The difference between the neoclassical concept of competition and the concept of the theory of Entrepreneurial discovery can be demonstrated on the problem of awareness. In the neoclassical model information is a necessary prerequisite for perfect competition, without perfect information is the competition imperfect. For the Kirzner's theory, a competition is a process by which is information discovered and shared.

The Kirzner's theory points out that an entrepreneur has to be more circumspect towards substitute products than towards their

direct competitors. Direct competition produces identical product, used to produce the resources that are "our" entrepreneur well-known. But the producers of substitutes and producers of other goods and services use other sources, on which "our" entrepreneur may not have any idea. Ignorance of this information can lead to excessive optimism or excessive pessimism and mistakes. The fiercest competition is according the Austrian approach is sell of substitutes products. Given the scarcity of resources all companies compete, whatever the branch in which they operate. All entrepreneurs compete for consumer money (Kirzner, 1998).

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4.4 Cartel arrangement

The cartel arrangement is according to Kirzner an agreement like any other, because no one is able to determine what size the company is ideal, what is acceptable and what has not (Kirzner, 1997). Hinder cartel arrangements according the theory of Entrepreneurial discovery would means hinder business agreements and activities as such. Which would in its essence mean a violation of the conditions of free enterprise and free entry to the sector, respectively breaches of liberalism (Kirzner, 1998).

Even in this case we can find an analogy with multinational corporations whose size, through localization of foreign direct investment, not only notionally beyond the boundaries of individual economies, but often multinational companies figuring in several sectors, often only distantly related to the branch of the parent company.

Kirzner mentions that whoever controls the size of the company is the entrepreneur himself. Thus, it is only on him and his decisions, whether into any agreements, whether cartels or otherwise, enters. Only entrepreneur should decide in which way his business will develop.

Economies of scale often lead to the merging firms in the sector, thus departing from the model of perfect competition. The total connection of all the dominant companies in the sector may result in one company, entry to the sector to other companies due to this new situation is not blocked. Thus, the created company will use economies of scale, does not create a barrier. Exactly opposite. According to Kirzner's joining of companies that leads to the exploitation of economies of scale a cutting costs and accumulation of earnings is correct entrepreneurial activity and a basis of process of entrepreneurial discovery.

The pitfall of cartel is not its existence but the effort of state authorities to control the size and structure of companies, thus indirectly influence and create barriers to entry to the sectors. The only government action and government organization and agencies which is needed to ensure sustained competitive dynamic is to remove legislative and other barriers hampering the entrepreneur's decisions. The market alone is unable to create such barriers. It is therefore an artificial intervention in the market which distorts competition.

What is necessary to the support the spontaneous dynamics of the competitive process, according the theory of Entrepreneurial discovery, is not a amount of small manufacturers who produce the same product in the same way; the condition is free entry of firms in the sector and the elimination of privileges for selected manufacturers, which could break potential competitor's efforts on finding profitable opportunities.

The theory also looks same at the issue of price-setting. Price policies of firms according Kirzner are legitimate competing strategies, because "appropriate" price can not be objectively determined. Given the price is the subjective value formulation.

¹ Neoclassical world eliminates surprises. The phenomena are explained as choices between different alternatives. The probability functions are well known and clearly defined. Neoclassical concept involves an element of luck only in the sense that one knows exactly what his chances are. However this opinion of luck has nothing to do with surprise.

And it is only on the contract partner if he takes the prize and will make the exchange or not. As an extreme example of this assumption may be a situation where one producer owns all the apples in the world. From the neoclassical perspective, it would mean that the producer has a monopoly on the market for apple juice. According to Kirzner and as well as other followers of the Austrian school a new competitive process should arise from this situation when all other entrepreneurs would start to try and achieve to their orange, strawberry and other juices are better than apple (Kirzner, 1998). To this, they can use all means what the market makes possible - the searching for new resources, production technology but also using advertising and other marketing and communication tools.

4.5 Socialism and entrepreneurial activity

The critique of the market economy is based on the reason of injustice. It criticizes the income inequality, the institute of private property and that capitalism acknowledges the existence of a profit which was created at the expense of workers. It is therefore a profit that is not deserved, because it is produced through the exploitation or as a result of undeserved good fortune. It is therefore, according critics of the unfair system. Rating of profits in terms of fairness is very delicate, which stems from the very nature of profit. No part of it is necessary to ensure the sale of goods or services. This need is already included in the cost required to manufacture a product or service implementation. The sale is therefore feasible without profit. But the theory of entrepreneurial discovering regards profit as a discovery of vigilant entrepreneur who recognized and discovered a new opportunity.

The entrepreneur discovering looks to profit as on the activity of a vigilant entrepreneur who observed her proper judgment how shall be relocated sources, which the society valued less for the products that the society valued considerably more. It is therefore a creative approach of an entrepreneur who is awarded (Kirzner, 1998).

The theory of Entrepreneurial discovery emphasizes the freedom of business and Kirzner belongs among the uncompromising supporter of private property. Generally, followers of the Austrian school are considered as a key factor of success a subjective spontaneous activity that leads to the achievement of individual goals. I.M. Kirzner as well as F.A. von Hayek, L. von Mises and other representatives of the Austrian approach is characterized by a dynamic view of the market economy (Holman, 2001).

The active role of entrepreneur as the main coordinator of economic activity represents a strong argument against central planning and state regulation. Due to the nature of the entrepreneur in the theory of Entrepreneurial discovery, where he is described as a creative person with a creative approach and through its active approach as well as the driver of current economic development, the theory stands in opposition to the socialist doctrines (Volejníková, 2006).

Democracy and protection of property rights in the decision-making process regarding the localization of investment has a higher weight than any other investor's motives for an entrepreneurial activity. If in the economy is this fundamental institution of property rights and other democratic freedoms respected, the investor faces a whole series of obstacles to the free entrepreneurial activity.

In this case on a potential investor crown in the rigors of living in ignorance and lack of information, which indicates a number of risks: the politico-administrative upon discontinuation of contracting. However the biggest is problematic payment discipline and the general financial distress, as is currently the case of Cuban foreign trade enterprises - financing for 360 days is a regular condition of the Cuban side (Ministry of Foreign Affairs, 2015).

Another institutional problem is the difficulty of law enforcement which logically causes significant difficulties in

defending of own rights in possible disputes. Therefore the risks of investing mainly come from imperfect and non-transparent legal framework and law enforcement difficult. Foreign investors often face high bureaucracy, potential corruption, inertia of government officials, frequent sudden rule changes and modifications of conditions in many specific technical barriers and other institutional obstacles. The problem of foreign direct investment can be relatively low return on capital in comparison with the mother country.

With a different market system, there is associated the overall diversity of the business environment and mentality of people that have the effect of western investor abstruse compliance with the agreements (agreements are usually respected where it is advantageous for the other side), and so on.

5 Summary

The Kirzner's theory often faces a wave of criticism because it can act as a mere "footnote" the mainstream theory. It can be argued that this "footnote" also presents an explanatory guide to "text above the line". As described above, the neoclassical synthesis contains in their models simplifying preconditions. Kirzner does not simplify reality, contrary he works with the elements and factors that are economic entities own - like instinct or concerns.

In the Kirzner's concept people are mistaken persons who make mistakes and trying to correct them. In the theory of Entrepreneurial discovery is an economic entity, an entrepreneur, a person operating in the market described as it really is. In some situations, overly optimistic, sometimes pessimistic, faulting, correcting his wrong decisions and discovering new opportunities.

The theory of Entrepreneurial discovery belong among the actual, the current economic approaches, because the reality in this theory is not "distorted". Kirzner illustrates the actual behavior of people in the market environment. In a market environment where there is never enough information available, we can talk about them enough. In an environment what is dynamic and subject to constant change - discoveries and correcting erroneous decisions.

The entrepreneurial activity, creativity of entrepreneurs creates and changes economic reality. However the economic reality is not ideal. The theory of Entrepreneurial discovery criticizes the decision-making of economic subjects in a neoclassical microeconomics, which Kirzner considers mechanical, artificial and stylized. An individual has in neoclassical models clearly defined goals, it is precisely known set of resources with which could he deal with (Kirzner, 1998). Decision making is managed by maximizing and limited set conditions. For the entrepreneur in neoclassical economics does not exist a manipulation space. The entrepreneur can say "mechanically" allocates resources based on given parameters and restrictions (Holman, 2004). However, in the theory of Entrepreneurial discovery the entrepreneur determines its goals in the course of its decision-making. Wherein in each time he faces situations "open-ended". The decision is not only the mathematical calculation but also depends on the sagacity and the correct appraisal of reality.

The state and state institutions should be there to support entrepreneurial creativity. In order to create the conditions that does not act as a barrier or obstacle to entrepreneurial discoveries on the market. State institutions have to function as a support means for the search of profitable opportunities and the realization of new discoveries (Voight, 2008).

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Primary Paper Section: A

Secondary Paper Section: AH

CHAMBER RESTRICTED ENVIRONMENTAL STIMULATION AND HEART RATE VARIABILITY

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Abstract: The aim of the study is to answer whether environment with restricted environmental stimulation (REST; chamber REST variant) influences the functioning of the autonomic nervous system (ANS). The criterion of the effect on ANS is measuring the heart rate variability (HRV). A pilot research of chamber REST (a variant on the Dark Therapy; DT); in co-operation with dr. Andrew Urbiš from Beskydy Rehabilitation Centre in Čeladná (BRC) we commenced measuring HRV with an emWave2 device in clients prior to and after a week of chamber REST (DT). From the data obtained from the measurements we can tentatively make the preliminary conclusion that HRV tends to increase after a week of DT. Thanks to the findings we are preparing a more elaborated experimental study in 2015.

Keywords: restricted environmental stimulation; REST; chamber REST; dark therapy; heart rate variability; emWave2; pilot study.

1 Introduction

The paper includes a short theoretical introduction in the REST techniques and heart rate variability. In the research section we are describing the pilot experimental study of a small extent. It was based on the measuring of HRV in six individuals undergoing the procedure of flotation REST and consisted in measuring the HRV in thirteen individuals undergoing a week of dark therapy in BRC. The measuring was carried out in the morning before the procedures started and a week later, in the morning, after the end of the procedure. Apart from the experimental group, we created a control group without any intervention.

We research REST, in particular the specific variant called dark therapy, based on continuously increasing supply and demand for the therapy not only in the Czech Republic, but also Slovakia. This increased interest, as well as our own experience, has been the impulse for us to research the effects of the techniques in greater detail. The study is our first attempt at investigating the effects of DT on human physiology, in particular on HRV. We measured HRV with an emWave2 device.

Even though the emWave2 has not been used in research often, we consider publishing the data as meaningful. Mainly for their inspirational information value - the pilot data presented below may provide guidance for further, more specific and more extensive research. We consider that as the main benefit of the paper, i.e. presenting a modest basis as a basis for further research.

2 Theoretical basis

2.1 Restricted environmental stimulation (REST)

The REST techniques are based on previous experiments with sensory deprivation (SD). The experiments investigated the effect of variability and reduction of environmental stimulation to a minimum extent. This includes social stimulation, i.e. social isolation is a part of that. These experiments were terminated because they were connected with touchless torture and interrogation practices (Zubek, 1969). *Technika omezené zevní stimulace* is a term introduced in the Czech environment as the equivalent for the current English term Restricted Environmental Stimulation Technique (REST) instead of the outdated term of sensory deprivation (Kupka, et al. 2012).

Restricted environmental stimulation thus includes the above-mentioned reduction of environmental stimuli to the minimum, in particular any visual and auditory stimuli, the decreased diversity applies to all other sensory modalities as well as social contact - depending on the selected type of restricted environmental stimulation (we will use the acronym REST as the equivalent in its general meaning) and its particular form. There are three basic forms: flotation REST, chamber REST and immersion REST (Lilly, 1977; Suedfeld, 1980; Zubek, 1969).

The research of REST shifted (compared to the predominant focus of previous experiments with SD) to revealing the medical and therapeutic possibilities of the methods, in particular in reducing the level of stress and its negative impacts on human organism (Suedfeld, 1983, 1999). And that is the area of our research focus where we are mapping the specific phenomenon in chamber REST - the DT variant, in our conditions. The reason for that is an increasing interest in these methods both among general and professional public in recent years.

For the purposes of this paper we will discuss only the variant of chamber REST (in the above-mentioned Czech modification called dark therapy; Maluš, et al., 2013).

Dark therapy (chamber REST)

Environment with restricted environmental stimulation - darkness, quiet and solitude - is known to our general public as *dark therapy*. It was PhDr. Andrew Urbiš (2012) who established this term in the Czech Republic. He works in the Beskydy Rehabilitation Centre (BRC) as a therapist.

The principle of DT, as implemented in the Czech Republic, is a stay of an individual in absolute darkness, quiet and solitude for a period of at least a week (or multiples thereof). Most often it is performed in simply, however functionally furnished room. There is a bed, a comfortable armchair, a shelf or a side table. There is also a toilet, a washbasin and a shower in the room. Sufficient quantity of food and drink is provided once a day. The person stays in this space continuously usually for seven days. Shorter stays are possible, however, it is recommended to stay for seven days which is a certain basic cycle in which we normally live. In BRC Čeladná this facility includes also an Orbitrek elliptical trainer, a sophisticated recuperation unit for continuous and silent ventilation and a one-way communication device. By this telephone the client may reach three places 24/7 - his guide (caretaker, therapist), the nurses and doctors at the rehabilitation centre. If needed, the client can end his stay at any time - he can unlock the door and leave the room.

The difference compared to the original research of REST techniques consists in several factors. The most important one is the context, because in our place the individuals-clients seek and undergo the DT service voluntarily, for a payment, as they consider it meaningful. Another factor is the length of time mentioned above, basically one week and more. In the original experiments the research context was such that the individuals underwent one to three-day stays, they were hired as volunteers and were paid for the stay (Suedfeld, 1999). We must not neglect the person and personality of the guide - a therapist who helps the clients process whatever is important and topical for them that emerges during the stay. We also need to mention the spiritual dimension spread by Holger Kalweit (2004) in Europe (introducing DT in the 1990s in Germany under the name of die Dunkeltherapie) which influenced many people interested in DT.

2.2 Heart rate variability (HRV)

Even though the heart function may be influenced by a number of physiological factors, the most important one is the autonomic nervous system (ANS), especially the sympathetic and the parasympathetic part (Čihák, 1997).

Heart is an organ abundantly innervated with sympathetic and parasympathetic fibres. ANS is responsible for fast regulation of rhythm and the transmission system during the day when the organism is exposed to a great number of exogenous stimuli - e.g. physical and mental stress or during the changes of body posture.

Heart rate (HR) oscillates in the course of time. These physiological oscillations are influenced by many factors (psyche, thermoregulation, acid-base balance, blood gases, blood pressure, hormone concentration, breathing, immune system dysfunction etc.) (Čihák, 1997).

The value of average HR applied traditionally only reflects the final effect of a number of regulatory influences on the cardiovascular system and is characteristic of certain feature of a completed homeostatic chain (Baevsky et al., 2004). The simplest way of demonstrating the effect of autonomous modulation is monitoring the HRV. Thus it may be stated that HRV is used as an autonomous tonus marker (Stejskal & Salinger, 1996).

The diagnostics of heart rate variability is one of the methods of analysing ANS. Heart rate variability shows the changes in the beat to beat interval. Autonomic nervous system consists of two branches - sympathetic and parasympathetic, that usually work in an opposing way. While the sympathetic system is present in processes requiring fast reaction (keeping the organism alert), the parasympathetic system is present in processes taking place in resting state. On the whole, the parasympathetic system participates in the protection and restoration of homeostasis, the protection and replenishing of energy reserves (Placheta, 2001).

The difference between high and low HRV

Heart rate variability thus shows the condition of our organism. From the results recorded by the device, individual components of HRV may be analysed. The components are obtained by translating the RR intervals between subsequent contractions of the heart, numerically expressed in milliseconds into a spectral image of 0 to 0.5 Hz rate range (Placheta, 2001, Stejskal & Salinger, 1996).

High HRV indicates high adaptive capacity and is a sign that the individual is healthy, having well-functioning autonomic control mechanisms. It is related with a rather good state of health and recuperation after an illness. On the contrary, low HRV is often an indicator of an abnormal or insufficient adaptability of the ANS. It is an indicator of low parasympathetic activation (Pumpřla et al., 2002).

emWave2

The device measures HRV expressed by the term of coherence (low, medium and high). It is a term used to describe internal psycho-physiological coherence (Murata et al., 2004). It describes the level of harmony or disharmony both in our psychological (mental and emotional) and physiological (bodily) processes. The higher the value of coherence, the higher the level of psycho-physiological coherence, therefore the optimum functioning of ANS. The research shows that when we reach such a state, our physiological systems function in a more effective way, there is greater emotional stability and the cognitive functions improve (Tiler et al., 1996; Bradley, et al., 2007).

The term of psycho-physiological coherence is closely related to ANS balance and the device translates it in three levels: Low, Medium and High. The proportion of the three levels of coherence is shown in percentages. The more high coherence and the less low coherence, the higher the HRV is and vice versa. Low coherence is characterized by lower ANS balance, as opposed to high coherence which corresponds with a more balanced and optimal functioning of the heart as well as ANS (McCraty, 2001).

3 Description of the experimental and control group

3.1 Experimental group

The basic group consists of individuals who underwent the intervention by dark therapy at BRC Čeladná from September, 2013 to the end of April, 2014. The individuals were the clients of a service called dark therapy which they decided and paid for on their own.

The selective group consists of individuals from the basic group described above who underwent a week's stay and gave their consent to HRV measuring with the help of an emWave2 device. The basic group consisted of 13 individuals of the average age of 46 years, 7 men and 6 women.

3.2 Control group

Apart from the selective group undergoing the intervention with DT, we created a control group without any intervention of the same number of 13 individuals (the average age was 49 years, 6 men and 7 women). The group consisted of academic workers of Palacký University and other individuals gathered by the snowball method who volunteered and gave their consent to HRV measuring with an emWave2 device.

4 Methodology

4.1 Experimental group

In the experimental group we share data obtained by PhDr. Andrew Urbiš on his own initiative. He started to implement test-retest measuring of the clients with an emWave2 device during the admission interview prior to commencing the week's DT and during the final interview after the stay. The measuring was always done in resting state, in sitting position, for five minutes. Even though it is not a standardized orthoclinostatic test lying - standing - lying, we decided to use the data as they showed significant shifts. We carried out a statistical analysis of the data.

4.2 Control group

As we could not influence the process of obtaining the data from the experimental group, we created a control group (without any intervention) where we measured HRV with the help of an emWave2 device with the same lapse of time and in the same manner (i.e. a five-minute measuring in resting state in sitting position with a week's time lapse) in individuals in the group of the same number and the closest composition possible (from the point of view of average age and sex). The control group was created in order to establish whether there is, even without intervention, any statistically significant shift between the first and the second measurement.

Even though the emWave2 device is primarily a training and therapeutic tool, we used it in a diagnostic way. We neither instructed the subjects concerning the modification of breathing nor showed to them the values achieved during the measurement (i.e. we did not use the biofeedback features of the device). The individuals received feedback concerning the values measured only after the second measurement in order to reduce the possibility of the second measurement being influenced by their inner expectations.

5 Results

5.1 Results for the differences in "low coherence"

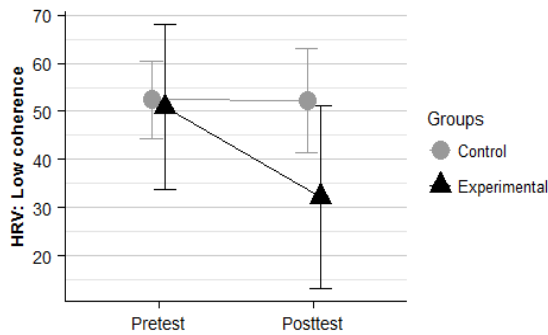


Figure 1: Confidence intervals for low coherence, comparison of the experimental and the control group; Difference in the level of improvement is not significant: $t(24) = -1.65$; $p = 0.31$; $d = -0.65$.

5.2 Results for the differences in "high coherence"

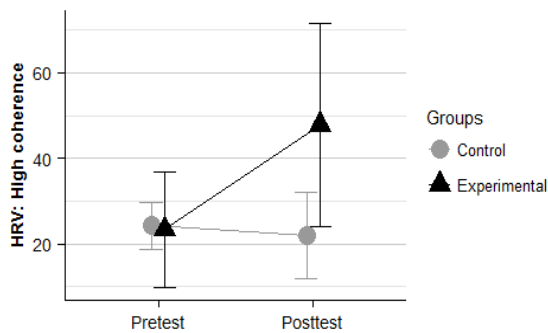


Figure 2: Confidence intervals for high coherence, comparison of the experimental and the control group; Experimental group improved significantly more than control group: $t(24) = 3.20$; $p < 0.01$; $d = 1.26$.

5.3 Results for the differences in "high coherence - low coherence"

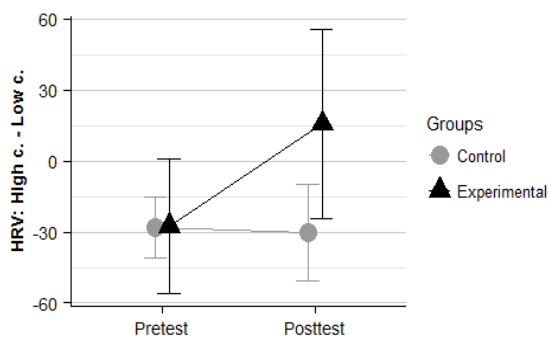


Figure 3: Confidence intervals of the percentage difference between high-low coherence, comparison of the experimental and the control group; The experimental group improved significantly more than the control group: $t(24) = 2.70$; $p < 0.05$; $d = 1.06$.

5.4 Results for the differences in heart rate

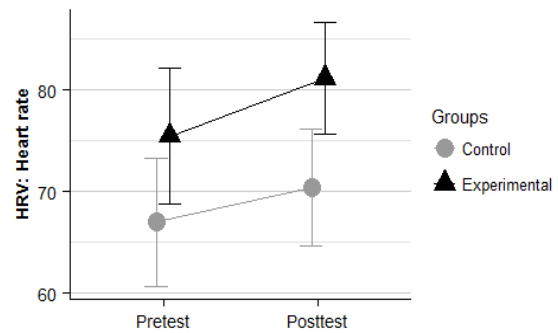


Figure 4: Confidence intervals of HR, comparison of the experimental and the control group; Average HRs of both groups showed significant differences during the second measurement, however, the difference in the change of the HRs between the groups is not statistically significant.

5.5 Results - summary table with statistically calculated values measured with the emWave2 device

Table 1: Summary table for all tested values

Scale	Mean		S. deviation		t-test			Effect size
	Exp.	Con.	Exp.	Con.	t	df	p	
Low	-18.69	-.15	35.64	19.23	-1.65	24	0.11	-0.65
Med	-5.77	2.46	35.41	12.91	-0.79	24	0.44	-0.31
High	24.46	-2.31	24.44	17.61	3.20	24	< 0.01	1.26
High-Low	43.15	-2.15	49.81	34.54	2.70	24	< 0.05	1.06
HR	5.69	3.38	11.61	5.71	0.64	24	0.53	0.25

Note to Table 1: Exp. = experimental group; Con. = control group; Significant values are in bold type. Significant differences are the group differences in the scales "coherence high" and "coherence high-low".

6 Conclusion and discussion

The results of our study proved that in individuals subjected to the conditions of the chamber REST (dark therapy variant), compared to the control group, there was a significant increase in "high coherence" and a decrease in "low coherence" in their heart action.

We consider the results of the study as inspiring and worthy of further investigation, however, we are also aware of the limits of the study, which were several. Firstly, from the point of view of the methodology of measurement, standardized ortoclinostatic test was not applied; it will be a part of the follow-up study. Secondly, the emWave2 device is designated primarily for training, therapeutic practice or personal use. It is not originally intended for diagnostics, therefore it may not be easy to use the terms it operates with and translate them to the usual medical terms. Despite these drawbacks, the statistical analysis (despite the small size of the group) suggests that even the emWave2 device may provide meaningful data.

The emWave2 device measures hear action and its variability (which is influenced by ANS) which statistically significantly increases after a week's stay in dark therapy, compared to the control group (which shows no change). Even though the device works primarily with the specific terms of low, medium and high coherence, we know that low coherence corresponds with low variability and high coherence corresponds with high variability. It remains the task of further studies to provide a more precise terminological clarification. Thus we plan, as a part of a follow-up study, to compare the data from emWave2 with tested devices for monitoring HRV.

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Primary Paper Section: A

Secondary Paper Section: AN

ADOLESCENCE AND MANIFESTATION EMOTIONS IN THE FAMILY

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We have studied the expressiveness of the family in connection with expressing real emotions. We are interested in gender differences in positive and negative emotional expressiveness of adolescents. The research sample consists of high school students (N = 110, M = 46, F = 64, AM 19.3). We have used the Family Environment Scale (Hargašová, Kollárik, 1986), the scale of expressivity (Barchard, 2001). We have found that the low family expressiveness is associated with emotional expression outside the family, which means the lower degree of expressiveness in the family, the higher level of negative expressivity in an individual. Gender differences have shown that women perceive the possibility of expressing their emotion in the family more positive than men, but men reached a higher score for expressing emotions.

Key words: adolescent, family environment, negative expressivity, positive expressivity

1 Family environment and positive and negative expressivity

According to Sobotkova (2007) the unique atmosphere in the family is determined by communication abilities of family members and these communication skills determine a successful functioning of the family. Successful family functioning is determined by positive feelings of safety and security. According to Oravcová (2004) these feelings come from the fact that parents protect and support their children. Adolescents see this support when their parents listen, they seek to understand and can accept their emotions whether positive or negative. Elliott (2009) states, that the communication process is important for an interactive relationship.

Positive interactions, communication family systems, and parents togetherness creates space for feelings ventilation and space for emotion expression. The communication system may be open or closed. The perception of the communication channels contributes to adolescents feelings, and to what extent they can express their own emotions. The openness of the system helps the adolescent perceive the expressiveness of their family. Veldova (2007) argues that the communication is very important for the development of all family members.

According to Goddetova (2001) communication is effective when a teen is willing to listen, understand and accept what parents said. Melgosa (2001); Gregg Shale (2010) state that if a parent with an interest in listening is helping an adolescent to analyze and solve the situation, which means that is creating an atmosphere in which the adolescent can express his/her emotions.

Communication is a two-way process and for successful expression of emotions mutual listening and acceptance is necessary. Adolescent therefore perceive this through the communication channels and participates with his/her parents on communication schemes. Teenager is very sensitive to the way in which parent communicate with him/her, and observe feelings and emotions of a parent. Adolescent needs to feel that parent value and hear his/her opinion.

Gregg Shale (2010) states that open communication is involved in evolution of personality and emotions. He also states that individuals who can communicate with their parents are happier and more confident. One of the communication schemes are close communication channels, which means that parents seek to enforce their own opinion and do not care about an opinion of their growing children. Adolescent in this case does not develop their communication skills, and mostly close himself from a family world. They start using friendly relations instead to express their opinions, attitudes, and in the same time the environment outside the family becomes the room for expressing their emotions. The openness of communication channels infamily is a productive relationship between parents and adolescents. (Melgosa, 2001; Carr-Gregg, 2010). Expressing

feelings therefore begins in the family, where we learn to express our feelings towards each other and other people.

Positive and negative feelings which family members show to each other represents the general climate of the family in which we learn to express our feelings (Ševčíková, 2012; Vašasová, 2004). According to Vágnerová (2005) teenagers considered feelings as a part of intimacy and Rosenberg (2008) adds that the ability to express feelings helps in resolving interpersonal conflicts and in establish social contacts. Ševčíková (2012) in this regard states that the direct socialization is represented by parents' emotions, and their response to adolescents' behaviour and their conversations about positive and negative feelings. Indirect socialization is only typical for description of the overall family atmosphere and own parent's expressivity. Both direct and indirect factors have a significant impact on the overall development of adolescents. Halberstadtová et al. (in Ševčíková, 2012) state that emotional climate is heavily dependant on parent's emotional response.

This positive parent's expressiveness teach adolescents of understanding, positive emotional well-being and pro-social behavior (Ševčíková, 2012). Freedom in expressing own opinion give adolescents a feeling of empowerment. Understanding and respect enhances the value of their being. (Macek, 2003, 2004). Segrino and Flora (2011) argue that the ignorance of negative feelings may cause problems with their regulation, and respectively it can cause problems with coping with negative emotions such as sadness and anger. This may result into a problem with expression of their emotions. Acceptance and the ability to control and cope with emotions is a positive aspect in the regulation of feelings to themselves and in relationships. According to research of Cupach & Olson, 2006 in Segrino, Flora (2011) this is a source of positive relationships among peers.

During adolescence according to Schrodta, Ledbetter and Ohrt (2007 in my sister's, Flora, 2011) teenager creates a specific communication tactics with his/her parents. According to Goddetova (2001), parents and adolescents manage their communication spontaneously, with emotions and understanding. During conversations, they are discovering different attitudes, emotions, and reactions which affect the whole communication. However, they may have different impressions and feelings from the same conversation, which can undermine their mutual understanding. The philosophy of many parents according to Ševčíková (2012) is that they belief that negative emotions should be controlled, and their expression should be suppressed. However, this way individuals learn and reduce external expression of their feelings. This philosophy creates potential concerns about the feelings and consequent fear of expressing them. Other parents (in ibid) try to stay in touch with their own feelings and this expression is accepted. In conclusion, it shows that acceptance of feelings creates space for expression of both positive and negative emotions.

1.1 Factors of expresivity

In the previous chapter we have paid particular attention to the family atmosphere and expressivity. Factors which contribute towards expressiveness are many. We will concentrate on the main ones. The trust between parent and child is important when expressing emotions. Posse and Melgosa (2002) state that physical contact, openness and willingness to talk and laugh will build the necessary confidence in children. Furthermore, the authors state that another part of open communication is active listening. Křivohlavý (1993) adds that it is also the mostimportant phase of the personal communication. The author also stresses that attention, empathy, peace, kindness, interest and respect towards ones who is talking (and so on) are other important factors. Another important element is a credibility of the listener, which enhances the feeling of the trust on the other side (Křivohlavý, 1993).

If teenager experiences a disappointment in the area of expectations, this can affect his/her perception on other relationships and this feeling of distress can result in reduced need of expressing their feelings and emotions. Parent personality and feeling sharing with others can be seen as other factors of expressiveness. Špaňhelová (2010) considers sharing as the main determinant for mutual communication. The emerging interactive relationships of adolescents in the social environment can be considered as an important factor of expressiveness in adolescents. Williams (2003) states, that we can see those emotional expressions between friends of adolescents. In addition Vágnerová (2005) states that during adolescence the relationships transforms and conflicts become more common between parents and children.

This may divert teenagers emotional expressing into the environment of friends instead. Other factors must be mentioned such as: natural parental authority, self-reflection, and the ability of different viewpoints. Adolescents tend to be largely tolerant towards mistakes of adults, but only if parents are able to recognize their own mistakes and failures. Expressiveness in adolescents is associated with the ability of parents to have an open conversation but discretion and sensitivity are very essential part.

2. Problem characteristic and Research Methods

All listed factors are part of a positive family atmosphere Satirová (2006). One of the attributes of a positive family atmosphere is positive emotional relationships. For our research we selected subscales of expressiveness which helps us to detect the degree to which the adolescent may behave at home. We are interested in the relationship between expressivity of families and expression of positive and negative emotions. In verifying the research hypothesis, we used a questionnaire ŠRP (Hargašová, Kollárik, 1986). For our objectives, we used the subscale of relational dimensions-expressiveness. Next, we used a range of positive expressivity (PES) and then scale of negative expressivity (NES) (Barchardová, 2001 in Ševčíková, 2012). Family Environment Scale (SRP; Hargašová, Kollárik, 1986) as self-checking method is revised version of the original Family Environment Scale, Moosa, and Moosa (1981).

The scale captures behavior which depends on a person, but also an environment. This is one of the first scales, which focuses specifically on family perception, while is investigating the systematic nature of the family. Adolescent evaluates the family expressiveness to the extent to which he/she perceive the ability to express their emotions. The range of positive expressivity and PES range of negative expressivity NES are created by Barchardova K. (2001). The scales were translated into Czech language in 2010, while the psychometric characteristics were firstly validated on 372 respondents, from age group 15-24 years in the study in Brno (Ševčíková, 2012). The range of positive expressivity contains elements of positive emotions such as affection, happiness and laughter. The range of negative expressivity contains elements of negative emotions in general, but especially in areas of anger, sadness, and fear.

2.1 Hypotheses

H1: The total expression of emotion is stronger in families with a positive perception of the family

H2: The expression of positive emotions is associated with positive perceptions of family environment

H3: Expressiveness of family environment will be more prominent in women than in men

H4: We assume that the expressivity (PES / NES) will be higher in women than in men

2.2 Results and their interpretations

H1: We assume that there is a positive relationship between the overall expressiveness (PES positive expressiveness/ negative expressiveness NES) and expressivity in the family (opportunities to express emotions in the family – SRP). The variables included in the test have do not have a normal

distribution (Kolmogorov-Smirnov test Sig. <0.05), therefore in order to test the hypothesis we chose to calculate the nonparametric Spearman rank correlation coefficient. The result is shown in Table 1 in the column entitled "Full set", the statistical significance is called Sig <0.001. We see the observed relationship as statistically significant; it is a relationship of moderate negativity. A negative value means that the higher the score of expressiveness in the family (expressiveness dimension SRP), the lower the score of overall expressiveness (PES / NES). In overall this means: higher the degree of possibility to express individual's emotions in the family, the rate of the overall expressiveness in the family is lower. This is an opposite relationship from what we expected, therefore the hypothesis is rejected.

Table 1 Results and additional results for H1: Spearman's rank correlation coefficient

	Overall Expressiveness	Full Set	Men	Women
Family Expressiveness	Spearman's coefficient	-0,46	-0,427	-0,466
	Sig.	0,000	0,003	0,000

In the Table 1 we can see the results of our investigation between relationships separately in women and men. We also used the non-parametric test, where the variable of family expressiveness is not normally distributed in men and in women. Based on statistical significance (men: Sig. <0.01; women: Sig. <0.001) we consider relationships to be significant. The direction and intensity of coefficients are interpreted the same way as the whole dataset. There is an existence of moderate negative direction between relationship in family expressivity (relational dimension of the CFP) and the overall expressiveness (PES/NES).

H2: We assume that the positive expressivity (PES) is positively connected to the expressiveness in the family. Same as in the previous hypothesis, we have used the calculation of the Spearman rank correlation coefficient to verify the hypothesis, since the positive variable of expressivity is not normally distributed in entire file (Kolmogorov-Smirnov test: Sig. <0.05). The results are shown in the Table 2, where in the second line under the heading, we can see the value of statistical significance, which is Sig. <0.001. Observed coefficient is statistically significant and reflects a moderately negative relationship. The higher the score of positive expressivity (PES), lower the value in family expressiveness (relational dimension of the CFP). Positive perception of expressiveness in family environment does not increase the expression of positive emotions of an individual in their family. The hypothesis is rejected.

Table 2 Results and additional result to H2: Spearman's correlation coefficient

	Overall Expressiveness	Full Set	Men	Women
Family Expressiveness	Spearman's coefficient	-,333**	-,357*	-,285*
	Sig.	0	0,02	0,02

The Table 2 shows calculations of correlation coefficients for the relationship between family expressivity and positive expressiveness independently in men and women. According to statistical significance Sig. <0.05 we considered these relations as important in both men and women – it is negatively directed relationships. For men, results are moderate and in women are weak.

Table 3 Additional results for H2: Spearman's correlation coefficient

	Negative Expressiveness	Full Set	Men	Women
Family Expressiveness	Spearman's coefficient	-,455**	-,384**	-,476**
	Sig.	0	0,01	0

Relations between expressivity in the family (SUI) and negative expressivity (NES) in the whole group and also in men and women separately have been statistically evaluated. The results are presented in the Table 3. As we can see, in all three groups there were statistically significant relationships between expressivity in the family (relational dimension of the CFP) and negative expressivity (NES). Relationships are moderately negative. We interpret that the lower level of perceived expressiveness in the family, or respectively weaker atmosphere for expressing emotions in the family, the greater negative individual's expressivity.

H3: We assume that women perceive family environment more positively for expressing their emotions. The hypothesis was verified by using the non-parametric Mann-Whitney U test, but not because of the normal distribution of the family expressiveness's variable in two groups (Kolmogorov-Smirnov test: Sig. <0.05). On the basis of statistical significance (Sig. <0.05) we perceive the difference as significant although was found higher expressiveness in the family (SUI) in women than men. We interpret that women perceive the possibility of expressing their emotions in the family more positively than men. Hypothesis is accepted.

Table 4 Test Results of H3: Mann-Whitney U test (Men N=46; Women N = 64)

Family Expressiveness	Gender	Average ranking	Mann-Whitneyho U test	
	Men	46,72	U	1068
Women	61,81	Z	2,49	
Total		Sig.	0,01	

H4 Women will express positive and negative emotions more intensely than men in their family. In the hypothesis H4 we were verifying the difference in total expressive variables PES/NES between men and women. We have used non-parametric variations comparison test (Mann-Whitney U test), since the total variable expressivity in the group of women does not have a normal distribution (Sig. <0.05). Results of the overall expressiveness comparisons are mentioned in the first part of Table 5. Statistical significance was calculated by the difference Sig. <0.001, and this difference is significant. Higher total score in total expressiveness is in men compared to women. We interpret that men show emotion in greater extent. The hypothesis is rejected.

Table 5 Results and additional results to the H4 (Mann-Whitney U test)

Overall expressiveness	Gender	Average ranking	Mann-Whitney U test	
	Men	69,37	U	834
Women	45,53	Z	-3,876	
Total		Sig.	0,000	
Positive expressiveness	Men	63,89	U	1086
	Women	49,47	Z	-2,352
Total		Sig.	0,019	
Negative expressiveness	Men	70,54	U	780
	Women	44,69	Z	-4,225
Total		Sig.	0	

Additional results for H4: For completeness we performed calculations for gender differences separately for positive expressivity (PES) and negative expressivity (NES). The results can be seen in the second and third part of the Table 5. Differences in both variables are statistically significant for positive expressivity level - Sig. <0.05, and for the negative expressivity level - Sig. <0.001. In both variables higher scores are achieved in men and in negative expressivity score the difference is significant.

2.3 Conclusion and Discussion

We have found that expressivity of family atmosphere (possibility to express emotions) does not increase the expressiveness of an

individual (individual emotional expressing). We see this finding as very interesting. We assumed that the real display of emotions will increase in combination with the possibility to express emotions. We might assume that expressiveness contains many other factors that affect adolescent feelings in sense of exploration. Perception of family's expressivity in our research is however opposite and we could see lower levels of emotional expression. It can be concluded that one of the reasons for expressing emotions outside the family is developing friendships. As Rosenberg (2008) noted, expression of feelings helps in formation of social contacts. According to Vágnerová (2008) adolescent is more extroverted and his/her orientation to the external world is expanding. The interactive relationships of adolescents are expanding in the social environment and this can be considered as an important factor of expressiveness in adolescents. It can be considered that open communication channel in adolescent's interaction is a friend.

Another reason for concentrating on emotional expressions outside the family may be that parents are despite their own openness in the family, adolescent still see them as the authority, who often judges his/her behavior and tries to give advice they did not even asked for. Therefore, expressing emotions can be considered as a source of conflict for adolescents. According to Vágnerová (2008) during teenage years the relations will transform which can lead to conflicted behavior between parents and children. Furthermore, consideration must be also given to social and friendly relations which bring lots of new feelings (secret part of an adolescent) and the need to analyze feelings are concentrated among friends. In addition, Vágnerová (2005) states that teenagers see feeling as a part of intimacy. However, if adolescents perceive the family as a place where they cannot express their emotions, the negative expressivity of individual increases and negative emotions such as sadness, anger become apparent. It should be considered that closure of communication channels increases the tension which reflects in their behavior. The question is whether such behavior does not indicate a less positive family atmosphere. Vašasová (2004) and Ševčíková (2012) emphasize that the rate of positive and negative feelings in the family states the overall climate of the family. Emotional climate that adds to Ševčíková's (2012) study also depends on expression of parents' emotions. Lower level of perception of expressiveness in families may be related to the fact that fewer parents express their own emotions and mutual sharing of emotions is not sufficient enough. Špaňhelová (2010) see emotions sharing as the determinant for mutual communication. The reason for negative emotions may be a conflict between the possibility to express themselves and need to express their opinions, attitudes, and emotions. Ignoring negative feelings as stated by Segrino and Flora (2011) may cause doubts about the correctness of teen's emotions and they may develop problems with their regulation, which may lead to problems with coping with negative emotions such as sadness, anger. It can be argued that in family where adolescent has opportunity to express his/her feelings even if does not show too many emotions, the open communication does not create such problems as would a closure of communication channels. Positive expression of emotions in adolescents outside the family is related to the need to share emotions such as happiness, love and so on with friends. The concentration of negative feelings outside the family may also be related to parents' expectations. They expect that children will be successful but negative emotions are usually associated with negative experiences and failure. Adolescents do not want to disappoint their parents, so they tend to hide negative emotions. Parents can however take expressions of their child's negative emotions personally and this can be a source of conflict with each other. The examination of gender differences brought these findings. Men express their emotions in the family to a greater extent than women. The expressiveness in men in both positive and negative emotions is at a higher degree than in women. We can conclude that their openness in interaction with parents is stronger despite the fact that their perception of expressiveness in family is lower. Women perceive the expressiveness in family more intensely, but despite of it, their individual expressiveness is weaker.

The lower degree of openness in emotional expression in women may be related to feelings that they can hurt parents when

expressing their emotions. Women are more sensitive, emotional and have a greater need to share their experiences and feelings with their girlfriends. Adolescents are more focused on the social relations in terms of their interests, and goals. Their emotional charge does not apply so much to their intimate problems, which may affect their greater openness and directness. Social relations play an important role in expressiveness of adolescents. Negative expressiveness is increased in families with lower level of expressivity. The perception of expressiveness in family is one of the sources for understanding, positive emotions, and pro-social behavior. A lower number of respondents focusing on expressiveness in different environments can be identified as a limit of our research. The degree of expressiveness is linked to many other factors that have not been studied. Our research does not answer questions directed towards determination of expressivity and expressivity itself. In our further investigation we focus on personality traits with relations of expressing emotions and other dimensions in family environment relations.

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Primary section: A

Secondary Paper Section: AN

FESTIVAL OF ART OR CRISIS OF ART? THE PHILOSOPHY OF ART OF HANS-GEORG GADAMER AND JOSÉ ORTEGA Y GASSET

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Abstract: The article juxtaposes reflections of two contemporary philosophers, Hans-Georg Gadamer and José Ortega y Gasset, on the theme of art. The authors refer to the basic works of these philosophers on aesthetics and the philosophy of art, among them *Truth and method*, *The relevance of the beautiful*, and *The dehumanisation of art*. These reflections revolve around the concept of crisis of art as it was understood by both thinkers. Similarities and differences are pointed out in their assessments of the situation of contemporary art, its nature and function.

Keywords: festival of art, crisis of art, philosophy of art, tradition, play, Hans-Georg Gadamer, José Ortega y Gasset

Festival of art or crisis of art? The philosophy of art of Hans-Georg Gadamer and José Ortega y Gasset

1. Introduction

In undertaking an attempt at philosophical reflections on contemporary art today, it is impossible to ignore the changes that took place in human artistic activity in the late nineteenth and early twentieth centuries in Europe. This breakthrough concerned the emergence of new forms and new content in artistic presentations, as well as the traditional understanding of the role of art, the relative positions of artist and viewer, and the status of works of art. Even if it seems today that we are familiar with the shape of the new art, interpreting it evidently remains a challenge for us. We still have not dealt with the issues of its essence, meaning and function. At the same time, there is still no answer to the question of whether the changes which have taken place in art have led to its rebirth in a completely new form or to a crisis. Hence our proposal to recall the positions of two prominent twentieth-century philosophers, Hans-Georg Gadamer and José Ortega y Gasset, which may prove helpful in answering these still-unresolved questions. Both thinkers observed and analysed the same phenomena in the arts, but their interpretations of the new art ultimately proved different. Significant and noteworthy is the fact that they focused on the same concepts, which can be variously defined as, *inter alia*, tradition, play, and the meaning of art.

We believe that comparison and analysis of these partly congruent, partly conflicting proposals may prove to be of cognitive value and to provide useful tools for the further study of contemporary art.

2. Hans-Georg Gadamer on art

Gadamer perceived, of course, the generally acknowledged crisis of contemporary art, believing that it was the result of transformations that took place in Europe in the nineteenth century when the centuries-old tradition of Western Christian art was interrupted. This tradition had created, in his opinion, a community of mutual understanding and agreement, associated with intelligibility and openness transmitted by the content of the art,¹ constructing a common myth that rendered the truth embodied in the works easily accessible.² The work of artists from the turn of the century and of the classic avant-garde artists who followed them was associated with the gradual separation of the content of transmission from the form, which led to the concept of so-called pure art, assumed to be liberated from contexts and references. As a result, nonfigurative art appeared, making no attempt to respond to usual expectations of the image,

and evoking shock and feelings of alienation from its viewers.³ The crisis of art, which is still being proclaimed today, nevertheless does not prove, in Gadamer's opinion, the 'end of art'; nor does it indicate a transformation of its essence. The crisis consists of a progressive, increasingly profound lack of understanding of art, artists, and works of art, which, by ceasing to be comprehensible, lose their vital human significance. It is thus connected with the disappearance of the obviousness of communication and of methods for the manifestation of truth in works of art. The crisis of art is thus a challenge – a task for audiences, critics, and interpreters. As we read in one of the author's essays in *The relevance of the beautiful*, 'Poets have of necessity become silent. Discreet messages are spoken quietly, so as not to be overheard by a third person, and so the poet's voice has also grown quiet. The poet transmits something to one who knows how – and is prepared – to hear it'.⁴

Gadamer makes no distinction between traditional and modern art and does not consider it necessary to alter the concept or definition of art.⁵ On the contrary, he postulates the need to preserve the continuity of the tradition of culture and art; he declares that art can and should still play the same functions – primarily mediatory, integrative, and cognitive – as it has for centuries.

Without a doubt, the most important aspect in hermeneutical reflections on art is that art has a relationship with the truth, that it is a cognitive experience, i.e. one that expands human knowledge and self-knowledge.⁶ According to Gadamer, contact with art leads to the 'occurrence of truth'. At the same time this is not the truth we deal with in modern science; it is not a question of so-called objective truth or about reaching a specific unappealable meaning. Truth in hermeneutics is dynamic and fluid, much like man, who is a finite being, entangled in history, tradition, and events. The truth accessible through the experience of art is a kind of transparency (Greek *aletheia*, about which Heidegger wrote) revealed through dialogue, the viewer's encounters with tradition and all that concerns the work of cultural transmission. Gadamer speaks in this context of a fusion of horizons, about the collision of what derives from the past with what constitutes the present perspective of the viewer. It is important here to emphasise along with Gadamer that this is a question of a real experience that transforms the interpreter.⁷ One must therefore clearly distinguish the experience of art from aesthetic experiences of a personal and subjective nature. The experience of art means active involvement, participation in a dialogue and openness to the 'surplus meaning' the work reveals. There is no place here for the acquisition of knowledge, only for a never-ending process of dialogue. The experience of art is merely one of the varieties of knowledge, one of the types of hermeneutic experience – which, generally speaking, means the experience of interaction with tradition, of remaining open to its message and accepting its claims. However, the experience of art is also distinguished by hermeneutics in terms of the exceptional language of communication and the exemplary

³ See H.-G. Gadamer, *Sztuka i naśladownictwo* in: idem: *Rozum, słowo, dzieje. Szkice wybrane*. Warsaw: PIW, 1979. ISBN 83-06-00152-4. p. 128.

⁴ H.-G. Gadamer, *Czy poeci milknę?* in: idem: *Poetica*. Warsaw: Wydawnictwo IBL, 2001. ISBN 83-87456-70-5. p. 102. Here, it is worth adding that the basic premise of this reflection is that the reception of art is directed by the sense of expectation. Thus, hermeneutics encompasses aesthetics. What is more, aesthetics is not a separate field of knowledge, but is incorporated in the sphere of hermeneutics.

⁵ In *Aktualności piękna* [The relevance of beauty] Gadamer clearly states that 'inherent in every work as such is a complex game of reflection which constitutes a challenge. For this reason, the dichotomy between art of the past, which is to be enjoyed, and contemporary art, whose refined artistic means force us to cooperate, seems false to me'. H.-G. Gadamer, *Aktualność piękna*, op. cit., p. 37.

⁶ See H.-G. Gadamer, *Prawda i metoda. Zarys hermeneutyki filozoficznej*. Warsaw: PWN, 2007. ISBN 978-83-01-14230-8. p. 153.

⁷ We read in one of the essays: 'as an experience of authenticity, as assimilation, which includes the moment of transcendence, the experience of art is, in the proper sense, experience, and again and again one must accomplish the resulting task: the task of incorporating it into the entirety of one's own research in the world and one's own self-understanding'. H.-G. Gadamer, *Estetyka i hermeneutyka* in: idem: *Rozum, słowo, dzieje...*, op. cit., p. 125.

¹ See H.-G.: *Aktualność piękna. Sztuka jako gra, symbol, święto*. Warsaw: Oficyna Naukowa, 1993. ISBN 83-85505-15-6. p. 8.

² See H.-G. Gadamer, *Koniec sztuki?* in: idem: *Dziejnictwo Europy*. Warsaw: Fundacja ALETHEIA, 1992. ISBN 83-85277-04-8. p. 44.

manner of manifesting the truth in artistic creations. The specificity of the language is based primarily on the fact that art speaks to the viewers in a very powerful way; the sense of the truth of a work of art, though never fully expressible, appears as if obvious. Gadamer writes: 'we have [here] more than an expectation of this sense; something that I would like to call infection with the sense of what is said'.⁸ Moreover, art addresses each of us. It is not an elite phenomenon, designed for a narrow audience, but rather seizes the attention of viewers in the form of a sensation of authenticity, which is always current and modern.⁹

Art, according to Gadamer, can be aptly described by three concepts: game, symbol and festival. The game concept reveals the processual and hypersubjective nature of the truth of art; it also points out that art is a communicative phenomenon that involves participation. A game deeply engages its participants, and thus changes their perception of the world; the colloquial perception of reality is, in the experience of art, suspended.¹⁰ A game, in order to exist, requires seriousness, but at the same time, because it is not associated with daily hardships and responsibility, induces a sensation of lightness in the participant. The symbolic nature of art means that the process of its interpretation is infinite and inexhaustible. Art turns out to be a mysterious game of revealing and concealing meanings. The meaning of a work may be revealed if an effort is made to discover it. The viewer must be acquainted with the language of art, must learn to read the work – and this depends on 'performing constant hermeneutic movement, which controls the expectation of a sense of the whole'.¹¹ Thus understood, art serves as the recognition of reality, expansion of horizons, enrichment of the individual, as well as the construction of a universal area of understanding. Works of art connect people with one another and bind them in a common dialogue. The third element of the definition proposed by Gadamer, festival, encompasses and expresses all of the above-mentioned elements of the experience of art. The festival concept also emphasises, above all, the exceptional possibilities of the integration of art: the ability to simultaneously express the individual and the universal; the past alongside the present. It also indicates the specific temporality of the experience of art: festival time is, so to speak, time fulfilled, as it is fully filled with festivity. Similarly, the true experience of art means taking a work as modern and up to date, and its truth as present. Moreover, Gadamer declares that art teaches us a specific way of being, one that does not prolong itself and which is probably the 'finite rightness, suited for us, of what we call eternity'.¹² The festival concept thus points to the transcendent and to communion.

3. José Ortega y Gasset on art

The catchphrase 'the end of art' appearing in European culture from the beginning of the twentieth century found expression as well in the thoughts of the Spanish philosopher José Ortega y Gasset. This slogan was one of the manifestations of the crisis of twentieth-century European culture proclaimed by Ortega y Gasset. In works such as 'The dehumanisation of art' or 'Art in the present and past tense', the philosopher analysed the aesthetic moment and ideological changes in art, as well as the resulting sociological consequences. According to the Spanish thinker, the crisis of the entire contemporary culture, and art in particular, was inextricably linked to the condition of European societies in the late nineteenth and early twentieth century. At that time, the status of the artist changed, art changed, and the viewer changed as well. Contemporary artists broke away from the art of the past because a new type of viewer had appeared. The viewer, for his part, had changed his attitude to

contemporary art because it had departed radically from the artistic canons of the past.

For Ortega y Gasset, art was one of the most significant sociocreative factors: it had a real impact on the formation and development of societies. Therefore, Ortega y Gasset considered the examination of art from a sociological point of view to be a useful tool for understanding the phenomenon of contemporary art. The new art, in his view, was antipopular by definition: it emerged in order to divide society. The antipopularity of this art lay in the fact that it was addressed to a narrow audience. The radical opposition to traditional popular art was a deliberate process, achieved through an intentional break with the rules of communication between the artist and the viewer previously in force, the rejection of past canons of art and a departure from realist and naturalist presentation. The philosopher wrote that 'Each work of [contemporary art – ed.] evokes in the public an interesting sociological phenomenon. The audience immediately divides itself into two groups: one, not very numerous, favourably inclined, and the second, very large, decidedly hostile. (...) Thus a work of art operates similarly to social forces, under whose influence a shapeless mass of people is divided into two distinct and hostile castes. (...) Each work of art causes differences of opinion: one likes it, another does not; one likes it more, another less. (...) However, in the case of the new art, the rift is much deeper; it is no longer a matter of individual differences in taste. It is not that the majority dislikes the art of young people, while the minority likes it; the point is that the majority, the masses, do not understand this art'.¹³ In the lack of understanding of art arising in the first decades of the twentieth century, Ortega y Gasset recognised the same basic distinguishing aspect, which, at the same time, qualitatively divided society into two groups: insiders, who were the artists themselves as the authors of their own works, along with a culturally and intellectually prepared elite; and the uninitiated, that is, the masses.¹⁴

Art in the twentieth century therefore lost the unifying, integrating nature so characteristic of the art of the previous era. It ceased to be an experience bearing the hallmarks of universality: the viewer could be not just anyone, but only selected individuals. Contact with new art has become special time, but also time that the viewer spends on his own. Every experience of this art is alienating in the sense that while in contact with it, the viewer is left to his own devices. Thus there is no more historical continuity of style; the achievements of tradition have been suspended, and simple references to human reality are no longer functional. The experience of art becomes a personal challenge for the individual, who decides either to submit to the new rules of the game, or, as Ortega y Gasset said, rejects the new and incomprehensible art.

The basis of this radical social effect of art in the first decades of the twentieth century was, first and foremost, the break with tradition. According to Ortega y Gasset, this was a critical moment, which, however, did not mean the 'end of art' in general. What ended irrevocably was the art of the past. The distinction Ortega y Gasset introduced between the 'art of the past tense' and 'contemporary art'¹⁵ is of key significance here. The art of the past was, for the philosopher, synonymous with traditional imitative art, which 'is an art in the full sense of the word only inasmuch as it is still present, fertile and innovative'.¹⁶ And because, as the philosopher said, the potential of this art became exhausted in the second half of the nineteenth century, it had ceased to create or evolve. It should be noted, however, that Ortega y Gasset did not depreciate the art of previous centuries. He claimed that the pleasure we derive from communing with this kind of art (and undoubtedly we still derive pleasure from the works of Michelangelo, Rembrandt and

⁸ H.-G. Gadamer, *Estetyka i hermeneutyka*, op. cit., p. 125.

⁹ cf. H.-G. Gadamer, *Estetyka i hermeneutyka*, op. cit., p. 125.

¹⁰ We read in *Prawda i metoda* that 'the game is set in a different, introverted world, where, however, it is a product, situated, as it were, within itself and not measuring itself according to something external to it'. H.-G. Gadamer, *Prawda i metoda...*, op. cit., p. 171.

¹¹ H.-G. Gadamer, *Aktualność piękna...*, op. cit., p. 37.

¹² *Ibid.*, p. 61.

¹³ J. Ortega y Gasset, *Dehumanizacja sztuki*, in: idem, *Dehumanizacja sztuki i inne eseje*, Warsaw: Czytelnik, 1980. ISBN: 83-07-00056-4, p. 280.

¹⁴ cf. J. Ortega y Gasset, *Bunt mas*, in: idem, *Bunt mas i inne pisma socjologiczne*, Warsaw: PWN, 1982. ISBN: 83-01-02820-3.

¹⁵ J. Ortega y Gasset, *Sztuka w czasie teraźniejszym i przeszłym*, in: idem, *Dehumanizacja sztuki*, op. cit., pp. 266–8.

¹⁶ *Ibid.*, p. 267.

Velázquez), comes from the life of the tradition in which it is situated, and not to its aesthetic value; he called this 'archaeological pleasure'.¹⁷ The art of the past is therefore still present in our lives, but it exists in a spectral dimension, continually placed between quotation marks. Contemporary art is no longer a continuation of the tradition. Programmatically, it assumes a departure from the dead canons of the past and the elevation of man above his human dimension, detaching him from reality by means of its conscious deformation. Therefore, Ortega y Gasset wrote of two arts, radically different from each other, causing the rift between past and present to become enormous. The end of traditional art irrevocably closed a certain chapter in the history of human artistic activity, but it also opened completely new horizons. The moment of change, of which Ortega y Gasset was the witness, was undoubtedly a critical moment, pregnant, however, with potential for the continued existence of art in general.

The essence of the art of the first decades of the twentieth century became, according to Ortega y Gasset, the phenomenon of dehumanisation he described. Dehumanised art is the art of intellectual pleasure, a game based on the concepts of irony and metaphor. Traditional art, loaded with humanising elements, had been depleted, heavy, pathetic and serious. The new art began to operate mainly through irony, which often took the form of self-mockery. At the same time, it fled from pathos, seriousness, missionary zeal and transcendence. As Ortega y Gasset wrote, this art was 'sophisticated fun devoid of any seriousness and pathos, in which only its true lovers should indulge'¹⁸ and added that 'all modern art becomes understandable and in a sense great if we can acknowledge it as an attempt to restore youth to the old world. Other styles in art should be considered in the context of dramatic social and political movements or deep religious and philosophical currents. In contrast, the new style is rather closer to the triumphs of sport and play'.¹⁹ Thus Karolina Golinowska states that 'avant-garde art was for Ortega y Gasset autonomous play of a sort, devoid of deeper meaning'.²⁰ Art was supposed to be a game that had nothing in common with the sphere of human emotion, a game of pure aesthetic values, unusable and impractical, whose participants were representatives of a spiritual aristocracy, appropriately responsive to receiving it, aware of its antitraditional turn, willing to learn the principles of the new art. Becoming acquainted with the rules of the game of the new art was, for Ortega y Gasset, essential. The idea of art as an ironic game between the work and the viewer was not yet widely accessible. Art had become a hermetic experience, accessible only to the chosen few. Ortega y Gasset drew attention to the advancing process of elitisation of the new art, which, in the moment of crisis of the traditional aesthetic values of democratic, egalitarian societies, was its only salvation.

Dehumanised art, according to Ortega y Gasset, also meant the flight of artists from forms reflecting life. This flight was a departure from the traditional imitation of reality, in order to create new forms that, as Ortega y Gasset would say, were as dissimilar as possible to the fragments of human reality: 'It's a question not of painting something completely different from a person or house or mountain, but to paint a person who would be as little like a person as possible; a house that would take from a house only what was needed to complete its metamorphosis; a mountain which, deprived of its surface, becomes a cone, as a chrysalis is transformed into a butterfly. For the contemporary artist, triumph over human material is a source of aesthetic pleasure'.²¹ The artist of the new art had turned against reality. He had decided on its deformation, that is, on the destruction of its 'human' aspects.

But could art on such a basis preserve any cognitive value? It seems that the process of dehumanisation did not deprive art of all sense. An extremely difficult task lay before the artist: his

aim was not to bring imaginary worlds, devoid of all meaning and sense, to life. In rising above human reality, moving away from the realism and naturalism of representations, the artist had to create purely artistic art – but art possessing content which constituted the ground of new meanings. The cognitive value of the new art was based on meanings that were no longer simply a way to recognise a work based on the similarity of its content to reality, as was the case in traditional art. Contemporary art was supposed to create new entities, aesthetic objects that lived in the objective space of the artistic world, which differed from physical and psychological reality. Paradoxically, this art thus became doubly unreal. Firstly, it was not real, in the sense that it was new and differed from what was real. Secondly, the aesthetic object that was its creation had the capacity to deform true reality. The meaning of the new art appeared, therefore, at the moment of recognition of the purely aesthetic value of the work.

Ortega y Gasset identified this aesthetic object of the new art with a metaphoric object. Metaphor was, at the same time, another essential feature of dehumanised art. Importantly, however, the dehumanising metaphor was not merely a decorative tool or a highlighted element of the reality being presented. The aesthetic metaphor deployed by the new art 'eliminates the realistic elements by disguising them and making them into something completely different',²² additionally dragging into the light of day everything that had previously been confined to the realm of taboo. Metaphor and the concept of taboo are closely linked: metaphor as a manifestation of the dehumanisation of art mercilessly exposed the hidden emotions, instincts, imaginings, ugliness and visions of the subconscious previously confined to the realm of taboo. Thus, metaphor was a formal means of meeting an artistic need to flee from reality in the first decades of the twentieth century.

As an eyewitness to the changes in art which took place at the beginning of the twentieth century, Ortega y Gasset was sure that art, on the threshold of that century, had been launched on a road from which there would be no turning back.²³ The crisis of previous artistic values, associated with the crisis of contemporary European culture as a whole, became for him an impulse to reflect on the new direction of human artistic activity. Ortega y Gasset, who was one of the heralds of a catastrophic vision of the future of the human world in its previous form, nevertheless did not surrender to utterly defeatist thinking. In analysing the contemporary artistic phenomena, he created a prophetic vision of a new kind of art – art that, breaking with tradition, faced not only the task of developing completely new formal methods, but also the challenge of forging a new identity. According to Ortega y Gasset, the identity of the new art – the art of the present – was based on the concept of dehumanisation, whose artistic implementation entailed real sociocreative consequences. The new art had become an art for selected individuals, an elite game in which each player was on his own. The polarisation of society and the negation of the unifying ideals of traditional art had therefore become the tangible results of the activity of contemporary artists. Ortega y Gasset saw the new art as a kind of intellectual entertainment for selected individuals who undertook the solitary trouble of understanding it. Thus, it seems that dehumanised art became liberated and enslaved at the same time – liberated first of all from the canons of the past, its utilitarian nature and the obligation to imitate. At the same time, it fell into the trap of elitism, which had the potential to lead to the total alienation of artistic practice and the gradual disintegration of the insulated, hermetic world of art.

4. Conclusions: festival of art or crisis of art?

These considerations concerning contemporary art lead to the conclusion that neither philosopher has any doubt about art being an intellectual experience, expanding the cognitive horizon of the individual. Through it, we can expand human

¹⁷ Ibid., p. 273.

¹⁸ Ibid., p. 275.

¹⁹ J. Ortega y Gasset, *Dehumanizacja sztuki*, op. cit., p. 319.

²⁰ K. Golinowska, *Sztuka doby kryzysu*, in: *Kultura-Historia-Globalizacja*, Vol. 8. 2010. ISSN: 1898-7265. p. 70.

²¹ J. Ortega y Gasset, *Dehumanizacja sztuki*, op. cit., p. 295.

²² Ibid., p. 304.

²³ See N. A. Michna, *Wielka Awangarda wobec kultury masowej w myśli José Ortegi y Gasset*, Cracow: Libron, 2014. ISBN 978-83-64275-66-1. p. 138.

consciousness and develop knowledge about ourselves and the world. However, it is necessary to make an effort to benefit from what art offers. Taking the trouble to understand it is indispensable, especially in view of the artistic phenomena that appeared after the period of the Great Avant-Garde. Ortega y Gasset remains an intellectual elitist and stresses that this enriching experience of art is available only to a few. Contemporary art, by definition, divides society into those excluded from the world of art and its privileged participants. On this issue, Gadamer remains more cautious, encouraging us only to respond to the appeal, addressed to everyone, to participate in the world of art. His statement is rooted in basic hermeneutical assumptions to the effect that conscious acceptance of transmissions of tradition and culture is necessary for one to understand the world, oneself and other people.

Gadamer thinks most seriously about human artistic activity, and thus comes near to the ancient approach to art, treating it on a level with philosophy as one of the possible ways to reach the truth about reality. Ortega y Gasset seems to occupy the opposite pole; for him, art is frivolous, ironic game lacking a metaphysical dimension. Art invites us, in his view, to join an intellectual game of exploring dehumanised forms, beneath the surface of which there is no longer any room for the truth about the real world. Thus, the Spanish philosopher is close to the postmodern recognition of art as a free-and-easy intertextual game.

Ortega y Gasset sees in art a form of entertainment for the elite, operating, as it were, on the edge of everyday human activities. In contrast, Gadamer formulates the postulate of 'aesthetic indistinguishability,' leading to the conclusion that the experience of art should be an important and necessary part of everyone's life.

It is not our intention to pass judgments on the merits of each position. The summary of the views of Gadamer and Ortega y Gasset we have offered here is further evidence of the unlimited potential for the interpretation of contemporary phenomena in art. The opening of the interpretative horizon of art took place along with its autonomisation, implemented by Immanuel Kant, and today the horizon seems to be continuously expanding. The role of not only the modern audience, but also the entire set of critics and aestheticians, is to respond creatively to the challenges art poses us. This, in our opinion, was the approach of both Gadamer and Ortega y Gasset. Both thinkers treated statements about the alleged crisis of art as an exercise in thought and undertook attempts to provide creative responses.

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PROJECT MANAGEMENT RISK ASSESSMENT - AN OVERVIEW OF THE METHODS

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Abstract: Risk management is one of the key element in project management processes. There are numerous tools available to support the various phases of the risk management process. Issues related to project risk management are widely analysed both by national and international centres. The aim of the article is to present selected methods of project risk assessment. The methods will be characterised through prism of five basic areas: operations research methods, simulation methods, probabilistic and statistical methods, sensitivity analysis and efficiency adjustment methods.

Keywords: project risk assessment, project management methods, project management

1 Introduction

Risk management is one of the key element in project management processes. There are numerous tools available to support the various phases of the risk management process. What is more, risk management assures that almost all problems are discovered early enough so that there is time to recover from them without missing schedules or overspending the budget¹.

Within the currently accepted view of project management as a life cycle process, project risk management (PRM) is seen as a process that accompanies the project from its definition planning, through its execution and control phases up to its completion and closure².

Rodrigues-da-Silva and Crispin points out that a process of risk management in projects is a rational chain of practices taken by decision-agents in order to keep the implementation of the project under certain conditions. As a result the decidents need to identify, analyse and evaluate the risks and use their organizational structure and administrative practices in order to act on the risks in favor of the project. That is way the analysis and assessment of project risk is essential for project success.³

The aim of the article is present selected methods of project risk assessment. The methods will be characterised through prism of five basic areas: operations research methods, simulation methods, probabilistic and statistical methods, sensitivity analysis and efficiency adjustment methods.

2 Literature review

Issues related to project risk management are widely analysed both by national (Kuchta, Skorupka, Górski 2012, Skorupka 2003, Tarczyński, Mojsiewicz 2001, Wiśniewski 2007) and international centres (Peixoto et. al. 2014, Tamak&Bindal 2013, Raz&Michael 2001, Larson&Grey 2011, Teller&Kock 2013, Fortune et al. 2011, Schroeder&Hatton 2012).

According to T. Raz and E. Michael the management of risk in projects is one of the main topics of interest for researchers and practitioners working in the area of project management⁴. Williams⁵ confirms this trend with survey on the topic of project risk management, in which there were included 241 literature

references. Boehm⁶ suggested a process consisting of two main phases: risk assessment, which includes identification, analysis and prioritization, and risk control, which includes risk management planning, risk resolution and risk monitoring planning, tracking and corrective action. Fairley⁷ presents 7 steps. Chapman and Ward⁸ outline a generic PRM process consisting of nine phases.

Elkington and Smallman claim that project risk management is essential for the project's success⁹. According to Leung, Tummala and Chuah the formal risk management approaches can provide a useful insight into the project and provide more information to improve the quality of investment decisions.¹⁰

3 Risk assessment methods

There are many methods of project risk assessment and the criteria for its classification. However, the most transparent and comprehensive division seems to be the one presented by Ostrowska¹¹. The proposed division consists of five areas: operations research methods, simulation methods, probabilistic and statistical methods, sensitivity analysis and efficiency adjustment methods. All the areas will be listed and explained below.

3.1 Operations research methods

Operational research methods allow you to find the optimal solutions. As for the risk assessment analysis the most popular methods are Critical Path Method (CPM) and PERT method. However, Ostrowska argues that game strategy also deserves an attention, while it takes into account different combinations of uncertain factors¹².

Critical Path Method (CPM)

CPM was first developed in 1957 by Morgan walker of the Engineering Services Division of DuPont and James Kelly of Remingto Rand. At present, CPM is widely employed in different areas of industrial activities¹³.

CPM is a deterministic approach, where only one time estimate is used for each activity, and there is no statistical treatment of uncertainty. This method includes a mathematical procedure for estimating the trade-off between project duration and project cost. It features analysis of relocation of resources from one job to another to achieve the greatest reduction in project duration for the least cost.¹⁴

Program Evaluation and Review Technique (PERT)

Pert is used to track the planning activities required to complete a large-sale, nonrepetitive project. This method was developed in 1958 by the US Department of Defense to assist with the Polaris submarine launch ballistic missile project. PERT has the potential to reduce the time and cost required to complete a project because activities can be sequenced efficiently. It is useful when

¹ TAMAK J., BINDAL D. An Empirical Study of Risk Management & Control. International Journal of Advance Research in Computer Science and Software Engineering 3, 2013.

² RAZ, T., MICHAEL, E., Use and benefits of tools for project risk management. International Journal of Project Management 19, 2001. 9-17p.

³ RODRIGUES-DA-SILVA, L.H., CRISPIM, J.A. The project risk management process, a preliminary study. Procedia Technology 16, 2014. 943-949 p.

⁴ RAZ, T., MICHAEL, E., Use and benefits of tools for project risk management. International Journal of Project Management 19, 2001. 9-17p.

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⁶ BOEHM, B. W. Software risk management: principles and practices. IEEE Software 8, 1991. 32-41 p.

⁷ FAIRLEY, R. Risk Management for Software Projects. IEEE Software 1994;57 67 p.

⁸ CHAPMAN, C., WARD, S. Project Risk Management: Processes, Techniques and Insights. John Wiley, 1997.

⁹ ELKINGTON, P., SMALLMAN, C. Managing Project Risks: a case study from the utilities sector. International Journal of Project Management 20, 2000. 49-57 p.

¹⁰ LEUNG H. M., RAO TUMMALA V. M., CHUAH K. B., A knowledge-based system for identifying potential project risks, Omega. 1998;26. 623-638 p.

¹¹ OSTROWSKA, E. Rzyzko projektów inwestycyjnych. Warszawa: PWE. 2002. 94-98 p.

¹² For more: OSTROWSKA, E. Rzyzko projektów inwestycyjnych. Warszawa: PWE. 2002. 94-98 p.

¹³ More: SHARMA, S.C. Operation Research: Pert, Cpm&Cost Analysis. Discovery Publishing House. 2006. 3 p.

¹⁴ More: NICHOLAS, J.N. Project Management for Business and Engineering: Principles and Practice. Elsevier. 2004. 238 p.

certain tasks have to be completed before others if the project is to be completed on time.¹⁵

The use of PERT has decreased sharply in recent years, according to Meredith and Mantel, due to the fact that large majority of project management software generates CPM networks. All in all, the two methods are quite similar and often combined for educational presentation.¹⁶

3.2 Probabilistic and statistical methods

These methods are based on probability and statistical data. The probabilistic and statistical risk assessment methods are based on the assumption that the different results of the calculation of benefits can be attributed to different probability of their occurrence in a given period of time¹⁷. The basic values used in this methods are based on: the probability of occurrence of certain factors, standard deviation and variance. These methods are used to analyze the risk of implementation and realisation of the investment. A popular tool used by the probabilistic and statistical analysis of investment risk is a decision tree.¹⁸

Decision tree is a graphical method of expressing, in chronological order, the alternative actions that are available to the decision maker and the choices determined by chance¹⁹. Decision tree method is a technique for assessing the effectiveness of the investment project particularly useful in projects of multiple execution phases, in which uncertainty is resolved at specific points in time.²⁰

The advantage of the decision tree is undoubtedly the organisation and representation of complex investment projects and assignment of weights to decisions taken during the entire project life cycle²¹.

3.3 Sensitivity analysis

The sensitivity analysis (what if analysis) is used for identification of risk span and its limitations. Its purpose is to determine the relevance of the possible consequences of changes in the value of output variables and their impact on the project²². It is a cost-effectiveness analysis of the investment project with the assumption of deviations of the different variables included in the project²³.

The main tool of sensitivity analysis is break even point (BEP) of the investment and payback period of capital expenditures. In addition, safety margin associated with the project is also determined, and as a result the comparative analysis of critical values of the different options is assessed.²⁴

Sensitivity analysis involves two major steps. In the first one, scenarios describing the value of each variable in the future are being defined – usually 3: optimistic, pessimistic basic. According to Rogowski and Michalczewski in the second stage, for the tested scenarios, cost-effectiveness measure (usually NPV) is determined.

The sensitivity analysis constitutes a starting point for scenario analysis²⁵, which uses information previously obtained. According to Larson and Grey scenario analysis is the easiest and the most commonly used technique for analysing risks. In this method each risk event is assessed in terms of: probability of the event and impact of the event. In other words, risks need to be evaluated in terms of the likelihood the event is going to occur and the impact of consequences of its occurrence.²⁶

3.4 Simulation methods

Simulation methods are used wherever it is difficult to study real objects or processes. They give possibility to investigate the influence of several variables on the efficiency of investments and the ability to simulate the risk.²⁷

The principal advantage simulation methods is the ability to simulate multiple studies of the same object or process, due to the presence of the same parameters. A major disadvantage is the need for a very good representation of reality through mathematical models. This leads to a situation where time is of the research process definitely disproportionate to the time of preparation of the research opinion. The result of the application of simulation methods can be the identification of risk factors impact on the project.²⁸

The most commonly used simulation method is Monte Carlo simulation. The concept of using Monte Carlo simulations to analyse the project is based on identifying the selected input variables in the model used to measure the efficiency of calculation.²⁹

Simulation methods in contrast to the sensitivity analysis and scenario analysis allow to examine of the impact of all, less and more complex, combinations of variables on the effectiveness of the project, not only each variable individually.³⁰

3.5 Efficiency adjustment methods

According to Skorupka, Kuchta and Górski efficiency adjustment methods of investment projects are well formalized and applied in practice. The effectiveness of these methods depend on the correctness of the assessment of the effectiveness of projects (performed using NPV and IRR).

There are two most commonly used efficiency adjustment methods: Certainty Equivalent method (CE) and Risk Adjusted Discount Rate.

Risk Adjusted Discount Rate (RADR)

The risk adjusted discount rate method calls for adjusting the discount rate to reflect project risk. According to Dayananda this

¹⁵ More: DUBRIN, A. Essentials of management. USA: South-Western. 2009. 197 p.

¹⁶ More: MEREDITH, J.R., MANTEL, S.J. Project management: A Managerial Approach. John Wiley&Sons. 2012. 338 p.

¹⁷ PAWLAK, M. Metody analizy ryzyka w ocenie efektywności projektów inwestycyjnych. in: KRYK, B., CZARNIACHOWICZ B. Ed. Makro- i mikroekonomiczne zagadnienia gospodarowania, finansowania, zarządzania. Studia i Prace Wydziału Nauk Ekonomicznych i Zarządzania nr 30. Szczecin: Wydawnictwo Naukowe Uniwersytetu Szczecińskiego. 2012. 207-217 p.

¹⁸ SKORUPKA, D., KUCHTA, D., GÓRSKI, M. Zarządzanie ryzykiem w projekcie. Wrocław: Wyższa Szkoła Oficerska Wojsk Lądowych im. Generała Tadeusza Kościuszki. 2012. 58 p. ISBN 978-83-87384-73-9

¹⁹ HILLER, F. S., LIEBERMAN, G.J. Introduction to Operations Research. Singapore: McGraw-Hill. 1990. 840 p. ISBN 0071007458

²⁰ PAWLAK, M. Metody analizy ryzyka w ocenie efektywności projektów inwestycyjnych. in: KRYK, B., CZARNIACHOWICZ B. Ed. Makro- i mikroekonomiczne zagadnienia gospodarowania, finansowania, zarządzania. Studia i Prace Wydziału Nauk Ekonomicznych i Zarządzania nr 30. Szczecin: Wydawnictwo Naukowe Uniwersytetu Szczecińskiego. 2012. 207-217 p.

²¹ ZIARKOWSKI, R. Opcje rzeczowe oraz ich zastosowanie w formułowaniu i ocenie projektów inwestycyjnych. Katowice: Wydawnictwo Akademii Ekonomicznej w Katowicach. 2004. 30 p.

²² SKORUPKA, D., KUCHTA, D., GÓRSKI, M. Zarządzanie ryzykiem w projekcie. Wrocław: Wyższa Szkoła Oficerska Wojsk Lądowych im. Generała Tadeusza Kościuszki. 2012. 58 p. ISBN 978-83-87384-73-9

²³ PAWLAK, M. Metody analizy ryzyka w ocenie efektywności projektów inwestycyjnych. In: KRYK, B., CZARNIACHOWICZ B. Ed. Makro- i mikroekonomiczne zagadnienia gospodarowania, finansowania, zarządzania. Studia i Prace Wydziału Nauk Ekonomicznych i Zarządzania nr 30. Szczecin: Wydawnictwo Naukowe Uniwersytetu Szczecińskiego. 2012. 207-217 p.

²⁴ OSTROWSKA, E. Ryzyko projektów inwestycyjnych. Warszawa: PWE. 2002. 94-98 p.

²⁵ More: ROGOWSKI, W., MICHALCZEWSKI, A. Zarządzanie ryzykiem w przedsięwzięciach inwestycyjnych. Kraków: Oficyna Ekonomiczna. 2005.

²⁶ LARSON, E.W., GREY, C.F. Project Management. The Managerial Process. Fifth Edition. Singapore: McGraw Hill. 2011. 216 p.

²⁷ OSTROWSKA, E. Ryzyko projektów inwestycyjnych. Warszawa: PWE. 2002. 94-98 p.

²⁸ SKORUPKA, D., KUCHTA, D., GÓRSKI, M. Zarządzanie ryzykiem w projekcie. Wrocław: Wyższa Szkoła Oficerska Wojsk Lądowych im. Generała Tadeusza Kościuszki. 2012. 58 p. ISBN 978-83-87384-73-9

²⁹ PAWLAK, M. Metody analizy ryzyka w ocenie efektywności projektów inwestycyjnych. in: KRYK, B., CZARNIACHOWICZ B. Ed. Makro- i mikroekonomiczne zagadnienia gospodarowania, finansowania, zarządzania. Studia i Prace Wydziału Nauk Ekonomicznych i Zarządzania nr 30. Szczecin: Wydawnictwo Naukowe Uniwersytetu Szczecińskiego. 2012. 207-217 p.

³⁰ OSTROWSKA, E. Ryzyko projektów inwestycyjnych. Warszawa: PWE. 2002. 94-98 p.

method seems to be most frequently used by practitioners³¹.

Three situations can be observed:

- 1 the risk of the project = the risk of the existing investments of the firm → the discount rate used is the average cost of capital of the firm,
- 2 the risk of the project > the risk of the existing investment of the firm → the discount rate used is higher than the average cost of capital of the firm,
- 3 the risk of the project < the risk of the existing investment of the firm → the discount rate used is less than the average cost of capital of the firm.

The risk adjusted discount rate can be denoted as follows:³²

$$r_k = i + n + d_k$$

where,

r_k - the risk adjusted discount rate for project k,
 i - the risk-free rate of interest,
 n - the adjustment for the firm's normal risk,
 $(i+n)$ - measures the firm's cost of capital,
 d_k - the adjustment for the differential risk of the project k. It may be positive or negative depending on how the risk of the project under consideration compares with the existing risk of the firm.

While the risk adjusted discount rate is calculated, the project is accepted when the net present value (based on risk adjusted discount rate) is positive.

Despite the popularity of risk adjusted discount rate method, it suffers from two major limitations³³: it is difficult to estimate d_k consistently (it is often determined arbitrarily), the method assumes that the risk increases with time at a constant rate.

Certainty Equivalent method (CE)

Certainty Equivalent method modifies NPV not by the adjustment of the discount rate, but by correcting the values of cash flow. Under the certainty equivalent method, the net present value is calculated as follows:³⁴

$$NPV = \sum_{t=1}^n \frac{\alpha_t \bar{C}_t}{(1+i)^t} - I$$

where,

NPV - net present value,

\bar{C}_t - expected cash flow for year t,

α_t - certainty equivalent coefficient for the cash flow of the year t. The value of the certainty equivalent coefficient usually ranges between 0,5 and 1. Value of 1 implies that the cash flow is certain or the management is risk neutral.

i - the risk free interest rate

I - the initial investment (about which it is assumed there is no uncertainty).

This method is particularly useful when the cash flows in different periods are characterized by different levels of risk. This phenomenon is common while predicting the value of future cash flows. Cash flows more distant in time are usually subjected to greater inaccuracy, which can be to a certain extent corrected by suitable equivalent³⁵

4 Conclusions

A number of methods are used to deal with the risk in project management process.

The degree of suitability of each method depends on the specific requirements of investors risk propensity and project background. In different projects there can be used combination of many methods or one of them.

Risk assessment methods are used to determine the size and risk measurement. At the same time it should be emphasized that the application of them determines the success of the investment.

Sensitivity analysis and scenario analysis involve „what if“ analysis. Simulation analysis is used for developing the probability profile of a criterion of merit by randomly combining values of variables that bear on the chosen criterion. Decision tree analysis is useful tool for analysing sequential decisions in the face of risk. Risk adjusted discount rate method and certainty equivalent method are methods of incorporating risk in decision process.³⁶

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Secondary Paper Section: AE,AH

DIAGNOSTICS OF CHILDREN'S CONCEPTIONS IN A LOW-THRESHOLD FACILITIES FOR CHILDREN AND YOUTH

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Abstract: This study serves as an investigation into a current and marginally addressed problematic of children's conceptions of illegal drugs. The initial section discusses a theoretical framework of conceptions held by children, in respect to terminology's outline, factors influencing those conceptions and their potential diagnostics. The empirical section is represented by qualitative research that was conducted in a specific environment of the Low-threshold Facility for Children and Young People. An interview and a concept mapping provided the basis for the analysis of conceptions of illegal drugs in a 12-year-old client. The findings reveal the client's understanding is inaccurate and reflects many misconceptions. The study proposes an educational strategy that utilises a peer potential in order to eliminate the existence of misconceptions.

Keywords: children's conceptions, illegal drugs, low-threshold facility for children and youth, diagnostics, qualitative research

1 Introduction to the problematic of children's conceptions

Children's conceptions hold a distinctive understanding of various phenomena, processes, rules, situations, items etc. They are saturated with complex notions and fairly robust and different interpretations of the surrounding world. However, a child's conception may not necessarily be expressed with adequate concepts and may be difficult to verbalise (e.g. in a very small child, or a person with impaired communication ability). Gradual acquisition of speech serves as a tool to express conceptions using concepts that substitute iconic notions or symbols previously used for interpretation.

Conceptions held by children present an important element within an educational setting. In the context of formal education, however, we find that the psychogenesis of an individual's learning, which carries his/her conceptions, continues to be ignored. A *teacher or social educator* significantly influences the formation of a child's conceptions related to various phenomena. They are all involved in a daily process of mutual interaction with young people in wide-ranging settings such as after-school clubs, homes for young people, specialised schools, institutes of diagnostics, establishments for institutional and protective care and education, and, of course, *the low-threshold facilities for children and young people*. Social educators' competencies have a broad character. They involve educational as well as socio-educational and preventative competencies, resocialisation skills, counselling, diagnostics, and methodology. Social educators, who are not limited by lesson time as opposed to teachers at school settings, have more opportunities to affect children's conceptions in a spontaneous way. Additionally, they may contribute to the development of affective dimension that is only marginally addressed at school settings.

A wide range of research studies (Doulík, 2005; Thompson, Logue, 2006; Vosniadou, 2007) published internationally (Smith, Di Sessa, Roschelle, 1993) and in the Czech Republic (Kubiátko, Vaculová, Pecušová, 2010) clearly demonstrate a focal point on diagnostics and research of children's conceptions in areas of natural science education. The studies conducted by researchers from faculties of science also target young cohorts aged 15 to 18 years. The research explicitly outlines the psychogenesis of pupils' conceptions relating to social science and has not been sufficiently conducted in the context of Czech and foreign research activity. There are only some inquiries in peer-reviewed journals such as a study by Miovský and Urbánek

(2002), or a rare monographic work by Pivarč et al. (2012) and Brophy & Alleman (2006).

1.1 Terminology outline

Analysis conducted by Mareš and Ouhרבka (1992) reveals the existence of ambiguous terminology when outlining children's understanding of the world and its components. This problem occurs in the Czech literature as well as international resources. Widely approved and scientifically accepted definitions of children's conceptions do not exist; hence the terminology used in research varies. Even a theoretical study that would be representative and approved by the research scientists is absent. One predominantly used term, especially in Czech and Slovak literature, is 'pupil's conception of subject matter'. In foreign literature (especially English) word 'preconception' is frequently used. This study adopted 'children's conceptions' as it was found more suitable than 'pupil's conception of subject matter' that tends to relate more to formal education.

1.2 Factors influencing children's conceptions

Children's conceptions are formed and determined by many factors. It is very difficult to clearly identify the level of impact of individual factors on the formation of conceptions held by children. Moreover, these conceptions interact, so it is practically impossible to provide an exhaustive list of all the factors contributing to genesis of children's conceptions. At a particular age of a child's life and his/her socialisation there are some factors prevailing (such as family setting, teachers or caregivers, and peers). For example, pre-school children have their conceptions of phenomena formed by *spontaneous* influences, and later on, the aspects of *intentional influence* of school institution are more prevalent. The quantitative research by Pivarč et al. (2012) that included more than 1200 grammar school students in the Czech Republic and Slovakia found the media to be significantly influential (such as internet, TV, radio, etc.). Their own practical experience related to a particular phenomenon is regarded as one of the most potent determinants that greatly influence child's conception.

1.3 Child's conception as a multidimensional entity

Conceptions gradually develop over time, transform, and within its form and structure there is a presence of various factors mentioned above. A child's conception is not just one 'cognitive' dimension as it may appear. It is a multidimensional entity constructed of three categories that create a cohesive and original unit. Similar to the terminology of children's conceptions, there is diversity when characterising the individual sections (dimensions) of those conceptions. This qualitatively directed research recognises the following three dimensions:

1. *Cognitive dimension* may be described as child's diverse learning and understanding of a particular item, process, rule, phenomenon, etc.
2. *Affective dimension* reflects an individual approach or attitude to a particular item, process, rule, or phenomenon. It closely links to emotional reaction. Depending on its character and relevance, it affects the attitude toward phenomenon that can be positive, neutral or negative. Emotional reaction also determines whether a subject will continue to investigate the phenomenon any further. If emotional reaction is negative, it is possible the child will search for information that is congruent with his/her attitude and will ignore those that are opposed to it (Hewstone, Stroebe, 2006).
3. *Conative dimension* (sometimes referred to as structural) describes the interaction among individual concepts in the mind of an individual, his/her ability to use them in particular context, and also the way he/she can (or cannot) apply them. Concepts represent phenomena in the mind. With various

techniques (e.g. concept mapping) it is possible to understand the individual's cognitive concept and its structure.

It is possible to identify the dimensions of children's conceptions separately within an educational (or research) setting. However, they should be considered as a whole unit (multidimensional entity), because a child uses all dimensions simultaneously (e.g. when interpreting a particular rule or life situation). It is also a case that a particular dimension overshadows others at a certain moment of understanding (e.g. cognitive when writing a test at school).

1.4 Diagnostics and research of children's conceptions

A variety of diagnostic and research tools may be utilised when identifying conceptions held by children. Those may be standardised or have own design. The quantitative and qualitative research intends to combine the required tools in order to reach a level of accuracy in the process of diagnostics and research. The purpose of this study is not to list and outline individual tools. A reader may follow specialised publications that focus on tools in a greater detail (such as Hendl, 2008). The chart below presents an overview of diagnostic tools commonly used in the pedagogical and psychological practice and as part of the qualitative research.

Research (diagnostic) method	Suitability in terms of age	Demand on	Complexity
Phenomenographic interview	Universal	Time, performance, evaluation	Multidimensional
Clinical interview	Universal	Preparation, performance, interpretation	Multidimensional
Phenomenographic text analysis	Older probands	Evaluation	Multidimensional
Phenomenographic analysis of drawing	Younger probands	Evaluation	Multidimensional
Concept mapping	Older probands	Preparation, performance, evaluation	Multidimensional
Biographic methods	Universal	Time, interpretation	Multidimensional
Analysis of practical activities	Universal	Interpretation	Cognitive dimension preferably
Observation	Universal	Time, evaluation	Cognitive and affective dimension preferably

Table I. Diagnostic and research tools suitable for identification of children's conceptions: type of research – *qualitative approach* (modified in compliance with Škoda, Douřfík, 2009)

2 Research objectives and educational activities in the low-threshold facility in Mělník

The Low-threshold Facility for Children and Youth (LFCY) provides services for children aged 6 to 26 who are experiencing social problems. Its objective is to improve the quality of their lives by means of prevention and reduction of social and health risks related to their life style. They get information about available social services, and receive help in finding solution for their unfavourable social situation (Act No. 108/2006 Coll., on Social Services).

Based on the grant project called "*Preconceptions and misconceptions to selected social pathology phenomena in primary school pupils*" some educational activities took place in the LFCY in Mělník. The facility is situated in Central Bohemia and was established in June 2012 in response to the needs of local community. In the last two to three years an increasing number of children and young people aged 14 to 20 committed or were involved in the anti-social behaviour (such as recreational/ illegal drug distribution, bullying and vandalism). The centre in Mělník offers day services as well as community services to its clients and puts a great emphasis on various

educational activities based on demands and wishes of its clients (i.e. children and young people), as well as the current social situation within relevant town locations.

Due to client fluctuation in the first months since its opening the LFCY was unable to provide educational activities in an adequate way. Continuous client-orientated work, educational activities, and research were conducted several months later. *The main focus of educational activities and research in the LFCY was directed at a problematic of selected social pathology phenomena* for the following reasons:

1. Social pathology phenomena such as internet addiction, gambling, pathological religiosity and addictive and psychotropic substance misuse (especially class B drugs) are perceived as anti-social behaviour and adverse social phenomena. Goal-oriented educational activities addressed all the social phenomena mentioned above, but the qualitative research targeted the problematic of illegal drug use. Its primary objective was to outline children's conceptions related to 'illegal drugs' phenomenon.
2. The need for education and the research implementation emerged due to the fact that these social phenomena did not exist in the Czech Republic (former Czechoslovakia) prior to the Velvet Revolution (1989) to such extent as they do today. They are omnipresent in today's society but fail to be understood. Undoubtedly, addictions pose a threat to the society and therefore to lives and development of the young population. Children should be able to understand the phenomenon in order to take an adequate approach.
3. It has already been postulated that the problematic of children's conceptions to the phenomena involves teachers at schools as well as other authorities. In order to identify children's conceptions to illegal drugs, the LFCY in Mělník offered its premises as well as its qualified professional staff. Advantage of performing diagnostics in the LFCY as opposed to a school setting are as follows: *specific area; more relaxed atmosphere; generally more acceptable environment; more time availability to investigate children's conceptions; client-orientated approach; potential of non-classification; avoidance of labelling; use of ICT and other resources to modify misconceptions (e.g. exercising forms of experiential education); opportunity of preventative and resocialisation activities etc.*
4. The LFCY is characteristic by the so-called 'low-threshold' quality. The term refers to a service that is maximally accessible to all clients aged 6 to 26 years. The centre became frequented by children and young people from socially excluded locations of town who were experiencing issues with illegal drug abuse and distribution (most frequently cannabis).

2.1 Primary characteristics of research

The main objective of this research was to outline children's conceptions to 'illegal drugs' phenomenon that was accentuated by individual understanding and interpretation. A qualitative approach was applied as research methodology. It enabled one to identify, analyse and compare individual conceptions more in-depth. Research question was established on basis of the social needs specific to the town location and for reasons already stated above (in chapter 2.1). Its formulation is as follows: *What opinions and attitudes to illegal drugs are held by the clients of the Low-threshold Facility for Children and Youth in Mělník?*

The qualitative study was conducted over a month period in 2013. The participants were 6 children (2 boys and 4 girls). Their age range was 12 to 14 years. For the purpose of research it was necessary to obtain the written consent of their legal representatives, which was an uneasy task. This was the reason for recruitment of only 6 children. Ethical aspects of research were adhered to. Participants were informed that their involvement was voluntary and that they could withdraw anytime without giving a reason. Anonymity of the clients and their identity protection was also ensured.

Selection of the research sample was accessible and participants had no preparation prior to their participation in the research. Investigation took place every afternoon during educational activities on a one-to-one basis. The aim was to prevent clients to respond in a desirable way and to limit any influence from other research participants. This would bias research findings and its conclusion.

Applied research methods were as follows:

- *Concept mapping* enables to identify whether a child understands (cognitive dimension) the term 'illegal drug', what other concepts he/she associates with it and in what context he/she uses it (conative dimension). This method provides a graphic illustration of correlations between concepts (rims and knots), and therefore helps to visualise the thought process of an individual. The term 'illegal drug' became a key element in the arrangement of concept map that took a slightly unconventional approach. The researcher presented a blank sheet of A4 paper with a word 'illegal drug' written in the centre. Participants had to associate their ideas and put other concepts related to the keyword. Respondents had sufficient time and space to design their unique thought process network. This activity was performed prior to the phenomenographic interview.
- *Phenomenographic interview* is a method that investigates participant's life experiences related to their concept formation of illegal drugs. Its aim was to review their understanding and interpretation of the illegal drug phenomenon. This method enabled to identify different ways of understanding, to qualitatively address the differences, and identify analogies in the children's conceptions to illegal drugs. Interviews were performed on one-to-one basis and lasted 30 to 60 minutes.

Evaluation and interpretation of the findings were conducted separately for each participant due to the nature of qualitative research and for pragmatic reasons. The research findings of children's conceptions formed a basis for the educational strategy employed with the LFCY clients (e.g. interventional, supportive, promoting activity and so on). In one case the research activity led to liaison with other professionals and institutions specialised in the drug addictions problematic. For purpose of this research we selected just one case to demonstrate the diagnostics related to children's conceptions of illegal drugs. It was an interesting example from the LFCY which revealed a client's range of misconceptions.

2.2 Interpretation of selected research findings

We present an extract from the authentic interview with a client Michal and his concept map. The following paragraph also shows Michal's family and social history.

Case history of a client attending the LFCY – a research participant: *Michal (12 years old) comes from a family that encounters some financial insecurity problems. They live in a socially excluded location. Michal attends a practical primary school nearby his home due to his poor school results as he stated. His grades are dramatically better at the practical school than the mainstream primary school. Even though he feels slightly uncomfortable at the practical school, he shows no behavioural problems. According to him their family ties are good. His parents are divorced and separated and his mother has a new boyfriend. Michal has three siblings: two brothers (Petr, 5; Radek, 23) and a sister Jana (10). Their relationship is apparently good, he sometimes argues with his younger sister. The older brother Radek who is currently unemployed personifies Michal's ideal self. Radek has finished practical primary school and has some history of conflicts with authorities and criminal offence. Michal has not much space and time for study, because he is often distracted by family members of three large families living nearby. He lacks privacy and enjoys going*

to the LFCY. He usually spends his free time with his friends outdoors.

The concept map was interestingly structured in respect to Michal's age and cognitive ability; however, his concept of 'illegal drug' demonstrated some erroneous notions (misconceptions). There were some structural misconceptions that were noted in his concept network and that influenced his cognitive dimension of conception. For instance, the concept of 'dance drugs' which was associated with the keyword 'illegal drug' was linked to 'Paralen'. This was a structural misconception, because Paralen is not considered a dance drug (see Diagram 1). Another misconception was identified in relation to 'Paralen' and a concept of 'injecting'. Client's concept map is depicted in the following diagram:

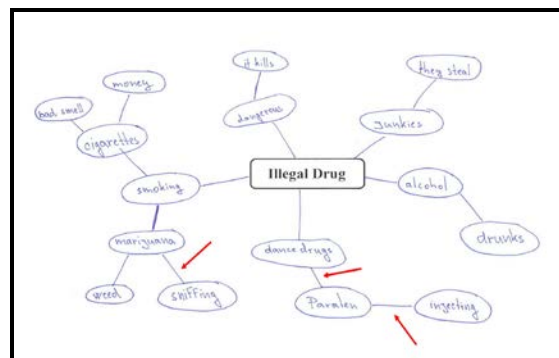


Fig. 1 Concept map of the LFCY client Michal (red arrows highlight structural misconceptions) - Author's note: research was conducted in the Czech Republic and its participants were children whose native language was Czech. For purpose of this study we had to modify the form of this concept map in order to depict it in English (its meaning was maintained).

Transcription of a part of an interview with the client Michal and interpretation of its findings – *Researcher ('R'); Michal ('M')*:

- ...
- R12: What do you imagine under the word illegal drug?
M12: It's crap. I hate it, it can kill you, ... for example the way you sniff it, marijuana, or you can inject Paralen.
R13: Have you ever come across an illegal drug? If yes, what drug?
M13: Yes, I came across to marijuana, I saw the guys smoking it. I don't like the smell of it (*he laughs*).
R14: Could you describe marijuana?
M14: Yeah, it's a weed, rolled like a cigarette, you know? You can sniff it too, if you know how to prepare it. I saw it on YouTube.
R15: Where have you found out about marijuana?
M15: Well, from mates mainly, and my brother knows something about it. Sometimes he uses it too, but then my mum complains! So he hides away from her to smoke it, with mates ... outside. He tells me if he sees me with it, he'll beat me up ... So I'm afraid to try it (*he laughs*).
R16: And would you want to try it if you knew your brother wouldn't beat you?
M16: I feel embarrassed sometimes, when I see the guys smoking it – they egg me on, but so far I haven't done it.
R17: Is smoking of marijuana allowed?
M17: I don't know, some guys say it is, some say no. I really don't know, sorry...
R18: Can anyone smoke marijuana without being put into prison?
M18: ...hmmm ...policemen? They can smoke it to find out if it's a cigarette, when they stop and search somebody...
R19: What is your attitude to illegal drugs?
M19: Well, I don't like them, they tell us at school not to take them, otherwise we'll end up being losers. But I know people who say opposite, like, that you're like in heaven. Or when you do it, you have great feeling.

R20: Have you ever met anyone saying that you get great feeling after using illegal drugs?

M20: Sure, my friends who smoke say that, and also Honza next door – he's Radek's mate.

This part of transcript clearly shows Michal's misconceptions about illegal drugs. Structural misconceptions were identified in the concept map illustrating his structure of incorrect conceptions that he held. Some of Michal's interpretations are interesting. For example, to the question asking whether anybody can smoke marijuana without being put into prison, he responded: "...sometimes policemen, to find out if it's a cigarette, when they stop and search somebody..." (M18). Other incorrect notions were demonstrated in relation to a drug called Paralen. This medication is according to him used intravenously. Clearly, Michal's conceptions of illegal drugs also include medications such as Paralen (M12) even though it is a well-known medication it belongs to Michal's concept of illegal drugs. During the interview with Michal we could identify his affective dimension related to an illegal drug - marijuana. He condemns use of marijuana, but the temptation to try it is high. Despite the tendency of the public to trivialise the use of marijuana, it must be emphasised that in children and young people its effect can be detrimental to their psychological and social development.

This interview demonstrated that Michal's conception was heavily influenced by his surrounding world, especially *peers* and, to some extent, his *brother* Radek. Michal's experience of peer pressure may consequently result in a drug abuse. This is an initial phase of ostracism that may lead to Michal's exclusion from the social group or bullying. Peer groups represent a natural form of belonging. They comprise of similarly aged and opinionated individuals and propose unified course of action. Their primary characteristic is a system of particular values, norms and social control (i.e. features that form its identity). Differentiation of one peer group from another is described by concepts 'we' and 'them' (Kraus, 2008). It is very likely that Michal will identify with the group (will accept its behaviour, attitudes and values), because his parents – who often play a role of a regulator – do not dedicate enough time and space to spend their free time with him. He is in contact with his peer group on a day-to-day basis, and its members are recruited mainly from the socially excluded community that Michal belongs to. At this point, our research findings on the peer pressure issue correspond with those by Michell and West (1996). Their study reviewed peer pressure and its connection to smoking tobacco in children aged 12 to 14. Authors found that bullying and persecution are significant mechanisms that influence attitudes within the group and promote pressure on a group member.

3 Conclusion

Michal's conception of illegal drugs reflects his experiences with chemical substances. His concept map represents pejorative concepts that relate to the negative impact of drug use. Michal is also aware of the social implications and dangers of illegal drug use and this may be regarded as a positive research finding. Despite this, Michal's conceptions included the so-called cognitive and structural misconceptions. In addition and similarly to most research participants, the findings revealed Michal's negative attitude toward drugs (for space reasons we were unable to present the conceptions held by all the participants). The findings also indicated the impact of Michal's peer group and its pressure that influenced his attitude to and the conceptions of illegal drugs.

Based on the research findings there were adequate educational interventions and strategies designed as part of educational activities provided in the Low-threshold Facility for Children and Youth in Mělník. Their aim was to modify clients' misconceptions (including Michal's) and to utilise the peer group potential in the process of learning. For example, a so-called *socio-cognitive conflict* was used. Clients' social group had a deliberately evoked dialogue situation relating to drugs in the presence of a specialist in the field. Formulating of own thoughts and their justification took place, and outlining of

theories, conceptions and problematic issues related to drugs were also part of the process. Some authors describe it as a battle of child's conceptions, or preconceptions (e.g. Bertrand, 1998, Vosniadou, 2013). Similar activities promote conceptual changes in each individual. They are successfully applied in formal education as well as various talk shows and discussions.

Investigation of children's non-substance addictions may be a stimulus for further studies. Future research may review modern phenomena that have been ignored in the context of the Czech society (e.g. religious sects, internet addiction, or gambling). Other studies may focus on a quantitative comparison of children's conceptions to selected social pathology phenomena, especially in respect to wider young population (e.g. at primary schools).

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CURRENT ISSUES IN LEADERSHIP AND INNOVATION IN CONTEXT OF PROFILE ORIENTED MARKETING FOR A SUSTAINABLE URBAN REGIONAL DEVELOPMENT

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Abstract: The main purpose of this paper is to provide an empirical evidence and theoretical background on the importance of the organizational theory for a clearly structured and consistent market-oriented innovation management for the new demands in reference to the usage, planning and design of urban places which require the use of new profiling systems for a competitive and sustainable urban structured regional development concept in order to provide a secure economic and social environment for their citizens to live and work in. This future profile oriented development, create a challenging situation for the diverse districts. With the help of systematic, dynamic development processes the goal can be achieved. Firstly you have to figure out, how you can connect and implement innovation in to this field. Therefore you have to clear the question, is leadership important to innovation? The answer is: Yes, it is! Leadership skills are significantly correlated with innovation. The question is: How? In this paper this question will be approached from a leadership perspective, an environmental perspective, as well as from the perspective of the creative process. In this context, we must also bear in mind that today innovation, diversity and networked thinking, are significant. Therefore the leader/organizations serves as a role model for her/his team members/citizens. This model has to be consistent across all levels of management. However, the leadership style needs to be adapted to the teams/citizens needs at every step. Tribal leadership provides a model for such adaptations by focusing on culture, which provides the soil for innovative ideas.

Keywords: Leadership, innovation, environment, organization, management, tribal leadership.

1 Introduction

The themes and content of innovation and sustainable urban and regional development cannot easily be separated from each other, as they are often both overlapping and interrelated. Also, innovation and leadership are closely related. Some focus of leadership has always on bringing about a better future. This mean, leaders are necessarily innovators. However, Selman explain that the term "innovation" like "leadership" seems to defy a commonly accepted definition. (Selman, 2015)

Innovation is „intentionally ‘bringing into existence’ something new that can be sustained and repeated and which has some value or utility.“ Selman (2015) Thus, innovation is about creating something new that is valuable.

In this context, it is important to translate and describe the term and aspects of innovation in an easily, clearly and comprehensible way to put it in practice, to ensure that innovation remains not just an empty phrase, but becomes reality and are systematically integrated into daily actions that are oriented towards the specific needs.

Leadership has been found to be the best predictor of innovation (Barsh et al., 2008). “Those who described their own organization as more innovative than other companies in its industry rated its leadership capabilities as “strong” or “very strong.” Conversely, those who believed that the ability of their own organization to innovate was below average rated its leadership capabilities as significantly lower and, in some cases, as poor.“ (Barsh et al., 2008).

Therefore, to foster innovation in an organization, it is necessary to enhance leadership capabilities. Not all leaders are born, i.e. charismatic leaders. Quite a lot of leaders are commissioned leaders, i.e. assigned as leaders via a “normative power”. The aim is, to make them expert leaders by learning how to promote innovation in their company.

Therefore, this paper deals with the question, what leaders can do to create an organizational climate, where others apply innovative thinking to solve problems and develop new concepts products and services.

Business representatives at a recent Wharton round-table discussion named the following factors as critical to innovation

(Wharton, 2006): Culture, passion, technology, open-mindedness & hard work. Culture and technology are important organizational characteristics, while openness to experience and conscientiousness have been listed as two main personality characteristics of a born leader (e.g. Judge et al., 2002).

At the same time, the demographic change shows a significant, unambiguous direction. Over the coming years cities substantially continue with strong growth. On the other side, it is likely that many peripheral and structurally weak regions are currently standing at a watershed in terms of their regional orientation and in particular are affected by struggle with massive declining population levels and an increasing number of elderly people. (Kern, 2015) However, in this connection, we must also bear in mind that today innovation, diversity and networked thinking, are significant and even more important aspects in a sustainable urban and competitiveness regional development and go hand in hand. Moreover, the basis of an efficient communication strategy, focus in particular on developing long-term, innovative and interlinked thinking.

According to current reports of the United Nations, half of the world’s population is living in cities and it is expected that this number increase to two thirds of the world’s population by 2050. Thus, cities are subject to constant change and diverse development trends (Ramsauer, 2012). Therefore, the importance of urban living space is constantly increasing, as cities are the housing-, work-, and life-centers of most people. In this context demands in reference to the usage, planning and design of urban places, spaces and cities are increasing (Welch Guerra, 2010) thus require an innovative thinking leader and the use of new profiling systems.

Therefore it is the task of the communal, city development and public manager to make sure that the short-, middle- and long-term requirements of the citizens are met as best as possible, so that a high, innovative and sustainable development quality can be achieved.

Thus, it appears to be important to address the question from an organizational perspective on the one hand and from a leadership perspective on the other hand. Therefore, this paper contains two sections, dealing with the questions how the environment needs to be organized and how the leader needs to act, respectively, to promote innovation. A third section addresses, how these two perspectives can be integrated.

2 Innovation and the environment

According to Klemm (2001), innovation relies on creativity. But contrary to common belief, not only a small gifted number of people is capable of creativity, but anybody of average intelligence can be creative given the right environment. So in order to promote innovation, it is the responsibility of the leader to actively create such an environment, where people can fully unfold their creativity. From an analysis of the creative process, Klemm was able to derive several environmental factors that can stimulate creativity.

„The first and fundamental step in the creative process is to have a clear notion of what the problem is and to be able to state it clearly. The effective thinker begins by first focusing on the structure of the problem, rather than its technical detail.“ (Klemm, 2001)

In this case the problem is the demographic change and the paradigm shift in the understanding of urban living space. Normative goals are replaced by strategic guiding principles for the construction of competitive innovative and sustainable urban structures which also creates its own challenges.

Thereby the problem becomes accessible by all operations in working memory, which automatically leads to the second step in the creative process. This is the immediate retrieval of potential solutions from long-term memory. Consequently, the immediate ideas will differ between people of different backgrounds, because what is stored in long-term memory depends on each person's individual life time experiences.

The following steps are the hardest ones, because now, all these potential solutions to the problem need to be analyzed, compared, shaped and re-analyzed in order to single out the best alternative. It is important at this step not to narrow the scope of solutions down too early or dismissing solutions without further analysis because they might not seem reasonable. It is also important to not become distracted from the problem, but stay focused and immersed in order to not miss a step. Also, Klemm (2001) rightly states that all these operations need to take place in working-memory. Thus, the limited working memory capacity also limits the creative process.

So what the leader can do is to support the creative process at each step, that is

1. To enable a clear understanding of the problem structure in working memory,
2. To get access to as many initial ideas for the problem solution as possible,
3. To enable the consideration of unreasonable ideas,
4. To keep people immersed in the problem and,
5. To enhance working memory capacity.

These support measures translate into the following environmental factors for boosting creativity, which are stated by Klemm (2001).

Ad 1. It is important to already formulate the problem in a way that allows for creativity! If the scope is too narrow, no creativity will occur. Do not formulate the problem in a way that only allows for a given set of answers! This will impair the following steps of the creative process right away.

Ad 2. In order to get as many initial ideas as possible during the second step of the creative process, it is important to provide the environment for idea generation. It can be helpful for a team to work on the problem together. In order to access all their initial ideas stimulate discussion and increase communication among team members via e.g. symposia or brain storming. Concerning the team structure, it is important to prevent overspecialization! Less specialized, more diverse and interdisciplinary teams are more creative. Also, younger people tend to be more creative, if working from a less focused, broader angle. So in order to get a diverse set of initial ideas, team members should be from diverse backgrounds and different age groups.

Ad 3. In order to not rule out any ideas too early, get rid of conformity and tolerate non-conformity. During the whole process, be quick to recognize and use both error and new ideas! But do not restrict the teams during these stages, give them influence and autonomy and rather guide them through the process. Create an atmosphere of peer review to evaluate the quality of new ideas non-authoritarily.

Ad 4. To keep people focused on the problem, get them involved, immersed in problems. People need purpose, guidance and direction. Also, creativity should be rewarded.

Ad 5. In order to allow for people to use their full working memory capacity on the problem, it is important to optimally challenge people! Too little challenge does not provide enough stimulation to produce creativity. But too much challenge or an atmosphere of fear and threat inhibit creativity, also because it consumes working memory capacities. Also, the best ideas often occur during a time of leisure.

But above all and important at all steps: Expect creativity! "Innovation correlates strongly with a person's perception of whether or not he is expected to be innovative." (Klemm, 2001).

3 Innovation and the leader

With respect to the expectancy of creativity, Barsh et al. (2008) pointed out the importance of the leader as a role model. If the leader does not actively model and encourage innovative behavior, it is unlikely for innovation to occur. Therefore, besides providing all the environmental factors listed above, we can also relate innovation and creativity to a leader's personality and leadership style.

Openness to experience and ideas on the one hand and conscientiousness on the other hand have been listed as two very important personality characteristics of charismatic, visionary leaders (e.g. Judge et al., 2002). We can see that they relate directly to the behaviors that create a stimulating environment. It is important for the leader to not dismiss ideas, that may seem unreasonable at an early stage, which requires a certain openness to experience. If the leader is open to new ideas, the group members will most likely also have more faith in their own thoughts, even if they appear crazy at first. In this context, Selman (2015) means this openness of the leader is not only to choose a circumstance that is already occurring, but also a beginning to relate to the world as if creating the circumstances themselves. In this conjunction the point is, that this insight into the nature of a circumstance or situation have formulated what seem to be original, genuinely solutions or ideas. This requires a different order of creative thinking outside conventional and reasonable frames of reference, what is usually meant by thinking "outside the box". (Selman, 2015). Those leaders are often seen as gifted in their capacity to keep moving forward and creating openings for action regardless of the circumstances and new possibilities for others to innovate and explore. (Selman, 2015) It is also important to carefully consider, compare and analyze all possible solutions to a problem, which requires a certain amount of conscientiousness. Conscientiousness is also important for the leader himself to stay immersed into the problem. If the team members see the leader focused on the problem, they will most likely also keep up their hard work to come up with the best solution.

According to Barsh et al. (2008) role modelling of innovative behavior pervades every level of management. Managers or executives, who are themselves not rewarded for the innovative performance of their team or are not expected to be creative, are less likely to model innovative behavior to the team members below them.

In addition, executives can fine-tune the goals by identifying the balance of employees and the appropriate mix. This Innovation networks, like cross-functional teams require different skills and attitudes. To design, implement and manage an innovation network four critical steps. Barsh et al. (2008).

Over the years, different types of leaders/styles of leadership have been distinguished (e.g. Martindale, 2011). A leadership style is a leader's style of guiding and organizing people. Leadership styles can be characterized by the style of decision making on the one hand and by the leaders focus on the other hand.

By decision making we distinguish:

- Autocratic/authoritarian leadership: leaders make all decisions by themselves.
- Participative/democratic leadership: leaders let the team decide.
- Laissez-faire/free-rein leadership: leaders leave to group to themselves.

By focus we distinguish:

- Task-oriented leadership: leaders focus on the goal to be achieved.
- Relationship-oriented leadership: leaders focus on the relationships between team members.

According to Klemm (2001) it is important to give teams influence and autonomy in order to gather as many initial ideas as possible. If all decisions are made by a single person, i.e. the leader, there is the risk of overspecialization. Thus, we can conclude, that authoritarian leadership styles do not foster creativity. They may also create an atmosphere of threat that inhibits creative thought. For Chemers (2002), leadership can be defined as the 'process of social influence in which one person can enlist the aid and support of others in the accomplishment of a common task', whereas Ogbonnia (2007) argues that 'effective leadership is the ability to successfully integrate and maximize available resources within the internal and external environment for the attainment of organizational or societal goals.' Both definitions posit a slightly different understanding of leadership. However, according to Klemm (2001) it is also important to provide guidance, in order to keep people involved and immersed into the problem and to quickly recognize errors and new ideas. Consequently, the laissez-faire style provides too little direction in order to optimally foster creative thought.

So can conclude that innovation is most likely to occur with participative leadership styles. However, it has also been discussed that the leadership style needs to be chosen depending on the situation and no leadership style is per se favorable (Ogbonnia, 2007). For example, if a leader is confronted with a group of people who do not work well with each other or are not productive, more guidance, i.e. a more authoritarian leadership style may be necessary to get people immersed into the problem. On the other hand if a team is highly productive in itself, the leader needs to provide less guidance.

Also both task- and relationship orientation appear to be necessary for innovation to occur. On the one hand the leader needs people to become involved in the problem and needs to create an environment where the task-orientation of people can occur. On the other hand the leader needs to stimulate discussion among team members and needs to group people in a way to prevent overspecialization.

4 The leader and the environment for innovation

Even though innovation has been recognized as a very important factor in the success of organizations, it is only recently starting to become an integral part of management models. Innovation is one of the distinguishing elements of the St. Galler management model (Rügg-Stürm & Grand, 2014), which integrates it as one development modus into the understanding of organization leadership.

The St. Galler management model includes 6 basic categories to which processes are central elements. The model distinguishes 3 management processes/levels in organizations:

- The normative management deals with the general principles, norms and rules for the survival and development of the organization.
- The strategic management develops procedures for the implementation of the principles set by the normative management.
- The operative management implements the procedures developed by the strategic management.

Following the considerations of Barsh et al. (2008) described before, innovation has to be set as one of the guiding principles for the development of the organization by the normative management and has to be modelled by the normative manager's behaviours. Only then can innovation be modelled by the strategic and operative managers and thus be transferred into the teams at the bottom of the organization.

The processes are supported by the ordering elements of the organization and adapted or changed by developmental elements, i.e. optimization and innovation.

The model distinguishes 3 ordering elements of organization: management strategy, formal structure and culture as the informal structure. Culture is recently becoming increasingly recognized due to its high relevance for successful marketing on the one hand and employee commitment on the other hand. Culture is also a central element to my own doctoral thesis on innovative, sustainable regional development. At a first glance culture, often associated with tradition, appears to be contrary to the element of change involved in innovation. Nevertheless, culture was named as one organizational determinant of innovation at the Wharton round-table discussion. At a second glance we realize that culture and innovation have two things in common. On the one hand their importance for organizational success, on the other hand values. Values are an integral part of culture and per definition in the beginning of this paper, innovation is about creating something valuable. Creativity and innovation can in itself be values in an organizations culture and as the interactions between team members are central to the creative process, culture as the informal structure of an organization shapes the creative process. Consequently, culture should be taken into account by innovative leaders.

Culture is the central element of tribal leadership (Logan et al., 2008). Tribal Leadership is the way of leading organizations in analogy to natural groups by understanding how the members of the organization/group communicate. Logan et al. (2008) view culture as a product of the language people use (words create reality), and the behaviors that accompany that language.

They identify five stages of tribal culture.

- Stage One: Hostility between tribe members and of tribe members towards the organization.
- Stage Two: Members are passively antagonistic, sarcastic, and resistant to new management initiatives
- Stage Three: Members are very productive, but highly competitive against each other.
- Stage Four: Members are excited to work together for the benefit of the entire organization.
- Stage Five: Members who have made substantial innovations want to make a global impact.

Tribal Leaders focus their efforts on upgrading the tribal culture. Their role is to move the group from one stage to the next. Thus, tribal leaders are situational leaders, since at different stages groups may require different leadership styles. Such changes in the communication structures between group members are vital to innovation as they foster creativity. In that sense, tribal leadership enable innovation by a focus on the relationship-structure between group members. Concretely, the role of a tribal leader includes:

- Alignment of daily actions of all group members towards a shared set of goals.
- Commitment towards followers
- Integration of information between group members.
- Change and redefine Culture when needed to achieve a shared purpose.

Thus, coming back to Klemm's environmental measures to foster creativity, tribal leaders give the necessary guidance to get people immersed into a problem, they stimulate discussion and increase communication between team members.

Thus, culture provides the link between the environment and the leadership style in the attempt to allow for innovation to occur.

5 Conclusion

In summary, leadership is an important predictor of innovation. Leaders need to understand the creative process underlying

innovation in order to provide their team members with an environment that fosters creativity. Innovating is a primary element in the process of leading and can be seen as example of leadership results of outcome. In Selman words, "Innovation takes place at different levels from modest improvements on an existing product or process to dramatic and even historically significant breakthroughs in how we relate to the world." The capacity to innovate will be a function of our commitments, our relationship and what we want to accomplish with the circumstances we perceive we are in. The most important elements of such an environment are diversity and communication. Most importantly however, leaders serve as a role model of innovation for their team members. This model has to be consistent across all levels of management. Therefore, the leadership style in general is important for innovation and has to be adapted to the needs of the team. Tribal leadership provides a model for such adaptations. Finally, the author considers that innovators and leaders as those who are concerned with and competent at bringing new realities into existence.

Main purpose of this paper is to give a short insight in the complex coherence of organizational theory and their important role in conjunction with an innovative, sustainable urban and regional development. The author will further specify and apply the findings to the specific field of research processing the doctoral thesis: Profile oriented marketing for an innovative and sustainable regional development.

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Primary Paper Section: A

Secondary Paper Section: AH

DECISION-MAKING OF THE MUNICIPAL COUNCIL FROM THE ASPECT OF EXPRESSION OF CITIZENS OF THE MUNICIPALITY AND THE CONTENT OF THE ADOPTED DECISION

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Abstract: Municipalities represent the foundations of public administration in the Czech Republic, entrusted with an utterly irreplaceable role at the community level. They play this role thanks to charged competencies in wide-ranging areas of life by means of municipal bodies. The author focuses on certain problematic contemporary aspects of the decision-making process of a municipality - specifically the municipal council. Problematic aspects that the law has never efficiently regulated mainly include the requirement for professional knowledge of council members when making decisions on relevant questions, i.e. an erudite approach to decision-making, and the possibility of the citizen to engage into the decision-making process of a municipal council.

Keywords: municipality, municipal council, municipal decision-making process, knowledge of content of decisions, expression of citizens

1 Decision-making of the municipal council

Municipalities represent the foundations of public administration in the Czech Republic, which are entrusted with an utterly irreplaceable role at the community level. They play this role thanks to charged competencies in wide-ranging areas of life by means of municipal bodies - especially the municipal council, whereas decision-making processes occur in the municipal council through its elected council members. **The principle of local self-government** appears in this very decision-making of the municipal council. Its foundations lie at the constitutional level, specifically in Article 8 of Act No. 1/1993 Coll., the Constitution of the Czech Republic, as amended, where self-government of territorial self-governing units is explicitly guaranteed. Territorial self-government is further defined in Chapter VII of the Constitution (Article 99–105), relating to which in regards to decision-making of the municipal council is Act No. 128/2000 Coll., on Municipalities (hereinafter the "Municipal Order"). The subject of research or analysis of this area generally involves typical process aspects of the council's decision-making process, designated as conditions for adopting decisions by the council (concerning e.g. determining conditions for meetings of the council as a congenial body [frequency and location of meeting, method of convening, method of leading and the course of the meeting, a control aspect in the form of minutes of the meeting], as well as determining conditions for adopting decisions [quorum for adopting decisions, familiarization with materials of the decision at hand]). The following analysis selectively observes two chosen aspects of the decision-making process of the municipal council, in which violation and functional inefficiency occur in the municipality's established system of the decision-making. The author believes that the selected problems pose the greatest threats for the future in questions of local self-government. This concerns the possibility of citizens to engage in the decision-making process of the council and express their opinions, or influence questions towards which the council will devote efforts, and the importance of the content and sufficiently erudite knowledge of questions or decisions, which council members adopt through their approval. If the municipality is to execute its tasks conscientiously and duly (thus with fulfillment of legal provisions concerning care of the municipality itself), then not only should they be, but they must be, elected council members who are educated and responsible, because they decide on the municipality's future development.

A) Course of the meeting of the municipal council focusing on expression of its citizens

The meeting of the municipal council must be public (Sec 93(3) of the Act on Municipalities [Municipal Order] - hereinafter

"MO"). Thanks to this public principle, the right of the citizen of the municipality having reached the age of 18 is exercised to **express** at the municipal council meeting, in accordance with the rules of procedure, his **opinion on discussed matters**. This right is anchored in the provisions of Sec 16(2)(c) MO. It is apparent that the cited provisions represent the legal performance of a constitutionally anchored right under Article 21(1) of Act No. 2/1993 Coll., the Charter of Fundamental Rights and Freedoms (hereinafter "CFRF") **to take part in the administration of public matters**. If a citizen of the municipality were to believe that a breach occurred in his possibility of expressing an opinion towards matters under discussion by the council¹, or it became limited, the situation should be judged and interpreted in a manner preserving the meaning of this legal performance of a constitutional right, thus in principle **"to the benefit" of the citizen of the municipality**. The MO does not specify further by what manner the citizen is to enforce this right, or how to exercise and implement it. It is therefore being offered for the council's rules of procedure² to include an amendment in this sense into selected details, but this is not a statutory requirement. Despite this, by interpretation of Sec 16(2)(c) MO, one may conclude that the council is obliged to enable the citizen of the municipality adequate and effective exercising of this right, and that the law calls for one of the most convenient forms - modifying the rules of procedure, where according to the ruling of the Regional Court in Ústí nad Labem of 03.05.2007, case no. 15 Ca 196/2006-35: "Through their rules of procedure, regions cannot limit the right of citizens to express themselves regarding negotiated matters, to which they are recognized by Act No. 129/2000 Coll., on Regions (Sec 12(2)(b)). Citizens of the region may thus express their positions at meetings of the council, which relate to the matter at hand." Conditions determined by the rules of procedure should "guide" execution of this right in a reasonable manner, but they cannot factually preclude it (e.g. it is not possible to limit the length of a citizen expressing him or herself to just 30 seconds). However, if this question is not regulated by the rules of procedure, nothing prevents the citizen from exercising his or her right to expression.

It is possible to regard as minimum the following requirements, which the municipal council and its rules of procedure must respect in order to prevent breach or unacceptable limitation of the right of the citizen³. MO speaks of **expressing oneself on the discussed matter**. The citizen of the municipality must thus be given the opportunity to express himself on the matter currently under discussion. The citizen must therefore be provided this before the relative resolution is adopted. The citizen should have the opportunity to express his opinion during discussion of every point, e.g. during a discussion on the point in question after the debate of council members and prior to adopting the resolution. A frequent mistake playing out in councils of Czech municipalities is the very situation where point no. 1 of the program presents opinions of citizens regarding matters under discussion, whereas in no further phase of the meeting is it possible any longer for the citizen to express an opinion (so the citizen is but an observer). Meanwhile, matters from the proposed agenda were not discussed yet, and the obvious ones only from the planned meeting agenda. Such a procedure of the council is thus not only runs counter to the law, but is also unconstitutional. In defense of the municipal council however, it is appropriate to add that it is the obligation of the citizen of the municipality to speak to the discussed matter, i.e. only to the point of the meeting currently under discussion. If a citizen of the municipality expresses opinions on matters that are

¹ This generally concerns any point of the provisions of Sec 16(2) MO.

² Provisions of Sec 96 MO.

³ Breach of the right of a citizen to express opinions on negotiated points on the part of the municipal council is breach of the lawfully determined obligation and as such, it constitutes interference within the meaning of Sec 82 APC (Act No. 150/2002 Coll., Administrative Procedure Code, as amended), against which a citizen can defend himself by filing an action in administrative justice, or it is possible here to exercise supervisory activities under MO, see the ruling of the Regional Court in Ústí nad Labem of 03 May 2007, case no. 15 Ca 196/2006-35.

not the subject of the given point of negotiation, this is not exercising of the right under Sec 16(2)(c) MO, and would constitute a reason to strike the citizen's comments from the record.⁴

Regarding citizens of a municipality expressing opinions during an ongoing meeting, it is necessary to point out the following resolution, which relates to the provisions of Sec 94 MO - possibilities **to submit proposals for inclusion on the meeting agenda**. According to the ruling of the Regional Court in Ústí nad Labem of 21.06.2006, case no. 15 Ca 105/2005-55: "*In the interest of completeness however, the court finds it necessary to mention regarding the right to submit proposals for inclusion in the agenda of a municipal council meeting that Sec 94 MO explicitly and completely regulates this issue... Thus, according to the legislation, citizens of a municipality are not afforded the right to submit their own proposals directly for including a certain matter for discussion into the agenda of discussed matters during the course of a meeting of the defendant... The citizen of a municipality of course does have the right under the provisions of Sec 16(2)(f) MO to request discussion of a certain matter within the independent competence of the municipal board or council, whereas upon fulfilling certain conditions, this matter must be discussed within 60 days or by no later than 90 days. If a citizen of a municipality exercises his right during the council meeting, he must respect the framework of his rights afforded to him by MO and the rules of procedure of the given council. In no case however is it possible to confuse these provisions – of Sec 16(2)(f) with those of Sec 94(2) MO. The court fully identifies with the defendant's opinion that if the plaintiff wants to discuss his matter with the defendant, whereas he does not utilize the possibility of proposing it by means of exhaustively named entities in the provisions of Sec 94(1) MO on the agenda of the meeting, he can submit his request for discussing a certain question during the council meeting within the framework of the point of the program "Discussion" reserved for these initiatives of citizens. There is also the similar ruling of the Regional Court in Ústí nad Labem of 31.05.2006, case no. 15 Ca 36/2006-35, or the ruling of the Supreme Administrative Court of 05.09.2007, case no. 3 Aps 7/2006-103.*"⁵

The rules of procedure could thus regulate **procedural questions**, such as the method of giving the floor, engaging in the discussion, the order of speakers, limiting the length of appearances of each citizen of a municipality to an individual point, when this period must be sufficient so that such citizen could even exercise his right, entitlement of the chairperson to take the floor away from a citizen of the municipality if he does not speak to the discussed matter or exceeds the determined time limit. In conclusion, it is appropriate to add that if the rules of procedure in no way regulate exercising the right under Sec 16(2)(c) MO, this does not constitute its inconsistency with the law. That is because the right of a citizen of a municipality exists directly from the law, and can be implemented also without its detailed "performance" in the rules of procedure.⁶ **However, the author holds the opinion that regulation in the rules of procedure is more than adequate for the possible procedural steps in this question at a council meeting to be sufficiently transparent and with predetermined rules created in writing.**

⁴ Opinion of the Oversight and Control Department of Public Administration of the Ministry of the Interior No. 3/2008. The right of a citizen to express opinions on matters discussed at a meeting of the municipal council. [online] P. 1-4.

⁵ In the legal opinion of the Supreme Administrative Court, a citizen of a municipality is not an authorized entity to be entitled under Sec 94(1) MO to submit proposals for inclusion in the agenda of a prepared council meeting. According to the same provision, only council members, the municipal board and committees have this right. Therefore, the citizen of a municipality may turn to an authorized person under Sec 94(1) MO with his proposal. The other option is to speak in the debate before voting on the program of the council meeting and present his proposal here, or to speak in the part of the council meeting reserved for initiatives of citizens. If one of the persons present is entitled to submit proposals under Sec 94(1) MO, the request raised by the complainant could be proposed for inclusion in the meeting agenda. However, the Supreme Administrative Court stresses that it is not the obligation of the council to accept such a raised proposal, since the council itself decides on inclusion of proposals raised during the council meeting in the meeting agenda.

⁶ Opinion of the Oversight and Control Department of Public Administration of the Ministry of the Interior No. 3/2008. Op. cit., p. 1-4.

B) Knowledge of content of an adopted decision

Now attention shifts to focus on what the author believes to be one of the pressing problems of today's self-government - knowledge of the content of an adopted decision, or knowledge of all materials that lead a specific council member to decide. High relevance is found in so-called **expectation of awareness of the council of a negotiated matter**. MO never explicitly regulates the obligation of council members at the meeting to study the submitted materials and know about what they are voting on at the given moment. MO definitely does not impose an obligation on council members to ascertain all potential pluses and minuses of decisions on specific aims. **However, the author believes that though we cannot find such legislation clearly and explicitly anchored, it does exist here (though in a relatively vague form). It is possible however to arrive at it through interpretation.** If we approach an interpretation of the provisions of MO by means of a teleological (targeted) method, interested in the sense and purpose of the legal standard in question with regard to the scheme and focus of the entire legal regulation containing it, one may then conclude that such requirements for council member arise from the following provisions.

This mainly concerns the provisions of Sec 2(2) MO, according to which the municipality attends to the general development of its territory and the needs of its citizens, and also protects the public interest in the fulfillment of its tasks. Furthermore, according to the provisions of Sec 35(2) MO, in its independent competence within its territorial district, the municipality cares in accordance with local conditions and customs for fostering conditions for developing social care and for satisfying the needs of its citizens. This mainly concerns satisfying the need for housing, protection and development of health, transportation and transport links, the need for information, upbringing and education, overall cultural development and protection of public order. In accordance with Sec 38(1) MO, the municipality's property must be used purposefully and economically in accordance with its interests and tasks ensuing from its competence as laid down by law. The municipality is obliged to care for preserving and developing its property. According to Sec 69 MO, the municipal council member promises loyalty to the Czech Republic, he promises at his honor and conscious that he will execute his function conscientiously, in the interest of the municipality and its citizens, and abide by the Constitution and laws of the Czech Republic. The municipal council member executes his mandate personally and in accordance with his promise, and is meanwhile not restricted by any orders. Or finally, under Sec 83(1) MO, where the council member has the obligation "*...to promote the interest of citizens of the municipality and act and behave in such a manner that the reputation of his office is not compromised.*"

It is clear from all these relatively vague proclamations of obligations of council member that if, as a part of the decision-making process, he is to decide and take into account all of the aforementioned criteria (care in accordance with local conditions, customs, purposeful and economic use of municipal property, conscientious execution of his office, etc.), he must know not only about what he is deciding, as this is a fundamental prerequisite, but must also expend the effort to understand the given issue and decide truly based on his best knowledge and conscience, i.e. an erudite approach. A fundamental problem of the MO however is the fact that the council member is not legally sanctioned for failure to uphold the mentioned provisions. Only political sanctioning may factor in, appearing in the next voting period.

Also applied for decision-making of the municipal council are the provisions of Sec 2 to 8 of Act No. 500/2004 Coll., Code of Administrative Procedure (hereinafter "CAP"), which regulate the **fundamental principles of administrative bodies**. The municipal council may decide **only based on the reliably ascertained status of a matter** (this obligation arises from the provisions of Sec 3 CAP). Here other principles also apply such as the principle of legality, the principle of proper

administration, efficiency and transparency of decision-making processes in public administration, etc. The opinion of J. Vedral also supports the binding nature of CAP also for municipal council members.⁷

From the aspect of knowledge of council members on materials about which they are deciding, another relevant question is the adequacy of the term during which council members were provided access to such materials in relation to the complexity of the matter up for voting. The author believes that in this case, it is possible at least by way of example to use case law relating to the adequacy of the term for expression on materials for deciding within administrative proceedings. This term must be **determined in adequate measure regarding the complexity and scope of materials**, see the ruling of the Supreme Administrative Court of 31. 8. 2004, case no. 6 A 143/2001-151: *"regarding the adequacy of inadequacy of the stated term, one may judge especially from the scope of material to which the participant in the proceedings is to express himself, from its complexity, from the professional level, from consequences that arise for those participating in proceedings or society, as well as from the entire duration of the proceedings. In the given case, this concerned extensive material on a high professional level with meaningful impacts on the environment, whereas proceedings took place even several months after expiration of the term for council members to express themselves. Upon summarizing these facts, the conclusion also arises that the eight-day term for expressions is unreasonably short, and does not enable true exercising of the right to express oneself regarding all materials."* There is a similar ruling of the Supreme Administrative Court of 25 October 2006, case no. 5 As 49/2005 – 129. **One may see the analogy between the relevance of a. the effort of the participant of administrative proceedings to express himself so that the proceedings end in favor of his interests, and b. the effort of council members to decide in favor of the municipality's interests.** So if council members do not obtain materials well enough in advance (in light of the complexity of the given issue), one may also consider such a procedure to be factual elimination of the content of the provisions of MO, leading council members to be accountable for their decisions. Since the Czech legal system stipulates a representative mandate of the council member and not an imperative one (bound to instructions and orders), relevance is all the more placed on the conscientious approach of council members.

In terms of the question of the awareness of a council member of the matter up for voting, the following two approaches can essentially be distinguished. One is that the council member himself is not interested in becoming familiar with the materials, though they are available to him in time. The second is the situation where the council member himself is not afforded the chance to become familiar with the materials. The second approach is clear e.g. in zoning, where the council approves a zoning plan in its independent competence (even its individual stages, e.g. upon deciding on acquiring a zoning plan, approving the submission, instructions for elaborating the zoning plan, etc.). In the finding of the Constitutional Court of 13.03.2007 under file no. I. ÚS 101/05: *"Approving land use planning documentation is in essence a decision of the municipal council (Sec 84(2)(b) MO) in independent competence on matters affiliated with transferred independent competence. That is because land use planning documentation is the result of a process ongoing in transferred competence of the municipality, and it is only approved within their independent competence."* Act No. 183/2006 Coll., on Spatial Planning and Building Code, as amended (hereinafter "PCBCA"), imposes the obligation of the municipal council to verify if the draft zoning plan happens to run contrary to development policy and land use planning documentation published by the region, to opinions of involved bodies or as the result of conflict resolution, or to the opinion of

the regional authority under Sec 50 PCBCA. The municipal council is responsible for the content of the published zoning plan and procedure upon its publishing with the legal system in general.⁸ It is the council itself that must responsibly assess the draft decision on objections prepared by the acquirer prior to the actual publishing of the land use plan under Sec 53(1) PCBCA, and to render decisions on these objections. If changes are substantial especially in this complicated issue of land use planning, emphasis is placed all the more on awareness and knowledge of the issue about which council members are deciding. Council members must be capable of becoming duly familiar with the materials so that they could responsibly decide on them under the provisions of Sec 54 PCBCA. An important outcome of case law in this matter (in terms of decision-making of the municipality or the approach of the council member in relation to land use planning) is the ruling of the Regional Court in Brno of 09 September 2014 under case no. 63 A 3/2014-137, by which the court found actively legitimate to submit a proposal to repeal the change of the Land Use Plan of the City of Brno a petitioner - a member of the municipal council, whose right as council member to take part in modifications to the land use plan was curtailed by the actions of an opponent for the very problematic reasons defined above.

2 Conclusion

Decision-making processes, or decisions at the municipal level - specifically of the municipal council, are an important expression in implementing the right to self-government. The aim of this paper was to analyze two problematic aspects of decision-making of the council, which the author believes represent a threat on into the future for the efficiency and function of local self-government, namely in regard to the sense and purpose of legal provisions. The most serious problem in the functioning of decision-making of the council is especially **the inability to legally enforce a series of obligations entrusted to council members and the municipality itself.** The only sanction is **political accountability**, which however is not a sufficiently motivating element for performance of self-government with due fulfillment of the meaning and purpose of the law. In the author's opinion, a key problem today is that oftentimes council members do not even know what they are voting on, they make no effort to ascertain the necessary technical information or it is just not provided to them. This fact is not yet resolved to a satisfactory result even by the decision-making efforts of the courts. Another problem is the question of citizens expressing themselves at the meeting of the council regarding discussed matters, where they are not given the floor at all, or only sporadically with rather limited time. In conclusion, it is appropriate to point out that if local self-government is to fulfill the tasks entrusted to it, the behavior of council members should exhibit a responsible, i.e. erudite approach that strives to make the best possible decision in the interest of the municipality. Meanwhile, it is necessary in today's times to perceive the interest of the municipality not only from an economic standpoint, but on the contrary, from the standpoint of the wider social context, in relation to ensuring a favorable environment for citizens of the municipality. And this final fact unfortunately remains rather forgotten. It would therefore be appropriate to provide motivational factors for the municipal council, which would contribute to a complex understanding of the problems of life of the municipality that must be resolved every day.

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Primary Paper Section: A

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LINKAGE BETWEEN INNOVATION AND ORGANISATIONAL CLIMATE

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Abstract: This paper provides an overview of the role of organisational climate in context with managerial practices and innovation. Based on existing studies this paper explicates the mediating role that climate plays between leadership as an antecedent factor influencing the intervening variable of climate, which, in turn, affects innovation. The purpose of this paper was to discuss on how leaders and managers affect innovation and creativity through their efforts to deliberately foster a work climate that supports creative thinking. The first section is an explaining the general concept of organisational climate. In the second section organisational climate will be linked to leadership and innovation. The final section is conclusion in a manner of discussing the following Thesis: „*Leader must learn how to create an organisational climate where others apply innovative thinking to solve problems and develop new products.*“

Keywords: Leadership, organisational climate; climate for innovation.

1 Introduction

Not only productivity but also innovation performance got critical components for the competitive advantage of organisations. Innovation is important, because the market situation became uncertain and complex. As a consequence organisations are forced to adopt on market conditions in the form of innovation. In the literature, numerous factors are discussed that have an impact on the innovation capability of organisations (Crossan and Apaydin, 2010). So organisational structure, organisational culture and organisational climate are analysed as relevant variables for fostering the organisations performance. „*Studies on organisational climate are a proven instrument for measuring the effectiveness of leadership*,“ says Jörg Hull, Vice President Leadership Transformation of Hay Group. The organisational climate can determine whether employees experience is a motivating or demotivating of the work environment. This results in direct conclusions about the performance of a company. But many scientific studies show that there exists a lot of issues that need to be overcome before using the organisational climate as an indicator for conclusions about companies performance

2 Aspects of organisational climate

As part of the literature review, it always comes back to overlap the topics organisational culture and organisational climate. Often the two terms are also used interchangeably but in this cases the terms didn't get their real importance (Nerdinger et al., 2014). Different research perspectives. Both concepts come from different scientific developments. The climate concept is based on the psychological field theory of Lewin (1939). Aspects of culture traditionally addressed by the scientific discipline of anthropology. It can be deduced also that these studies were carried out using different methods. In his comparison of the two literature of culture and climate Denison (1996) stated, that traditional methods of studying culture relates to qualitative perspectives and studies of organisational climate are based on quantitative research designs (Denison, 1996). Different implications. The term climate consciously perceived processes and factors of the environment are described that can be controlled by the organisation. The focus of climate is on the situation and its link to perceptions, feelings, and behaviour of employees. It can be viewed as relatively temporary and as subject to direct control, that means also as subject to manipulation by authority figures (Denison, 1996), (Weiner, 2012). The term organisational culture, however, deeply rooted values and assumptions are addressed, which are often not aware of (Schneider and Barbera, 2014), (Amjad and Bhaswati, 2014), (Nerdinger et al., 2014). „Meaning is established through socialisation to a variety of identity groups that converge in the workplace. Interaction reproduces a symbolic world that gives culture both a great stability and a certain precarious and fragile nature rooted in the dependence of the system on individual

cognition and action“ (Denison, 1996, pp.624). In Figure 1 Denison (1996) presents a summary of differences of research perspectives.

Differences	Culture Literature	Climate Literature
Epistemology	Contextualized and idiographic	Comparative & nomothetic
Point of View	Emic (native point of view)	Etic (researcher's viewpoint)
Methodology	Qualitative field observation	Quantitative survey data
Level of Analysis	Underlying values and assumptions	Surface-level manifestations
Temporal Orientation	Historical evolution	Ahistorical snapshot
Theoretical Foundations	Social construction: critical theory	Lewinian field theory
Discipline	Sociology & anthropology	Psychology

Figure 1: Contrasting Organisational Culture and Organisational Climate Research Perspectives (Source: Denison, 1996)

In summary it can be said that a lot of overlap between the two concepts and relationships, as well as differences exist. In research, often both terms are not sufficiently differentiated or used interchangeably. In contrast to the organisational culture is stronger in the organisational climate of the focus on the individual level and involves psychological concepts of perception, attitude, motivation and emotion (Ashkanasy et al., 2011); (Nerdinger et al., 2014).

2.1 What is organisational climate?

Studies on organisational climate are a proven instrument for measuring the effectiveness of leadership, says Jörg Hull, Vice President Leadership Transformation of Hay Group (HayGroup, 2013). The organisational climate can determine whether employees experience a motivating or demotivating a work environment. This results in direct conclusions about the performance of a company can be drawn as many scientific studies show. Organisational climate is a central concept in organisational psychology. Scientific knowledge are rooted in the 30s of the last century on the Hawthorne studies. Here for the first time the employee was seen as a social being. As part of the human relations movement then the influence of social relationships and informal groups was analyzed as a key way to improve the performance of the company (Bungard et al., ©2007); (Nerdinger et al., 2014). Kurt Lewin, Ronald Lippitt, and Ralph White (1939) were the first to use the term climate in psychological research. In their view „social“ climate stands for the relationship created between leaders and followers as a function of a leader's behaviour. $B = f(p,e)$ - B being the function between the person (p) and their environment (e) (Ashkanasy et al., 2011). Following the work of Lewin, research in the late 1950s through the early 1970s emphasized the human context of organisations have been concentrated on:

- individual-level and organisational outcomes; Studies of: Argyris (1964); Likert (1967), McGregor (1960).
- consistency between climates and the needs or personalities of individuals within them; Studies of: George & Bishop (1971); Pervin (1967).
- the impact that climates have on the performance and attitudes of individuals that work within them; Studies of: Litwin & Stringer (1968); Schneider & Bartlett (1968) (Weiner, 2012); (Schneider et al., 2011).

2.2 How to define organisational climate?

Organisational climate is to be understood as a theoretical construct used to describe the perceived patterns in experience and behaviour of members of an organisation. These are very abstract components for developing a commonly accepted definition. Followig table shows different approaches to define the meaning of organisational climate.

Forehand & Gilmer, (1964)	the set of characteristics that describe an organisation, that distinguish one organisation from other organisations are relatively enduring over time influence the behaviour of the people in the organisation
Tagiuri (1968)	a relatively ending quality of the internal environment that is experienced by the members, influences their behaviour and can

	described in terms of values of a particular set of characteristics of the organisation.
Litwin and Stringer (1968)	the set of measurable properties of the work environment that is either directly or indirectly perceived by the employees who work within the organisational environment that influences and motivates their behaviour is the sum of individual perceptions working in the organisation
Schneider (1974, 1983)	concepts people share about the organisation; concepts, climate perceptions are meaningful abstractions of sets of cues, the cues being the many specific events, conditions, practices, and procedures that occur in the daily life of an organisation; concepts, climate perceptions help individuals reduce information overload and function as frameworks against which people identify behaviours that will adapt them to their situation
Payne, Pughes (1976)	produced by objective context and structure of organisation (size, hierarchy etc.)
James (1974, 1981, 1989, 1990)	collective perception of the work environment by the individuals within a common system.
Wiener, (1988)	stable organisational characteristic that is maintained overtime and which gains considerable inertia as generations of workers come and go
Denison (1996)	the way in which organisational members perceive and characterize their environment in an attitudinal and value-based manner
Litwin (2001)	a group of measurable characteristics that members could perceive directly or indirectly in the work environment, a description of environmental factors, it could help researchers ascertain the effects of environment on employee motivation
Patterson, Warr & West (2004)	those aspects of the social environment that are consciously perceived by organisational members
Rosenstiel, Nerdinger (2011)	the relatively enduring quality of the internal environment of the organisation that is experienced by the members, influences their behaviour and can be described by the values of a certain set of characteristics of the organisation.

Table 1: Definitions of Organisational Climate based on (Amjad and Bhaswati, 2014), (Holloway, 2012; Weiner, 2012) and authors source analysis (own illustration)

After analysis of the different approaches to definition, the following differences in the viewing can be identified (Bungard et al., 2007).

- Structural approach. Concentration to the consideration of structural and above all objectively observable facts in an organisation (size, hierarchy, span of control, resources, and rate of turnover).
- Subjective approach. The climate is conceptualized and measured at the individual's point of view in an organisation.
- Cognitive approach. Socially shared perception, cognitive interpretations of the context from the interactions of the organisation's members on selection and socialisation processes.

Despite the differing views on the definition of organisational climate can be stated as common. The internal environment is the relatively enduring quality of the internal functioning of an organisation; said quality arises largely from the behaviour, the rules and regulations in such a way as perceived by the members of the organisation; it can serve as the basis of the description of the internal situation of the organisation. Accordingly, the organisational climate can be defined:

- as the sum of perceptions of organisational conditions by the organisation's members,
- it is essential descriptive,
- it refers to the entire organisation or sub-systems and has
- impacts on the behaviour of the members.

2.3. Concept of organisational climate

The practical benefit of measurement of organisational climate is immense for businesses. With the result, the effects of organisational climate on the behaviour of organisation members can be analyzed. However, the effects due to the influence of the individual or other factors on organisational climate itself (Nerdinger et al., 2014).

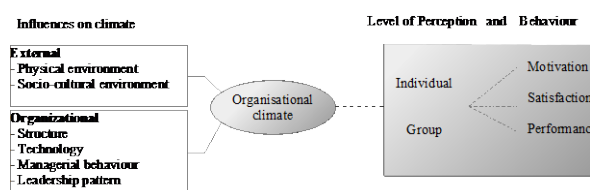


Figure 2: Causes and consequences organisational climate (own illustration)

Organisational climate as dependent variable

The organisational climate can be made dependent on organisational objective conditions such as the size of the organisation, the organisational and operational structure, the relative number of hierarchical levels of formalisation, standardisation and centralisation of decision-making, but also on the prevailing technology in the organisation and the type of tasks. But the internal environment is also dependent on behaviour of organisation members, for example, of leadership behaviour, behaviour among employees or individual characteristics of the organisation members (Nerdinger et al., 2014); (Krause, 2013). Early research of a similar sort was conducted by Chris Argyris (1957), who inferred a climate existed for hiring only "right types," and by Douglas McGregor (1960), who presented the thought that the fairness with which managers treated subordinates yielded a "managerial climate." In both cases, the climate was, as in Lewin and colleagues, inferred and unmeasured (Ashkanasy et al., 2011, pp. 30).

Organisational climate as independent variable

Looking at the organisational climate as an independent variable, so it is likely in the present empirical studies that work motivation and performance, leadership, decision-making style, innovative behaviour of organisation members, job satisfaction, are influenced by the organisational climate (Nerdinger et al., 2014); (Krause, 2013).

Organisational climate as intervened variable

Based on the theory to be discussed the organisational climate can also be regarded as an intervening variable that represents a moderating size, it must be examined between a cause and a consequence adopted (Kuenzi, 2008). The organisational climate as an intervening variable between leadership behaviour and innovation will be discussed later see therefore chapter - organisational climate- links to leadership and innovation (Isaksen and Akkermans, 2011).

Level of analysis problem

In organisational research of cognitive schema approach and the shared perception approach are paramount. The cognitive schema approach analyses the concept of climate from the individual level of perception and cognitive representation of the work environment. From this perspective climate assessments should be conducted at an individual level. The shared perception approach regards that the members of the organisation show characteristics that define and differentiate it (Weiner, 2012). A clear separation between personal and organisational variables is therefore hardly possible. L. R. James and Jones (1974) and also Ostroff et al. (2003) had disproved this apparent contradiction by declaring that the organisational climate can be described on an organisational level as well as at the individual level, depending on the target of the investigation. The latter refer to them as psychological climate (Fleskes, 2006). Only on condition that a significant consensus on the individual subjective perceptions of climate member organisations which individual psychological climates can be aggregated into an organisational climate (but not in the sense of objectification of perceptions). How big should this inter-subjective agreement is scientifically still unclear, as is the appropriate method for determining such compliance (Langford, 2009), (Schneider and Smith, 2004).

The issue is whether climate is an individual experience construct and/or one that assesses unit-organisational attributes. In other words, there was confusion between the level of the theory and the level of data and its analysis. The "problem" was

that researchers were not clear about whether they were conceptualizing organisational climate as an individual differences variable representing individual experiences or as an attribute of the setting being described via the perceptions of those in the setting. (Ashkanasy et al., 2011, pp. 33).

2.4 Climate Measurement - Dilemma of Climate-Dimensions

It is difficult to challenge specify what exactly describes organisational climate and which dimensions are important for this. For companies, this question is crucial because only in the defined dimensions effects can be measured and analyzed¹. Some developed and applied in practice climate dimensions are briefly:

Core dimensions of the psychological climate of Jones and James (1979)

1. Characteristics of the work and the role (autonomy, variety of tasks, role clarity)
2. Characteristics of Leadership (support, confidence, workload)
3. Characteristics of the working group (cooperation, warmth) and
4. Characteristics of the organisation and its subsystems (openness, fairness and objectivity of the reward system, possibilities of development) (Carr et al., 2003), (Schneider and Barbera, 2014).

Dimensions of the psychological climate of Koys and DeCotiis (1991)

1. Autonomy (in terms of level of responsibility)
2. Cohesion (in the sense of cooperation, friendliness, warmth)
3. Confidence (in the sense of openness)
4. Pressure (in terms of labor and time pressure, role conflict, role overload)
5. Support (in terms of workload by the supervisor)
6. Recognition (in terms of feedback, reward, development opportunities)
7. Fairness (in terms of objective and fair reward systems, target transparency)
8. Innovation (in terms of flexibility, risk-taking) (Carr et al., 2003; Crossan and Apyadin, 2010).

Climate-Taxonomy of Ostroff (1993)

Ostroff (1993) ranked 12 climate-dimensions to three major facets:

1. The affective facet refers to interpersonal and social relationships among employees and includes the dimensions of participation, warmth, social recognition and cooperation (Carr et al., 2003).
2. The cognitive facet describes the degree of involvement awareness, commitment of its employees. Among the dimensions fall growth, innovation, autonomy and intrinsic reward (Carr et al., 2003).
3. The instrumental facet concerns the work process itself and includes the dimensions of power, hierarchy, structure and extrinsic reward (Schneider and Barbera, 2014), (Carr et al., 2003).

(Schneider et al., 2000) has just realized that in the development and measurability of the dimensions of a problem (Schneider et al., 1995). Often all sorts of performance factors of a company are used. On the other surveys in research and practice are more likely to corporate and situation-specific designed so that other substantive dimensions are considered significant. Schneider and other experts from research and practice argued for the organisational climate should be considered to be multi-specific, for example as a climate in relation to something, e.g. Climate for innovation or for leadership. Only by this specific viewing the concept, in the first step and precise be operationalised meaningful results and then also meaningful interpretation and

¹Many methods have been developed to measure climate, only to improve the weaknesses detected by measure. In practices almost used the questionnaire-technique for this purpose.

action implications are derived (Schneider et al., 1995; Bungard et al., 2007; Krause, 2013).

The development of this more focused approach also resulted in the climate construct being more available to practitioners because it literally focused on important organisational processes and outcomes and indicated specific actions that might be taken in organisations to enhance performance in those areas. (Ashkanasy et al., 2011, p. 31)

There exists a lot of issues that need to be overcome in studies referring the organisational climate. Summarized they can be named as followed:

- Cognition schema or shared perception. That means a differentiation between the aggregation of individual perceptions ("Psychological climate") or shared perception (Schneider and Barbera, 2014), (Weiner, 2012), (Langford, 2009).
- The sense of measuring one organisational climate or different climates, the communication climate, service climate, the climate for creativity, etc. (Schneider et al., 1995).
- The increased conceptual complexity in studying climate as a potential mediator and moderator variable. Five of the most significant achievements (Ashkanasy et al., 2011).

2.5 Organisational climate – links to leadership and innovation

The purpose of this chapter is to discuss on how leaders and managers affect innovation and creativity through their efforts to deliberately foster a work climate that supports creative thinking.

„Leader must learn how to create an organisational climate where others apply innovative thinking to solve problems and develop new products.“

Based on the above-described theory of organisational climate, discussion thesis is divided into two parts. So that initially will be discussed

Thesis 1: Leader must learn how to create an organisational climate.

- a) Has Leadership an influence on the organisational climate?
- b) Can Leaders create an organisational climate?

Thesis 2: Organisational climate applies innovative thinking to solve problems and develop new products.

Thesis 1: This question has already adopted a number of researchers, key statements and are summarized in the table below:

Kozlowski & Doherty (1989)	Theorists e.g. Blake & Mouton (1964), Lewin (1951), Likert (1967), Litwin & Stringer (1968), McGregor (1960) analysed in their studies that leadership is one of the most important organisational factor that affected employees' perceptions of climate.; study in non-profit organisation; relations-oriented leadership behaviours have a positive and significant relationship with the organisational climate dimensions reward and warmth.
Kouzes and Posner (2010)	Leader's behaviour explains nearly 25 percent of the reason that people feel productive, motivated, energized, effective, and committed in their workplaces
McClelland, David C., & Burnham, David H (1995) *	Concluded that right managerial style is an important ingredient in the profile of an effective manager; study conducted on 50 managers in a large, highly hierarchical organisation.; better organisational climate is strongly related to democratic and coaching style.
Ingles, S. & Moreno (1998)*	Strong relationship was found between styles and climate. Total climate correlated positively with the Authoritative, Affiliative, Democratic and Coaching style.
Mulrooney, C. & Sala, F (2002)*	Test on 61 managers in 25 health care systems located in 15 US states. Each style dimensions correlated with each organisational climate dimensions. Coercive and Pace-setting Democratic and Coaching tended to correlate positively.
V.S.R. Vijay Kumar (2007) *	While directive style results in unfavorable climate perceptions, diversity tolerance and individual orientation moderate by reducing the unfavourable perception and its effects are enhanced

	by diversity tolerance and team orientation.
Holloway (2012)	Survey on 303 employees; web-based questionnaire consisting of 79 questions; result indicate a positive and significant relationship between relations-oriented leadership behaviours and the organisational climate dimension reward and warmth
Momeni (2009)	Leader's behaviour has a great influence on employees' attitudes, behaviours, emotions, morale, and perceptions; more than 70% of employees' perceptions of organisational climate are shaped directly by their leader's style of leadership and behaviour. Results of the study: the higher a manager's EI, the better that manager's OC. OC is more influenced by self-awareness and social awareness, e.g. good communication skills, interpersonal expertise, and mentoring abilities.

Table 2: Relation between Leadership/-style and organisational climate; based on (Kozlowski and Doherty, 1989), (Holloway, 2012), (Kouzes et al., ©2010), (Momeni, 2009); * cited in (Balameenapriya and Krishnapriya, 2014); own illustration

Thesis 2: Organisational climate applies innovative thinking to solve problems and develop new products.

To be able to operationalise and interpret the organizational climate plausible meaning, it is as described by Schneider discussed (Schneider et al., 1995), are not considered a molar rather than specific climate for innovation. Organisational climate for innovation has been identified as a productive concept to use in preliminary and sustained organisational diagnosis for development or improvement efforts (Isaksen and Akkermans, 2011). Organisational innovation depends on a climate that supports innovation. Only a few models explicitly explain the content and functional importance of innovation climate. Following model is one of the most used and refined model for measuring climate for innovation. Ekvall (1996) has found that measures of creative climate have significantly differentiated innovative from stagnated organisations (number of patents obtained, technical and market originality, business strategy, success in developing and launching new products and services) (Ekvall, 1996).

Answering Thesis 1:

Based on the identified results from the studies can be said in summary that (a) Leadership a strong influence on the organisational climate. Overall, it is clear from the studies that different leadership styles are perceived differently. (b) the relationship-oriented leadership styles have a positive influence on the organisational climate. (Momeni, 2009) comes to the conclusion that regarding following aspects, leaders can create a positive working environment, perceived by the employees as positive organisational climate:

Developing and improving face-to-face communications, giving enough information; Fostering ethical behaviour; Showing care for and respect to employees by expressing appreciation and gratitude; Handling grievances seriously and fairly; Integrating employees in solving organisational problems, being receptive to new ideas, and caring about the employees' problems. Showing fairness through fair salaries and rewards; Encouraging and facilitating teamwork; Creating situations in which employees get a sense of pride about working as a members of the organisation; Making the work environment friendly through sincerity and sympathy, all of which increase employees' loyalty to the organisation.

2.6 Creative Climate Questionnaire (CCQ)² – Ekvall (1991)

Ekvall (1991) defined climate as the observed and recurring patterns of behaviour, attitudes, and feelings that characterize life in the organisation. (Isaksen and Akkermans, 2011). During the 1980s Ekvall developed a measurement tool to study whereby creativity / innovation is influenced in organizations. He developed 10 dimensions that can be grouped into three areas.

² CCQ meanwhile refined to Innovation Climate Questionnaire (ICQ) by adding four additional scales: stress, shared view, pay recognition, and work recognition, and modifying two other scales : idea-proliferation and positive relationships. The ICQ incorporates thirteen scales: 'commitment', 'freedom', 'idea-support', 'positive relationships', 'dynamism', 'playfulness', 'idea-proliferation', 'stress', 'risk-taking', 'idea-time', 'shared view', 'pay recognition', and 'work recognition'.

Resources: Idea Time; Idea Support; Challenge

Motivation: Trust and Openness; Playfulness and Humor; Conflicts

Exploration: Risk-taking; Debates; Freedom, Dynamism

As the main results of the studies it can be summarized, that climate dimensions assessed by the instrument make a difference between innovative and stagnated organisations. Between the climate dimensions Risk Taking, Dynamism, Freedom, and Debates is a strong correlation for radical innovation (opposed to incremental innovation) behaviour. The leadership style of the manager has substantial correlations with the climate dimensions. Creative climate is positively caused by change-oriented leadership style and task- and structure-oriented style has weak or zero correlations to creative climate-dimensions.

„The conclusion should be that the climate to a fairly large extent is in the hands of the manager“ (Ekvall, 1996, pp. 122).

Answering Thesis 2:

Numerous conducted by Ekvall (1983, 1987, 1991) studies show that certain dimensions such as Risk Taking, Dynamism, Freedom and Debates have a strong relationship with a positive innovative behaviour. It could also be noted that change-oriented leadership style has an positive impact on climate for innovation. Now the mediating role that climate plays between leadership as an antecedent factor influencing the intervening variable of climate, which, in turn, affects innovation become evident. A few studies have examined how climate intervenes between leadership behaviour and innovative outcomes.

Ekvall and Ryhammer (1998; 1999)	CCQ. Responses from 130 faculty members (Sweden); high evidence for the intervening role of climate for innovation
Jung, Chow, and Wu (2003)	Transformational leadership was significantly and positively related to organisational innovation and support for innovation. Both climate variables of empowerment and support for innovation were found to moderate the effects of transformational leadership on organisational innovation.

Table 3: climate for innovation as moderating variable; based on (Isaksen and Akkermans, 2011); (Wu and Shi); own illustration

Both researchers detected the high evidence for the intervening role of climate for innovation.

3. Conclusion

Since leadership behaviour has such an influence on climate, and climate influences innovation, this discussion unrolled the intervening nature of creative climate between leadership behaviour and innovative productivity. The previous analysis of the theses has shown that there is a high correlation between leadership support for innovation and the climate for innovation. That means as the level of leadership support for innovation increased, there would be a corresponding increase in the positive aspects of creative climate. It was further determined that climate, as an intervening variable, moderate or mediate the relationship between leadership behaviour and innovative productivity. Although one must say that leadership behaviour is clearly one of the key influencing factors affecting organisational creativity and innovation. Some literature points to the kinds of leadership behaviour that is more likely to positively effect these types of organisational outcomes. Thus, it was found that especially relationship-oriented leadership styles have a positive influence on the organisational climate (Momeni, 2009). Especially with this style one of the ways leaders influence innovation is through creating a climate that encourages creativity and the implementation of creative ideas. That comes to the conclusion that regarding following aspects, leaders can create a positive working environment, perceived by the employees as positive organisational climate for innovation.

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Primary Paper Section: A

Secondary Paper Section: AH, BC

THE IMPORTANCE OF CUSTOMER LOYALTY PROGRAMS IN THE AIRLINE INDUSTRY

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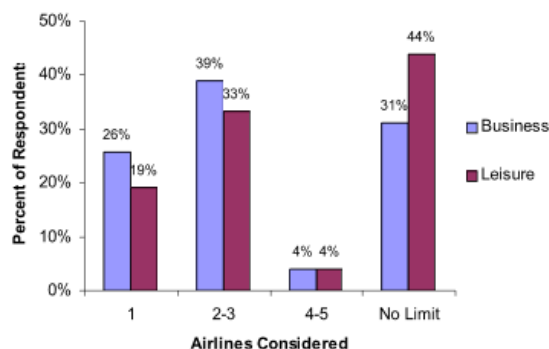
Abstract: Despite the market for airline industries seems to be borderless because they offer worldwide flights, it is a small one, caused in a highly comparative competition. On one hand airlines are faced with cost reduction to be competitive and on the other they have to build attractive offers for their customers. Therefore they created customer loyalty programs which should ensure a winning over the customers. This study deals with the topic of customers loyalty programs of the European airlines industry and their importance for airlines and customers.

Keywords: airlines, customer loyalty, importance, Europe.

1 INTRODUCTION

Many customer loyalty programs exist in the market so there is a great competition among airliners to build a successful package to satisfy customers. An American study revealed that only 25% of business travellers and 20% of leisure travellers limited their search to their preferred airline.¹ The consumer loyalty although rises when a frequent flyer program exist up to 80%.²

Figure 1. Airlines considered on last tickets purchased by survey respondents



Source: Wessels, D., "Consumer Loyalty in the Airline Industrie", University of Pennsylvania, Locust Walk. Online: <http://finance.wharton.upenn.edu/~wessels/courses/valuation/Sample%20Solution%20-%20Marketing.pdf> (last view: 10.04.2015), 2006, p. 6.

Other factors of choosing an Airline are the price, the professionalism of airline personnel, the ability to chance or cancel plans without paying a penalty and the efficiency of security checks. In addition, the airport location, the seat and legroom size on plane, the loyalty program, the ability to upgrade and the quality of meals are considered.³ This study deals with the topic of customers loyalty programs of the European airlines industry and their importance for airlines and customers. Customer retention such as client card systems increased sales up to 25% through payback-cards. According to Ranzinger, companies can achieve similar results with the customer retention measure, if it is correctly researched and positioned appropriate for the requirements of the market and strategically aligned.⁴ Customer retention or customer loyalty refers to the development of potential buyers or clients that neglect respective goods and services, and can only be hard won as good or regular customers. To achieve these goals several

measures exist, namely bonus programs, discount cards, customer cards, promotions using stickers, and couponing. Not all of these instruments are suitable for the image of a company and their target customer group or appropriate for the market developments in their line of business.⁵ Customer orientation mentioned as the silver bullet towards success and equally as a nostrum for all problems. However, customer loyalty is not the only key success factor. The path to the customer can also lead through cost or product optimization. In the case of a cost leader strategy, standardized goods and services are offered at competitive prices. The focuses of product leadership strategy are products and services that are positioned as leading innovation in the respective market segment. Another possibility is provided by customer partnerships, especially through achieving individually targeted satisfaction of customer needs. For this, markets are being partitioned and customers are approached in a one to one relationship. The maximum customer value is always strived for as a goal. Retaining regular customers have top priority in customer loyalty programme.⁶ This is achieved through two strategies: increase in customer satisfaction and construction of barriers to change or swap between systems. In the airline industry, the retention of the client for a particular product is not of first priority.⁷ However, winning the customer for the company is prioritised, which deals a lot with questions of emotional attachment, the economy, designing contracts as well as amenities.⁸ The barriers to change are arranged according to the different phases, as follows: In the acquisition phase, the provision of certain information for the customer creates change barriers in the short term, while in the customer retention phase measures such as subscriptions are suited to secure customer sales for a certain period. Furthermore, particular contract designs in the product policy ensure that there is no pay-off for the customer to exit. Emotional elements are also incorporated at this stage.⁹ Customer orientation means to give the customer the feeling of being taken seriously, to be important. The customer wants to be respected and that his satisfaction is top priority for the organisation. Creating customer ties as a standard way of dealing with clients is a typical attribute of successful business. Constant efforts striving for quality, reliability or focus on services is ultimately the best strategy to retain customers in the long end.¹⁰ Winning new customers requires much effort, however, customers that are already part of a company's customer base can be won for an intensified relationship and retained with less expenses involved. Each unsatisfied customer is essentially a gratuitous management consultant. It is pivotal to use the opportunity to find out the reasons why a particular customer has left an organisation. This enables to win the client back, potentially.¹¹ In the initial phase of each customer retention strategy, the choice of the right instruments is essential. However, it is necessary to research whether the offered product is suitable for the desired target customer group beforehand.

¹ See Wessels, D., "Consumer Loyalty in the Airline Industrie", University of Pennsylvania, Locust Walk. Online: <http://finance.wharton.upenn.edu/~wessels/courses/valuation/Sample%20Solution%20-%20Marketing.pdf> (last view: 10.04.2015) 2006, p. 5.

² Ibid, p. 5.

³ See Wessels, D., "Consumer Loyalty in the Airline Industrie", University of Pennsylvania, Locust Walk. Online: <http://finance.wharton.upenn.edu/~wessels/courses/valuation/Sample%20Solution%20-%20Marketing.pdf> (last view: 10.04.2015) 2006, p. 10.

⁴ See Ranzinger, A., „Praxiswissen Kundenbindungsprogramme, Konzeption und operative Umsetzung“ 1. Edition, Wiesbaden, ISBN 978-3-8349-2156-7, 2011, p. 5-6.

⁵ See Ranzinger, A., „Praxiswissen Kundenbindungsprogramme, Konzeption und operative Umsetzung“ 1. Edition, Wiesbaden, ISBN 978-3-8349-2156-7, 2011, p. 11-12.

⁶ See Kenzelmann, P., „Kundenbindung - Kunden begeistern und nachhaltig binden“, 3. Edition, Berlin, ISBN 978-3-589-23413-4p, 2008, p. 85-86.

⁷ See Kenzelmann, P., „Kundenbindung - Kunden begeistern und nachhaltig binden“, 3. Edition, Berlin, ISBN 978-3-589-23413-4p, 2008, p. 88.

⁸ See Kenzelmann, P., „Kundenbindung - Kunden begeistern und nachhaltig binden“, 3. Edition, Berlin, ISBN 978-3-589-23413-4p, 2008, p. 24-26.

⁹ See Bruhn, M., Homburg, C., „Handbuch Kundenbindungsmanagement“, 5. Edition, Wiesbaden, ISBN 3-409-52269-7, 2005, p. 244.

¹⁰ See Peters, T./Waterman, R., „Auf der Suche nach Spitzenleistungen“ 7. Edition, Augsburg, ISBN 3-478-81101-5, 1998, p. 189-190.

¹¹ See Kenzelmann, P., „Kundenbindung - Kunden begeistern und nachhaltig binden“, 3. Edition, Berlin, ISBN 978-3-589-23413-4p, 2008, p. 98-99.

2 RESEARCH OBJECTIVES

Table 1. Benefits of frequent flyer programmes for gold and silver status members, Star Alliance

Airline	Frequent Flyer Programme	Star Alliance Gold & Star Alliance Silver	Priority	Priority Airport Standby	Priority Airport Check-in	Priority Baggage Handling	Extra Baggage Allowance	Priority Boarding	Airport Lounge Access
Adria Airways	Miles & More	HON Circle / Senator							
		Frequent Traveller							
Aegean Airlines	Miles & Bonus	Miles & Bonus Gold							
		Miles & Bonus Blue							
Austrian	Miles & More	HON Circle / Senator							
		Frequent Traveller							
Avianca / Taca	LifeMiles	LifeMiles Diamond Elite & LifeMiles GoldElite							
		LifeMiles SilverElite							
Brussels Airlines	Miles & More	HON Circle / Senator							
		Frequent Traveller							
Copa Airlines	MilesPlus Premier	Premier 1 Ka / Premier Platinum / Premier Gold, Global Services & Red Carpet Club							
		Premier Silver							
Croatia Airlines	Miles & More	HON Circle / Senator							
		Frequent Traveller							
LOT Polish Airlines	Miles & More	HON Circle / Senator							
		Frequent Traveller							
Lufthansa	Miles & More	HON Circle / Senator							
		Frequent Traveller							
Scandinavian Airlines	EuroBonus	EuroBonus Pandion / EuroBonus Gold							
		EuroBonus Silver							
SWISS	Miles & More	HON Circle / Senator							
		Frequent Traveller							
TAM	Fidelidade	Fidelidade Black / Fidelidade Red							
		Fidelidade Blue							
TAP Portugal	Victoria	Victoria Gold Winner							
		Victoria Silver Winner							

Source: Star Alliance, "Benefits of frequent flyer programmes for gold and silver status members", Online: <http://www.staralliance.com/assets/doc/en/benefits/frequent-flyer-programmes/pdf/FFP-table.pdf> (last view: 24.04.2015)

3 LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Loyalty programmes are directly connected with broad scientific theories. McCaughey & Behrens asked critically if frequent flier programme status is a kind of paying for status.¹² They revealed in their study "that the mere existence of FFP leads to higher prices¹³ on an average airfare of 5-6%."¹⁴ "Prior literature relies

¹² See McCaughey, N., Behrens, C., „Paying for Status? – The effect of frequent flier program member status on air fare choice“, Discussion paper 04/11, Monash University, Amsterdam, 2011, Online: <http://www.buseco.monash.edu.au/eco/research/papers/2011/0411payingmccaugheybehrens.pdf> (last view: 20.04.2015)

¹³ Ibid, p. 27

¹⁴ Ibid, p. 28

on publicly available data and the assumptions of exogenous factors (e.g. network effects) and specific market structures (competition/monopolistic)...¹⁵ According to Ernst & Young, the economical sight of view is essential. The contract design has to be created, customers have to be identified and segmented, obligation of contract has to be fixed, and guarantees have been related to contracts. Moreover, it is to consider if the airline acts as main provider or in the status of an agency, transaction costs have to be analysed, impact of interests must be objected, valuable and non-valuable considerations and the costs of contract have also to be reflected.¹⁶

3.1 Loyalty program measurement models

As loyalty-programs tend to evolve over time, it is essential to reflect the program sponsor's goals and needs. PWC¹⁷ proposed the following examples of measurement:

Figure 2. Examples of loyalty measurement models

Additional earning options	<ul style="list-style-type: none"> Adding a new retailer partnership, e.g., dollars spent at restaurants that accrue to an airline loyalty program; Launching of a co-brand credit card; and Adding hotel properties from which the member can earn points.
Additional redemption options	<ul style="list-style-type: none"> Adding new airline partners to existing airline redemption options; Option to use points for "special events" tickets; Option to redeem points for gift cards; and Offering a "cash and point" or "cash and miles" option.
Bonuses and promotions	<ul style="list-style-type: none"> Offering bonus points to encourage spending on the underlying product; and Offering promotional redemption program where points have increased value to encourage redemption and build brand loyalty.

Source: PWC, "Loyalty analytics exposed: What every program manager needs to know", Online: www.pwc.com/us/insurance (last view: 25.04.2015), 2013, p. 4

To increase the customer's activities is possible in many ways. As demonstrated in the illustration above, it can be fulfilled with additional earning options, e.g. with new retailer partnerships, launching co-brand credit card or adding hotel properties. In addition, it is possible to add redemption options these can be new airline partners, points for special event tickets, redeem points for gift cards and also cash and point or cash and miles options. Furthermore, there can be offered bonuses and promotions to encourage spending on the underlying product and with a redemption programme where points have increased value to encourage redemption and build brand loyalty.¹⁸

Figure 3. Calculating the program's liability – equation



Source: PWC, "Loyalty analytics exposed: What every program manager needs to know", Online: www.pwc.com/us/insurance (last view: 25.04.2015), 2013, p. 5

Similar to insurance company reserves the valuation of loyalty programs involves the projection of future contingent events, considering when or whether not members will redeem their points. Focusing the redemption cost per point can be estimated in different ways – at historical cost, the member's value, at "fair value" or at the accounting standards applicable. As a certain proportion of the total earned points will not be redeemed caused in point of expiration, point balances below the minimum reward level, and dormant or cancelled memberships the program's breakage rate can be considered.

¹⁵ Ibid, pp. 27 - 28

¹⁶ See Ernst & Young, "Umsatzrealisierung bei Verträgen mit Kunden. Das Konvergenzprojekt von IASB und FASB: Was bedeuten die vorgeschlagenen Neuregelungen in der Praxis?" Ernst & Young, Wirtschaftsprüfungsgesellschaft, HBO 0111, 2011

¹⁷ PWC, "Loyalty analytics exposed: What every program manager needs to know", Online: www.pwc.com/us/insurance (last view: 25.04.2015)

¹⁸ Ibid, p. 4

Table 2. Literature review airlines industry

Research	Autors
An Empirical Study of Cost Drivers in the U.S. Airline Industry	Banker & Johnston (1993) ¹⁹
Dynamic oligopoly behaviour in the airline industry	Brander & Zhang (1993) ²⁰
The econometrics of Airline Network Management	Grammig et al. (2000) ²¹
Competition and Regulation in the Airline Industry	Gowrisankaran (2002) ²²
Maximising Revenue in the Airline Industry Under One-Way Pricing	Anjos et al. (2003) ²³
Measuring Competition in the US Airline Industry using the Rosse-Panzar Test and Cross-Sectional Regression Analyses	Fischer & Kamerschen (2003) ²⁴
eAirlines: Strategic and tactical use of ICTs in the Airline Industry	Buhalis (2003) ²⁵
How does Marketing Strategy Change in a Service-based World? Implications and Directions for Research	Rust (2004) ²⁶
Airline choice, switching costs and frequent flyer programs	Carlsson & Löfgren (2004) ²⁷
Alliance Structure and Success in the Global Airline Industry: An Empirical Investigation	Sullivan & Coughlan (2004) ²⁸
Competitive Advantage Through Innovative Pricing Strategies: The Case of the Airline Industry	Knorr & Zigova (2004) ²⁹
Star Alliance, 2000	Marchand (2004) ³⁰
Does Price Matter? Price and Non-Price Competition in the Airline Industry	Gayle (2004) ³¹
Flying through code/space: the real virtuality of air travel	Dodge & Kichin (2004) ³²
Future Scenarios for the European Airline Industry: A Marketing-Based Perspective	Jarach (2004) ³³
Jet Fuel Hedging Strategies: Options Available for Airlines and a Survey of Industry Practices	Cobbs & Wolf (2004) ³⁴
Final project: The Air transportation industry	Trozzi et al. (2005) ³⁵
Disruption Management in the Airline Industry – Concepts, Models and Methods	Clausen et al. (2005) ³⁶
Customer Orientation in the Airline Industry: A Comparison between Travelers and Airlines	Consuegra et al. (2006) ³⁷
An Analysis of the Effects of Operating and Financial Leverage on the Major U.S. Air Carriers' Rates of Return: 1990-2003	Gritta et al. (2006) ³⁸
Risk Management practices in the Airline Industry	Fernando (2006) ³⁹
Airline Business Models and Networks: Regulation,	Grillen (2006) ⁴⁰

¹⁹ See Banker, R., D., Johnston, H., H., "An Empirical Study of Cost Drivers in the U.S. Airline Industry", *The Accounting Review*, Vol. 68, No. 3, July, 1993, pp. 576-601

²⁰ See Brander, J.A., Zhang, A., "Dynamic oligopoly behaviour in the airline industry", *International Journal of Industrial Organization*, 11, 1993, pp. 407-435

²¹ See Grammig, J., Hujer, R., Scheidler, M., "The Econometrics of Airline Network Management", *Goethe Universität, Frankfurt*, 2000

²² See Gowrisankaran, G., "Competition and Regulation in the Airline Industry", *FRBSF Economic Letter*, No. 01, January 18, 2002

²³ See Anjos, M., F., Cheng, R., C., H., Currie, C., S., M., "Maximising Revenue in the Airline Industry Under One-Way Pricing", *Operational Research Group, Faculty of Mathematical Studies, University of Southampton, UK*, 2003

²⁴ See Fischer, T., Kamerschen, D.R., "Measuring Competition in the US Airline Industry using the Rosse-Panzar Test and Cross-Sectional Regression Analysis", *Journal of Applied Economics*, Vol VI(1), May 2003, pp. 73-93

²⁵ See Buhalis, D., "e-Airlines: Strategic and tactical use of ICTs in the Airline Industry", *University of Surrey, Guildford*, 2003

²⁶ See Rust, T., "How does Marketing Strategy Change in a Service-based World? Implications and Directions for Research", *University of Maryland, Maryland*, 2004

²⁷ See Carlsson, F., Löfgren, A., "Airline choice, switching costs and frequent flyer programs", *Working Papers in Economics no. 123, January 2004, Gothenburg University, Gothenburg*

²⁸ See Sullivan, U., Y., Coughlan, A., T., "Alliance Structure and Success in the Global Airline Industry: An Empirical Investigation", (2004)

²⁹ See Knorr, A., Zigova, S., "Competitive Advantage Through Innovative Pricing Strategies: The Case of the Airline Industry", *Berichte aus dem Weltwirtschaftlichen Colloquium der Universität Bremen*, Nr. 93, November 2004, ISSN 0948-3829

³⁰ See Marchand, S., "Star Alliance, 2000", *Brandeis University*, 246-001, Waltham, Mass, 2004.

³¹ See Gayle, G.P., "Does Price Matter? Price and Non-Price Competition in the Airline Industry", *Kansas State University, Manhattan*.

³² See Dodge, M., Kichin, R., "Flying through code/space: the real virtuality of air travel", *Environment and planning*, Vol. 36, 2004, pp. 195-211

³³ See Jarach, D., "Future Scenarios for the European Airline Industry: A Marketing-Based Perspective", *Journal of Air Transportation*, Vol. 9(2), 2004

³⁴ See Cobbs, R., Wolf, A., "Jet Fuel Hedging Strategies: Options Available for Airlines and a Survey of Industry Practices", 2004, Online: https://www.kellogg.northwestern.edu/research/fimrc/papers/jet_fuel.pdf (last view: 24.04.2015)

³⁵ See Trozzi, A., Serna, B., Platero, D., C., Petrov, D., "Final project: The Air transportation industry", *NYU Stern, New York University, New York*, May 2, 2005

³⁶ See Clausen, J., Larsen, A., Larsen, J., "Disruption Management in the Airline Industry – Concepts, Models and Methods", *Technical University of Denmark, Lyngby*, 15th April 2005

³⁷ See Consuegra, M., D., Molina, A., Esteban, A., "Customer Orientation in the Airline Industry: A Comparison between Travelers and Airlines", *e-Review of Tourism Research (eRTR)*, Vol. 4, No. 5, 2006 Online: <http://ertr.tamu.edu> (last view: 20.04.2015)

³⁸ See Gritta, R., D., Adams, B., Adrangi, B., "An Analysis of the Effects of Operating and Financial Leverage on the Major U.S. Air Carriers' Rates of Return: 1990-2003", *University of Portland, Portland*, 2006

³⁹ See Fernando, S., "Risk Management practices in the Airline Industry", *Master Thesis, Simon Fraser University, Summer 2006*

Competition and Evolution in Aviation Markets	
Wage Determination in the U.S. Airline Industry: Union Power under Product Market Constraints	Hirsch (2006) ⁴¹
Measuring Service Quality in the Airlines Using SERVQUAL Model (Case of IAA)	Bozorgi (2007) ⁴²
On the factors that Affect Airline Flight Frequency and Aircraft Size	Pai (2007) ⁴³
An Empirical Study of Revenue Management Practices in the Airline Industry	Cho et al. (2007) ⁴⁴
Consumer choice behaviour and strategies of air transportation service providers	Van Eggermond (2007) ⁴⁵
A Dynamic Oligopoly Game of the US Airline Industry: Estimation and Policy Experiments	Aguirregabiria & Ho (2007) ⁴⁶
The Consequences of the growing European low-cost Airline Sector	European Parliament (2007) ⁴⁷
The strategic response of full service airlines to the low cost carriers threat and the perception of passengers to each type of carrier	O'Connell (2007) ⁴⁸
Evaluating Frequent Flyer Programs from the air passengers' perspective: prospects for market segmentation	Martin et al. (2008) ⁴⁹
The financial performance of the Airline industry post-deregulation	Dempsey (2008) ⁵⁰
Turbulence in the Airline Industry: Rethinking America's Foreign Ownership Restrictions	Cavinato (2008) ⁵¹
Internet Penetration and Capacity Utilization in the US Airline Industry	Dana & Orlov (2008) ⁵²
Evaluating Service Marketing in Airline Industry and its Influence on Student Passengers' Purchasing Behaviour-using Taipei-London Route as an example	Chen et al. (2008) ⁵³
Decision Support Systems for Tankering within the Airline Industry	McCollum et al. (2009) ⁵⁴
Relationships, Layoffs, and Organizational Resilience. Airline Industry Responses to September 11	Gittell et al. (2009) ⁵⁵
Strategy and organization at Singapore Airlines: Achieving sustainable advantage through dual strategy	Heracleous & Wirtz (2009) ⁵⁶
Improving Baggage Tracking, Security and Customer Services with RFID in the Airline industry	Mishra & Mishra (2010) ⁵⁷
Bankruptcy and Product-Market Competition: Evidence from the Airline Industry	Ciliberto & Schenone (2010) ⁵⁸

⁴⁰ See Grillen, D., "Airline Business Models and Networks: Regulation, Competition and Evolution in Aviation Markets", *Review of Network Economics*, Vol. 5(4), December 2006

⁴¹ See Hirsch, B.T., "Wage Determination in the U.S. Airline Industry: Union Power under Product Market Constraints", *Discussion Paper No. 2384, Institute for the Study of Labor, Trinity University and IZA Bonn*, 2006

⁴² See Bozorgi, M.M., "Measuring Service Quality in the Airline. Using SERVQUAL Model (Case of IAA)", *Master's Thesis, Lulea University of Technology, Lulea*, 2006, ISSN: 1653-0187

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⁴⁵ See Van Eggermond, M.A.B., "Consumer choice behaviour and strategies of air transportation service providers. Master thesis, Delft University of Technology, Delft", 2007

⁴⁶ See Aguirregabiria, V., Ho, C.-Y., "A Dynamic Oligopoly Game of the US Airline Industry: Estimation and Policy Experiments", *Preliminary and incomplete Version, November 19, 2007*

⁴⁷ See European Parliament, "The Consequences of the growing European low-cost Airline sector", *Study, Policy Department Structural and Cohesion Policies*, 2007

⁴⁸ See O'Connell, J.F., "The strategic response of full service airlines to the low cost carriers threat and the perception of passengers to each type of carrier", *PhD Thesis, Bedfordshire, Cranfield University*, 2007

⁴⁹ See Martin, J.C., Roman, C., Espino, R., "Evaluating Frequent Flyer Programs from the air passengers' perspective: Prospects for market segmentation", Online: http://www.rcfea.org/papers/2008/Martin_Roman_Espino_FFP.pdf (last view: 26.06.2015)

⁵⁰ See Dempsey, P.S., "The Financial Performance of the Airline Post-Deregulation", *Houston Law Review*, Vol. 45(2), Symposium 2008

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⁵⁴ See McCollum, B., Kendal, G., McMullan, P., Goldrick, J., Mc., "Decision Support Systems for Tankering within the Airline Industry", *Multidisciplinary International Conference on Scheduling: Theory and Applications (MISTA 2009)*, 10-12 August 2009, Dublin, Ireland, 2009

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⁵⁶ See Heracleous, L., Wirtz, J., "Strategy and organization at Singapore Airlines: Achieving sustainable advantage through dual strategy", *Journal of Air Transport Management*, Vol. 15, 2009, pp. 274-279

⁵⁷ See Mishra, D., Mishra, A., "Improving Baggage Tracking, Security and Customer Services with RFID in the Airline Industry", *Acta Polytechnica Hungarica*, Vol. 7(2), 2010

⁵⁸ See Ciliberto, F., Schenone, C., "Bankruptcy and Product-Market Competition: Evidence from the Airline Industry", *MPRA Paper No 24914*, posted 14. Sept. 2010, Online: <http://mpra.ub.uni-muenchen.de/24914/> (last view: 23.04.2015)

Application of CSR Programs in the Airline Industry	Antilla & Kretschmar (2010) ⁵⁹
Limited Access to Airport Facilities and Market Power in the Airline Industry	Ciliberto & Williams (2010) ⁶⁰
Relevant Market in Commercial Aviation of the European Union	Kociubinski, J. (2011) ⁶¹
Effects of promotion on relationship quality and customer loyalty in the airline industry: The relationship marketing approach	Pi & Huang (2011) ⁶²
Successful Crisis Management in the Airline Industry. A Quest for Legitimacy Through Communication?	Hansson et al. (2011) ⁶³
Revenue Management for Strategic Alliances with Applications to the Airline Industry	Graf (2011) ⁶⁴
Increasing the efficiency of multi-hub airline networks by means of flexible time-range tickets. An analysis of passenger acceptance, revenue potentials and implications on network design	Badura (2011) ⁶⁵
Minimising fraud and maximising results in the aviation industry. How the Airlines can improve profitability by cutting the cost of fraud.	Gee et al. (2012) ⁶⁶
Sustainability and Growth of Low Cost Airlines: An Industry Analysis in Global Perspective	Sarker et. Al. (2012) ⁶⁷
The Effect of the Internet on Product Quality in the Airline Industry	Ater & Orlov (2012) ⁶⁸
Measuring Customer Expectations of Service Quality: case Airline Industry	Tolpa (2012) ⁶⁹
A Study on Service Quality and Passenger Satisfaction on Indian Airlines	Archana & Subha (2012) ⁷⁰
The Effect of Frequent Flyer Programs on Customer Loyalty	Colakoglu & Artuger (2013) ⁷¹
Efficiency and productivity change in the European airlines industry in the post liberalization era	Duygun et al. (2013) ⁷²
Measurement of efficiency in the airline industry using data envelopment analysis	Rai (2013) ⁷³
Key Success Factors in Airlines: Overcoming the Challenges	Riwo-Abudho et al. (2013) ⁷⁴
Three essays on competition and productivity in the U.S. airline industry	Bold (2014) ⁷⁵
Impact of Global Economic Crisis on Airline Industry	Goyal & Negi (2014) ⁷⁶
Competitive Effects of Common Ownership:	Azar et al. (2014) ⁷⁷

⁵⁹ See Antilla, T., Kretschmar, A., „Application of CSR Programs in the Airline Industry”, Bachelor’s Thesis, Saimaa University of Applied Sciences, 2010

⁶⁰ See Ciliberto, F., Williams, J.W., „Limited Access to Airport Facilities and Market Power in the Airline Industry”, Journal of Law and Economics, Vol. 53 (August), 2010

⁶¹ See Kociubinski, J. „Relevant Market in Commercial Aviation of the European Union”, (2011)

⁶² See Pi, W-P., Huang, H-H., “Effects of promotion on relationship quality and customer loyalty in the airline industry: The relationship marketing approach”, African Journal of Business Management, Vol 5 (11), 4 June, 2011, pp. 4403-4414. Online: <http://www.academicjournals.org/AJBM> (last view: 20.04.2015)

⁶³ See Hansson, A., Vikstöröm, T., Waks, C., „Successful Crisis Management in the Airline Industry: A Quest for Legitimacy Through Communication?”, Uppsala University, Uppsala, 2011

⁶⁴ See Graf, M., „Revenue Management for Strategic Alliances with Applications to the Airline Industry”, Dissertation, Universität Duisburg-Essen, 02.02.2011

⁶⁵ See Badura, F., „Increasing the efficiency of multi-hub airline networks by means of flexible time-range tickets. An analysis of passenger acceptance, revenue potentials and implications on network design”, Dissertation, Vienna University of Economics and Business, 2011

⁶⁶ See Gee, J., Button, M., Whittaker, A., “Minimising fraud and maximising results in the aviation industry. How the Airlines can improve profit-ability by cutting the cost of fraud.” Forensic Services 2012, University of Portsmouth 2012

⁶⁷ See Sarker, R., A., Hossan, G., C., Zaman, L., „Sustainability and Growth of Low Cost Airlines: An Industry Analysis in Global Perspective”, American Journal of Business and Management, Vol. 1, No. 3, 2012, pp. 162-171

⁶⁸ See Ater, I., Orlov, E., „The Effect of the Internet on Product Quality in the Airline Industry”, Online: <http://innovation-regulation2.telecom-paristech.fr/wp-content/uploads/2012/10/Ater-The-effect-of-the-Internet-on-Product-Quality-Ater-June-2012.pdf> (last view: 20.04.2015)

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⁷⁰ See Archana, R., Subha, M.V., „A Study on Service Quality and Passenger Satisfaction on Indian Airlines”, International Journal of Multidisciplinary Research, Vol. 2(2), February 2012, ISSN 2231 5780

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⁷³ See Rai, A., „Measurement of efficiency in the airline industry using data envelopment analysis”, Investment Management and Financial Innovations, Vol. 10(1), 2013

⁷⁴ See Riwo-Abudho, M., Njanja, W.L., Ochieng, I., “Key Success Factors in Airlines: Overcoming the Challenges”, European Journal of Business and Management, ISSN 222-1905, Vol. 5(30), 2013

⁷⁵ See Bold, T., „Three essays on competition and productivity in the U.S. airline industry”, Dissertation, Northeastern University, Online: <http://hdl.handle.net/2047/d20003378>, January 01, 2014

⁷⁶ See Goyal, R., Negi, D., „Impact of Global Economic Crisis on Airline Industry”, IRACST – International Journal of Commerce, Business and Management (IJCMB), ISSN: 2319-2828, Vol. 3, No. 2, April, 2014

⁷⁷ See Azar, J., Schmalz, M., C., Tecu, I. „Competitive Effects of Common Ownership: Evidence from the Airline Industry”, Working Paper No. 1235, Ross School of Business, University of Michigan, May 2014

Evidence from the Airline Industry	
Loyalty programmes in civil aviation – an overview of the competition issues concerning frequent flyer programmes, corporate discount schemes and travel agent commissions	ECA European Competition Authorities (w.Y.) ⁷⁸

Source: own representative

Table 3. Annual report of EU Airport Transport Market

	World	Europe	Units	Source
Passengers	2,9 billion (+5,5%)	0,8 billion	Passengers carried	ICAO for World Eurostat for Europa (EU 27)
Airline Demand (RPK)	+ 5,3%	+ 5,1 %	Revenue Passenger Kilometres	IATA
Airline Capacity	+ 3,9%	+ 2,9 %	Available Seat Kilometres	IATA
Commercial Air Transport Movements	55,5 million (+ 0,8%)	16,0 million (-1,5%)	Airport Movements	ACI
Cargo (FTK)	-1,5%	-2,9%	Freight Tonne Kilometres	IATA
GDP	+3,2%	-0,3%	GDP growth (Europe=EU27)	IMF
Airline Profitability	\$ 7,4 billion	\$ 0,4 billion	Net Profits	IATA
Busiest Airport (Passengers)	Atlanta, U.S. (95,5 million)	Heathrow, UK (70,0 million)	Passengers	ACI
Commercial Jet Aircraft fleet	23.611	6.808	Western and Russian-built Civil Airliner Jets	Flightglobal
Safety	21 accidents 426 fatalities	0 accident 0 fatalities	Commercial Airline (> 5.700 kg) Fatal Accidents & Fatalities	EASA

3.2 Research questions and hypothesis

The current market situation in the airline-industry based on pressure of the competitors and the customer’s expectations lead to the following research questions.

The central research question:

Do customers prefer loyalty programs or low-ticket prices?

The central research question leads to the following three sub-questions:

1. Focussing the customers’ expectations and the airlines cost structures what can be realized.
2. What should be the benefits for loyalty programs for clients and for airlines?
3. Is it timely tying customers or to respect the free choice in our information era?

The central research question and the three sub-questions induce the research hypothesis:

What is more profitable for airlines to intend loyalty programs or to invest in marketing and p.r.?

In the following chapter, the way of research is presented.

4 RESEARCH METHODOLOGY

The research is divided into 4 chapters:

1. Introduction
2. Literature Review
3. Empirie
 - a. Online questionnaire
 - b. Key-words online-check
 - c. European bonus programmes revisited and compared
4. Acknowledgment

⁷⁸ See ECA European Competition Authorities, „Loyalty programmes in civil aviation – an overview of the competition issues concerning frequent flyer programmes, corporate discount schemes and travel agent commissions”, Online: http://www.bwb.gv.at/SiteCollectionDocuments/ECA_LoyaltyPaperCivilAviation.pdf (last view: 26.04.2015)

4.1 Literature review

In scientific literature a plethora of studies on customer relationship management (CRM) are available. The first part of this study investigates analyses and assesses theoretical approach.⁷⁹ Emphasis is placed on particularly suited CRM instruments for airline companies such as miles & more. A consideration of different international airline companies follows, for example, they fly directly to Frankfurt (FFM) or Munich (MUC). Besides illustrating specific ideas about a particular market and a short presentation of the general options to communicate with customers, the art of customer retention is being investigated in detail behind the scene. The bottom line is winning regular customers, which can be primarily achieved through customer satisfaction and service quality. Cross selling for example has been identified by airline companies as an effective strategy for customer retention and is successfully utilised in their offering. Examples will be presented and discussed.⁸⁰

4.2 Independent online research

In independent research on internet, portals should ensure to get a general view. Additionally through messages, analyses and commentaries on different media and comments and accounts from customer's review sites will be embedded.

4.3 Survey using a survey portal

The portal <http://www.q-set.de> offers a fast and cost-saving option to achieve as valid as possible results. The results and analyses of the survey will show specifically and concretely how customer loyalty programs and their benefits to customers can be appraised. To ensure that the number of participants of the online survey is maximized, many different portals will be used to advertise it. Possibly Lufthansa itself will be directly interested in this survey and might hence be willing to provide technological assistance and organizational support. The first step in establishing contacts has already been taken. The results of the simulated conjoint analysis based on brainstorming will be compared with actual survey results. From this, further desires and preferences of customers can be deduced from which airline companies can benefit and profit. In this respect, this work is a composition of customer retention systems in the area of airline companies as well as a critical assessment of current CRM instruments with the emphasis on the miles & more programme of the German company Lufthansa.

4.4 Checking Google AdWords

Key words for customer's expectations and satisfaction will be researched at Google AdWords to get percentage and figures with consumer revelation. The planned content of this survey will be presented in the next chapter.

5 ACTUAL STATUS OF WORK – RESULTS

The actual scientific literature has been reviewed. The literature review relating to frequent flyer programmes consists of 59 studies, from 1993 till 2009. Actually the online-survey is prepared and the key-words for the independent online research, based on google adverbs, are researched.

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Secondary Paper Section: AH

LEGAL POSITION OF THE DEPUTY CHAIRMAN OF THE NATIONAL BROADCASTING COUNCIL

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Abstract: In accordance with the will of the Polish legislator, a mandatory member of the National Broadcasting Council (KRRiT), pursuant to the provisions of the Constitution of the Republic of Poland being an authority upholding freedom of speech, the right to information and public interest in radio broadcasting and television, is the deputy Chairman of the National Council. Formulating in the Broadcasting Act the requirement to elect the deputy Chairman out of the members of the National Council, the legislator did not define clearly the mode of their election and dismissal, nor their applicable competences and the position within the collegiate body in which they function. Taking into consideration the statutorily mandatory character of the function of deputy Chairman of the National Council, the said questions require legal analysis.

Keywords: KRRiT, radio broadcasting, television, substitution

1 Introductory remarks

Pursuant to the provisions of the Constitution of the Republic of Poland (hereinafter referred to as: "the Constitution RP"), the National Broadcasting Council (hereinafter referred to as: "KRRiT") was included, along with the Supreme Audit Office and the Human Rights Defender, in the group of national audit and protection of rights institutions (Chapter IX of the Constitution RP), upholding freedom of speech, the right to information and public interest in radio broadcasting and television. KRRiT is a collegiate body whose members are appointed by the Sejm, Senate and the President of the Republic of Poland. With respect to the principles and mode of operation as well as organization and detailed rules regarding appointment of the members of KRRiT, the Constitution RP refers to the applicable Act.

In accordance with the provisions of the Broadcasting Act of 29th December 1992 (hereinafter referred to as: "u.r.t."), KRRiT is a national authority competent with regard to radio broadcasting and television issues (Art. 5 of u.r.t.), the members of which include five appointed members: 2 by the Sejm, 1 by the Senate and 2 by the President, out of the persons standing out by their knowledge and experience with regard to mass media (Art. 7 Section 1 of u.r.t.). By the will of the legislator, the members of KRRiT elect from among themselves the Chairman of KRRiT (Art. 7 Section 2b of u.r.t.). On the motion of the Chairman, the deputy Chairman of KRRiT is also elected from among the members of KRRiT (Art. 7 Section 3 of u.r.t.). One ought to notice that Art. 7 Section 3 of u.r.t. is, in fact, the only legal regulation referring to the person performing the function of deputy Chairman of KRRiT.

2 Appointing and dismissal

In accordance with the already quoted Art. 7 Section 3 of u.r.t., the deputy Chairman of KRRiT is elected by the members of KRRiT from among themselves. However, it is important to notice that only the Chairman of KRRiT is entitled to put forward a candidate for this function. As it is observed in the doctrine, the legislator intends to guarantee in this way that the person elected for the position of the deputy Chairman shall „enjoy the trust, or, at least, the support of the Chairman”¹. The construction of the provision of Art. 7 Section 3 of u.r.t., in which the term “the National Council elects” was used, and not “may use”, in an unequivocal way indicates that appointing deputy Chairman of KRRiT has a mandatory character. The legislator does not define the majority required for executing the election. It seems that the general principle included in Art. 9 Section 1 and 2 of u.r.t. shall be applicable in this respect, in

accordance with which on the basis of acts and in order to execute them, KRRiT issues ordinances and resolutions, whereas resolutions are enacted by the majority of 2/3 of votes of the statutory number of members. Therefore, one ought to assume that in the current factual condition, appointing deputy Chairman may take place by virtue of the resolution enacted with the votes of at least four members of KRRiT. In the above-mentioned context, it is worth noticing that the fulfilment of the statutory obligation regarding the election of deputy Chairman is conditioned by the KRRiT Chairman’s presentation of applicable motion, to which they are, as already mentioned, exclusively authorized. What then in a situation in which the Chairman of KRRiT would make it impossible to execute election of their deputy by not submitting the required motion? One ought to think that long-term maintenance of the state non-compliant with the unequivocal requirement of the Act may and should raise the responsibility of the Chairman before KRRiT, which entrusted them with managing its works and representing it, and also with executing tasks defined in the Act (Art. 10 Section 1 of u.r.t.) and pursuant to Art. 7 Section 2b of u.r.t. has the possibility to dismiss them from the held position. Obviously, failure to obtain the required majority by all the candidates for deputy put forward by the Chairman of KRRiT, may lead to an analogous situation. The Act does not specify the appropriate mode of proceedings in such a case, apparently relying on the capabilities of the Chairman elected from among KRRiT to gather sufficient majority required to elect their deputy.

Unlike in the case of the Chairman of KRRiT, who, in accordance with Art. 7 Section 2b of u.r.t., can be dismissed by the members of KRRiT, the legislator did not regulate the mode of dismissal of deputy Chairman of KRRiT. However, the subject gap in the provisions of the law should not, in my opinion, dispose KRRiT of the ability to undertake applicable resolutions in the above-mentioned respect. Taking into consideration the character of the competences of deputy Chairman, which shall be discussed in more detail in further part of the article, it seems purposeful and justified to assume that KRRiT may dismiss deputy Chairman enacting a resolution in the mode analogous to their election².

3 Competences

What one’s attention is drawn to in the doctrine is that the Act “does not grant the deputy with their own competences, nor does it indicate which of the competences of the Chairman and under what circumstances may be executed by them”³. In this situation, one claims that “they may only substitute the Chairman in situations in which the latter does not perform their function. It seems doubtful whether KRRiT could cede to the deputy, in the form of an ordinance, resolution or regulation, a part of the functions granted by the Act to the Chairman. Similarly, it seems unacceptable to cede to the deputy a part of their functions by the Chairman”⁴. Likewise, S. Piątek points out that “the Act does not clearly define the functions of the deputy Chairman. Therefore, one must assume that their tasks are limited to substituting the Chairman during a period when the Chairman cannot fulfil their functions”⁵.

Undertaking an attempt at estimating the possible substitution of the Chairman of KRRiT by deputy Chairman, one ought to, in my opinion, differentiate the functions and tasks performed by the Chairman as the *primus inter pares* member of a collegiate body, who, in accordance with Art. 10 Section 1 of u.r.t. directs

¹ Dziomdziora Wojciech (in:) Piątek Stanisław, Dziomdziora Wojciech, Wojciechowski Krzysztof, *The Broadcasting Act. Commentary*, Warszawa 2014, p.91

² also: Dziomdziora W. (in:) Piątek S., Dziomdziora W., Wojciechowski K., *The Broadcasting Act*, op.cit., p.92

³ Dziomdziora W. (in:) Piątek S., Dziomdziora W., Wojciechowski K., *The Broadcasting Act*, op.cit., p.91

⁴ Sobczak Jacek, *Radio Broadcasting and Television. Commentary to the Act*, Kraków 2001, page 159

⁵ Piątek Stanisław, *The Broadcasting Act. Commentary*, Warszawa 1993, page 31

the works of KRRiT and represents it outside, from the tasks of the Chairman of KRRiT as the entity competent with respect to concession issues (Art. 33 Section 2 of u.r.t.), or also the authority in custody of the registry of television programmes distributed in the ICT system and distributed programmes (Art. 41 Section 3 of u.r.t.).

As long as substituting of the Chairman by the deputy is possible and acceptable with regard to the tasks arising from the chairmanship of the collegiate body, an acknowledgment of the fact that the Chairman could also be substituted with regard to the tasks assigned to him by virtue of the law as an independent state authority is highly doubtful.

At this point, it would be interesting to compare the legal regulations of the Broadcasting Act with the regulations applicable in the governmental administration, in particular on the grounds of the Act on the Council of Ministers of 08th August 1996 (hereinafter referred to as: "u.R.M."). In accordance with Art. 37 Section 1 and 2 of u.R.M., the Minister performs their tasks with the help of the secretary and undersecretary of state, the political office of the minister and the general director of the office, and the scope of the activities of the secretary and undersecretary of state is established by the applicable minister, informing the Prime Minister. Furthermore, pursuant to Art. 37 Section 5 of u.R.M., the Minister is substituted by the secretary of state within the scope determined by the minister or the undersecretary of state, if the secretary has not been appointed. Yet another type of substitution is referred to in Art. 36 of u.R.M., on the basis of which, in case of the lack of the assignment regarding the position of the minister or temporary inability to perform the minister's duties, the minister is substituted by the Prime Minister or another member of the Council of Ministers indicated by the Prime Minister. As the Supreme Court (SN) pointed out in the decision adopted at full complement of SN on 14th November 2007, "the principal difference between substitution referred to in Art. 37 Section 5 and Art. 36 of u.R.M. and execution of tasks "with the help of" on the basis of Art. 37 Section 1 of u.R.M., consists in the fact that the persons enumerated in Art. 37 Section 1 of u.R.M. do not have any scope of freedom (autonomy) in relation to decision making. They do not perform the entitlement as deputies, but only under authorization, on behalf of and for the account of the minister by their previous approval. Therefore, as long as deputy ministers, on the basis of Art. 37 Section 5 of u.R.M. (if their scope of activities has been defined) and Art. 36 of u.R.M., have a range of freedom with regard to decision making and its content, the secretary or undersecretary of state, acting on the grounds of Art. 37 Section 1 of u.R.M., do not have such autonomy. In such a case, the secretary or undersecretary of state performing the minister's tasks is obliged to reveal that they act on explicit authorization of the minister and that the entity performing the tasks is the minister (it may arise from the letter heading or imprint of attached stamp). However, it is not the condition for validity of the undertaken decision, but in case of possible doubts, this makes it easier to say that the signature was assigned under authorization of the minister." In the analyzed factual state, the Supreme Court critically assessed the lack of direct indication regarding authorization to settle issues being the subject of consideration in the ordinance of the Minister of Justice containing authorization of the minister for the secretary and undersecretary of state regarding undertaking various activities in relation to issues subject to the department of governmental administration – justice. The Supreme Court declared that „It does not change the fact that these persons (the secretary of state, undersecretary of state) may sign acts on delegation under authorization of the Minister of Justice if only the Minister of Justice granted them applicable authorization in a way different from the content of the above-mentioned ordinance. They may also in a situation defined in Art. 37 Section 5 of u.R.M. act in place of the minister. This type of making use of other persons is referred to in the provisions of the Act on the Council of Ministers, namely a normative act of higher order than the above-mentioned ordinance." Therefore, one ought to emphasize that formulating an interpretation of the law allowing acting in place of the Minister of Justice by the

secretary and undersecretaries of state, the Supreme Court saw the foundation of the said interpretation directly in the statutory regulations, here – in the Act on the Council of Ministers, which provide for such a possibility. What is important, as it has been already mentioned, the Broadcasting Act does not contain any equivalent of the above-mentioned regulations concerning governmental administration in reference to the person holding the position of deputy Chairman of KRRiT.

In the above context, one should perceive as outstandingly relevant the conditions arising from the principle of legality established in Art. 7 of the Constitution RP, in accordance with which "Public authority bodies act on the basis of and within the law." As the doctrine indicates, "In a democratic state in which the law governs, public authority bodies may only be established on the grounds of the law and legal norms must reflect their competences, tasks and mode of proceedings, thus defining the borders of their activity. The said bodies may only act within these borders. As long as an individual has freedom of acting pursuant to the rule that what is not forbidden by the law is allowed, public authority bodies may only act if the law authorizes them to do so and only within the limits defined by the law, whereby the citizen may always demand quoting the legal basis pursuant to which the body undertook specific action. It remains in compliance with the requirements arising from the principle of democratic, legal state."⁶

As a side note, one ought to observe that in the above-mentioned decision, the Supreme Court, referring to the views of the doctrine, on the grounds of Art. 37 Section 1 of u.R.M., pointed out that "It is thus an obvious thing that in a situation when the minister's office is shaped as monocratic, supreme state authority body (governmental), the person holding this position is not able to independently cope with all the tasks that they must face. Therefore, the person must use help and substitution in executing their competences, which is performed within the so-called decentralization of performed functions (principle of office management) and is necessary so that the organized single-person office could effectively act. The burden of the minister's tasks is, therefore, appropriately distributed among respective substantial employees of the ministry in accordance with their official hierarchy (H. Izdebski, *Collegiality and Individuality in the Central Management of Modern State*, Warszawa 1972, p. 153-204). One should also emphasize here that monocratic administrative bodies cannot be identified with the very person fulfilling the office."

In this context, one ought to notice, following Prof. B Banaszak, that "The Supreme Administrative Court (NSA) rightfully derived from Art. 7 of the Constitution RP that it implies the primacy of linguistic interpretation. If public authority bodies act on the basis of and within the law, in the opinion of NSA, interpretation of regulations cannot lead to assigning them meaning exceeding beyond conclusion arising from application of doubtless and methodologically correct interpretative directives. Furthermore, it should not be associated with undertaking generalizations or simplifications ignoring the linguistic and logical aspect of the given norm (resolution of NSA (7) of 22nd April 2002, FPS 5/02, ONSA 2002, No. 4 item 137). As a side note, one may add that both the Supreme Court (SN) and the Constitutional Tribunal (TK) in their judicial practice also acknowledge the primacy of linguistic interpretation, but do not derive it from Art. 7 of the Constitution and are not consistent in their attitude. As an example, one may refer to the resolution of SN in which it was stated that not denying (...) – as a matter of principle – the meaning of (...) postulate to use other interpretative methods only when linguistic interpretation does not lead to unequivocal results, one must say that indubitable grammatical and semantic explicitness of the content does not constitute an obstacle excluding considering rationality and functionality of its scope defined in the interpreted regulation (resolution of SN (7) of 20th January 2005, I KZP 28/04, OSNKW 2005, No. 2, item 1), and, thus,

⁶ Skrzydło Wiesław, *The Constitution of the Republic of Poland. Commentary*, Warszawa 2009, page 16

does not exclude applying other interpretative methods. (...) The primacy of the linguistic interpretation cannot be absolute and ambiguous, its results lead to applying other interpretative methods – e.g. system, historical or functional one (see: resolution of NSA (7) of 17th January 2011, II FPS 2/10, ONSAiWSA 2011, No. 2, item 25). This position is shared by the legal science, standing for withdrawing from linguistic sense of the interpreted regulation, whereas linguistic interpretation leads to absurd, preposterous conclusion, because it undermines ratio legis of the regulation when it ignores an obvious legislative mistake and when it leads to dissonance with the fundamental constitutional values (see: *The Principles of the Interpretation of Law*, Toruń 2006, p. 78-79).⁷

In the view of the above-mentioned remarks, undertaking interpretation of the provisions of the Broadcasting Act, including in particular Art. 7 Section 3 of u.r.t. serving as the constitutional basis for appointing deputy Chairman of KRRiT, in the context of limited possibilities of applying the linguistic interpretation, it is also possible to apply teleological and functional interpretation. Such interpretation may lead to the conclusion that if the intention of the legislator was, as it has already been mentioned, mandatory appointment of deputy Chairman of KRRiT, the purpose of such regulation is to provide full continuity of the execution of tasks assigned by virtue of the law to the Chairman of KRRiT. Such an interpretation finds confirmation in § 8 Section 2 of the Organizational Statutes of KRRiT Office adopted by the resolution of KRRiT No. 472/2011 of 28th September 2011, as amended, in which it is stated that “During the absence of the Chairman of the National Broadcasting Council, substitution is executed by the Deputy Chairman of the National Council or another Member of the National Council indicated by the Chairman of the National Council.”

In this context, one ought to refer also to § 9 Section 1 of the Organizational Statutes, which defines the scope of documents requiring signature of the Chairman of KRRiT, indicating that the Chairman of KRRiT signs in particular:

- 1) ordinances arising from statutory delegations, resolutions of KRRiT, administrative decisions in accordance with statutory authorization as well as other normative acts arising from other provisions of the law;
- 2) correspondence addressed to: the President of the Republic of Poland, the Marshal (Speaker) and Deputy Marshals (Speakers) of the Sejm and Senate of the Republic of Poland, the Prime Minister and Deputy Prime Ministers, Ministers (Heads of Central Offices) and voivodes (provincial governors) as well as the President of the Supreme Audit Office;
- 3) letters addressed to diplomatic representatives of governments of other states;
- 4) correspondence concerning defence and national security.

One ought to notice that the above classification includes both documents arising from executing authorizations belonging to the Chairman of KRRiT in connection with their position within the collegiate body (e.g. resolution of KRRiT) and directly connected with executing tasks of an independent state authority (administrative decisions). Assuming the discussed manner of understanding “substitution”, one should state that deputy Chairman shall be entitled also to sign documents in place of the Chairman, but only in respect of their tasks as defined by Art. 10 Section 1 of u.r.t. and not those restricted for the Chairman by virtue of Art. 33 Section 2, or Art. 41 Section 3 of u.r.t. In the judicial practice, it is indicated that the very fact of appointing a person holding an administrative body function for the position of the deputy is not synonymous to authorization to undertake actions within the scope reflecting authorization of the substituted body. As the Provincial Administrative Court in Gdańsk indicated in the verdict of 05th April 2007 (file reference number III SA/Gd 6/07), “Claiming that deputy of the national

provincial sanitary inspector has the same competences as the body for substitution of which they have been appointed is incorrect. The said competences, in particular with regard to authorization to issuing decisions, must derive from authorization of the body to act on its behalf.”

Substitution within legally acceptable range shall be executed when the Chairman is not able to perform their functions. In the view of the above-mentioned § 8 Section 2 of the Organizational Statutes of KRRiT Office, the principal circumstance implying the possibility to execute substitution shall be the absence of the Chairman of KRRiT. It seems that what is meant here is a situation in which the said absence shall have a sort of a “qualified character”, i.e. it shall not be connected, for example, with the participation of the Chairman in a meeting or a conference outside the headquarters of KRRiT, but e.g. in connection with their illness or even a holiday journey.

Securing continuity of performance of tasks of the Chairman of KRRiT as a concession body and the authority in custody of the registry of television programmes distributed in the ICT system and distributed programmes, shall be possible with applying Art. 268a of the Act of 14th June 1960 – the Code of Administrative Proceedings (hereinafter referred to as: “k.p.a.”), which states that public administration body may entitle, in the written form, employees serving this body to resolve issues on its behalf within the established range, and, in particular, to issue administrative decisions, rulings and certifications. As the doctrine indicates, “The authorizing body may freely select persons whom it grants authorizations to issue acts as well as conduct proceedings on its behalf. The legislator has implemented one limitation in this respect: the authorized person must be an employee of the office appointed as serving the said body.”⁸ In this context, one ought to notice that by the verdict of 06th May 2009 (file reference number II PK 95/09), the Supreme Court unequivocally stated that appointing a member of KRRiT in accordance with Art. 7 of u.r.t. did not lead to the occurrence of employment relationship pursuant to Art. 68 of the Act of 26th June 1974 – the Labour Code – indicating that appointing to KRRiT did not lead to shaping principal signs of employment relationship referred to in Art. 22 of the Labour Code, in particular including submission of an employee to the employer. Therefore, the possibility of granting deputy Chairman of KRRiT an authorization referred to Art. 268a of k.p.a., which could, on the other hand, be certainly granted to an employee of the KRRiT Office constituting by virtue of Art. 11 Section 1 of u.r.t. an executive office of KRRiT, seems doubtful.

4 Summary

In conclusion, selecting from among the members of KRRiT deputy Chairman is mandatory and in the context of sole initiative of the Chairman of KRRiT authorized to present motion for appointing the deputy, requires that it is a person enjoying trust. Appointing for the position of deputy Chairman is not synonymous to general authorization to act in the scope restricted by the Chairman of KRRiT. There is no doubt that deputy Chairman of KRRiT may execute during the absence of the Chairman their tasks connected with managing the works of KRRiT and representing it outside. Nevertheless, approval of the possibility to undertake by deputy Chairman of KRRiT, in place of the Chairman, actions and to execute activities restricted for the Chairman of KRRiT as administrative body, seems highly doubtful. Within this context, one ought to observe that even in view of unequivocal regulations of the Act on the Council of Ministers, directly constituting the foundation for substituting minister by secretary or undersecretaries of state, resolving the existing legal dispute required undertaking resolution by the Supreme Court en banc.

⁷ Banaszak Bogusław, *The Constitution of the Republic of Poland. Commentary*, Warszawa 2012, pages 79-80

⁸ Jaškowska Małgorzata, *Updated Commentary to the Act of 14th June 1960 – the Code of Administrative Proceedings*, Lex 2015

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Primary Paper Section: A**Secondary Paper Section: AG**

G AGRICULTURE

GA	AGRICULTURAL ECONOMICS
GB	AGRICULTURAL MACHINES AND CONSTRUCTION
GC	PLANT GROWING, CROP ROTATION
GD	FERTILIZATION, IRRIGATION, SOIL TREATMENT
GE	PLANT CULTIVATION
GF	DISEASES, PESTS, WEEDS AND PLANT PROTECTION
GG	ZOOTECHNICS
GH	NUTRITION OF FARM ANIMALS
GI	FARM ANIMAL BREEDING AND FARM ANIMAL PEDIGREE
GJ	BDISEDAISES AND ANIMAL VERMIN, VETERINARY MEDICINE
GK	FORESTRY
GL	FISHERY
GM	FOOD INDUSTRY

EVALUATION OF GRAIN YIELD IN MIXED LEGUME-CEREAL CROPPING SYSTEMS

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Abstract: The aim of this study was to describe the combined corn yield of the mixed culture. Under the term of mixed culture, we understand the cultivation of two different crops at same field simultaneously, in particular mixture of leguminous and non-leguminous crops. This work deals with the evaluation of grain yield in mixed culture. Three replicates of 2 x 10 m plots per treatment were arrayed in blocked design. These variants were prepared: winter wheat (SC) - 140 kg N ha⁻¹ yr⁻¹ (100 %); mixed culture winter wheat + winter peas (IC) 112 kg N ha⁻¹ yr⁻¹ (80 %); mixed culture (IC) 70 kg N ha⁻¹ yr⁻¹ (50 %); mixed culture without fertilization - and Winter Peas (SC). Grain yield was evaluated by LER (Land Equivalent Ratio). The highest values of LER were found in mixed culture (IC 112 kg N ha⁻¹ yr⁻¹; IC 70 kg N ha⁻¹ yr⁻¹; IC 0 kg N ha⁻¹ yr⁻¹).

Keywords: winter wheat, winter pea, grain yield, mixed culture.

1 Introduction

Modern agriculture is facing many problems: decline of soil fertility, compaction of soils, and contamination of water sources, which have different causes. In many countries throughout the world, agricultural soils are being degraded at an alarming rate by erosion, salinization, nutrient depletion and desertification. These problems can be solved only by a change of farming systems (Elbl et al., 2013). One of the major changes may be the inclusion of legumes in crop rotations. This system is known as a mixed culture.

Under the term of mixed culture, we understand the cultivation of two different crops in the same field (at the same time during a growing season) simultaneously, in particular mixture of leguminous and non-leguminous crops. The need to cultivate these crops for improving soil fertility and sustainability is often neglected, but positive influence of legumes in crop rotation is widely recognized (Hauggaard-Nielsen et al., 2008 and Ofori & Stern, 1986). Mixing species in cropping systems may lead to a range of benefits that are expressed on various space and time scales from a short-term increase in crop yield and quality to longer-term agro-ecosystem sustainability (Malezieux, et al., 2009).

For farming systems to remain productive, it will be necessary to replenish the reserves of nutrients which are removed or lost from the soil. In the case of nitrogen (N), inputs into agricultural systems may be derived from atmospheric N₂ via biological N₂ fixation (Peoples et al., 1995). Biological nitrogen fixation is an important aspect of sustainable and environmentally friendly food production and long-term crop productivity (Kessel & Hartley, 2000). Legumes can transfer significant amounts of symbiotically fixed N to neighboring plants, and a putative pathway for N transfer is decomposition of fine roots and nodules (Dubach & Russelle, 1994). The Figure 1 shows positive effect of mixed culture root system on soil fertility. Grain leguminous can cover their nitrogen demand from biological fixation of atmospheric N₂ (Hauggaard-Nielsen et al., 2001, Trenbath, 1976) and therefore, they compete less for soil N_{min} in intercropping with cereals (Jensen, 1996).

Crop yield depends on ability to extract sufficient amount of nutrients (especially nitrogen) and water from soil. Uptake of

nutrients and water is dependent on the availability of nutrients in rhizosphere. Nitrogen is a key element for all organisms, because it is an essential component of proteins and nucleic acids. Although the element nitrogen is extremely abundant, making up 78% of the Earth's atmosphere, it exists mainly as unreactive di-nitrogen (N₂). By contrast, to be useable by most plants and animals, reactive nitrogen forms are needed. These include oxidized and reduced nitrogen compounds, such as nitric acid, ammonia, nitrates, ammonium and organic nitrogen compounds, each of which is normally scarce in the natural environment. The most important kind of reactive nitrogen in the soil is the mineral nitrogen, which is formed by nitrate and ammonium nitrogen (Sutton, 2011).

The success of intercrop farming systems depends initially on effective nitrogen fixation and more importantly, on subsequent transfer of nitrogen to the non-legume (Stern, 1993). For example, Musa et al. (2010) state that, intercropping of barley and peas increased dry matter production and yield compared with either sole crop.

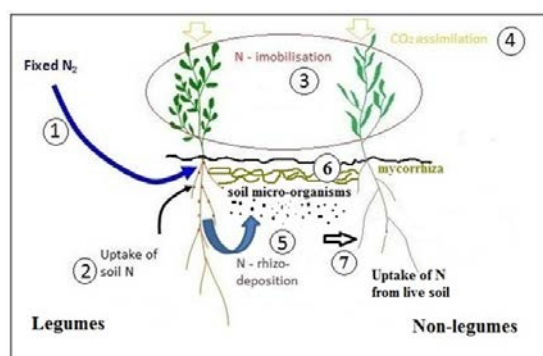


Fig. 1 Flows of nitrogen during the growing of mixed culture – benefits. 1.) Biological fixation of N₂. 2.) Uptake of N_{min} from the soil. 3.) Immobilization of nitrogen in plant biomass and in the corn. 4.) CO₂ assimilation. 5.) Nitrogen rhizodeposition - soil micro-organisms. 6.) Transport of nitrogen by mycorrhiza. 7.) Smooth reception of N_{min} from the soil.

The success of intercrop farming systems depends initially on effective nitrogen fixation and more importantly, on subsequent transfer of nitrogen to the non-legume (Stern, 1993). The productivity of crops (sole crops and intercrops – mixed culture) depends on the species of individual crops and varies between different experimental sites, soil properties and cultivation conditions (Kadžiuilienė et al., 2011). Cultivation of mixed culture has these benefits: improvement of soil fertility, increase of the quality and health of arable soils and higher resilience of agricultural land to various erosion phenomena. In addition to these positive benefits, the mixed legume-cereal system allows more efficient use of land, the same plot can be used for cultivating two crops at the same time and thus higher total grain production (Hauggaard-Nielsen et al., 2008; Kessel & Hartley, 2000 and Ofori & Stern, 1986).

The aim of the project will be to find effect of two field crops cultivated in mixed culture on grain yields. Hypothesis, which claims that cultivation of winter wheat and winter pea together has positive effect on total grain production, was tested.

2 Materials and Methods

The present experiment is sub-section of a larger experiment, which was focused on monitoring of the impact of mixed culture cultivation on soil fertility, leaching of mineral nitrogen from arable soil, soil microbial activities and content of available nutrients (P, K, Mg) in rhizosphere soil.

Area of our interest is the agricultural region, which is located 8 km north of the city Prostějov. Experimental site is situated in the protection zone of underground drinking water source "Kvartér řeky Moravy". This site is located, according

Quitt (1975), in the climatic region T2, where annual climatic averages are of 350–400 mm of precipitation in growing season, 200–300 mm of precipitation in winter and 8–9 °C of mean annual air temperature. The experiment was based on the black earth, moderate, loess without skeleton (BPEJ 30100).

At both variants, seeds of mixed culture were sown mixed in the rows in the same depth on the 10th of October 2012. Four replicates of 2 x 10 m plots per treatment were arrayed in blocked design. These variants were prepared: winter wheat (SC) - 140 kg N ha⁻¹ yr⁻¹ (100 % of recommended dose). Mixed culture winter wheat + winter pea (IC) - 112 kg N ha⁻¹ yr⁻¹ (80 %), IC - 70 kg N ha⁻¹ yr⁻¹ (50 %) and IC without fertilization.



Fig. 2 Mixed legume-cereal cropping system at experimental site

The crops were harvested at full maturity on the 23rd of July 2013. The samples of grain were dried at 70 °C to constant weight and total dry matter production for each plot was determined separately for grain legumes and wheat.

Combined intercrop yield is the sum of yields of both the components in the intercrop. Evaluation of grain yields was performed by the land equivalent ratio (LER) for each variant of experiment. LER is defined as the relative (land) area of growing sole crops (SC) that is required to produce the yields (Y) achieved when growing intercrops (IC), the values of LER were calculated according Willey (1979):

$$LA = Y_{A,IC} / Y_{A,SC} \quad (1)$$

$$LB = Y_{B,IC} / Y_{B,SC} \quad (2)$$

Where: $Y_{A,IC}$ and $Y_{A,SC}$ are the yields of intercropped and sole winter wheat and $Y_{B,IC}$ and $Y_{B,SC}$ are the yields of intercropped and sole winter pea.

$$LER = LA + LB \quad (3)$$

LER values > 1 indicate an advantage from intercropping in terms of the use of environmental resources for plant growth compared with sole crops. When LER is < 1, resources are used more efficiently by sole crops than by intercrops (Knudsen, 1999).

Potential differences in grain yield were analyzed by one-way analysis of variance (ANOVA) in combination with the Tukey's test.

3 Results and Discussion

The results of grain yield were determined during the first year of the present experiment, which were carried out in 2012. The main objective of this work is evaluation of grain yield from individual variants of IC and SC. Crops in mixed legume-cereal cropping system were harvested together at the same moisture of plant biomass.



Fig. 3 Grains of winter wheat and winter pea (condition after harvest – winter wheat and winter pea were harvested together) Grain yield of the winter wheat SC and winter pea SC are higher than individual components in the intercropping. The amount of yield is an important indicator of efficiency of agricultural production. The complete overview of grain yield is shown in the Table 1. The values stated in the Table 1 indicate the possibility of using of one parcel (site) to grow two crops in mixed culture. The highest values were found in variants SC (winter wheat and winter pea), but this difference was significant only between SC winter wheat and other variants.

Table 1 Grain yield in mixed culture and sole crops (mean values ± standard error are shown, n = 4, different letters indicate a significant differences at the level 0.05 – ANOVA, P < 0.05)

Variants	Grain yield (g/m ²)	±SE
Winter wheat		
Sole crops – 140 kg N ha ⁻¹ yr ⁻¹	416.66 ^a	47.81
Inter cropping – 112 kg N ha ⁻¹ yr ⁻¹	295.33 ^{b,c}	7.85
Inter cropping – 70 kg N ha ⁻¹ yr ⁻¹	320.33 ^b	12.41
Inter cropping – 0 kg N ha ⁻¹ yr ⁻¹	212 ^c	18.44
Sole crops – 0 kg N ha ⁻¹ yr ⁻¹	0	0
Winter pea		
Sole crops – 140 kg N ha ⁻¹ yr ⁻¹	0	
Inter cropping – 112 kg N ha ⁻¹ yr ⁻¹	259.23 ^{b,c}	19.45
Inter cropping – 70 kg N ha ⁻¹ yr ⁻¹	197.64 ^c	8.99
Inter cropping – 0 kg N ha ⁻¹ yr ⁻¹	195.88 ^c	17.51
Sole crops – 0 kg N ha ⁻¹ yr ⁻¹	265.43 ^{b,c}	8.79

There are significant differences between SC (winter wheat) and IC (winter wheat and winter pea), but smaller doses of mineral fertilizers were applied at sites with IC and this means a great savings in financial costs. Moreover, cultivation of mixed culture has positive effect on agro-ecosystem and it is essential for more efficient use of agriculture land. Positive influence of mixed culture cultivation on soil properties and soil fertility was confirmed by Dakora (2002) and Kessel & Hartley (2000). Peoples et al. (1995) and Willey (1979) state cultivation of mixed culture can be economically profitable.

Table 2 Representative data for calculation of LER (winter wheat – A, winter pea – B)

Variants	LA	LB	LER
Sole crops – 140 kg N ha ⁻¹ yr ⁻¹	0	0	0
Inter cropping – 112 kg N ha ⁻¹ yr ⁻¹	0.71	0.98	1.69
Inter cropping – 70 kg N ha ⁻¹ yr ⁻¹	0.77	0.74	1.51
Inter cropping – 0 kg N ha ⁻¹ yr ⁻¹	0.51	0.74	1.25
Sole crops – 0 kg N ha ⁻¹ yr ⁻¹	0	0	0

The Land Equivalent Ratio (LER) was used to evaluate intercrop efficiencies in grain yield and was calculated according Eq. 3 (originally Willey, 1979). Calculation is presented in the Table 2 and values of LER are shown in Figure 4.

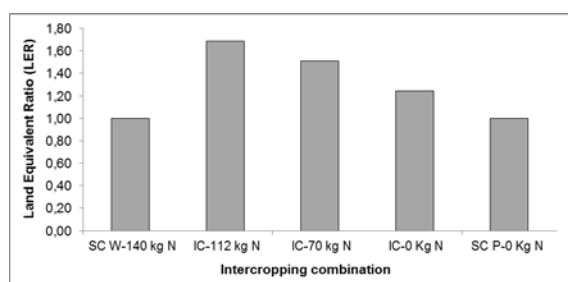


Fig. 4 LER for grain yield as affected by intercropping combination (SC W – sole crop winter wheat; SC P – sole crop winter pea)

The above Figure 4 shows values of LER. Maximum and minimum LERs (1.69 and 1.25) were attained by intercropping – 112 kg N ha⁻¹ yr⁻¹ and intercropping – 0 kg N ha⁻¹ yr⁻¹.

Dariusz et al. (2006) state: a total LER of higher than 1.0 indicates the presence of positive interferences among the varieties or crops components of the mixture, and also means that any negative interspecific interference, that exists in the mixture, is not as intensive as the intraspecific interference that exists in the monocultures.

The total values of LER were higher than 1 in all variants of IC. Detected values at the winter wheat and winter pea intercrops indicate advantage in grain yield from intercropping compared with sole cropping. The relationship between the values of LER and profitability of mixed culture cultivation was confirmed by Knudsen (1999).

Conclusions

This contribution presents the first results of long-term field experiment. Therefore, these results must be interpreted with caution. The measured values of grain yield and LER indicate possibility of mixed culture cultivation at one site. This possibility was demonstrated by analysis of grain yield. Based on these results, we conclude that mixed culture cultivation can be used in conditions of Czech agriculture. We assume the inclusion of legumes in crop rotations will have several positive effects for Czech farmers: improvement of soil fertility, diversification of production and increase of the resistance of soil against erosion.

Abbreviation

N_{min} – Mineral nitrogen
 N₂ – Atmospheric nitrogen
 SC – Sole crop
 IC – Inter crop (mixed culture)

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Primary Paper Section: G

Secondary Paper Section: DF, GD, EE

I INFORMATICS

IN INFORMATICS

CONGESTION AWARE MULTIPATH ROUTING: LOADBALANCING CORE NETWORKS

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Abstract: The present paper proposes Congestion Aware Multipath Routing as an efficient alternative algorithm for dynamic traffic engineering in the Internet Service Provider environment (ISP). The main objective of CAMR is to stabilize and redistribute traffic within the ISP network domain, offloading congested links and paths by responding to the observed traffic conditions in real-time. The second objective of the algorithm is to maintain stability of the network, all achieving with minimal impact on existing network infrastructure, reusing IETF and IEEE standard based environment. The performance evaluations results consistently demonstrate CAMR efficiency in terms of load balancing performance. Such results underline the stable behavior of the algorithm throughout the investigated scenarios. In this paper the main focus is put on Stability Factor impact on network throughput and stability over standard network conditions.

Keywords: multipath routing, stability, fairness, flow distribution

1 INTRODUCTION

Currently ISPs providing routing and transport services are faced to higher capacity demands. Internet of Things, L2/L3 Business Services, Residential and high-bandwidth LTE market on the one hand and also new data delivery approaches for services are appearing as distributed DC, CDN, P2P, NGSON on the other hand are introducing very dynamic and unstable network load demands in ISP transport domain (1). Due to very complicated traffic estimation for individual links, the network design is subsequently often over-dimensioned and very inefficiently utilized in order to fulfill customers and subscriber capacity demands. On the other hand inactive part of network do not cooperate to offload critical links due to shortest path routing algorithms as OSPF/ISIS(2) and relatively static load balancing mechanisms as ECMP (3), LAG.

The routing principles in modern telecommunication networks need to be re-engineered in order to provide dynamic response not only on the physical, link and network upgrade or failure in terms of resiliency and static capacity, but also react dynamically to the actual load and stability level in the network.

Proposed Congestion aware multipath routing CAMR offers multipath routing for unequal bandwidth links using live congestion feedback feature. The new model offers increased network resiliency, end-to-end bandwidth maximization, fair dynamic link balancing in time and therefore overall higher efficiency of the network. The CAMRv1 algorithm with the proposed CAMR protocol address improved network throughput and stability.

In this paper the CAMRv1 algorithm is introduced and the role and impact of Stability factor on network throughput and stability is described in detail. Overall theory is applied on a mixed Core-Aggregation TeraStream model network (4), often applied in real ISP environment.

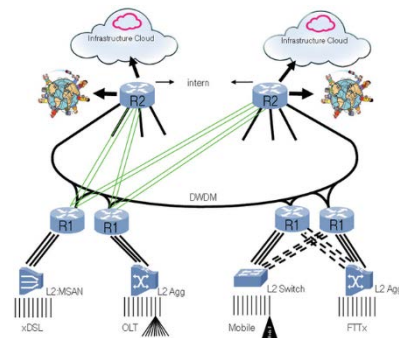


Fig. 1. Model ISP and TeraStream network architecture, Source: Lothberg (7)

2 MODEL NETWORK

There are several common characteristics of converged network architecture regardless of ISP and the technology used. The ISP network is layered into 3 or 4 main domains. Firstly, the Access network provides direct connectivity to Business customers and Residential and Mobile subscriber access infrastructure. Secondly, Aggregation domain (R1 nodes) collects all the traffic from Access nodes and each node is terminated redundantly by higher-capacity links to 2 independent Core routers creating Ring or DWDM Horseshoe Architecture. The Core network (R2 nodes) due to resiliency create full-mesh topology to provide nonstop forwarding via geographically redundant paths in case of any single element failure at this level. In order to provide SecGW, SGW, IPTV, Voice, multimedia and other CDN based services, core nodes are directly connected to local datacenters. IP and IP/MPLS.

3 CAMR DESIGN BASIC PRINCIPLES

CAMR as multipath routing algorithm is based on discovering parallel physical datapaths between source and destination. Multiple paths cumulatively aggregate the bandwidth enabling higher data rates between source and destination comparing to a single path. Additionally, the transport resiliency is increased if a failure affects one of the contributing paths as the other paths continue in operation. As the failed path restoration time and shortest path re-convergence time are not constant and vary from the topology, the failure depends from the predictable distance from the source. This brings higher resiliency in context of convergence time.

To provide efficient transport over available network resources, the traffic sent over multiple paths is redistributed proportionally according the congestion aware metric. The path relative metric is a complex compound variable considering the network overall load, path available bandwidth and path length.

In order to achieve smooth implementation of CAMR algorithm into existing packet based environment, the algorithm and protocol find its application in IETF and IEEE standard based networks. CAMR based routing is intended to provide IPv4, IPv6 and MPLS implementations, adapting the routing header information into standardized Routing Header, Extension Header (5) and Segment Routing (6) Label Stack encapsulation respectively.

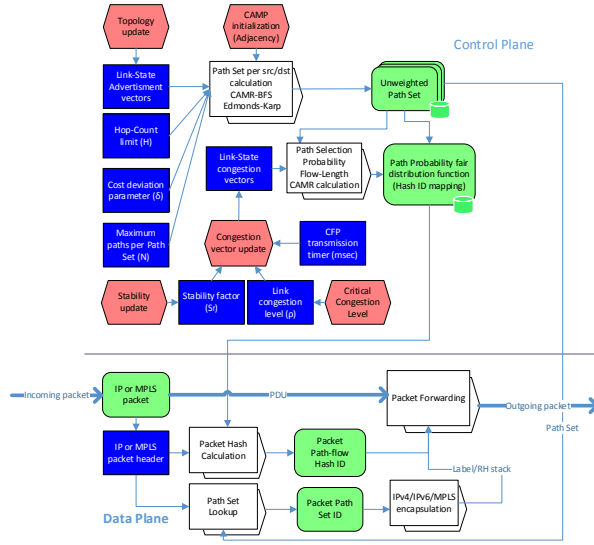


Fig. 2. CAMRv1 Algorithm implementation, Source: Authors

4 CAMR Base Algorithm

The aim of CAMR is to find optimal $f(s, t)$ flow redistribution between source s and target t over all (u, v) links in order to provide stable network and provide higher overall throughput than shortest path protocol based networks with statistical loadbalancing $f_{SPF_ECMP}(s, t)$.

Consider the network as oriented graph $G(V, E)$, where V represent vertices and $E, c(u, v)$ is the capacity of a one-way link between nodes $u, v \in V$. Let then $f(u, v)$ be a data flow between any $u, v \in V$. Then consider:

$$\forall (u, v) \in E \quad f(u, v) \leq c(u, v) \quad (1)$$

If u is not source or target for the flow f_i , then flow conservation rule is applied:

$$\forall u \in V: u \neq s, u \neq t \quad (2)$$

$$pre \quad f_i(s, t) \Rightarrow \sum_{w \in V} f_i(u, w) = \sum_{w \in V} f_i(w, u)$$

Then, there is an oriented graph $G_f(V, E)$ of residual network link capacity:

$$c_f(u, v) = c(u, v) - f(u, v) \quad (3)$$

4.1 CAMR Path Set Search

CAMR algorithm searches for all paths p , from oriented graph $G(V, E)$ - between nodes s and t and finds free capacity c for the flow f_i in order to maximize the flow f . The base algorithm is described below:

Every algorithm iteration, the overall capacity G_f is decreasing, until there is no path p_i between s and t . Then $f(s, t)$ represents the maximum flow possible found by BFS, Edmonds-Karp, CAMR algorithm.

4.2 CAMR Path metric

Firstly, BFS selects the path set of shortest paths by hops and its available bandwidth. The unique approach of CAMR algorithm

is the 2nd benefit round for shortest path selection and flow distribution by distance. For this purpose the compound CAMR metric reflects the proportion of data sent over a specific path:

$$\rho(p_i) = \frac{c_{f_i}}{d(t_i)^{s_f}}, \quad kde \quad s_f \in \langle 0, \infty \rangle \quad (4)$$

The metric $\rho(p_i)$ is dependent from the path capacity c_{f_i} , its length $d(t_i)$ in terms of the number of hops and the network stability s_f . The metric has only local significance and it is used as proportional value to calculate intervals of hash-function. The path p_i proportion of forwarded data is represented by the α_1 - width of interval H_i . The interval H_i belongs to specific path p_i and it is dependent from $\rho(p_i)$ metric proportion to overall metric for destination t :

$$if \quad \delta_i = \frac{\rho(p_i)}{\sum_i \rho(p_i)}, 0 \quad then \quad \alpha_1 = \left\lfloor \frac{\delta_i}{2^m} \right\rfloor, \quad where \quad m = 16 \quad (5)$$

$$H_1 < 1, \delta_i, \quad for \quad i > 1: \quad H_i(\delta_{i-1}, \delta_{i-1} + \delta_i) \quad (6)$$

5 CAMR Stability Factor

Multipath routing over suboptimal paths result in burning unused network resources in the network to provide better load-balancing and higher end-to-end capacity for flows that need it at the moment.

$$for \quad \forall (u, v) \in E; \quad if \quad d(p_{CAMR}) > d(p_{SPF}) \quad then \quad (7)$$

$$\sum_i f_{CAMR_i}(u, v) > \sum_j f_{SPF_j}(u, v)$$

$$therefore \quad \sum_i c_{f_i, CAMR}(u, v) < \sum_j c_{f_j, SPF}(u, v) \quad (8)$$

Thus, the total volume of traffic in the network in time is increased by the extended length of the path over the shortest path. The stability and suppression factor s_f is one of key differentiators of CAMR from other multipath approaches. In order to avoid selfish routing and suppress short paths in the Path Set, dynamically changing s_f limit the traffic by its power. The s_f value shall be dynamic on the network overall load and stability.

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1:  $\forall V, E: 0 \rightarrow f(u, v)$ 
2: if  $\exists p_i(s, t) \in G_f$ , where  $c_f(u, v) > 0$  then:
3:   Find  $c_{f_i}(p) = \min\{c_{f_i}(u, v) : (u, v) \in p\}$ ;
4:    $Q = \{s\}$  #  $Q$  is FIFO buffer
5:   For every node  $w \in V$ 
6:      $n(w) = 0$ ; where  $n$  represents visited node
       binary value
7:      $d(w) = \infty$ ; where  $d(w)$  is the distance from  $s$ 
8:      $pd(w) = \text{null}$  # where  $pd(w)$  is predecessor of  $w$ 
9:      $n(s) = 0$ 
10:     $d(s) = 0$ 
11:     $DQ = \{s\}$ 
12:    While  $(Q \neq \emptyset)$  :
13:       $u$ , where  $pd(u) \in DQ, Q = Q - u$ 
14:      For every link  $(u, v) \in E$ :
15:        If  $(n(v) \neq 0)$ 
16:           $n(v) = 1$ 
17:           $d(v) = d(u) + 1$ 
18:           $Q = Q + v$ 
19:          If  $v = t$ , then  $c_{f_i}(p) = \min\{c_{f_i}(s, t) : (s, t) \in p_i\}$ 
20:      For  $\forall (u, v) \in p$ :
21:         $f(u, v) \leftarrow f(u, v) + c_{f_i}(p_i)$ 
22:       $G_{f_{i+1}} \leftarrow G_f - c_{f_i}(p_i)$ 

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Fig. 3. CAMRv1 Algorithm, Source: Authors

5.1 Simulation Scenario 2: CAMRv1 flow distribution unloaded core

For illustration, let's consider the Terastream topology (Section 2) with 6x core R2 nodes (1-6) and 15x aggregation R1 nodes (7-21) in horseshoe topology. CAMR have found in the first phase 9 tunnels with equal capacity (1=100Gb/s) between nodes R2(1) and R2(6) (Figure 4). If the s_f is 0, all 9 paths regardless of the length will be loaded equally as all paths will get equal metric 1. The total traffic over all 9 independent paths will allow up to 9x100Gb/s. SPF approach in such case would provide only 5x100Gb/s over shortest path.

By increasing the s_f , the node will prefer shorter paths, and the overall possible traffic will decrease to the SPF capacity ($s_f=5$, max-flow=5.31). By this observation we can assume, when $s_f = 0$, then network provides maximum capacity

Tab. 1, Flow redistribution into paths/tunnels, scenario: link 1-6 down, Metric, Source: Authors

Tunnel ID	Tunnel Length [hops]	Hops	Tunnel capacity [x100 Gb/s]	Metric					
				Sf	0	1	2	3	4
1	2	1 6	1	1.000	0.500	0.250	0.125	0.063	0.031
2	3	1 2 6	1	1.000	0.333	0.111	0.037	0.012	0.004
3	3	1 3 6	1	1.000	0.333	0.111	0.037	0.012	0.004
4	3	1 4 6	1	1.000	0.333	0.111	0.037	0.012	0.004
5	3	1 5 6	1	1.000	0.333	0.111	0.037	0.012	0.004
6	3	1 11 6	1	1.000	0.333	0.111	0.037	0.012	0.004
7	4	1 5 2 6	1	1.000	0.250	0.063	0.016	0.004	0.001
8	4	1 5 3 6	1	1.000	0.250	0.063	0.016	0.004	0.001
9	4	1 5 4 6	1	1.000	0.250	0.063	0.016	0.004	0.001
10	4	1 5 21 6	1	1.000	0.250	0.063	0.016	0.004	0.001

Tab. 2, Flow redistribution into paths/tunnels, scenario: link 1-6 down, Link Load, Source: Authors

Tunnel ID	Tunnel Length [hops]	Hops	Link Load equivalent [x100 Gb/s]							
			Sf	0	1	2	3	4	5	
Tun.1	2	1 6		0	0	0	0	0	0	0
Tun.2	3	1 2 6		1	1	1	1	1	1	1
Tun.3	3	1 3 6		1	1	1	1	1	1	1
Tun.4	3	1 4 6		1	1	1	1	1	1	1
Tun.5	3	1 5 6		1	1	1	1	1	1	1
Tun.6	3	1 11 6		1	1	1	1	1	1	1
Tun.7	5	1 7 2 15 6		1	0.6	0.36	0.22	0.13	0.08	
Tun.8	5	1 8 3 18 6		1	0.6	0.36	0.22	0.13	0.08	
Tun.9	5	1 9 4 20 6		1	0.6	0.36	0.22	0.13	0.08	
Tun.10	5	1 10 5 21 6		1	0.6	0.36	0.22	0.13	0.08	
			Traffic	9	7.4	6.44	5.86	5.52	5.31	

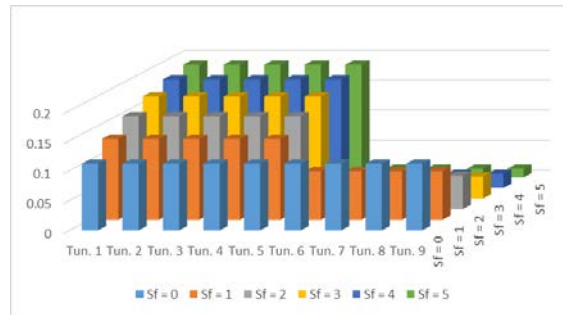


Fig. 4, Flow redistribution into paths/tunnels, scenario: link 1-6 down, Proportional load Source: Authors

5.2 Simulation Scenario 2: CAMRv1 flow distribution loaded core

Next simulation reveals the CAMR strong point of s_f in terms of flow distribution control. In this simulation we are introducing load into the network according the TeraStream concept with very low load on the level of 20%. For the same topology, CAMR found now 15 paths, with free network capacities in longer paths. New longer paths 11-15 were found due to the load blocking shortest paths. As seen, depending on s_f CAMR can benefit from higher throughput of new discovered paths, if network remains stable $s_f < 2$, or completely turn into short path balanced routing $s_f > 4$ in unstable or heavily loaded network. High s_f almost completely suppress long paths in order to prevent path frequent flapping. Paths 6-9 and 14-15 are available with very low throughput. If only standard metric would be used

and Unequal Cost Multipath approach used, it is very probable that these paths would be congested as SPF and UCMP do not take into consideration path link availability. CAMR will suppress these paths because of the present congestion knowledge.

Tab. 3, Flow redistribution into loaded paths, scenario: link 1-6 down, Proportional load Source: Authors

Tunnel ID	Path hops	Tunnel Length [hops]	Available Flow [100gb/s]	Stability factor/Load distribution					
				Sf=0	Sf=1	Sf=2	Sf=3	Sf=4	Sf=5
Tun. 1	[1 2 6]	3	0.7562	11%	13%	15%	16%	17%	18%
Tun. 2	[1 3 6]	3	0.8696	12%	15%	17%	19%	20%	21%
Tun. 3	[1 4 6]	3	0.7888	11%	13%	15%	17%	18%	19%
Tun. 4	[1 5 6]	3	0.8615	12%	15%	17%	18%	20%	20%
Tun. 5	[1 11 6]	3	0.7148	10%	12%	14%	15%	16%	17%
Tun. 6	[1 2 3 6]	4	0.0108	0%	0%	0%	0%	0%	0%
Tun. 7	[1 5 3 6]	4	0.0346	0%	0%	0%	0%	0%	0%
Tun. 8	[1 5 4 6]	4	0.0047	0%	0%	0%	0%	0%	0%
Tun. 9	[1 9 4 6]	4	0.0440	1%	1%	0%	0%	0%	0%
Tun. 10	[1 7 2 15 6]	5	0.6217	9%	6%	4%	3%	2%	1%
Tun. 11	[1 8 3 18 6]	5	0.7526	11%	8%	5%	3%	2%	1%
Tun. 12	[1 9 4 20 6]	5	0.6888	10%	7%	5%	3%	2%	1%
Tun. 13	[1 10 5 21 6]	5	0.8211	12%	8%	6%	4%	2%	2%
Tun. 14	[1 7 2 3 18 6]	6	0.0634	1%	1%	0%	0%	0%	0%
Tun. 15	[1 7 2 4 20 6]	6	0.0538	1%	0%	0%	0%	0%	0%
Total possible flow			7.0864953	7.1	5.9	5.1	4.7	4.4	4.2

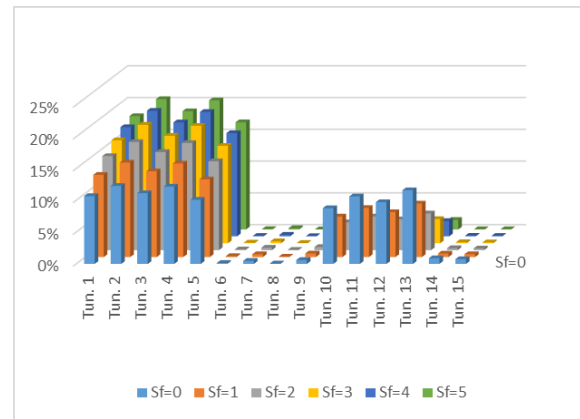


Fig. 5, Flow redistribution into loaded paths, scenario: link 1-6 down, Proportional load Source: Authors

5.3 Simulation Scenario 2: CAMRv1 flow distribution loaded aggregation

Stability factor s_f has also impact on aggregation uplink link load balancing. The simulation with the same topology as in previous scenario is used. Fig. 6 represent Aggregation uplink link loads from R1 towards R2a and R1 towards R2b router. Blue envelope lines represent load by SPF/ECMP based routing decisions. The red lines represent uplink load based on CAMR routing decisions with statically set s_f value. The CAMR load variation from optimal load redistribution represented by black line. The CAMR variation increases with the increasing parameter s_f value: 1, 2, 3, 4, 5 up to 20. This is a result of fewer path choice freedom by aggregation router, due to elimination of longer paths.

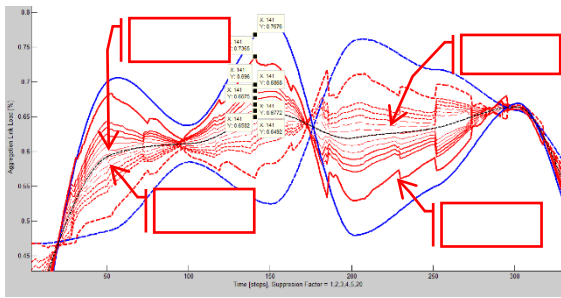


Fig. 6. Higher stability factor invokes lower loadbalancing performance
Source: Authors

5.4 Case: Stability Factor = 0, Aggregation

Additionally, if S_f is not used, network can under average load cause high load in the core resulting congestion, instability and flapping links in core and aggregation network. The Figure 5 represents uplink links from aggregation node R1 to R2a and to R2b core routers. The network was loaded on the 50% of its capacity, according to the TeraStream flow distribution estimation (4). Even no big change happened on aggregation links, the unlimited tunnel length in core multiplied and wasted the traffic in the core domain, until complete exhaustion of one of R2 routers. As result CAMR tried to switch traffic causing network instability.

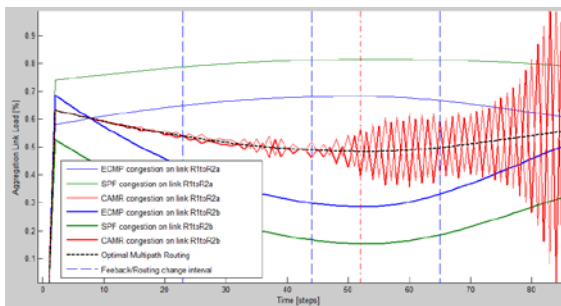


Fig. 7. Unstable links under average load. Unlimited length ($S_f=0$) caused instability in aggregation
Source: Authors

6 Conclusion

In this paper, stability factor S_f impact on network stability was introduced to Congestion Aware Multipath Routing. The simulation results proved the overall throughput and stability impact on the Aggregation and Core network. While low S_f provides better performance in terms of loadbalancing and individual flow throughput (Sections 5.1 and 5.2), on the other hand very low stability factor invokes instability and path flapping (Section 5.4).

Low $S_f < 2$ can provide the maximum possible flow between two core nodes. In dense networks, CAMR maximum flow will always exceed flow provided by SPF/ECMP routing approach. Therefore, mainly the Core network domain by its natural meshed architecture (Section 2), can benefit from CAMR providing higher throughputs. Mentioned benefit is favorable for ISP link upgrade planning. Thanks to CAMR algorithm, network reuses unused link resources in time for individual data flow peak load-balancing.

Low $S_f < 2$ also provides very fine load balancing on Aggregation links, therefore, there is less probability of congestion, buffering, shaping and discarded data by RED/WRED (7) mechanisms. Furthermore, higher S_f values, $S_f > 3$ are giving results closer to inefficient SPF/ECMP approach. In any S_f case, CAMR have provided better results in

simulations than load insensitive SPF/ECMP load-balancing approach (Section 5.3). In the peak value of ECMP variation, the CAMR link proved better balancing than ECMP congested link with up to 12 Gb/s difference. In comparison to the optimum link traffic, it brings 18,5% better load-balancing performance.

These results also proved CAMR advantage over SPF/ECMP approach, for the whole infrastructure. By implementing CAMR in the network, ISPs can lower over-dimensioning network design rules and would avoid building new unnecessary costly core links.

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Primary Paper Section: I

Secondary Paper Section: IN

DETERMINING STEPS TO ENHANCE THE SECURITY OF DATA STORED IN THE CLOUD

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IGA 02/2015 Klasifikace cloud computingu na základě zabezpečení dat.

Abstract: Current trend in the information technologies is the use of cloud computing as a storage sites. Data storage is also associated the data security. The contents of this article are methods for the data security and the data verification. The data security is based on the type of data. To determine the type of data we use the data classification by Kuyoro, Poynter and Rocha. However, the main element of data security is the data integrity in the cloud. For verify the data integrity we can use protocol call – response and verify the correctness of the data stored in the cloud. The aim of this article is summarize the above methods and determine the phases of data storage. Within the phases, we have determined the safety rules of the data storage.

Keywords: cloud computing, petri nets, data storage, data protection, data security

1 Introduction

Storing data in the cloud can be seen as relatively attractive form of outsourcing focused on daily data management. The real responsibility for data management falls under the company that owns the data. With view of this fact, it is important to understand some of the causes of data corruption. Such causes advise keeping the big responsibility of cloud services, some basic best practices for the use of secure data storage to the cloud, as well as the methods and standards for monitoring the integrity of the data regardless of data storage (Velte et al, 2009).

One of the main advantages of storing data in the cloud is unlimited access to the data without limitations in the time and place of access (Pearson et al, 2013). This property is important for the company, whose work activity takes place in various remote locations. For such companies it pays to enter the cloud solutions and on the ground, thus eliminating the load on physical storage devices, use the same computer and multiple access data in real time (real-time reporting) (Winkler, 2011).

In this case, it is important to create storage cloud to think about the specialty store. Although there are several hundreds of cloud storage, each storage site is geared to other requirements, such as storing communication via e-mail, store employee profiles, documentation storage projects and the like (Winkler, 2011). Of course requirement may be also store all types of documents.

In this article we have determined the sequence of storing different types of data with respect to data security. During storing data are formed dead-lock situations. For identifying critical situations we have created a Petri net. Through simulation of Petri net, we determined states, which data acquired. This article is solution for deducing the behavior of the cloud as data storage.

2 Materials and methods

For the compilation of Petri net is necessary to know the data communication between server and client. With the increasing number of data increases the number of required servers. For basic operational running cloud storage is needed one data server connected to the Internet. Communication between the data server and the client (customer of the cloud) is performed on the basis of requirements for storage in the cloud (Nielsen et al, 2013).

This communication is shown in the following figure (Fig. 1) through the UML sequence diagram. Communication interface is a web browser. Parameters for this communication are files that have been selected for placement on the server.

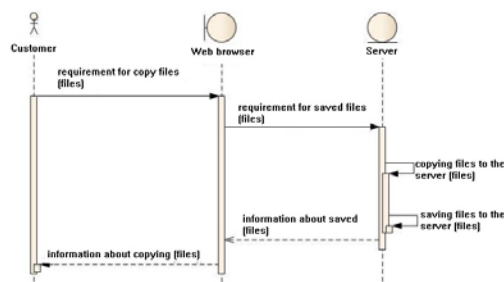


Fig. 1 Communication between customer and server through web browser

Model situations storing and accessing data in the cloud, we introduced the basic principle demonstration, but in reality cloud storage sites used by hundreds of data servers, and included the servers to maintain redundancy. It is for this reason that servers need to maintain, repair, and therefore it is necessary to store the data on multiple computers.

LAN redundancy is meant addition one (or two) back-up servers in a data center in case of problem (Lim, 2013). Since the actual use of virtualization capabilities, so we understand under redundancy cloning a virtual server on the same device, or all virtual servers cloning one device to another physical server, thus achieving the creation of shadow copies. Eswaran (2012) provides a simple algorithm to store data in the cloud.

If the cloud did not satisfy the condition of redundancy would also denied the basic characteristics and therefore client access to the cloud stored data at any time. As the most systems stores the same data on servers with different sources of power, so customers can seamlessly access their data while maintaining redundancy. Thus, the use of cloud as a data storage company is not simple, and therefore no direct hosting company's servers in a data center provider cloud solutions, but the data are divided into several parts (Mather, 2009), the individual parts can be scattered even within the whole earth.

When the cloud provider implements a redundant system, the data is again scattered throughout the cloud. Provider for these reasons does not provide redundant services directly connecting another server, but changing the allocation of resources to achieve a redundant system (Lim, 2013). It is also important to mention that while maintaining those conditions provides cloud and data security against theft (Erl et al, 2013), since the error on the local network could mean permanent loss, while the cloud companies will not lose your data.

A simple method for securing data include commonly used authentication client. Authentication system (process) allows access to data based on a correctly specified username and password (Mather, 2009). This method is one of the more simple and because it increased the possibility of breaking (Erl et al, 2013). In addition to authentication and authorization processes known procedures also provide user access to data, but in this case, the client will provide a list of persons authorized to access the data stored in the cloud (Rhoton and Haukioja, 2013).

For the phrase Storage as a Service is worth recalling that the client again works through software, which selects data backup, and then transfer them over WAN connections (Marsh, 2011). If any data loss, the client may at any time withdraw their data provider. Some people use providers and data archiving, and copying to DVD. In the event of data loss and data output requirements of the customer, the provider will send him only the drive with the copied data. For data security is also important to mention the fact that there are general principles which could drive the company to ensure data protection. However, there are standards for privacy policy (Poynter, 2008).

In the context of data security is often used in a corporate environment scheme classification data (Rhoton et al, 2013). Its aim is to highlight the need to further controls various data types that are processed businesses. The data classification scheme was developed on the basis of legal, regulatory and commercial requirements that the company must follow (Winkler, 2011). In the current corporate environment, there are three modes (or four) (Kuyoro et al, 2011), (Poynter, 2008), (Rocha et al, 2013):

- public/unclassified (e.g. marketing materials),
- internal use (e.g. information shared within the organization or with suppliers, such as the intranet),
- confidential/private (e.g. sensitive information such as credit card information),
- secret (e.g. market sensitive information, such as results at end year).

All data using cloud-based technology in the software are stored on servers at a remote location - data centers. Environment the data center allows enterprises to run applications faster with simplified management and less effort to maintain, and much faster scaling of resources (servers, storage, networks) relative to needs. The data center in the cloud environment contains information that is usually stored on end-user computers. By Chen and Zhao (2012) this type of data center cause for great concern with regard to the protection of user privacy.

By Ning (2014) use of virtualized infrastructure as a springboard may introduce new attacks on the integrity of user data. The data integrity is defined as accurate and consistent data stored in the absence of any modifications of data between two updates a file or record (Barsoum, 2013). Cloud services should ensure data integrity and to ensure confidence in the user privacy. Although data outsourcing to the cloud is economically attractive due to the cost and complexity of large-scale long-term data storage is still missing offer strong guarantees data integrity and availability of independence possible within a wide coverage of business and individual users of the cloud (Sun, 2014).

For monitoring the data integrity is important to consider these protocols:

- Service Level Agreement (Winkler, 2011), (Marsh, 2011), (Rhoton, Clercq a Graves, 2013),
- Proof of Retrievability (Eswaran, 2012), (Juel, Kaliski, 2012), (Neha, 2012),
- Protocol based on inserting random guardian in the data file (Sravan, Saxena, 2012).
- To verify the data integrity:
- Protocol call – response (Thuraisingham, 2013), (Cong et al, 2013) – If the data file is distributed to the cloud, then the system calculates forward by a number of short individual vector authentication tokens $G^{(j)}(j \in \{1, \dots, n\})$, each token represents a random subset of data blocks that will be distributed to various cloud servers,
- Verify the correctness of the data stored in the cloud (Ming, 2013), (Yang, 2014) – If the user wishes to challenge cloud server t to verify the data integrity, then the user needs forward to calculate x authentication tokens for each $G^{(j)}(j \in \{1, \dots, n\})$, change the key k_{chal} and the major permutation key K_{PRP} . For generating tokens i^{th} for server j , the user shall proceed follows:
 - creating a derivative of random values of the key challenges and permutations $k^{(i)}_{pp}$ based on K_{PRP} ,
 - calculates a set of randomly selected indices r ,
 - counts tokens $v^{(i)}_i$ with a random challenge value α_i .

After generating tokens, the user can either manage pre-calculated tokens locally or encrypted values stored in the cloud. Summary of response from the server for each call (task) determines not only the accuracy of the repository, but also includes information on potential data errors.

3 Results

Based on these facts we have created a security model data stored in the cloud. Processing of this request, we modeled using a sequence diagram. The end user, which is logged in, may stores data. Login is repetitive operation condition checks credentials. After successful login, the client broadcasts a request for data storage, which is prepared based on the following steps:

- identify the input data-based on grade input data the system determines what data to be stored,
- require encryption of data – when the input data is necessary to require data encryption,
- determine the level of data security – each imputed data to authorized data security due to their sensitivity. On the basis of the authorized security level is assigned to data security,
- determine the minimum permissions – minimum permissions are an extension of the authorized data security. Minimum permissions determine what minimal operations are allowed for the implementation of data taking operations do not cause data leakage or new risks,
- encrypt data – on the basis of the previous steps 3 and 4, the data is encrypted,
- mark the data – to maintain data integrity is attributed data code (hash value), flagging data consists of the following steps,
- identify risks – for labeling data is needed to determine the risk procedure that can be performed with the data and could lead to the theft or total loss of data,
- create the security policy – when the risk is compiled security policy, which shows the way to address risk procedures and means of prevention,
- determine the boundary of protection – boundary of data protection remains at the base of the identified risks and security policy. Defining the boundaries of data protection we separate risky operations to implement with data from safe operations,
- ensure of data – secure data is encrypted and assigned code. Secured data contain a defined risk, security policy and data protection threshold,
- determine a type of security – secure data assigned the type of security, i.e. inclusion in the security level under level data contained in the system,
- confirm the security – unless they contain protected data type of security, we do not consider the data as secure. Once the type of system perceives data for secure,
- confirm the save data – after confirmation of proper data security, data is stored and the end user receives information about saving data.

Sequence of steps 1-13 is strictly defined and the output of one step is the input for the second step. Procedure cannot be performed simultaneously. These steps are handled operand input data. Steps 3 and 4 loop, which is a condition determining eligible security. To ensure the operation 4 is important to check the identification number and the minimum level of permissions. Incorrectness occurs when data breach data security system. Procedures 7-11 represent the loop systems, because without them the correct output system do the following steps 12 and 13.

For methodology of determining the security data stored in the cloud we transformed sequence diagram into the Petri nets (Fig. 2). The Petri nets we set the step value to 1 ms, the time for completion of the simulation to 1000 ms and the maximum number of simulations is 1000. The Petri net consists of 22 transitions and 33 places. Weight value in each case is 1. Seating capacity is mostly 1, only the points that serve as terminal configurations of the model are determined by the capacity to 100. Transitions are defined without waiting a time instant model.

verify the correctness of the data stored in the cloud by Ming (2013) and by Yang (2014). The referred verification does not include process for the storing data.

In this article, we defined the process of storing data in order to enhance to the data security. The process consists of the following steps: identify the input data, require encryption of data, determine the level of data security, determine the minimum permissions, encrypt data, mark the data, identify risks, create the security policy, determine the boundary of protection, ensure of data, determine a type of security, confirm the security, confirm the save data. The above steps are visualized in the Petri net. From the Petri net, we establish the basic rules of the process of storing data in the cloud.

Although we defined the process of storing data, it still remains an open question whether it is not appropriate to use other means of verification of security.

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PRIVATE CLOUD SOLUTION FOR AN ENGINEERING COMPANY

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Abstract: The paper presents a solution that implementation of private cloud into the working environment of company is benefit and not least advantageous. The main objectives of this paper are draw a proposal solution and compile a working system of private cloud. When drawing up the proposal solution it is necessary to take into account current conditions and requirements, backup and administration. The results is a functional method for assembling a private cloud, where the system has installed all necessary software solutions.

Keywords: Private cloud, Administration, Ubuntu Enterprise Cloud, Eucalyptus Machine Image

1 Introduction

Breakthrough of cloud computing in all aspects of life is more and more visibly and therefore there is interest raise of general public and companies about it. It is nothing unusual everyday using of cloud computing for individual needs. Less extended application of this technology is in the deployment of business customers, such as corporate solution. This is caused by companies concerns about the financial difficulty, complicated administration and weak data security. In our study, we decided to verify these reasons and provide a solution that will be suitable for the application in practice.

Companies puts great emphasis on security of data storage and access to them. The deployment such a security policy is understandable in view of the latest information on matters dealt with wiretapping and spying on the Internet. On the other hand, this security policy for corporate data is not very user friendly and cost-effective solution.

Our designed and implemented solution was provided by the company's own server, via the corporate network to the employees who work with thin clients. Employees are using preconfigured operating system with installed programs already and at the same time they have access to their stored data on the central data repository. There are available different options of system configurations which vary in the type of operating system, installed programs, in way of their utilization and last but not least, performance. Used platform include operating systems Microsoft Windows XP and Ubuntu Server. Installed programs on the Windows operating system include for example. Microsoft Office, Visual Studio, Python Engine, Eclipse. In operating system Ubuntu Server employees can use a package of programs for the application server WUCMAS.

1.1 Project WUCAMS

The character of the work on all departments in VUJE cause, that software deployment is not focused in one workplace. This fact causes unequal investment in the infrastructure development and the difference in the quality of available professional development environments. Due to this problem there was initiated a long-term project of building an information system for management of changes and version control software based on proven open source tools – project WUCAMS. The word WUCAMS is an acronym of the words - automated system of the configuration management projects. Today is the project WUCAMS in the upcoming phase of the third generation.

In the first generation were implemented monitoring the changes and versions of the software, the second generation added monitoring implementation of project management tasks and deadlines, and the third generation of system is made up for full configuration from the local administrators computers.

Project WUCAMS increased ensure the quality of projects, brought a better view about the project objectives and significantly improve the preparation of project documentation. Third generation in the production environment indicates that the system WUCAMS be even more important for management and implementation of projects in VUJE company. [Hrehuš, 2010, p. 70]

2 Deployment model of cloud computing

As we mentioned above, we chose private cloud as deployment model. This decision had several reasons. In public cloud are service providers and the resource manager as a third party, the owner of the infrastructure through which offers to users the resources as data storage, virtualized computing power or applications. This facts are not acceptable for companies, due to using a common infrastructure causes a reduced level of security, limited configuration and variable quality of availability. However, loss of data and security of stored data can come also with government interference as case Megaupload in 2012.

Due to our requirements in the company we had review the decision of the availability computer resources to be able physically build a private cloud. Costs of building private cloud are on the beginning of the project higher as implement a solution in the public cloud. We had to provide the required equipment, personnel for system administration and appropriate service spaces. Available computer resources are largely virtualized and located in our own company's data center.

The difference between a simple virtualization and private cloud is in automation and scalability. The advantage for us was own design of the system, compatibility with established platforms and concrete specification of the required hardware. Because of used company infrastructure, private data do not leave the restricted area network of enterprise. At the same time it is coming a reduction the risk with respect to safety of the data, which are in this type of environment under greater control. By this we met laws, ordinances or regulations which emphasize to make specific data cannot leave the territory of the country. Of course, the various departments at work may have and had different requirements for data protection within the private cloud storage and access to them. [Winkler, 2011, p. 40]

2.1 Infrastructure as a service

Our private cloud is based on distribution model of infrastructure as a service. From employee's side of view it may appear as desktop as a service. Employees have scalable infrastructure that includes traditional computing resources, network elements and platform for deploying their or delivered applications. The size of processing power which is equivalent to a physical processor is chosen by the user from available options. [Rittinghouse, W., J., Ransome, F. J, 2010, p. 34]

2.2 Implementation plan

The term implementation is understood as placing a plan, program or strategy in the production environment. The implementation plan includes a list of people responsible for the project, pricing strategy, scheduling and objectives. Integrated management system and security policy of VUJE company required the establishment of implementation plan for deployment project of private cloud WUCAMS-CLOUD.

The key points include system architecture, describe of system, describe of implementation, questions about contact persons, main tasks, schedule of implementation, privacy and safety.

Next one are resources of implementation which include requirements on safety, hardware and software. Hardware, what is private cloud based on, table 1.

Table 1: Hardware resources

Name/ ID	Type	Model
Switch	Switch	TP Link TL-SG1008
Cloud-controller-0530	Server	IBM Station
Node-controller1-0530	Server	IBM System x3550 M3
Node-controller2-0530	Server	TYAN Tank GT20 B5372
Node-controller3-0530	Server	TYAN Tank GT20 B5372

Source: Author's elaboration

The physical hardware Node*-Controller-0530, together 3 servers, contains this following virtual machines - wucams.img, elastic.img, programming.img, pdm.img, winxp.img and acrobat.img. Individual virtual machines are based on the operating system image files Ubuntu Server 10.10 and Windows XP SP3.

The most important created virtual machine in WUCAMS-CLOUD project is connected with pre-prepared image files wucams.img what is used as an application server WUCAMS. The operating system is Ubuntu Server 10.10 and contains all the necessary open source software, with proper setup it will deploy to the production environment. Open source software include Apache Ant, Apache Forrest, Subversion, Trac and Taskjuggler.

3 Experimental part

3.1 Building of private cloud

To build a private cloud and the achievement of main tasks defined in the implementation plan was necessary to meet the sub problems associated with it. These were create and configure cloud-controller-0530, node-0530 controller and the remote computer for testing.

In the figure 1 we can see network architecture of WUCAMS-CLOUD.

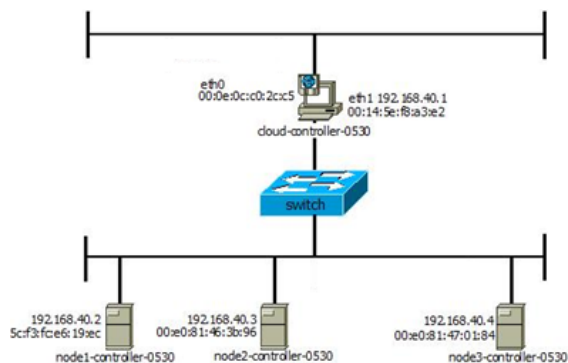


Figure 1: Network architecture

Source: Author's elaboration

3.2 Installation of cloud controller

For better data security and system stability was necessary to have created disk RAID5 array type using hardware controller before installation. The operating system is Ubuntu Server 10.0.10, specifically chosen the option to install Ubuntu Enterprise Cloud. During the installation were selected following cloud modes: Cloud Controller, Walrus storage service, Cluster controller, Storage controller. Other important settings for the Eucalyptus included define a name for the new cluster and select the range of IP addresses for virtual machines. After the installation is complete and logon to the system, it was necessary to do an update of Eucalyptus package and set cloud controller as NTP server. Time synchronization with the server and other elements connected in the cloud is important, because if there were bigger time deviation, the system would not worked properly.

3.3 Installation of node controllers

Needed pre-requisites to start installation of three node controllers were had created disk RAID5 array type and configured cloud controller. Login details were same as those on the cloud controller. During the installation we had select component named Node Controller. The installation procedure was same for all three node controllers. The only difference was in define hostname and assign a static IP address. After the installation was complete we did an update of Eucalyptus package set NTP server to cloud controller address and configure the network adapters to the type bridge.

Now is important to check availability zones. When public key is installed on the node controllers we could check created availability zones (avail. zone) through cloud controller. Availability zones gave us information about cluster capacity for virtual machines in different configurations. First, it was necessary to create and acquired the right credentials. They were necessary for the security settings in the add-on Hybridfox by which we managed virtual machines remotely. Using command `sudo euca_conf --discover-nodes` we had connected all nodes in the cluster network. We can see output in table 2.

Column free/ max gave us information about total maximum number of created virtual machines in the various configuration. As we can see, the default configuration for the type of virtual machine is available m1.small max. 40 instances. For the best configuration c1.xlarge we have max. 18 of these virtual machines. If there were all zeros node controllers are not connected properly.

3.4 Remote computer for testing

The remote computer is used for testing our cluster network using a web browser interface. First it was necessary to set the operating system Windows environment network time synchronization with the cloud controller. Connect to Ubuntu Enterprise Cloud was using the IP address for the cloud controller, login by entering the default username and set the configuration of the first run what was required to activate Eucalyptus.

Next, we downloaded an add-on to the Mozilla Firefox browser called Hybridfox and installed it. Since we did not work with Amazon Web Services, when we were asked about the assignment to Hybridfox we select No. In the Hybridfox environment we had configured region, security and logon credentials.

3.5 Registering created images

As we talked before, we have created two image files: one for Linux image and one for Windows image. Linux image file was created in terminal, where we used local temporally virtual machine run by KVM. After installing operating system with our programs and setting attributes for network adapters we had to extract the kernel to external storage for later phase. As the last step was to set up access for users and their authorized login keys. In this process we had created a basic template image file for Ubuntu server.

Windows image file was created in the similar way. Compared to the creating image file for Ubuntu server it was necessary in Windows XP environment create a boot disk, install a new network card which was supported by Eucalyptus tool and finally allow access via remote desktop.

When we had prepared image files we could start their registration. Registration into Eucalyptus took place on cloud controller. The required files for Ubuntu Server were `initrd.img-2.6.32-38-generic-pae`, `vmlinuz-2.6.32-38-generic-pae` and `linux.img`. For `vmlinuz-2.6.32-38-generic-pae` and `initrd.img-2.6.32-38-generic-pae` do not forget write down generated the eki and eri number, which are required for the registration `linux.img`. Required files for Windows XP were `memdisk`, `win-boot.img`

Table 2: Hardware resources

AVAILABILITYZONE	Cluster1	192.168.40.2			
AVAILABILITYZONE	- vm types	free / max	cpu	ram	disk
AVAILABILITYZONE	- m1.small	0040 / 0040	1	192	2
AVAILABILITYZONE	- c1.medium	0040 / 0040	1	256	5
AVAILABILITYZONE	- m1.large	0020 / 0020	2	512	10
AVAILABILITYZONE	- m1.xlarge	0019 / 0019	2	1024	20
AVAILABILITYZONE	- c1.xlarge	0018 / 0018	4	2048	20

Source: Author's elaboration

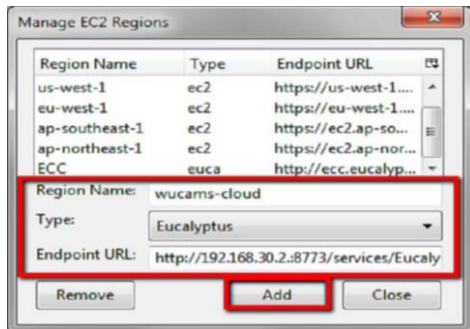


Figure 2: Manage regions

Source: Author's elaboration

and winxp.img. Procedure is the same as registration Ubuntu Server and we had to also write down eki and eri numbers.

3.6 Creating and connecting to instance

On the remote computer run Hybridfox, went to Images tab, select the required image file by emi number and click on the icon Launch Instance(s), see figure 3.

In the new window we typed in New Instance (s) Tag, where we entered a name for the instance and changed Instance Type. When we got State as Running in tab Instance we were ready to connect on our prepared instance. IP address of virtual machine were shown in Public DNS column. Connect on instance with Ubuntu Server operating system we use ssh connection. It was necessary to had imported private key on computer from which we were connecting. Connect into virtual machine with Windows XP operating system required remote desktop application.

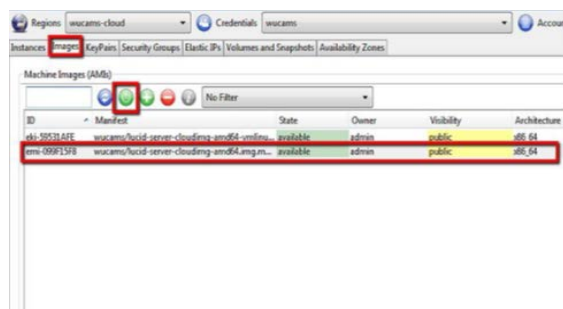


Figure 3: Creating instance

Source: Author's elaboration

4 Conclusion

As mentioned at the beginning, the main objective was to simplify the computing infrastructure, make it more efficient of using computing resources and not least to increase employee productivity by using cloud computing. For this purpose there were available a number of solutions among which we were taking into account the required criteria for choosing a private cloud. Select this distribution model was that we meet regarding requirements, such as data security, reliability, availability and use of own free computer resources. The system consists of four

servers, where one is a cloud controller and the storage controller, the other three are node controller.

After successful installation we got a new cluster ready to provide services of private cloud. Performance of cluster was expressed by ability to run a virtual machine, 18 virtual machines in the best and 40 virtual machines in the lowest configuration.

The implementation of private cloud for the needs of the department in the company VUJE Trnava has brought the expected benefits. With current available cloud infrastructure we are able to replace 20 physical computers for virtual. The released computer resources can be used for other purposes. The employees have access to the virtual machine through thin clients and using remote desktop. The benefits are improved work of users, reduced demands on system administration, simpler technical management and total cost optimization.

There is still space for better use of private computer, for example increase number of node controller and its hardware configuration. This could bring us possibility of running more virtual machines.

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