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CONTENTS

1. Robert BALCERZYK, Janusz MATERAC – Official assessment of the police	5
2. Bartosz BODZIAK, Bartłomiej STEĆ – The acquisition of consumer behaviour data using integrated indoor positioning systems	21
3. Dorota CHMIELEWSKA-MUCIEK – Cultural preferences of companies operating internationally	33
4. Bożena GAJDZIK – Sickness absence of steel industry workers in the lost work time	43
5. Katja KOKOVNIK, Gregor JAGODIČ – Intergenerational cooperation at the company and knowledge transfer	57
6. Marek MĘDREK, Łukasz WIECHETEK – Discovering and optimising processes from event logs of document management systems	69
7. Urszula SKURZYŃSKA-SIKORA – Innovative companies and their competence in selected countries	83
8. Agata STACHOWICZ-STANUSCH, Aneta ALEKSANDER – Development of managerial competences of the future – shaping curricula for higher education	93
9. Agata STACHOWICZ-STANUSCH, Wolfgang AMANN – Organisational social irresponsibility in higher education	113
10. Ewa WIDZ – Foreign investors on the stock market in Poland	125

OFFICIAL ASSESSMENT OF THE POLICE

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Abstract: The article discusses the issue of the official assessment of the police. It covers the theoretical aspects of periodic appraisal of employees and presents the study results on the official assessment of police officers. The first part of the article deals with the essence of the employee appraisal and its impact on the subfunctions of human resource management system. It demonstrates the classification of criteria and assessment methods and describes the employee review-related risks. Methodological assumptions, the result analysis and conclusions from the conducted studies have been contained in the further part of the article. The aim of the studies was to diagnose the assessment system of police forces. The studies were conducted at one of Municipal Police Stations in Wielkopolskie voivodeship. They were carried out within the research project on the management of uniform services. The performed studies were of a pilot character and will encompass a greater number of respondents. The main method of the conducted studies was a diagnostic survey. As a result of the studies performed, it was found that the system of official assessment required fundamental changes. The existing assessment system proved not to have performed one of its basic functions, namely it does not provide reliable information on the quality of work performed by police officers.

Keywords: official assessment. period appraisal, uniformed services.

1. Introduction

The main objective of reasonable personnel selection is the filling of vacancies. The periodic appraisal of employees plays a fundamental role in the system. It provides the information on the quality of work performed and constitutes the basis for the decision regarding redeployment of staff, redundancies and promotions. The purpose of this article was to diagnose the system of official assessment of police non-commissioned officers in one of district police stations in Wielkopolskie voivodeship. The studies were of a pilot character and were performed and were conducted within the research project on the management of distribution groups.

2. Periodic appraisal

The assessments of traits, conducts and achievements of both individuals and teams fulfill a significant role in every organisation. People evaluate themselves and others, systematically or not, and they follow their assessments in their conduct. The superiors constantly face the issue of assessment. The formal rating system, which includes the collection of performance data arranged in the periodically regulated or controlled form, places high challenges on the management staff. It is essential for the assessment body to understand the basis and objectives of the system, as well as to acquire competences for its practical implementation.

One of the most important elements of the assessment system is the manner the employee appraisals are used (Kopeć, 2006). In general it may be said that the obtained assessments may be applied to implement almost all task areas of human resources function in an organisation. The periodically conducted appraisal process unites the employee development (Antczak, 2000). The assessment is related to the improvement, redeployment, integration, motivation and it has a special role in the development plan.

According to A. Suchodolski, the employee appraisal is believed to be the key tool for the effective and efficient management of human resources (Suchodolski, 2006). The aim of the performance assessment is:

- to analyse and diagnose the leadership potential, which is the basis of the company strategy assignment,
- to design the personnel scheduling,
- to control the human resources function,
- to create the required conducts and behaviours,
- to motivate employees,
- to determine the training needs,
- to diagnose the development potential of individual employees,
- to make decisions on employee transfers (redeployments, promotions, downgradings),
- to control the course of an employee professional development,
- to provide the superiors with the information on the work quality of employees,
- to ensure the superior-subordinate communication.

The same belief is shared by A. Wajda it is presented in Figure 1.

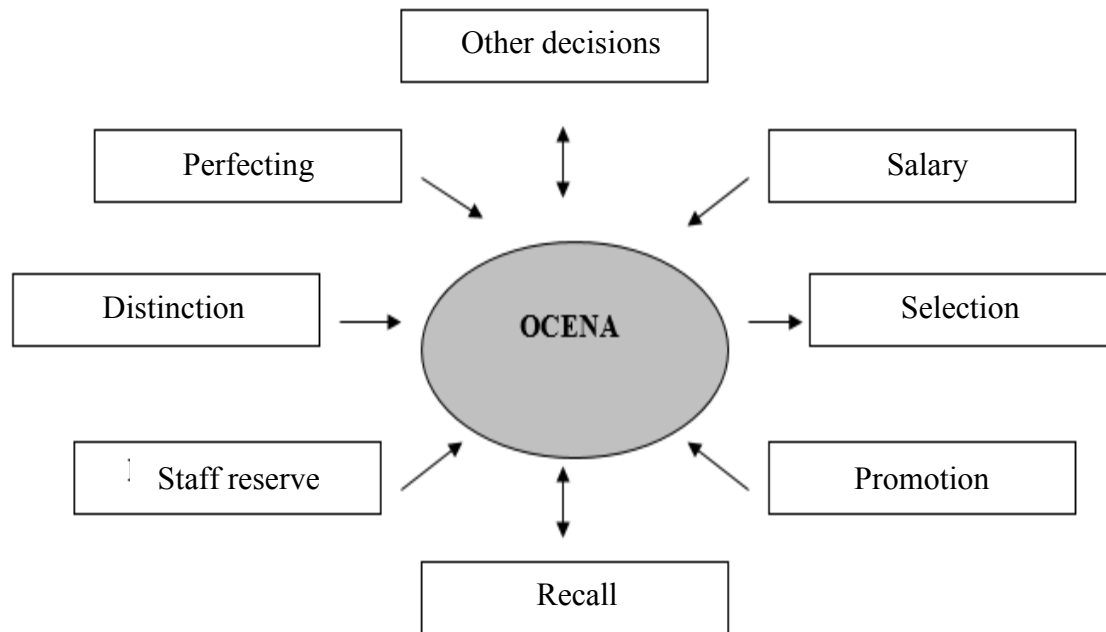


Figure 1. The relationship between the employee appraisals and other areas of human resource management. Adapted from: „Organizacja i zarządzanie” by A. Wajda. Copyright 2003 by PWE.

According to him, the system of employee appraisals is an open system, which is related to the elements of human resource management as well as to the strategy of a company, its organisational culture and its structure. The effects of employee assessments affect the development of processes related to the function of human resources in an organisation.

It is worth noting that the tools to be used should not be overlooked during the creation of assessment systems. These will be the forms and regulations. The former are the documents that evidence that the assessment has been conducted. The regulations will help to understand the assessment criteria better and to solve the difficult cases related to it. At its simplest, a form is to be understood as a document template with gaps to be filled (Jędrzejczak, 2016). The assessment sheet must be characterised by the adequacy principle in relation to the workplace and workstation.

The appropriate selection of criteria is the key to make whole assessment system effective. The criteria must be closely related to its aims. They address the essential question: what do we intend to evaluate? Providing employees with the information on the assessment criteria, we present and concurrently enhance the patterns of behaviours, norms and values to be focused on in relation to their great significance in an organisation. The new links are thus added to the organisational culture and the old elements are strengthened in it. It may be concluded that the criteria selection is of fundamental importance. It is extremely essential that the criteria have a clearly defined meaning. They are to be the base on which the work regarding the subsequent creation of the assessment system will be performed at a later time. The evaluation criteria may basically be subdivided into the following groups (Ludwiczynski, 2014):

- qualification-related,
- efficiency-related,
- behaviour-related,
- personality-related.

Literature of the assessment-associated issue considers also three basic concepts of evaluation. They are the views expressed by Steinmann and Schreyogg. They believe it is possible to distinguish (Steinmann and Schreyogg, 2001):

- trait-based concept of assessment, in which the traits and characteristics of an employee are the assessment subjects,
- activity-based concept of assessment, in which the manner of activity performance of an employee, as well as their behaviour are evaluated,
- performance-based concept of assessment, in which the result (effect) of the employee-performed activities is under evaluation.

The question on the manner the employee appraisal is performed could be asked. The assessment methods are the answer to it. They should be understood as an approach including selected rules, criteria and finally the aims of the assessment, which are the reference system, without which the real and reasonable selection of assessment methods would not be possible. This manner must be fully systemised, conscious and consistently applied (Ludwiczynski, 2014).

Employee performance appraisal methods are subdivided into: relative and absolute. In order to demonstrate the difference between the methods, the most relevant would be to quote M. Kostera “the absolute assessment involves the comparison of employee performance with the established standards. The relative assessment is made by comparing employees” (Kostera, 2010).

There are a number of significant risks, which may affect mainly employee's perception of the assessment fairness (Szczygielska, and Kurek, 2015). Such pathologies may be of different origins. The sources of error of the employee appraisal most frequently result from the lack of knowledge of psychological foundations and mechanisms. Mere negligence in procedures and criteria selection as well as principle of assessment also constitute significant errors. If the assessment system, which has been introduced in an organisation, company or an institution is conducted unreliably, it will bring more losses than benefits.

According to M. Sidor-Rządkowska it is the clearly identified rules that should be regarded as the assessment system basis. Their systematic, methodical and consistent adherence reduces the number of occurring errors. The most crucial principles of assessment have been presented below (Sidor-Rządkowska, 2013):

1. Purposefulness – the strategic objectives of the company must be reflected in the system of assessment, to constitute their support.
2. Usefulness – the performance appraisal system should be a tool of human resources policy of an organisation. The results provided by the assessment system must be used as a basis to make decisions on, e.g. promotions or remunerations. The system should be applied and made use of.
3. Universality – the structure of the assessment system should include all employees. If the system is to actually fulfill its role in the future the employees in all positions should be assessed. It is a bad idea to apply the performance appraisal system to only selected departments or segments.
4. Regularity – the right approach is to conduct the assessment on a consistent, regular and permanent basis. Performing unexpected and one-off evaluating controls affects the internal relations and the culture of an organisation in a negative way.
5. Continuity – employee appraisal should be inseparable from the analysis of the achievements of the previous period and should involve them being discussed.
6. Adequacy – the specificity of the company and all its positions should follow the criteria and periodic assessment procedures tailored to their nature.
7. Uniformity – unification should characterise the evaluation system. It should be designed in such a way as to allow the comparison of the assessment outcomes in the employee groups and at the time of their issuance.
8. Simplicity – only clear and plain system of evaluation will be understandable to assessed employees and simple procedures will help to prevent the evaluators from making errors.
9. Transparency – all the involved parties should be acquainted with the assessment system elements such as: the criteria, the results, the review procedure, the use of the results.
10. Flexibility – if required it is also necessary to take the additional circumstances and unexpected events into consideration when conducting the assessment.

Evaluators must scrupulously follow the appraisal principles to avoid assessment errors. This is particularly important since the outcome of the final assessment frequently depends on it. Evaluators must be know all possible pathologies to avoid the consciously.

3. Methodological studies

The main method of the conducted studies was a diagnostic survey. This method is based on statistical gathering of facts and data on a given issue. The grouped facts and data on the object of study enabled to diagnose the causes and effects and made it possible to create new solutions. Surveying was the technique, that was chosen during the studies. Surveys were

conducted in the months of March-April 2017 on of the police stations in Wielkopolskie voivodeship. The police commissioner did not agree to disclose the data of the institution. The survey was anonymous. The questions in the survey were reliable and tackled the problems, which had not been answered before. In addition, questions were deliberately chosen and formed an integrated whole. The survey consisted of three parts. Its first part included the address of the assessed institution, the title of the survey, its aim and testing instructions. Its second part is the main part, which included all the questions to the respondents. The questions covered the course of issuing an official assessment and the impact of the periodic appraisal on the operation in the police. It contained both the closed and semi-open questions. The third part of the survey contained the particulars.

Studies were conducted in one of the district police stations in Wielkopolskie voivodeship. 60 police officers participated in the study. The group included 50 men and 10 women. The latter accounted for 17% of the total respondents. The percentage distribution of male and female police officers taking part in the study has been shown in Figure 2.

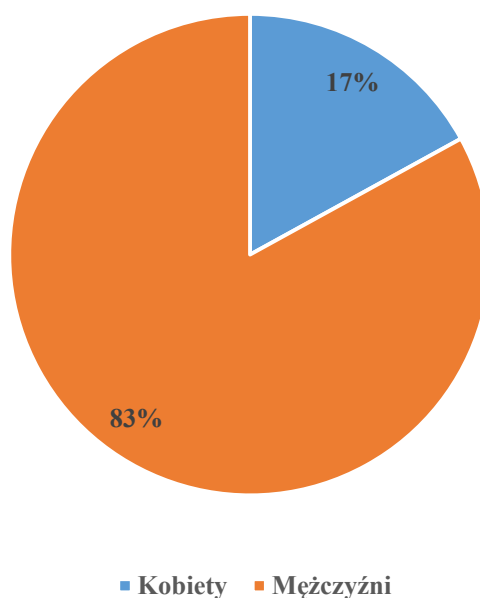


Figure 2. The percentage distribution of male and female police officers participating in the study. Own elaboration.

Out of 96.586 employed police officers 13.280 are women. They account for 14% of the total police officers (“Kobiety w policji”). The studies conducted for the purposes of this article have demonstrated the overall tendency of female employment in the police.

The vast majority of officers served in the police force from 6 to 10 years. This group accounted for 43% of all respondents. The second group in terms of police service were the officers with the years of service between 11 and 15 years (27%). Officers with 16-20 years of service accounted for 13% of respondents. Officers of up to 5 years of service represented 10% of respondents. 7% of police officers participating in the study presented over 30 years of

service. The study did not encompass the police officers with 20-30 years of service. Length of service of police officers has been shown in Figure 3.

It was mainly non-commissioned officers and aspirants who performed service in the District Police Station in Wieluń. Structure of the rank-related study group has been shown in Figure 4.

Aspirants were the largest group among the law enforcement officers under study. They accounted for 17% of the respondents. The most frequent rank was the one of aspirant, which accounted for 36% of the respondents. The second most abundant rank was the one of senior aspirant. They represented 27% of all police officers. Another group were sergeants (17% of the respondents).

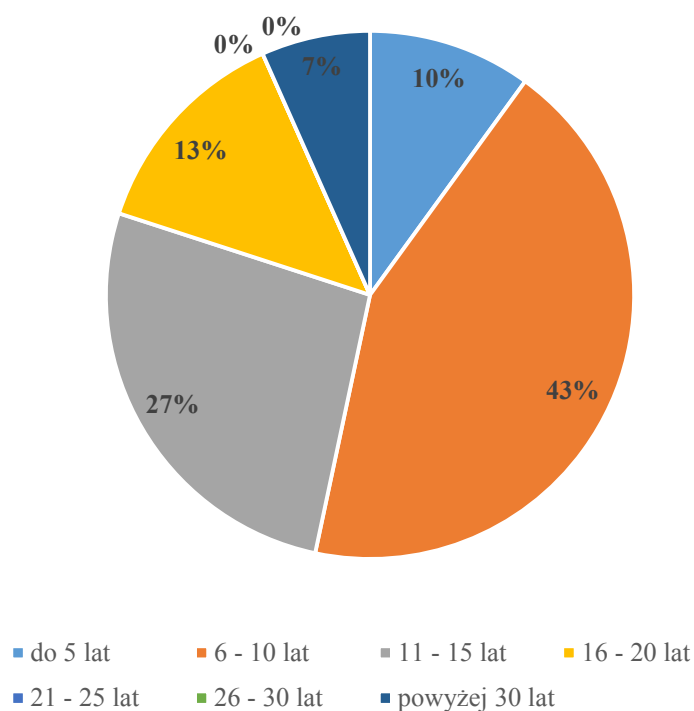


Figure 3. Length of service of police officers. Own elaboration based on empirical studies.

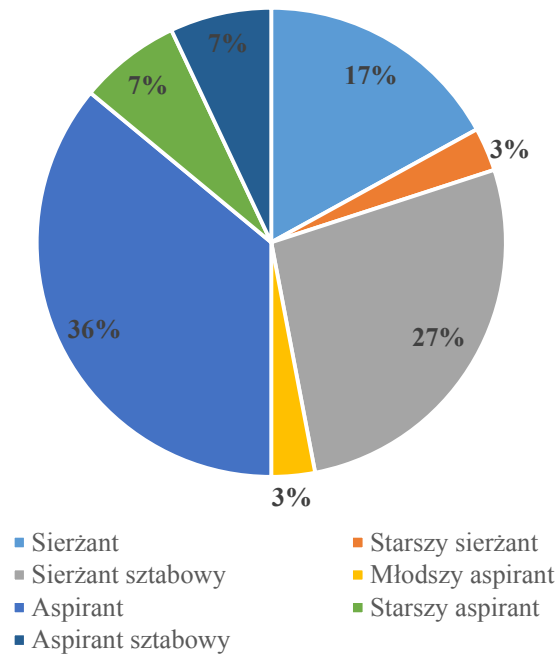


Figure 4. Structure of the rank-based study group. Own elaboration.

4. Opinions of respondents opinions on the assessment of police non-commissioned officers in the context of studies

In one of the first questions, the respondents were asked to comment on the statement that the official assessment was affected by personal relationships with the superior. Opinions of respondents have been shown in Figure 5.

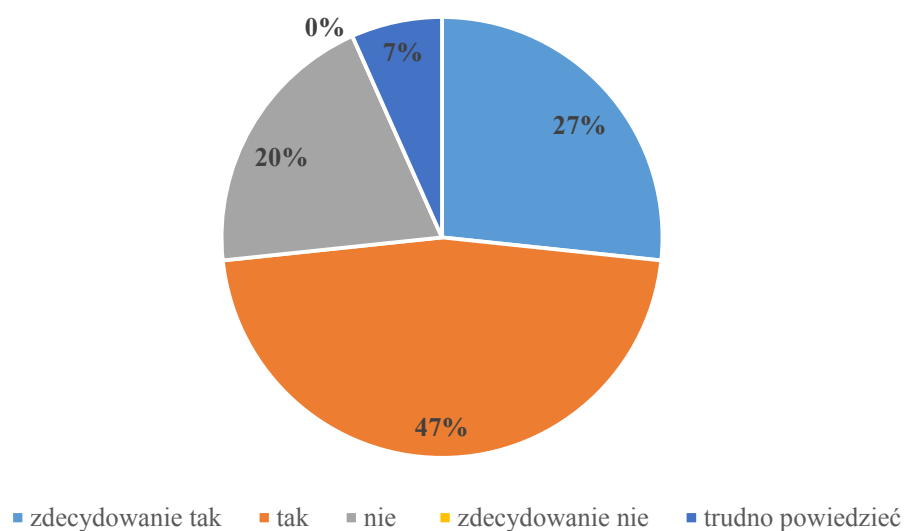


Figure 5. Opinions of respondents concerning the impact of personal relationships with the superior on the obtained assessment. Own elaboration.

The vast majority of police officers thought that the official assessment is affected by a personal relationship with the superior. 27% of the officers replied “definitely yes” whilst 47% of respondents replied “yes”. A total of 74% police officers stated that personal relationships had the greatest impact on the assessment. Only 20% of the police officers replied “no”, and only 7% of the respondents ticked the “difficult to tell” reply. Studies have shown that the answer “definitely yes” was given by male police officers. As many as 80% of female officers checked the “yes” answer. The ranks held by the police officers did not affect the answer for this question.

The cause of the distribution may be due to a fact that one of the most common errors of assessment is the subjective approach to the employee appraisal. The errors are reflected even by the contact and halo effect. If the superior spends a lot of time with the subordinate and socialises with him outside of work, it is highly possible to commit such error in the assessment process. The personality of each man somehow forces them to assess others and the surrounding reality through the prism of their own experiences, achievements or expectations. If someone likes another person they will assess him/her better.

The next question examined the opinions of police officers on the question concerning the issuance of “secure assessment” – a good one by the superiors. The distribution of responses has been presented in Figure 6.

The vast majority of police officers believed that superiors usually gave a “secure” good evaluation. That was the opinion of 53 of police officers, who replied “definitely yes” or “yes”. Only 17% law enforcement officers disagreed. They believed the assessment to be objective. As many as 30% of officers had no opinion on this subject. The vast majority of female officers (60%) claimed that their appraisal was “secure”, which meant good. About 40% of female officers considered themselves to have been objectively assessed. The length of service did not have a significant impact on the replies.

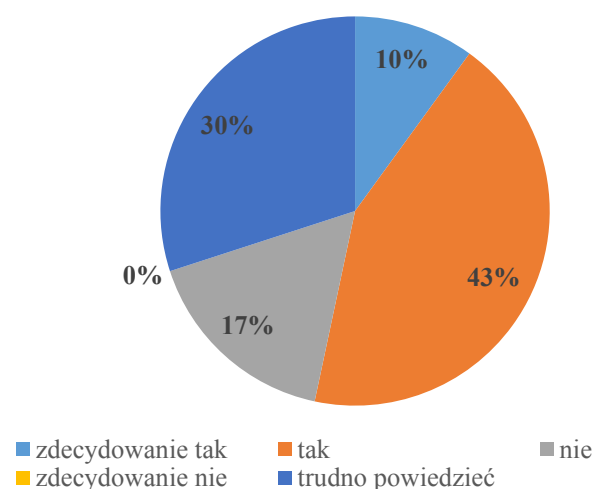


Figure 6. The opinions of respondents on a “secure assessment” – the good one being given by the superiors. Own elaboration.

One of the most common errors made by the management is a lack of objectivity in the course of evaluation. Issuance of an assessment referred to as “good” gives a sense of security both for the person evaluating and the one that is being evaluated. It usually guarantees that the person evaluated will not appeal against the assessment. On the other hand, the superior will be regarded as a demanding manager by his immediate supervisors. In such circumstances, the assessment criteria may not be appropriately suited to a given position. The superior is not able to conduct an objective appraisal and issue either a “very good” or a “satisfactory” assessment.

The study also determined how frequently the police officers had been assessed. Opinions of respondents have been shown in Figure 7.

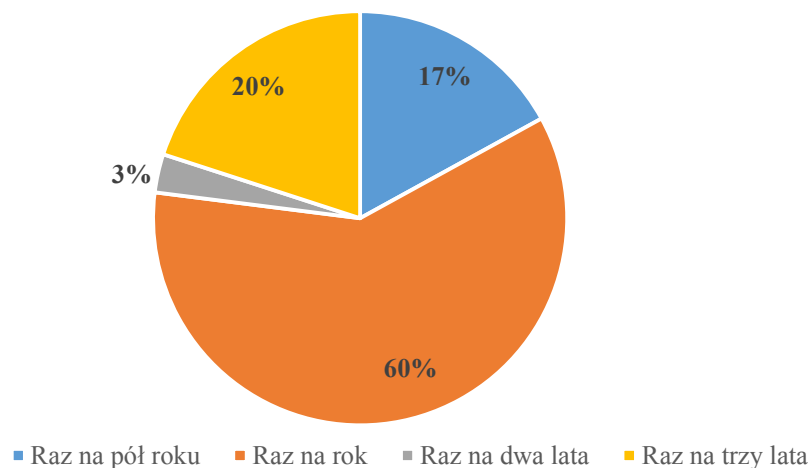


Figure 7. Opinions on the frequency of assessment. Own elaboration.

The vast majority of police officers was assessed once a year. They accounted for 60% of all surveyed. 17% of the police officers were assessed twice a year. Very small number (3%) of officers were evaluated every two years. Every three years 20% of the respondents underwent appraisal.

The distribution of replies presented above has been impacted by the length of police service, the superior, conducting the appraisal and the Regulation of the Minister of Internal Affairs on the frequency of assessment. According to the Regulation, the police officers should be assessed (Regulation of the Minister of Internal Affairs and Administration of 30 August 2010 on official assessment of police officer. Official Journal of Laws of 2010, No.170, item 1145):

- at least once a year when in preparatory and contractual police as well as when serving as a candidate,
- no less than once every 24 months when on permanent active duty, when the length of service does not exceed 10 years,
- no less than once every 36 months when on permanent active duty when the length of service is 10 or more years.

The police officers with the length of service between 16-20 years were assessed once every two years. Therefore, appraisals were conducted more frequently than required by the Act. Police officers whose length of service was 10 years or more were evaluated once every three years. This is the absolute minimum required by the Regulation. Police officers with the length of service between 6-10 years were assessed once a year. It seems interesting to observe that annual performance appraisal was also conducted among police officers with longer service. It depended on the superior's approach to the assessment. Police officers with length of service up to 5 years as well as with the one between 6-10 years were evaluated once every six months.

The assessment performed every six months is the most desired frequency of evaluation. It allows effective monitoring of an employee performance and is not “troublesome” for superiors and subordinates. Evaluation conducted every three years (as the Regulation of the Minister of Internal Affairs recommends) does not fulfill the functions of assessment, namely, it does not give an employee and a superior the information both on the quality of work performed and on the possibility of continued employment of the employee. Assessment conducted on incidental basis (that is how the appraisal carried out every three years may be referred to) does not motivate police officers. Evaluation becomes a “beauty treatment” in the process of human resources management.

In the opinion of respondents obtaining high ratings in performance appraisal does not affect the remuneration. The distribution of responses has been presented in Figure 8.

The vast majority of police officers – 70% believes, that the periodic performance appraisal does not affect remuneration. 20% of police officers hold a different opinion. None of the surveyed female police officers does not believe that the assessment has effect on remuneration. The reason for such distribution of responses may be the fact that police officers do not possess knowledge on how the process would be conducted. In civil organisations, the best assessed employees are usually awarded higher salary, prizes, bonus and all kinds of extras and privileges. It is not possible to apply anything of this kind in. Police officers are classified in specific salary ranges. Resources that commanders may allocate to rewards are very limited. Therefore, the material motivation becomes highly limited. At the same time, police officers believe that remuneration should depend on employee appraisals.

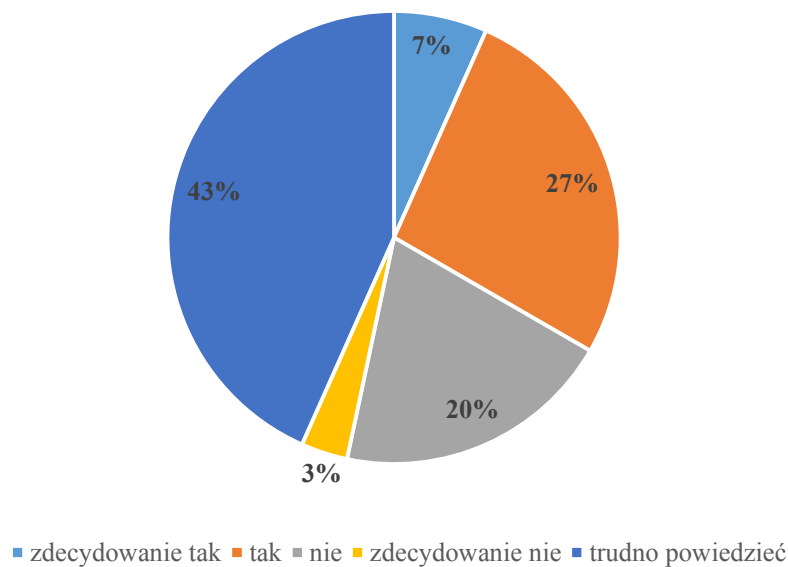


Figure 8. Opinions of respondents concerning the impact of assessment on remuneration. Own elaboration.

Another question regarded the impact type of high performance evaluation on the course of service. Opinions of police officers have been shown in Figure 9.

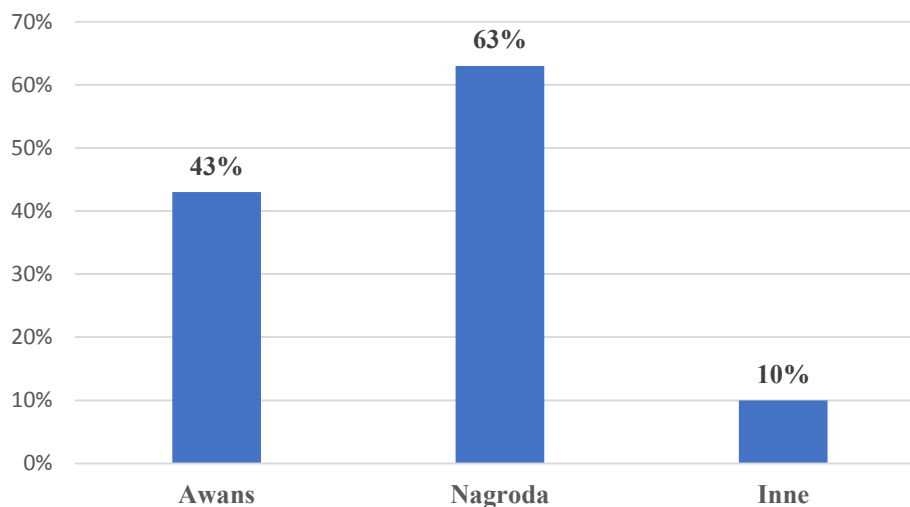


Figure 9. Impact of high performance evaluation on the course of service. Own elaboration.

The vast majority of police officers believed that high performance appraisal affected their receipt of rewards. Up to 63% of police officers were awarded a prize as a result of high performance appraisal. They were usually the non-material rewards, e.g. reward leave or the praise. A large number of police officers – 43% believe that the period appraisal affects promotion. The same opinion is shared only by 20% surveyed female officers. Therefore, most of police officers believe that periodic assessment does not affect promotion. The question to consider is what then determines promotions and employee redeployments. It may be the fact

that superiors are aware of the imperfections in the assessment process and do not take the period appraisal into consideration when assigning to higher positions.

The police officers were subsequently asked if the obtained performance appraisal motivated them to further work. The distribution of responses has been presented in Figure 10.

Half of the police officers believed that the performance appraisal issued by the superior did not affect their motivation to work in any way. Only 23% of respondents stated that the appraisal motivated them to further work. 27% of the police officers were undecided. None of the respondents replied “definitely yes” or “definitely no”. The study has shown that gender of the police officers had no impact on the answer given. Neither did the length of service. They did not have significant effect on the responses given by officers.

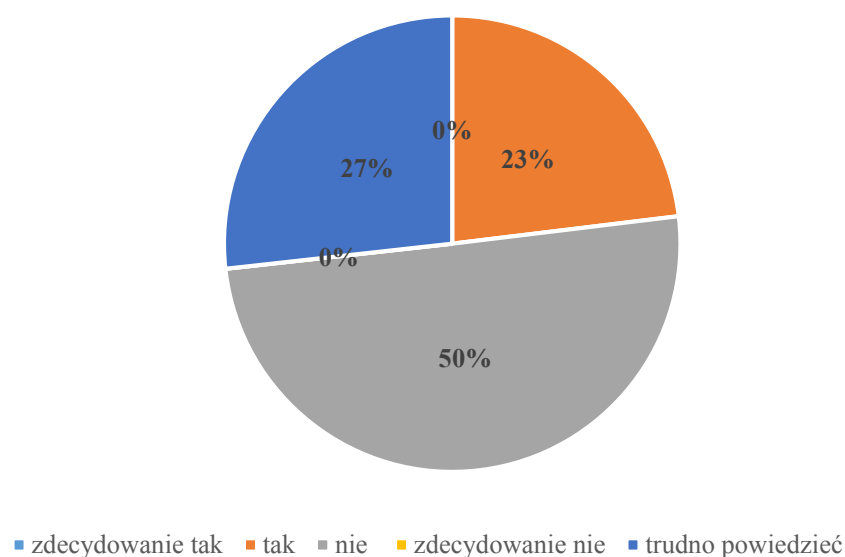


Figure 10. Opinions of respondents on the impact of the appraisal on motivation. Own elaboration.

The reason for such distribution is the fact that the assessment conducted among police officers has low impact on the further career of officers, their development or trainings. Police officers consider performance appraisal to be additional work and the development of bureaucracy. In order to motivate to service the evaluation should be designed and implemented according to the principles described in the literature covering the area of human resources management. Unfortunately this is not the case. The periodic performance appraisal cannot motivate to more efficient work, since most of police officers feel to have been unfairly evaluated. It has been shown in Figure 11.

The vast majority, as much as 58%, of the police officers believed that they had been unfairly assessed. Only 25% of the officers claimed that they had been given an objective evaluation. Almost one-quarter of the police officers held no opinion on the subject. The police officers could have associated the appraisal with the promotion they had not granted.

The aim of the next question was to determine whether the respondents were better motivated by positive or negative assessment.

All police officers clearly expressed that the positive performance appraisal was a better work motivator. The cause for such distribution of responses may be the fact that each person prefers to be awarded than punished. This has been confirmed by the recent studies on the employee motivation and the impact of periodic appraisal.

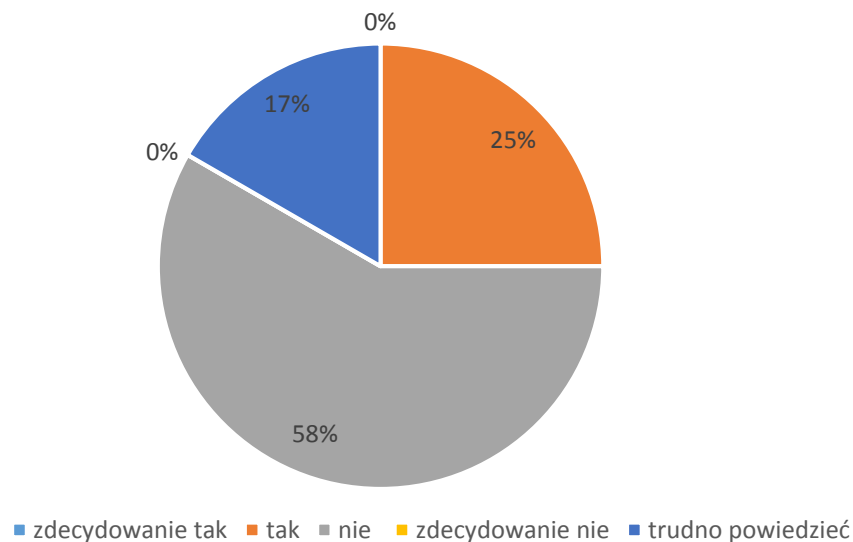


Figure 11. Opinions of respondents on the objectivity in evaluation. Own elaboration.

5. Conclusions

Assessment is one of the most significant elements of human resources management. This process must be appropriately conducted to fulfill its functions and objectives. When introducing the period employee appraisal system to the company or an organisation it should be properly designed by cooperating with experts in this field.

A number of errors may be found in the assessment system of police officers, which have been based on the conducted studies. Police officers believe that their superiors tend to give a secure assessment –referred to as good. This is caused by the error of central tendency, in which a superior does not want to either reward or hurt an employee. This has a demotivating effect on ambitious employees and affirms the conviction in the weaker that it is not worth a try.

Frequency is another error made in the process of assessment. Only 60% of the surveyed police officers undergo appraisal once a year and the others even less frequently. Literature related to the problem recommends to conduct periodic appraisal every six months for its best results. Therefore, the frequency of assessment should be increased.

More than half of the police officers expressed an opinion that they had not been fairly evaluated as compared to their colleagues. This may result, just like in the cases of the

assessment feedback, from the appraisal interviews being conducted inappropriately. The reasons for being given a certain rating have not been explained to police officers. In addition, the assessment errors, such as private relationships with a superior, have impact on the performance appraisal.

A total of 73% of police officers involved in the survey believe, that appraisals are affected by personal relationships with a superior. Subjective approach to appraisal is one of the most common pathologies in the process of evaluation.

The process of assessment does not motivate police officers to further work. Therefore, it do not fulfill one of its basic assumptions. The reason for such situation is the fact that a number of serious errors are made in the whole process. The errors diagnosed in the study have been the subject to many scientific studies. It is recommended that the errors be eliminated and the appraisal process of police officers be improved.

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THE ACQUISITION OF CONSUMER BEHAVIOUR DATA USING INTEGRATED INDOOR POSITIONING SYSTEMS

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Abstract: In this article, the authors have introduced trends in developing technologies used for analysing consumer behaviour and supporting marketing actions in retail networks focusing on using data in marketing information systems. The authors have proposed a developed model of a system which integrates separate technology groups such as POS, computer video analysis, social media data and the indoor navigation system based on beacon and radio tomography in one consistent solution in order to achieve the synergy effect in the area of customer behaviour analysis and behavioural targeting. The model can be developed by other technologies which gather unique data about customers.

Keywords: Customer behaviour, IoT, Big Data.

1. Introduction

Research on the subject of consumer behaviour is one of the key marketing aspects of scientific work of recent years. The developing knowledge of the above-mentioned aspect allows to use tools of behavioural targeting which are becoming increasingly significant on today's market of growing competition and customer network markets. This phenomenon is accompanied by a rapid technological development providing a possibility of wider usage of customer data in the decision-making process. On today's market, there are more and more new systems focused on gathering, processing, and analysing customer data. A major trend is the attempt to increase sales by using IoT solutions intended for a comprehensive study of customer behaviour.

2. Customer behaviour in theory

“Customer behaviour” is a complex concept which results in the lack of a one single definition of this term in publications and literature. The definition can vary depending on the context or scientific field in which it is used. However, considering this aspect in marketing sense, Schiffmann & Kanuk’s definition can be used according to which consumer behaviour consists in actions linked to searching, buying, using, and evaluating goods and services, which have capability to fulfil needs (Schiffman, and Kanuk, 1984). According to Hansen, this term is understood as a set of activities and customer perception that consist of successive stages: preparing, choosing the product, and consuming (Hanse, 1972). Customer behaviour is also defined as activities and decisions taken before acquiring, using, and administering the goods and services (Engel, Blackwell, and Miliard, 1993).

The commonly known classical model of the purchase decision-making process includes the following stages (Trejderowski, 2009):

- identifying the problem,
- acquiring information,
- assessment of possible variants,
- the decision to purchase,
- behaviour after the purchase.

It is possible to monitor and analyse consumer behaviour at each above-mentioned stage using information systems in case of consumers who use information technologies during the processes of fulfilling the decisions about the purchase. This allows analysing customer behaviour continuously which is the basis of marketing information systems. In further parts of the article, solutions for acquiring customer behaviour data will be presented. One of the key purposes of the solutions is to collect information on customer behaviour in order to take such actions to convince him or her to buy a product or service. Each of the defined stages of purchase decision-making is a potential source of customer behaviour data.

3. Marketing information system in the aspects of consumer analysis

The marketing system can be understood as a system in which marketing data is formally gathered, stored, analysed, and distributed to managers in accordance with their informational needs on a regular basis (Jobber, 1997).

The following functions are identified as fundamental in the marketing systems (Marciniak, 2011):

1. Collecting data,
2. Storing collected data resources,
3. Processing the data – in the way required by the decision-making staff,
4. Sharing the processed data with the managers.

The analysis of collected data is the main task of the Marketing Information Systems. The usefulness of these systems in reacting to changes and marketing decision-making is closely related to the amount of customer data and their differentiation. According to this conjuncture the number of systems providing possibilities of gathering, storing, and analysing customer data is increasing rapidly. A trend of integrating IT systems supporting varied business areas is becoming more and more noticeable in the last years. Nevertheless, the imperfect systems with limited capabilities of integrating are not able to deliver comprehensive information about consumer behaviour and decision-making process (Marciniak, 2011). The quality of the data on consumer behaviour can be improved by collecting information from multiple sources. The decision-making processes could be more effective if consumer behaviour data are acquired from many sources which provides the possibility of a multidimensional analysis. As a result, the strategic and operational marketing management could be adjusted to the collected information. According to the results of research done by the authors, there is a lack of one, single application that would provide comprehensive information to support the decision-making process. This kind of system provides the following features (Marciniak, 2011):

- planning marketing activities,
- creating a marketing budget,
- customer relationship management,
- implementation of loyalty programs,
- management of brand value,
- keeping a calendar of events,
- customer service,
- evaluation of the effectiveness of the marketing activities,
- organising processes and resources in marketing (human, financial, information),
- supporting search engine optimisation,
- multivariate analysis of customer information based on monitoring activity on-line,
- multidimensional analysis of segmentation and selection of target market.

Studying capabilities of marketing decision supporting systems it is noticeable that IT solutions do not provide the possibility of gathering and analysing data on a large group of consumer activities. It is a result of the existing obstacles in collecting multi-source data, including social media activities and consumer behaviour during the shopping process. A significant identified difficulty is analysing unstructured data as well as drawing conclusions useful in making marketing decisions. Looking more broadly at this issue, it can

be stated that there is a need of a possibility to integrate applications, social media data, and point of sales systems into one complex system. It is because currently systems operate in disconnection making it impossible to take a quick action in response to changes and trends in consumer behaviour. Commonly used applications like CRMs have significant deficiencies in functionality which is the reason for small utility of provided information.

4. Big Data analysis in terms of consumer behaviour

Due to the ongoing process of the digitisation of all human activities, data sets are growing rapidly. Organisations enter a new stage of development which provides tools and capabilities to gather, process, and analyse huge amounts of data. New possibilities are sources of information useful in the decision-making process. Massive amounts of data, widely known as a Big Data, are used to find trends and patterns in order to achieve a market advantage.

The following features describe Big Data analysis (Płoszajski, 2013):

- Variety – Big Data are collected from multiple sources like PCs, mobile phones, sensors, and many other devices. They occur in many forms, including text, pictures, behaviour data, or even interactions on websites and social networks;
- Velocity – Big Data are obtained constantly and in real time which provides a possibility of immediate response for the organisations;
- Volume – diversified sources of data as well as millions of users at one time make the Big Data grow rapidly. This provides terabytes of data that can be analysed.

What distinguishes the Big Data from traditional analysis is simultaneous processing of different types of data. Processing large data sets creates value by making them transparent and accessible at any time (Pawełoszek, and Wiczorkowski, 2015).

As of now, focus group interviews and survey are the main source of information on consumer behaviour and purchasing decisions. Along with the technological progress, new opportunities of gathering and processing of consumer behaviour data emerge. Technology of indoor navigation and positioning system becomes a rich source of diverse consumer data.

5. Indoor navigation system in the light of consumer behaviour

The commonly known concept of the Internet of Things assumes that in the future all of the daily necessities will be equipped with microcontrollers, which will allow interaction with users and other systems, combining all the elements in a network. The Internet of Things can

be characterised as a set of linked physical objects which are simultaneously a part of the business processes (Haller, Karnouskos, and Schroth, 2009).

The IoT concept provides the possibility of technology implementation in every part of human life and automation of all human activities. The IoT allows for introducing technology that works and interacts in real time and ensure dynamic development of companies (Murthy, and Kumar, 2015). Indoor positioning systems are considered as a part of the Internet of Things' concept and they can be widely used in malls in order to improve the purchasing process. Most of these solutions are based on a network of connected sensors called beacons distributed in the building. Beacon infrastructure can be used by a mobile application to localise the user and then determine the optimum path to the selected destination, e.g. a specific store. More sophisticated solutions based on the analysis of location are able to recommend products for a specific user and inform him or her about ongoing special offers and discounts. Such functionalities activate the user, which is the key achievement of indoor positioning systems (Karunaratna et al., 2014).

Heat maps used in stores are a tool that allows for a comprehensive study of consumer behaviour. Their essence is a graphic presentation of those store parts (shelves, product, arrangement elements) which enjoy the greatest customer interest. Heat maps are created by an analysis of the intensity of people's movement in specific areas of the shop. The more often a place is visited by customers, the colour of this area on the heat map is darker.

High accuracy of heat maps allows store managers to analyse a wide range of data on consumer behaviour and purchasing process. They are able to identify the most popular products, the most often selected path, order of viewed products, and also areas that are the least visited (Larson, Bradlow, and Fader, 2005). Moreover, collected data on popularity of particular areas of the shop allows for identifying the most popular product. This knowledge is helpful in the optimisation process of the trade offer and better selection of the merchandise. Being aware of customer preferences is necessary in order to achieve a market advantage (Ailawadi et al., 2006).

With this knowledge, a store manager is able to optimise the arrangement of the shop in order to match the identified profile of its customer. It provides a possibility to maximise sales profitability. A properly optimised scheme of the shop improves product display and activates customers to choose a longer path between shelves which creates an additional opportunity to sell other products.

An important advantage of heat maps, considering present indoor navigation solutions, is a lack of necessity to use the mobile application by users and connect to the beacon infrastructure in order to create the heat map. Currently, heat maps may be generated using data collected in many ways. However, considering the retail networks' characteristics, the most proper technology is radio tomography.

Dudh and Pitambare, presented the benefits of implementing the solution highlighting the area of consumer behaviour analysis, operational analysis, and opportunities to improve profitability.

Table 1.
Benefits of implementing indoor navigation and positioning

Customer Analytics	Operational Analytics	Revenue Improvement
<ul style="list-style-type: none"> – Identify and trigger real time offers. – Identify and offer various loyalty programs. – Identify personalized alerts and high-value rewards. – Redeem rewards. – Identify customized coupons. – Optimized in-store customer experience. – Purchase a product in real time in-store via a mobile device. – Pay without the need to join a checkout queue. 	<ul style="list-style-type: none"> – Engage with customers in real time using their mobile phone and an app Follow-up with the shopper after the shopping experience to provide additional information or receive offers based on the beacons they were near during their store visit. – Optimize store layouts and product placement based on navigational patterns. Optimize website, merchandising zones on desktop and mobile. – Help customers locate items in-store. – Offer better in-store customer service. – Inventory planning. – Fraud detection: Loss prevention – both internal and external. – Improve Store traffic patterns to eliminate choke points. 	<ul style="list-style-type: none"> – Empower sales associates. – Improve business processes and generate more revenue. – Identify peak traffic times, checkout line length, number of associates presently in-store and product location. – Improve campaign management.

Note: Adapted from: “Location Based and Contextual Services Using Bluetooth Beacons: New Way to Enhance Customer Experience” by N.A. Dudhane, and S.T. Pitambare. Appeared in *Lecture Notes on Information Theory*, 3(1), 2015.

Despite the fact that indoor navigation using beacon technology provides a wide range of information, the implementation of this kind of systems and data acquisition using them has a number of limitations and drawbacks. The authors of the publication have analysed many potential solutions based on beacon technology. Based on user feedback and own observations, the authors identified several difficulties which appear in the process of implementing and using this kind of solution. The first important limitation is the necessity to use the mobile application in order to obtain data on consumer behaviour. A great part of users do not have the required knowledge to use the mobile application during the process of daily shopping. Another obstacle in collecting consumer behaviour data is the necessity for continuous use of the mobile application. Marketing campaigns implemented by shopping centres do not involve users for a permanent use of the mobile application. The research carried out by the authors through focused interviews with the application users shows that despite the fact that users install the application, they do not become its regular users. Along with the process of getting to know the building of the shopping centre, the mobile application

and its main feature of indoor navigation loses its meaning to them. A significant risk of a common use of the discussed solutions by consumers is the fact that the application collects a wide range of particular user data. Referring to it, customers are reluctant to share their personal information.

The above-mentioned limitations can be marginalised due to the technological progress, increasing consumer awareness, or increasing the quality of the marketing campaigns. The number of people using mobile devices is growing constantly. It is estimated that in 2016 31% of the population were active users of mobile phones. It is nearly 2.3 billion people who use mobile devices (“Free 2016 Global”, 2016). One of the main objectives of the marketing campaigns should be adapting customers to use the application. The indoor navigation application should work smoothly in the background. Moreover, the system should be linked to a loyalty program of a particular store making the application a form of an integrated loyalty program. This approach will allow for attracting new customers and encouraging them to keep using the application while shopping. It will have a significant effect on the process of collecting consumer behaviour data during visits in shopping malls. Analysing the risk of sharing personal data, the mobile application should allow the user to specify the range of data collected by the system and then analysed.

However, solutions based on beacon technology may be replaced or supplemented by such technologies as: retail video analytics and radio tomography.

6. Retail video analytics

The application of computer vision technologies is widely used in a retail data analysis. Video analytics can provide managers more insightful business intelligence. Gathering information from computer vision system allows for enhancing customer experience, optimising store performance, reducing operational costs and in the effect – higher profitability (Connell et al., 2013).

The figure below (Figure 1) shows logical steps of the algorithm which allows for recognising consumer activities.



Figure 1. Logical steps of the implemented algorithm. Adapted from: “Shopper analytics: A customer activity recognition system using a distributed RGB-D camera network” by D. Liciotti et al. Copyright 2014 by Springer.

Advances in computer vision and data analysis promise much higher business value than the traditional customer survey. The main advantage of these technologies is unique activity recognition. For example video analytics can detect customers' interest in a product or recognise actions such as grabbing or reaching the products (Popa et al., 2011). The system based on video analytics implements a function which can provide many unique indicators like the number of products picked up, relocated on the shelf, touched products, duration of interactions, average interaction time, or the number of interactions for product and category (Liciotti et al., 2014). Gathering and interpreting data from these solutions is a supplement of a model of the system for customer behaviour analysis.

7. Radiotomography

Radio Tomographic Imaging is a method of localising and imaging objects in the area covered by a wireless radio network. The principle of operation of this method is sending and receiving a radio signal by nodes. Nodes are located in a way that provides full covering of a particular area. The transmitted signal encounters obstacles and then reflects returning to respective nodes. Knowing the delay of the sent signal, it is possible to specify the position of the obstacle (Wilson, and Patwari, 2010).

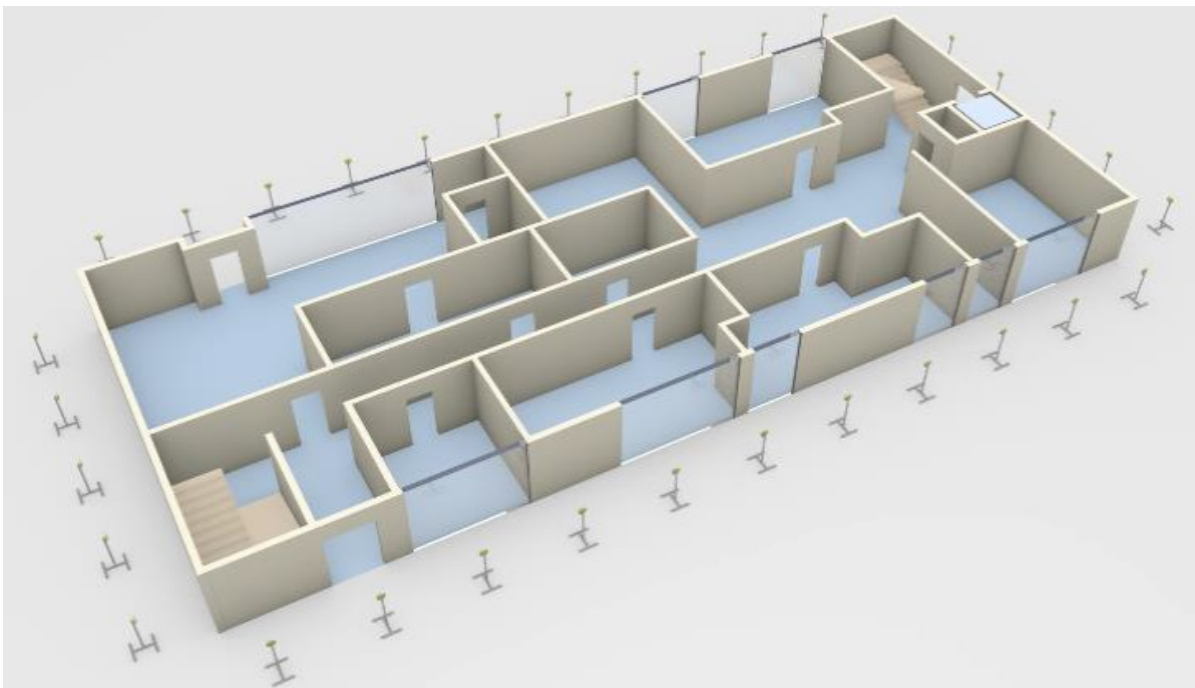


Figure 2. A model of the object with a sensor on the outside. Adapted from: “Concept of detection system to localize inside closed area by radio tomographic imaging” by T. Rymarczyk et al. Appeared in *Informatics Control Measurement in Economy and Environment Protection*, 7, 2017.

Using the Radio Tomographic Imaging it is possible to maintain a continuous analysis of people's movement, even those who do not use the mobile application to connect with the beacon system. Such conditions make the RTI an excellent method of gathering data that can be used in generating heat maps.

8. The model of integrated system

The complexity of the data obtained from the group of IT solutions allows for making a multi-faceted analysis of consumer behaviour in the real time. In the following figure the authors have presented the key groups of data from different systems, which can be gathered and analysed in the context of consumer behaviour.

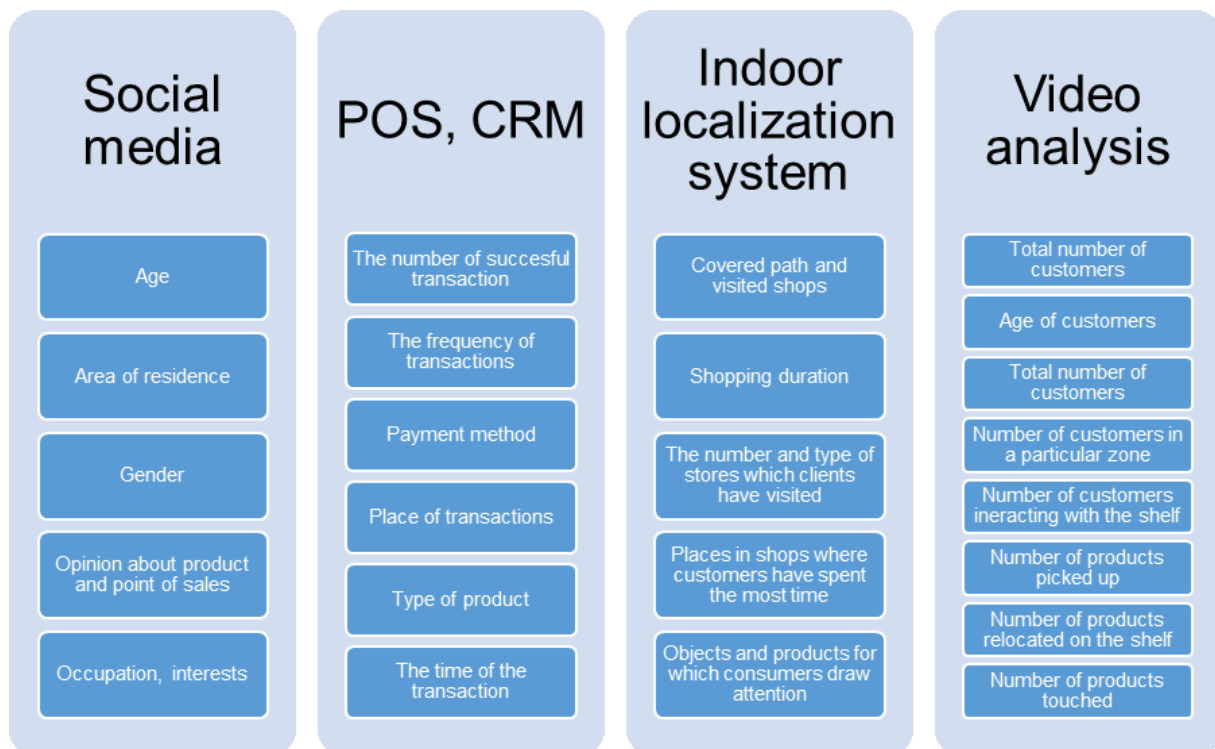


Figure 3. Key types of data usable for analysis of consumer behaviour. Own study based on system analysis.

The integration of data collected from many sources is essential in order to increase the accuracy of forecasting and accelerate the decision-making process. Data from multiple-source systems will allow managers to define new patterns of consumer behaviour and assess perception of the purchasing process from the consumer point of view.

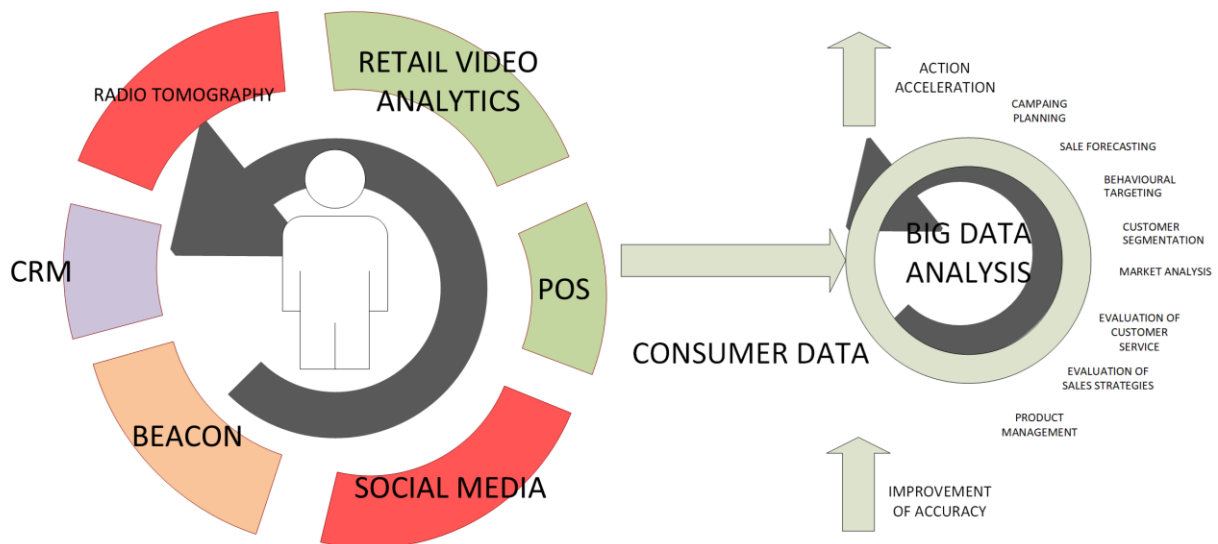


Figure 4. Key types of data usable for analysis of consumer behaviour. Own study.

Consumer behaviour is a major factor in the process of marketing decision-making. The implementation of this model in the MkIS would allow managers to respond more quickly to changes in the external environment and increase the precision and validity of decisions taken in the area of marketing. Ultimately, the combination of data from loyalty systems, social media, the indoor navigation system, Radio Tomography Imaging, video analysis, and CRM can improve the quality and efficiency of the decision-making process. The model should be analysed in two dimensions – as a tool for decision-making at the tactical and strategic level, which covers the segments of customer groups, affecting the decision fields such as budgeting, modelling of the sales process, sales forecasting, analysing market changes, as well as a system for defining the needs of the individual customer. The information obtained from a hybrid system may allow to indicate the place of optimisation of marketing communication and support the analysis of an individual consumer's needs. Moreover, deploying the model should also improve tools of customer segmentation. As a consequence, it would be possible to choose a better type of advertisement in the behavioural targeting process by messages and signals tailored to specific individuals.

9. Conclusion

There is a need to develop an application which integrates data from multiple systems in order to create a multi-dimensional analysis system of consumer behaviour in the real time. Computer video analysis allows for gathering unique information about consumers. An interesting solution is using radio tomography for in-building navigation and positioning objects in order to generate heat maps. The integration makes opportunity for a multi-dimensional analysis of the needs and reactions of consumers, ultimately it improves accuracy

in behavioural targeting. The system will increase effectiveness of product positioning and will reduce costs of market research. As a result, the implementation of the model of the purchasing process and adapting the product offer to current needs of consumers will be optimised. An increase in profitability of retail networks will be the end result of the implementation.

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CULTURAL PREFERENCES OF COMPANIES OPERATING INTERNATIONALLY

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Abstract: The main objective of the paper is to present research results pertaining to cultural preferences of companies operating internationally. In addition, the study enables a diagnosis of the existing organisational culture and culture gap. The study encompassed 30 Polish companies and 250 respondents. The research results indicate that the preferred organisational culture ought to be characterised by a low communicative context, focus on surrounding environment, people focus, status based on achievements, individualism, small distance to authority, low tolerance of insecurity, and activity. The analysis of results pertaining to the culture gap indicated a shift from task focus to people focus, and a positive reinforcement in the manifestation a some values. The majority of preferred cultural values form a cultural environment favourable to internationalisation.

Keywords: organisational cultural, cultural preferences, culture gap, international company.

1. Introduction

When expanding internationally, companies devote much attention to organisational culture. It is perceived as a set of values facilitating members of the organisation understanding of what it supports, how it operates and what it considers important (Griffin, 2005). It is also viewed as uniqueness of the organisation (Glinka, 2010), or the structure of knowledge, perception (Wiśniewska-Mikosik, 2014).

The analysis of international determinants encompasses various fields. In case of internationalisation, not only economic region, but also other economic, political, legal, socio-cultural, and financial environments, are significant (Rothlauf, 2010). These pose challenges in the decision-making processes by creating a specific set of barriers and problem-areas to be considered. According to R. Winkel, several characteristic features of organisations, such as the organisation's resources, management practices, form of operation, advancement of internationalisation, situation on international and national markets, not only diversify their significance, but also the level of them being overcome by companies (Winkler, 2007).

Business practice regarding internationalisation and numerous studies of the subject matter classify organisational culture as one of the crucial factors determining the efficiency of international cooperation. In addition, organisational culture of the guest country is considered as a barrier for successful international business relations. Such a view is presented by Daszkiewicz who mentions a barrier for export associated with the lack of sufficient resources, a marketing barrier, and one associated with the manager and organisational culture, among the most significant (Daszkiewicz, 2004). Business practice of Polish export companies indicates that cultural and linguistic, formal and legal, and political barriers constitute the most fundamental ones (Plawgo et al., 2014). In addition, barriers regarding mutual restriction of access to information, fear of losing independence, ill-adjustment of partners regarding cultural aspects, may arise in international cooperation. Such a phenomenon was already observed in 1995 by Griffin and Pustay (Griffin, and Pustay, 1995). On the other hand, problems emerging in the cooperation of Polish and foreign managers employed in international companies operating in Poland, such as lack of flexibility in decision-making, ethnocentrism, issues in communication, resulting from the attitude towards work, lack of trust for foreigners, are of a cultural nature (Przytuła, 2013).

When discussing the issue, M. Rozkwitalska concludes that if the organisational culture constitutes an element of the organisation, then, it is also a natural source of cultural barriers. These in turn, may emerge from national culture, individual features of the company, or employees (Rozkwitalska, 2011). Moreover, a change of the organisational culture requires time. Therefore, cultural ill-adjustment may result in the failure of the whole undertaking (Winkler, 2007). According to Nieżurawski et al. cultural differences distinct for particular countries and companies ought to be evaluated on a permanent basis- starting with negotiations and up to trade practices (Nieżurawski, and Nieżurawska, 2013). This seems even more valid in light of the studies conducted in the framework of the Smart Growth Operational Programme, which prove that cultural differences are underestimated by European companies, and in case of cooperating with Asian or African companies, may result in the emergence of critical export barriers (Wójcik, 2013). Therefore, familiarity with organisational culture, constituting a factor facilitating internationalisation, seems critical. On the other hand, successful management of the culture ought to take cultural preferences of employees into consideration. These constitute the expression of their ideas, justification of their way of thinking and behaving, and their understating of work and interpersonal relations.

2. Research methodology

The paper presents the results of studies pertaining to the preferred organisational culture of companies operating internationally. The identification of a desired organisational culture, the existing culture, and culture gap, were based upon the system of cultural values. It encompasses several opposing values, such as people focus – task focus, small – large distance to authority, individualism – collectivism, high – low avoidance of insecurity, low – high communicative context, activity – conservatism, surrounding environment focus – internal focus.

The diagnosis of cultural preferences was conducted by means of a survey with the use of a questionnaire. It encompassed questions regarding manifestations of the analysed cultural values. The respondents applied a 5-point scale to evaluate the intensity of the assessed values (1-weak, 5-strong).

The study was conducted among 30 Polish companies operating internationally, and included 250 managers and specialists.

3. Preferred organisational culture

The research results revealed cultural preferences of companies operating internationally. These preferences encompass required cultural values of various intensity, and frequently conflicting ones (Figure 1).



Figure 1. Preferred organisational culture of companies operating internationally. Own study based on research results.

Low vs. high communicative context reflects the verbal and non-verbal dominance regarding coding and decoding of messages. The diagnosis of the preferred means of communication was conducted on the basis of respondents' answers regarding verbal and non-verbal communication and the significance of context in dialogue. The respondents strongly believe in the application of verbal communication to acquire and transfer information (4.04). They strongly support direct and unrestricted expression of ideas (3.70), however, the intensity of the preference is average. The approval of a low communicative context is manifested by the lack of high-context preference for hidden meaning (2.94). One of the manifestations of a high communicative context encompasses intuition as the facilitator of conversations (3.27). However, such preference is low. In conclusion, it can be observed that the respondents expressed an inclination towards building dialogue based on low-contextuality (3.98).

Surrounding environment focus vs. internal focus indicates areas the organisation derives values and models of behaviour from. The following were applied in order to evaluate preferences regarding the value: dominance of relations with the surrounding environment vs. internal matters, tolerance of foreign values, and employees' identification with the company. The results indicate focus on external relations (4.01) rather than internal matters (3.42). An average score for tolerance and respect for foreign values (3.82) also constitutes a proof of surrounding environment focus. On the other hand, employees' inclination to identify with the organisation indicates internal focus. The preference for this cultural feature was assessed as average (3.78). To conclude, results pertaining to the surrounding environment vs. internal focus manifest that the respondents give preference to cultures focused externally (3.91).

People vs. task focus encompasses values pertaining to people's place and role in the organisation. As far as the assessment of these values is concerned, it was based upon the understanding of success, features of a good manager, and focus on results vs. interpersonal relations. Characteristics of task oriented cultures include strong support for economic and financial indicators as a measure of success (4.10), and emphasis on individual tasks and results (3.54). On the other hand, people-focused cultures are characterised by strong intensity of the supportive and caring role of the manager. The management's focus on appropriate interpersonal relations scored an average level (3.58). On the basis of these results, the preferred organisational culture of the studied companies may be described as people-focused.

Status based upon assignment vs. one based on accomplishments indicates the way employees and their careers are assessed in the organisation. The preference for either seniority or accomplishments of employees as the criterion for promotion includes the characteristics and the basis of respect for managers. A detailed analysis of results indicated that respondents give preference to the position in hierarchy as the basis of respect for their superiors (3.97). The intensity of the feature was average. On the other hand, the position of an employee in the organisation ought to stem from their competences (3.92) and an

assessment including an element of development (3.79). Both features, as elements of status-, accomplishment-based culture, scored average intensity. Status based upon assignment, describing promotion based upon job seniority, scored very low (3.22). Ultimately, the preferred organisational culture of companies operating internationally is characterised by status based on accomplishments.

Individualism vs. collectivism depicts a dilemma of whether people consider themselves as individuals or a part of a group. The preference in this area was evaluated on the basis of priority given to individual or group interests, degree an individual was willing to sacrifice their independence to, and attitude towards crises. The preference for individual responsibility (3.48) and willingness to cooperate provided the independence is retained (3.87), describes an inclination towards individualism. On the other hand, the preference for collectivism is expressed in the average score for avoidance of conflicts (4.01), pursuit of harmony and responsibility for colleagues, and sacrifice of one's independence for the sake of cooperation (3.25). In general, the respondents' answers suggest that organisations ought to be characterised by individualism.

Small vs. large distance to authority reflects an attitude towards inequity in organisations. The preference was assessed on the basis of the following: types of relations and distance between the manager and their subordinates and the intensity of the feeling of subordination. The preference for small distance to authority is indicated by a stress on friendly relations between the manager and subordinates (4.09), and the fact that professional relations are not transferred outside the workplace. However, this feature has little significance (3.09). The inclination for distance to authority was determined as low (3.09), and respondents did not agree to professional relations to be transferred outside the workplace (2.67). To sum up, the desired organisational culture ought to be characterised by a small distance to authority.

Low vs. high tolerance of insecurity reflects an attitude towards novelties and alterations. The preference regarding this element was assessed by analysing the prevalence of formalisation, an attitude towards flexibility regarding actions and risks, and significance of work. The respondents voiced an average need for the organisation's actions to be formalised (3.91), and an average intensity regarding the need for adjusting regulations to the circumstances (3.84). The inclination towards risk scored very low (3.24). Work as the highest value scored low as well (3.24). Ultimately, the organisational culture of the assessed companies ought to be characterised by a high avoidance of insecurity.

Activity vs. conservatism indicates the mode tasks and objectives in the organisation are achieved in. The preference in this area was based upon the respondents' views on employees' activity, attitude towards change and the role of tradition in the organisation's operations. The respondents assigned an average preference to active employees who willingly take initiative (3.77), and perceive changes as opportunities for organisations (3.34). The latter symptom of activity scored very low. In addition, the preference for activity was also supported by a negation of employees' passive attitude (2.82). Considering tradition as

a vital benchmark for the decision-making processes scored very low (3.30). The results in this area prove an average preference for active cultures.

4. Culture gap

The present study served as the basis for a diagnosis of the present organisational culture of companies operating internationally. The present and preferred organisational cultures allow for the culture gap of companies operating internationally to be determined (Figure 2). The gap describes differences in systems of values of the assessed cultures as far as the significance of values and the intensity they are manifested in are concerned. The gap is detailed in Table 1.

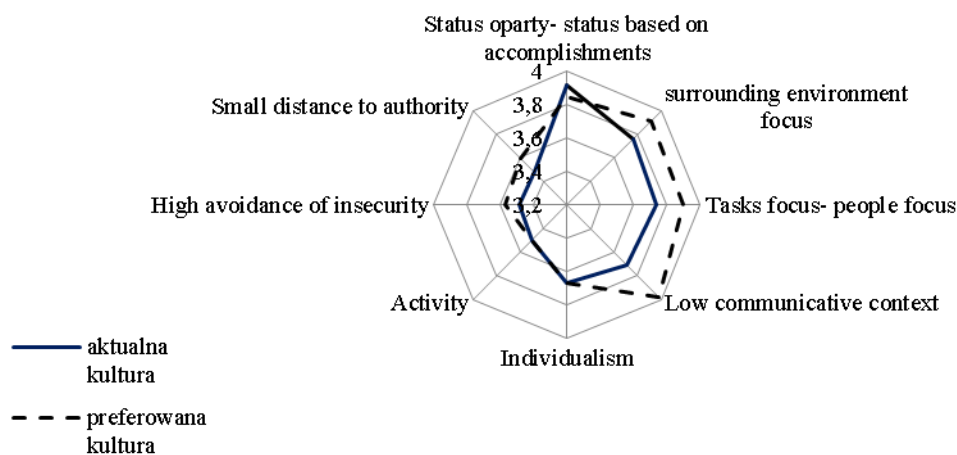


Figure 2. Culture gap. Own study on the basis of research results.

The research results indicate a change in the system of values with regards to a single cultural value. The preference pertains to a change from task to people focus. As far as the remaining cultural values are concerned, the respondents opted for them to be manifested further.

Table 1.
Culture gap in companies operating internationally

Value	Dominant present values	Dominant preferred values	Culture gap
Tasks – people focus	Tasks focus 3.74	People focus 3.90	Change of value
Individualism – collectivism	Individualism 3.67	Individualism 3.67	No changes
Small – large distance to authority	Small distance to authority 3.48	Small distance to authority 3.59	Positive intensity Promotion in the system of values

Surrounding environment – internal focus	Surrounding environment focus 3.76	Surrounding environment focus 3.91	Positive intensity
Low – high tolerance of insecurity	Low tolerance of insecurity – 3.49	Low tolerance of insecurity – 3.57	Positive intensity
Activity – conservatism	Proactivity 3.50	Proactivity 3.55	Positive intensity Demotion in the system of values
Status based on accomplishments – assignment	Status based on accomplishments – 3.92	Status based on accomplishments – 3.85	Negative intensity Demotion in the system of values
Low – high communicative context	Low communicative context – 3.71	Low communicative context – 3.98	Positive intensity Promotion in the system of values

Note: Own study on the basis of research results.

When analysing the culture gap of the assessed companies, the change in the significance of values in the preferred system of values ought to be discussed. Such cultural values as low communicative context, and small distance to authority, may be assigned higher significance. On the other hand, status based upon accomplishments and activity, may be moved to less significant positions in the prospective system of values. In detail, changes would be reflected by the following:

- small distance to authority changed from position 8 to 6.
- activity changed from position 6 to 8,
- status based upon accomplishments moved from position 1 to 4,
- low communicative context moved from position 4 to 1.

Further changes in the preferred system of values pertain to modifications regarding the intensity of the analysed cultural values. The impact of some of them upon the organisational life ought to be larger. This pertains to small distance to authority, low tolerance of insecurity, surrounding environment focus, activity, and low communicative context. The greatest preference for a change was observed with regards to a low communicative context (+0.27), which may be a reflection of its association with two values in the system, i.e. surrounding environment focus and people focus. Each of these is connected with openness and directness. The research results indicate a manifestation of surrounding environment focus and a small distance to authority being stronger. On the other hand, activity constitutes a cultural value a positive change of which is the least desired (0.05). In addition, status based on accomplishments is the only value the impact of which upon employees is postulated to be reduced (-0.07).

5. Conclusions

The preferred organisational culture of companies operating internationally constitutes a specific cultural environment which strongly manifests directness and openness in interpersonal relations. It is true for means of communication, development of positive relations among employees, management and subordinates, and with objects in the surrounding environment. Individual employees' activity would be dominant and constitute a criterion of their assessment and promotion. The limits of activity are determined by a low acceptance of an ambiguous and insecure situation.

The prospective organisational culture is, in general, characterised by the same cultural values, when compared with the existing one. The only difference between the two is people focus. Therefore, cultural changes ought to encompass actions and methods changing the significance and people's position in the organisation. Promotion of teamwork, development of loyalty, participatory management, conflict management, development of tolerance, respect, training and promotion systems, which take accomplishments into account, and fostering the feeling of security and stabilisation, can be found among these. Undeniably, the remaining preferred values are also positively correlated with people focus. These include: small distance to authority, low communicative context, status based on accomplishments, and activity. In addition, when the fact that in case of virtually all values, their intensity is expressed, is considered, another positive stimulus of people-focused cultures emerges. On the other hand, individualism and a low tolerance of insecurity constitute two values which hinder the popularisation of such cultures.

When the main context of the studied companies' operations, i.e. internationalisation, is considered, it may be observed that numerous preferred values facilitate the achievement of the objective. In general, surrounding environment focus, low communicative context, small distance to authority, status based on accomplishments, and activity, may be counted among the values. High avoidance of insecurity may pose a considerable barrier in business expansion. Entering foreign markets entails risks, challenges, instability, change, and becoming familiar with dissimilarities and tolerance. These constitute an opposition to a low tolerance of insecurity.

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SICKNESS ABSENCE OF STEEL INDUSTRY WORKERS IN THE LOST WORK TIME

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Abstract: The article is a continuation of the issue of managing worker absence (Gajdzik, 2015). Theoretical considerations were supplemented with statistical data about sickness absences of workers in the steel industry. The timespan analysis covers the years 2000-2015. The share of absence in the lost work time was determined on the basis of the number of sickness absence hours. The issue of unplanned employee absenteeism is part of the human resource management and work time management in an enterprise.

Keywords: absenteeism, sickness absence, working time, steel industry.

1. Development of techniques of managing employee absenteeism

Over the past half-century the market economy system accelerated the processes of the effective use of work resources. The growing interest in the issue of the effectiveness of managing work resources in an enterprise emerged largely due to the Lean Concept as a philosophy leading to the elimination of all kinds of waste (Womack, and Jones, 1994).

In the years 1960-1990 Japan experienced a dynamic industrial growth which became a model to be emulated in many industrial sectors throughout the world. The Lean Concept evolved from the management method leading to reduced working time required for executing the order for searching hidden costs of the conducted activity at all levels of organization – not only in the manufacturing process – Lean Manufacturing, but also in the field of management – Lean Management (Łazicki et al., 2014; Sobańska, 2013).

Knowledge about the hidden costs of employee absenteeism was shaped on the basis of case studies, e.g. the analysis of the rate of absenteeism in Honda or results of direct research (Allan, 1983; Johns, 1997). The issue of the employee absenteeism in respect of costs appeared in many publications over the past forty years (e.g. Kuzmits, 1979; Dalton, and

Mesch, 1991; Drago, and Wooden, 1992; Harrison, and Martocchio, 1998). W.F. Cascio¹ was among those who drew the attention to the issue of searching for hidden costs in the field of human resource management (Cascio, 2000). One of its research areas were additional costs of employee absenteeism and sick leaves (chapter two of the quoted publication).

The evolved issue aroused the interest of scientists and practitioners in the measurement of lost benefits from unplanned absences. The enterprises introduced an expanded set of instruments to measure employee absenteeism (Renttsch, and Steel, 1998). The results of measurements became a motivation to take preventive actions. On the basis of obtained knowledge, the practitioners started to develop and implement absence control programmes, whose aim was to limit unplanned absences and in consequence to reduce the costs of lost work time (Schlotzhauer, and Rosse, 1985).

The issue of absenteeism management among Polish scientists is relatively a new research topic. Publications in this field can be found in scientific journals and studies of industry institutions (Pęciłło, 2015; Raczek, 2016; e.g. Szubert, 2014; Szubert, Merec-Kot, and Sobala, 2009; Giermowska, and Raław-Morkowska, 2004; Bernard, and Kała, 2016; Karczewicz, and Sikora, 2014).

2. The backbone for managing employee absenteeism in an enterprise

Employee absenteeism management consists of such issues as: definitional formulation of employee absenteeism, causes of employee absenteeism, absence control, motivation of employees to restrict absenteeism in the workplace, costs of employee absenteeism in the enterprise, personnel outsourcing as a form of transferring risk connected with the absence in the workplace to an external company.

Absenteeism is either a planned or unplanned, excused or unexcused employee's absence from work (Šmid, 2009). Absence days constitute the employee's absence not resulting from the Labour Code with special reference to sickness absenteeism, unpaid leaves, unexcused absence from work and absence caused by operational downtime (“Absencja chorobowa jak mierzyć”, 2015). The Central Institute for Labour Protection indicates that absenteeism is understood as lost time with a ratio in the form of a percentage loss of the total available work time due to absence. Absenteeism can also be perceived as a frequency of absence from work, in such a case the rate constitutes the average number of leaves per employee or the ratio of employees who took a leave of absence from work at least once to the total number of employees (“Absencja chorobowa”).

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The employers register the employee's absence from work, including absence to which the employee is entitled, e.g. entitlement to holiday leave, entitlement to childcare leave. In case of an unplanned absence, a dissonance may occur in a situation when the employee is aware of the consequences of unexcused absence in the workplace and did not report for work what results in a job loss. Excused absence covers: sickness absence, absence in connection with an accident at work, dismissals for training purposes and business trips, absence due to personal or family circumstances, absence due to being summoned to appear before the public authorities, etc. (Gajdzik, 2014, 2015).

Employee absenteeism may be caused by: unfavourable working conditions (e.g. low wages, conditions conducive to occupational diseases), wrong organization of work (e.g. additional tasks falling outside the scope of the obligations assigned to the employee (time pressure), form of work (e.g. monotonous work or shift work), working conditions (so-called exhausting working conditions), hostile work atmosphere (e.g. stress at work caused by the superior's attitude), low motivation of employees at work (e.g. lack of standards for performing high-quality work of the superior or low wages not adequate to the scope of duties), employee's endeavours to receive additional time for rest (e.g. an increase in the number of sickness leaves in the period around holidays), random factors (e.g.² death of a family member), physiological conditions (e.g. an increase in the health problems of employees in the autumn period), the necessity to provide care for other members of the family (e.g. care provided by mothers and fathers over the children), meeting the obligations towards the administrative and judiciary authorities (e.g. obligation to participate in trials), negative and positive emotions in the workplace – if there is predominance of the latter, there is an increase in absences (Tan, and Hart, 2011). Absenteeism may be caused by mental, physical, emotional, social, organizational factors etc. (Bakker, and Demerouti, 2007).

Research is undertaken into the causes of employee absenteeism. The authors make an attempt to order the causes of absence according to their duration, by creating absence occurrence models: a short-term one (up to 9 days), a medium-term one (10-29 days), a long-term one – 30 days and more (Szubert, Merc-Kot, and Sobala, 2009; see also: Dekkers-Sanchez et al., 2008). Studies confirm that intentional absenteeism is usually of a short-term nature and the unintentional absenteeism is of a long-term nature (Bakker, Demerouti, De Boer, and Schaufeli, 2003). A large number of short-term leaves points to a lack of motivation and involvement among employees. However, high unintentional absenteeism (a smaller number of long-term leaves) may involve tensions and excessive workloads. A high voluntary absenteeism in a company is perceived as an effect of a lack of professional satisfaction and commitment to the organisation (Bakker, Demerouti, De Boer, and Schaufeli, 2003). A situation is dishonorable for the company when absences become a form of the

² Elaboration own list of reasons on the basis of: <https://mfiles.pl/pl/index.php/Absence>: Sickness Absence in 2008. ZUS (Social Insurance Institution) Warsaw 2009.

employee's objection (protest) against the company's actions (e.g. unfair bonus systems, partisanship, cronyism).

Employee absences are reviewed by the employer who registers the type and duration of the absence and superior institutions, including the Social Insurance Institution which keeps a record of sickness, post-accident absences. Measures make the review conducted by business entities easier. The employee absence measures may have: a numeric form (number of employee absences in a given period of time), a time form (a period of increased absences), a participation form – the ratio of the absent personnel to the entire number of employees in the company (see: Gajdzik, 2015). Organizations may use general measures (number of absences in the analyzed period) or detailed measures (breakdown of absences according to causes of absence, working places, demographic features of employees, e.g. sex, age and also according to other criteria acknowledged as useful by the employer, e.g. the criterion of the length of service). Some measures are classified as obligatory and basic ones, e.g. registration of sickness absence in numbers (days, hours), others to additional and supplementary ones, e.g. indicators in the form of a correlation between employee absence and the type of performed work or age (correlation analysis of the examined variables). The Social Insurance Institution calculates the annual absentee rate as a percentage of lost time due to sickness or an accident in relation to insured persons. The average employee absenteeism is obtained after multiplying the absentee rate in the organization by the number of all employees. The value of many rates is expressed as percentages and reach the level from zero to 100% (the higher the value the higher the level of absenteeism). The Bradford factor is an example of a numeric indicator. Its function is to measure short-term absences and is the product of the number of leaves within 52 weeks (typical calendar year) for every employee (S) and number of working days lost within this period (D) – record: S·S·D or 2S·D (“Absencja chorobowa jak mierzyć”, 2015).

Employers normally motivate employees to reduce unplanned absenteeism. Motivation may take a positive form, e.g. bonuses for employee teams with the lowest or zero absentee rates or a negative form due to severe restrictive internal rules concerning work organization with negative effects for the employee or difficulties resulting from work absence. Bonus solutions or financial rewards are applied in many companies, in particular producing companies and companies rendering services in continuous motion (transport). The positive mechanism is based on awarding an additional benefit for the lack of absence and the negative mechanism may be based on losing a part of the bonus in case of exceeding the admissible number of days of absence for a given period. Support programmes whose aim is to exert a positive impact on the reduction of absenteeism becomes more and more popular in companies. Exemplary actions: health promotion (expenses for protective measures and different types of benefits, e.g. vaccinations), promotion of a healthy life style (e.g. company races, sports tournaments), improvement of the material and nonmaterial working environment (e.g. equipping work stands), changes in the organisation of working time

(e.g. flexible working time, remote work), psychotherapy in the company (e.g. free help of a psychotherapist in solving emotional problems of employees, marital and family problems), additional assessment of the employee's health status (e.g. over-normative health assessment of employees), trainings and seminars concerning the employee's performance in the workplace (e.g. "Fight stress"). More about applied preventive measures can be found on websites of very big and big companies in HR departments or in the published SR (Social Responsibility) reports. The following Company schemes are worth being analyzed: Volkswagen Poland Check-up *Scheme*, „Caddy Run”, ArcelorMittal Poland Health Week Scheme, Eaton Wellness health scheme.

There are direct and indirect costs of employee absenteeism. Direct costs include: salaries, benefits paid to employees on leaves – together with add-ons, payment of overtime, salary cost of employees seconded to perform the job of absent workers or temporary substitutes. Indirect costs cover the administrative cost of sick leaves, recruitment of temporary workers, trainings of temporary workers and employees substituting absent workers, losses resulting from the nonperformance of and delay in work by the sick employee and losses resulting from reduced productivity of the substitute (Cascio, 2000). Costs related to absences also include costs of actions aimed at reducing sickness absence. The optimum level of outlays for the improvement of health at work occurs when the sum of these outlays and absence costs reach the minimum (“Szacowanie Kosztów Absencji Chorobowej”). A separate category of costs are costs of the spread of disease in the workplace. Such a situation occurs when the sick employees who should be on sick leaves came to work and infected other co-employees and they themselves are less productive.

Personnel outsourcing, in other words a contract of a production plant with a temporary employment agency is a way to reduce costs of employee absenteeism. The Company reports the number of required employees for the given work and the agency recruits them and seconds them to work. Process outsourcing is also used in production. The Agency assumes responsibility not only for providing staff but, first of all, for performing a certain fragment of a process. Temporary employment agencies implement support programmes, such as: medical care cards, admission cards to sports facilities (Ochremiak).

Summing up, the issue of unplanned absenteeism in the workplace is a very broad issue and covers: the selection of management methods, calculation of costs, work organisation, employee motivation. Support actions aimed at reducing absenteeism are undertaken in production enterprises and service organisations and also in temporary employment agencies which deal with the personnel and process outsourcing.

3. Analysis of Sickness Absenteeism of steel industry workers

Taking into consideration the significance of the issue of unplanned absenteeism in the workplace, the author carried out an analysis of the lost work time due to sickness absence based on the example of the steel industry in Poland. The carried out analysis fits in the new trend of issues, consisting of the review of unplanned employee absenteeism in the company. The aim of the publication is to compile the analysis results in the form of a reporting statement. The analysis was based on data concerning work time management in the domestic steel industry in the years 2000-2015.

The employee sickness absenteeism belongs to the category of personal grounds by virtue of the absence from work. The register of sickness absenteeism in the steel industry is a subgroup under time loss on personal grounds. The register of sickness absenteeism also includes work-related accident absence. The absence of workers are compiled according to production (blue-collar) jobs and non-production (white-collar) jobs. The analysis covers the share of sickness absenteeism of steel industry workers in the total work time loss and according to jobs.

In order to acquaint the reader with the scope of the analysis, a concise review of the examined industry was prepared. The steel sector is linked to metallurgy and consists of producers of steel and steel products (according to the share of sold production in the production of the section they constitute 54%), the other entities are producers of: pipes, wires, hollow sections and steel fittings (6%), producers of other products from pre-treated steel (10%), producers of precious metals and other non-ferrous metals (16%) and also steel casting (15%)³. More than 80 companies are registered in the steel sector, including 29 firms constituting the core of steel producers. The total employment in the steel sector amounts to over 20 thousand employees. 5 economic entities are classified as large enterprises (steel producers) with an employment over 1000 employees. This analysis is limited to the steel and metallurgical subsector which consists of producers of steel and steel products. The Metallurgical Chamber of Industry and Commerce (HIPH) in Katowice provided data for the analysis⁴.

The proportions between the types of jobs in the steel industry: the ratio of nonproduction jobs to production jobs amounts to on average 0.33 annually or the ratio of production jobs to nonproduction jobs amounts to on average 3.33 annually (Figure 1).

³ Calculations are based on revenue on sales in 2009; data of the Main Statistical Office.

⁴ The author expresses her thanks to the Metallurgical Chamber of Industry and Commerce in Katowice for making the data available for scientific purposes.



Figure 1. Proportions between jobs in the steel industry. Own elaboration on the basis of data of the Metallurgical Chamber of Industry and Commerce.

On the basis of the compilation of the structure of jobs in the domestic steel industry in the years 2000-2015, the share of nonproduction jobs after 2008 increased in relation to production jobs. However, there was a considerable increase in the number of production jobs in relation to nonproduction jobs in 2003. If the structure of jobs were to be related to the production volume, it would turn out that in the years 2003-2004 production is increasing (10.6 million tonnes is the largest production volume in the years 2000-2015, which the industry reached in 2004). After 2008, when the effects of the global economic crisis reached steel enterprises, the production of steel is maintained at the average annual level of 8.5 million tonnes⁵. The increase or decline in the number of production jobs in the examined period was therefore conditioned by the production volume. When production is greater, there are more production jobs.

In the years 2000-2015 a decline in the number of workers in the domestic steel industry was recorded (Figure 2). A sharp decline in employment in the steel industry did not have a significant impact on the drop in the number of sick leave days per employee. Lost work time due to sickness absenteeism per employee oscillated between 90 and 100 hours per employee throughout the year, what constitutes from 11 to 14 days of absence from work per employee during the year.

⁵ For comparative purposes the author refers to the reports of the Metallurgical Chamber of Industry and Commerce available on: www.hiph.org.pl.

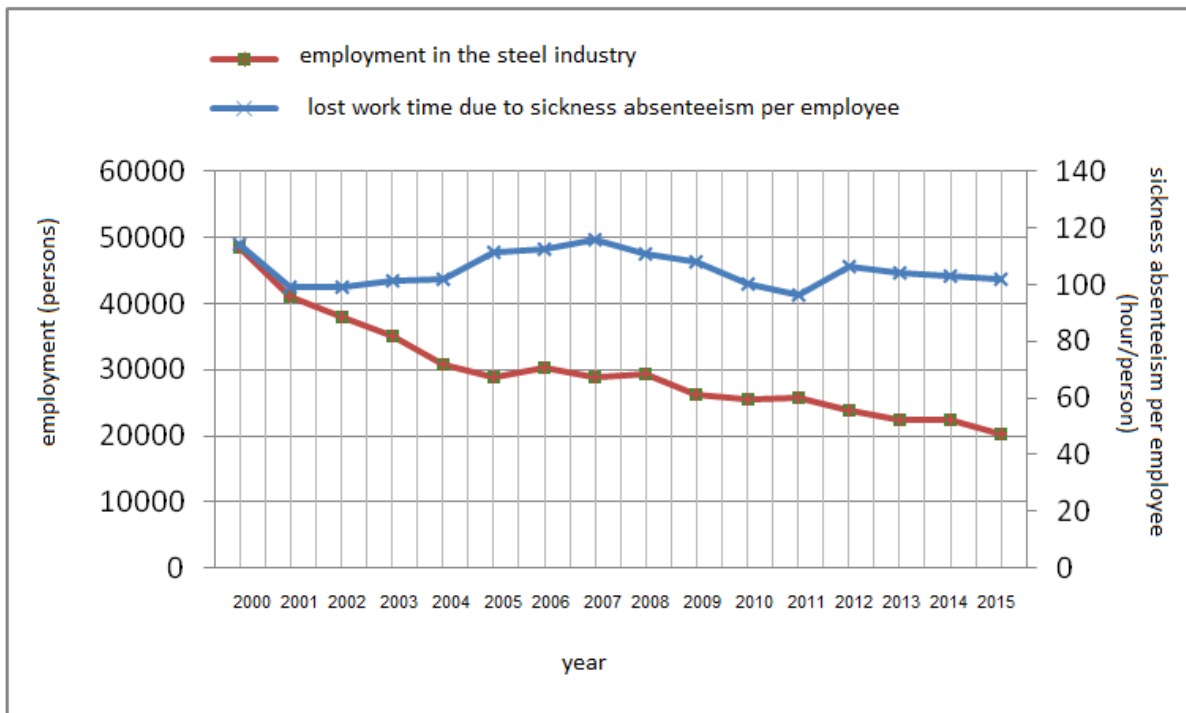


Figure 2. Number of employees and sickness absenteeism in the steel industry. Own elaboration on the basis of data of the Metallurgical Chamber of Industry and Commerce.

The employee sickness absence constitutes ca. 30% of lost work time on personal grounds (Figure 3). In the years 2000-2015 the fluctuations of the share of sickness absence in the lost work time were insignificant $\pm 2\%$. This means that the respective metallurgical companies did not achieve significant results in the form of a drop in employee sickness absence.

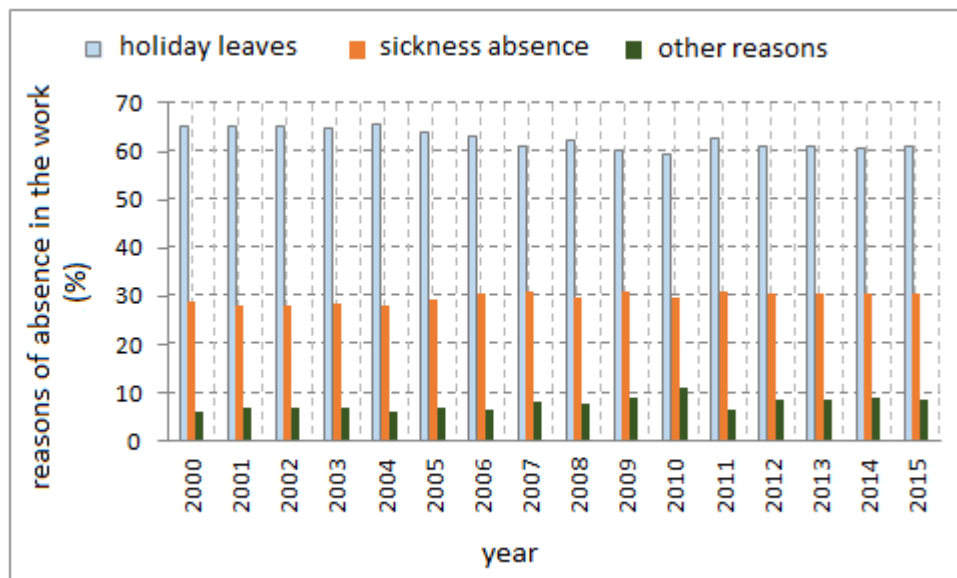


Figure 3. The share of sickness absence in the lost work time in the steel industry. Own elaboration on the basis of data of the Metallurgical Chamber of Industry and Commerce.

A higher sickness absenteeism in the steel industry is recorded in production (blue-collar) jobs, rather than nonproduction jobs. The production worker was absent from work for 117 hours per year on average, what constitutes ca. 15 working days. However, the nonproduction worker in the years 2000-2015 was absent from work 65 hours per year on average, what constitutes ca. 8 sick leave days (Figure 4).

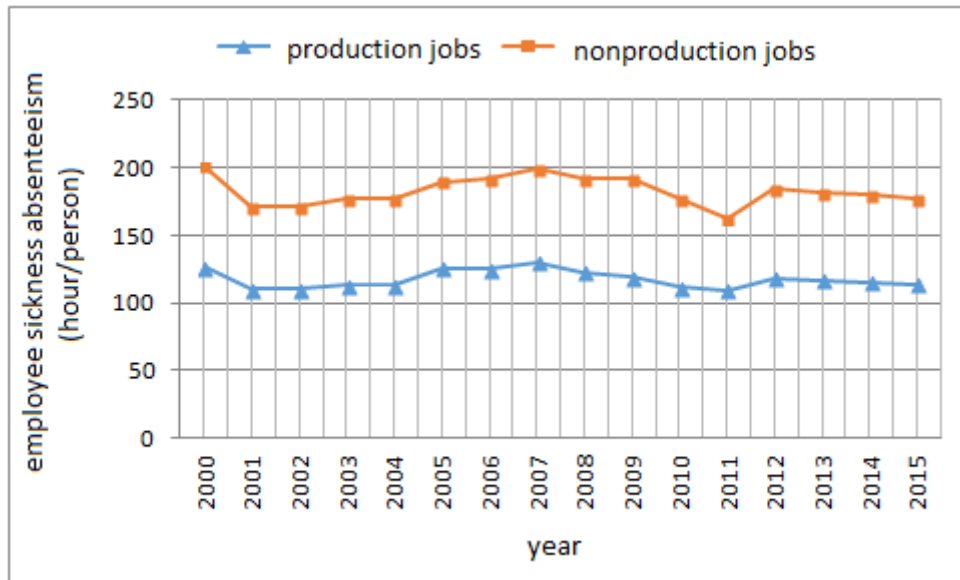


Figure 4. Employee sickness absenteeism according to jobs in the steel industry. Own elaboration on the basis of data of the Metallurgical Chamber of Industry and Commerce.

The share of post-accident absence in the total sickness absence does not exceed 4% (Figure 5). The fluctuations of this share in the years 2000-2015 oscillated between 2.5% and 3.8% (Figure 6).

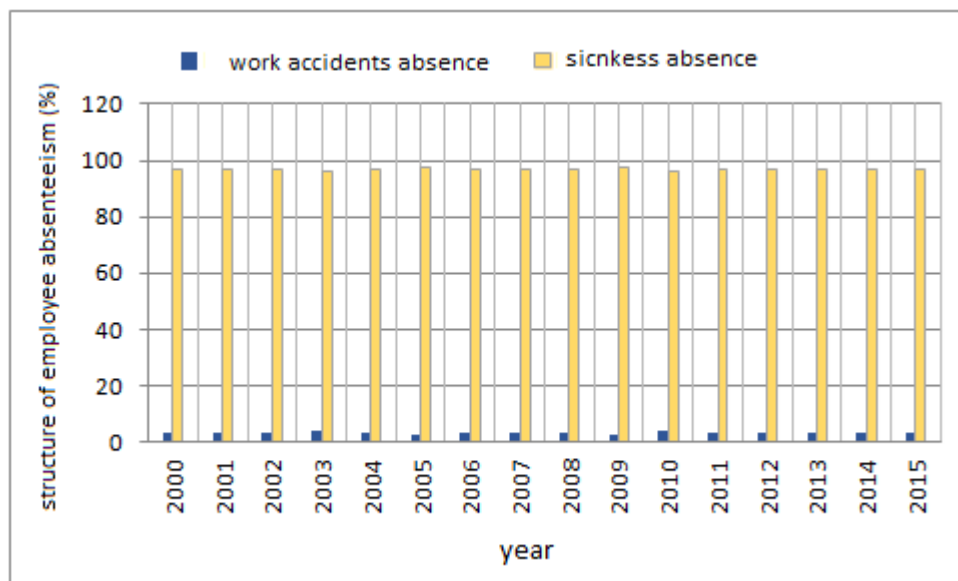


Figure 5. Post accident absenteeism in the steel industry. Own elaboration on the basis of data of the Metallurgical Chamber of Industry and Commerce.

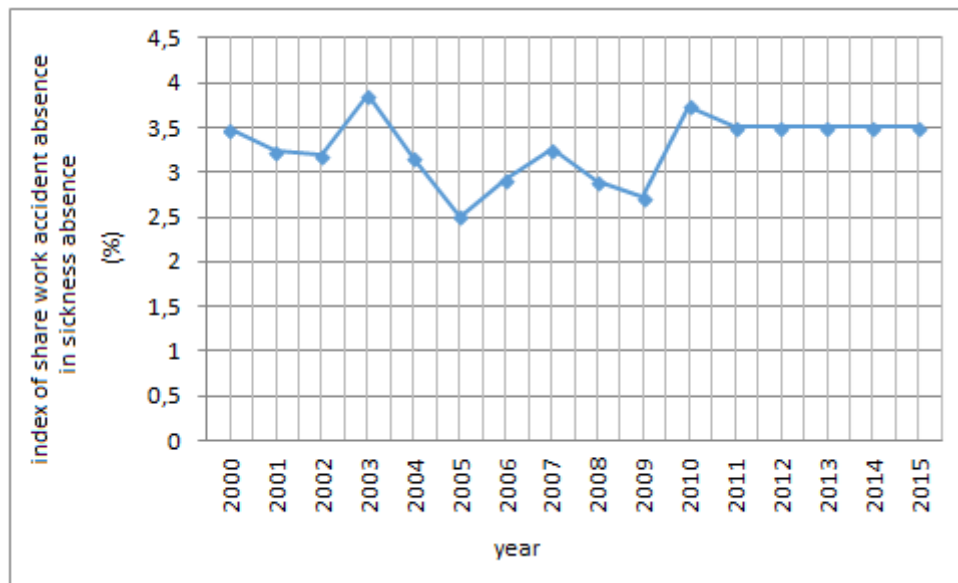


Figure 6. Index of absenteeism in the steel industry. Own elaboration on the basis of data of the Metallurgical Chamber of Industry and Commerce.

Results of the conducted analysis:

1. Employee sickness absenteeism of the steel industry in Poland constitutes ca. 30% of absences on personal grounds.
2. Sickness absenteeism remains at an unchanged level in the analyzed period 2000-2015 (fluctuations $\pm 2\%$).
3. One employee takes about 12 sick leave days per year on average.
4. There was higher sickness absenteeism in production jobs, rather than nonproduction jobs (7 sick days more are taken by production workers).
5. The share of post-accident absence in sickness absenteeism does not exceed 4% and it ranged from 2.5% to 3.8% in the years 2000-2015.

4. Conclusions

High voluntary (unplanned) absenteeism is perceived in a company as a negative phenomenon. Knowledge about this phenomenon and, in particular, the type and scale of absence and also its causes is especially useful for the employer because he may implement support actions to reduce absenteeism. In order to counteract absenteeism, it should, firstly, be analyzed on an ongoing basis. Secondly, based on reports and presentations practical preventive measures should be taken. A good employer also attempts to determine the reasons for the absence of employees, among which we can distinguish: low work motivation, lack of satisfaction, stress in the workplace or poor working conditions. The presented analysis of the

sector indicates that the measurement of absence is very general in nature. For statistical purposes such an analysis may be sufficient, but insufficient to take preventive measures.

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INTERGENERATIONAL COOPERATION AT THE COMPANY AND KNOWLEDGE TRANSFER

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Abstract: Interpersonal relations are vital in the company's operations. The connection between generations is designed and created in this way. Interpersonal cooperation includes two essential elements, and this is connection and coexistence between the generations. Various conflicts come between generations many times which results from intergenerational differences and arises from differences in the goals and interests most often. Intergenerational cooperation has a significant role because of the transfer and exchange of knowledge in the company. When we talk about knowledge transfer, old people transmit their experiential knowledge to young people, and the latter in many cases lack this knowledge. Young people acquire experiential knowledge in such way in a company either in the case in which a mentor transfers work instructions and guidelines or with the help of a practical implementation of activities. Employees are aware that the acquisition of knowledge, experience, and skills are a crucial element for business success which represents a competitive advantage for companies. For this reason, companies invest a significant proportion of their revenues in training and knowledge of their employees. Knowledge is in the innovation, technology, documentation and minds of people in companies.

Keywords: intergenerational cooperation, knowledge, knowledge transfer.

1. Definition of the problem

Relations between generations are fundamental to the human living conditions, and they are connected with key human experience (Pihlar, 2012). To ensure the success of the company an inseparable guide relationship between generations and care for quality ageing should be considered by introducing and consolidating a new solidarity between them (Kidrič, 2006).

With good relations, we create the conditions for intergenerational cooperation in a company which established the employees of companies and this is very important for the transfer of knowledge. Problems arise between generations many times and they are often rooted in intergenerational differences. Generations have different opinions on many activities

and operations of the business which may lead to disagreements and problems that can cause intergenerational differences. Intergenerational relations and cooperation are important to learning about the needs of different generations (Podnar, 2009).

Intergenerational Cooperation is the basis for the exchange of knowledge between generations in the company where knowledge management plays an important role. Here we are talking about knowledge transfer through mentoring and work experience, which young personnel successfully engage in work. Young personnel connected with professionals who have specific knowledge, this is characteristic of mentoring (Sitar, 2006).

We know more definitions of concept knowledge. Knowledge is the sum of beliefs and truths that this is the whole of our perceptions, discoveries, and experiences. Knowledge is comprised of created and organised skills, experiences, and values which we can prove by action and successful solving of problems. We have been focused mainly on the expertise inside the company which is crucial for the operation, development, and good business results. Companies acquire theoretical knowledge with new employments, with hiring external consultants and with the organisation of seminars, courses, and similar education for employees. This knowledge becomes practical knowledge when it is used for detecting and solving problems (Gomezelj Omerzel, 2008).

Knowledge is a mixture of experiences, information, and professional knowledge in the company (Gomezelj Omerzel, 2008). The process of knowledge exchange is done through formal and informal mechanisms. Social capital is important for knowledge transfer. This capital covers a developed social network, a high degree of confidence, and a certain degree of common norms and values of the individual. (Podmernik, 2008).

Transfer and sharing of knowledge depend on of knowledge which the company possesses, which includes knowledge of the organisation and the basis of communication which constitutes the grounds for knowledge transfer. The methods of cooperation between employees are a very important addition to communication (Nonaka, and Takeuchi, 1995).

Investments are the most important element of the development of the economy. Investing in knowledge includes learning, knowledge and creativity or innovation, which is the key element of competitiveness. Competitiveness is most dependent on the ability of continuous learning of the society and ability of commercial use of the latest technologies. Companies compete internationally in the global niches by their unique strategies and skills (Možina, and Kovač, 2006).

2. Knowledge in the company

“Knowledge is a cluster of data, skills, information or context that allow the quality decision and problem-solving” (Walczak, 2005, p. 331).

“Knowledge is the ability of the man which enables it to resolve the known problems. Knowledge helps a person to solve problems with known solutions no matter where and how it has been obtained” (Ivanuša-Bezjak, 2006, p. 52).

Knowledge is the source of the performance of the company, and the main part of the investments are investments in knowledge into successful companies. This knowledge is in the innovation, technology, documents, and minds of the personnel. Personnel is constantly prepared for perfecting the benefits of this knowledge into practice in companies where a big emphasis is placed on knowledge, education, and preservation of knowledge in the company. Knowledge is useful regarding usability of the social and development perspective in the company (Možina, 2002).

Knowledge represents the competitive advantage of the company, one of the most strategic company resources and the main factor of success. We need to put constant attention to knowledge, which is seen as an essential resource in the company. We must not forget that knowledge has a big impact on the innovative company. Knowledge should be a foundation on which a strategy of the company is built and the most important source of profitability in the company. The role of knowledge varies depending on the activity in which the company is engaged. The most important economic resource is knowledge, no longer the natural resources, the workforce, and capital in a time when we enter into a knowledge society. The company develops the knowledge, but this is not enough. It is important to take care of the knowledge transfers between employees and with this the amount of knowledge increases. We are currently in a fast-changing environment that is unpredictable and tense. We can take advantage of this environment to promote learning and creation of new knowledge in the company. A company has a task to create an environment for free thinking to find new solutions at all levels (Gomezelj Omerzel, 2008). Implicit or tacit knowledge has much power for the competitive advantage of the company (Krogh, Ichijo, and Nonaka, 2000).

Sharing of knowledge, implicit and explicit, is the most common division from the perspective of knowledge management. Explicitly expressed knowledge is transferred by various media, implicit knowledge is transmitted only directly between employees (O'Dell, and Grayson, 1998).

Implicit knowledge is the knowledge of the individual obtained from working and living experiences. This knowledge is difficult and very demanding to access, document, edit, and forward. For this type of knowledge it is characteristic that we can transmit it through education and mentoring. Mentoring is typical for the company, so it is necessary to provide to employees a connection with specialists who have specific knowledge. Unlike tacit knowledge, explicit knowledge is written in documents, books, databases, or manuals. We can recognise this knowledge, store, transfer, and define it (Sitar, 2006). Implicit or tacit knowledge is the most important source of information in the company (Krogh et al., 2000), so it is difficult to directly recognise it (Paavola, Lipponen, and Hakkarainen, 2004). Tacit knowledge is the key to innovation capacity of companies. This knowledge enables the development of close relations

with other companies, which enables the acquisition of tacit knowledge from external companies (Cavusgil, Calantone, and Zhao, 2003).

We pointed out three definitions of knowledge, which we are faced with in business. We divide the knowledge into six parts in the first definition (Gomezelj Omerzel, 2008):

- »Know-how« – this is the developmental stage of knowledge that helps us to transfer the theoretical principles into real results.
- »Know-what« – knowledge acquired in school, which is insufficient for creating a competitive advantage.
- »Know-why« – there is a transition from information to knowledge.
- »Know-who« – we can consider it as knowledge about relations. In the case of this knowledge, we know who has which knowledge and whom we can call for help.
- »Know-when« – a feeling for a right moment.
- »Know-where« – this is the skill of people who find the right information in the right place.

Another division of knowledge is specific to the individual company and represents a competitive advantage (Gomezelj Omerzel, 2008):

- Conceptual knowledge, when individual knowledge is based on the capacity for understanding theoretical concepts.
- Experiential knowledge is tacit knowledge and comes from experiences.
- Systemic knowledge where go for a set of tacit knowledge which we find in the company in system routines and accepted rules.
- Written knowledge which includes written rules, procedures, instructions, and the like.

The third division includes all knowledge at the company level covering four types and these are as follows (Gomezelj Omerzel, 2008):

- Inter-organisational knowledge where learning is used for integration of the internal knowledge with the external one.
- Organisational knowledge, which allows the flow of knowledge across an enterprise.
- Collective knowledge, where learning enables connecting various forms of knowledge with the help of communication.
- Individual knowledge which is acquired by learning and with this it facilitates obtaining information.

3. Intergenerational cooperation and ways of knowledge transfer

Lasting activities of every man are an entry into the interpersonal relationships, their design, transformation, and disconnection. They are the fundamental signs of human social nature. This corresponds to a need for socialising, which is one of the basic human needs. This need is developed differently in humans, but no one can live without it (Ule, 2004).

Intergenerational cooperation is a connection between the generations and coexistence between young and older people. This cooperation is a conscious decision in a society that is ageing. That includes the exchange of experience and knowledge, to create, maintain, and expand the social networks. We must stress cooperation and mutual respect and reinforce solidarity between the young and elderly. Experience and knowledge of the older people are a very important social capital. We have to make sure that their knowledge is transferred to the younger generation because this is very important for social development (Kralj, 2009).

Generations must be complementary to each other, which is a fixed asset of human development (Ramovš, 2000). A way of life in modern society, which glorifies productivity, productivity and a hunt for profits, reduces the importance of relations between the generations. Very fast development of science and knowledge relegates experience and knowledge of the older people and thus reduces the standing of age (Mali, 2009).

Older employees are aware that they have an advantage over young people because of the experience and they can affect their behaviour. Older is identified with experience. An attack on their knowledge and experience means an attack on their identity (Brečko, 1998).

Older employees are a source of knowledge and experience. Employers see a good knowledge and social skills at them. A transfer of past achievements onto young people is important for the society. If we compare the older with the young, older people have mostly experiential knowledge, which over the years has obtained a certain width. Older people are a source of knowledge, but to them, it is running low because of the rapid evolution and changes. Older people should be awake and curious in order not to land on the social edge (Kralj, 2009).

The knowledge transfer process is a process where knowledge is transferred to other employees or groups within a company. Communication plays an important role in exchanging and knowledge transfer (Dermol, 2008/2009). Here we are talking about the transfer of knowledge through mentoring and work practices which young personnel may successfully engage in their work. Mentoring is characterised by young personnel connecting with professionals who have a specific knowledge (Sitar, 2006).

We can explain the transfer of knowledge with five variables (Gomezelj Omerzelj, 2008):

- culture in the company which promotes the development and spreading of knowledge,
- employees hide own knowledge because they think that this increases competitive advantage over employees,
- the company does not enable the transfer of knowledge between departments,
- employees do not understand the importance of spreading and sharing knowledge,
- employees have too few communication skills which are necessary for the transfer of knowledge.

4. Research questions

We mentioned intergenerational relations, which are very important for the transfer of knowledge between generations, where older people transfer experiential knowledge to the younger ones. Knowledge is the competitive advantage of every good company and it is very important that companies invest in employee knowledge. For this reason, it is necessary to encourage the employees to constantly learn and share their knowledge. In the companies there are older people who are full of experiential knowledge. Moreover, there are young people who have come in the company full of fresh knowledge, but with a lack of experiential knowledge. If these two groups establish good relations between themselves the desired transfer of knowledge and experiences will take place, which is very important for good business and the future of the company.

We determined two research questions:

- RQ1: Young people are aware of the importance of knowledge and experience of older people in the company.
- RQ2: Good intergenerational relations have a positive impact on knowledge transfer.

We wanted to check whether the young people are aware of the importance of knowledge and experiences of the elderly because the elderly are one of the best sources of knowledge in the company. Both groups have their advantages and disadvantages in the field of knowledge. If we make a comparison between older and young people, we find that older people have an experiential knowledge, but the development of technology is slowly overtaking them. They are less apt in the field of knowledge of foreign languages, project work, and teamwork. Young people are more familiar with the modern information technology, computer science, and use of the Internet, and they know foreign languages, they are familiar with teamwork and know how to use different communication possibilities. Along with the establishment of relations all the necessary knowledge will be acquired to achieve the objectives set.

4.1. Answer to research question No. 1

We found that young people are aware of the importance of knowledge from the experiences of older people. They know that older people are one of the best sources of knowledge in a period of deployment of training and internships in the company, where they acquire knowledge through mentoring. Because young people do not have experiences, they want to get more knowledge from old people and in turn, forward their own fresh knowledge which they obtained during their studies.

Young people have an advantage related to computer skills, management of the Internet, communication skills, teamwork, mastering foreign languages, and project work, in contrast to the older people. However, young people are aware that they do not have enough knowledge which they acquired during education, and they have to continually improve their knowledge (Pečar, 2002). They have one big imperfection. Young people are full of fresh theoretical knowledge on graduation, but they do not have experiences in the specific workplace (Počivavšek, 2005). They see that older employees are a source of knowledge and experience and are aware that the transfer of the previous achievements onto the young is important for company's success.

“Companies are encouraged to be aware of the importance of knowledge of older people. Older people say that they are adept and proficient in their work, they are reliable in work and don not demonstrate panic reactions. They are a good source of knowledge transfer, which they have at their workplace”. What “they know is high-quality knowledge. We cannot avoid intergenerational cooperation, so companies invest a lot of money in knowledge and good human resources, which provides for good mentors or groups of mentors who teach young personnel and introduce them into work. Moreover, only respect for the older people and awareness of their knowledge leads to good cooperation, transfer of knowledge, and good results” (Urška Valjavec, 2014).

4.2. Answer to research question No. 2

The basis for the transfer of knowledge is good interpersonal relations. So, knowledge transfer takes place with good communication, where knowledge management intervenes. They are aware that conflict between generations impedes the transfer of knowledge and this impacts the company's operations. Even the leading companies are aware of the importance of intergenerational relationships and they want to prevent conflicts or resolve them as quickly as possible.

We conducted an interview for the survey in company X, on the theme of intergenerational relations and knowledge transfer. We were interested to find out how young people establish their relations with older people, what kind of interpersonal relationships they have and or between the transfer of knowledge in the company, where we conducted the interview. The company shall provide a mentor for younger employees. Mentors are their employees,

but the company makes a careful selection. That colleagues have positive characteristics, they are surrounding their knowledge; they are responsible and reliable. Leadership promotes the transfer of knowledge between generations, and they have an opinion that mutual assistance and transfer of knowledge between them and very good go on the company. Even to older people are open to young people and are not rather sparse in providing information and knowledge.

The company gives a big focus on interpersonal relationships which is defined by their code of ethics. They prepare lectures for all employees every year on this theme. The management tries by their own example to promote friendly relations and team spirit. The company tries to teach young colleagues that they will be provided with a little more patience and considerateness to older people. Likewise, they motivate their older colleagues to give a positive energy, calmness and to lead their younger colleagues with wisdom. They believe that this is a very good proceeding.

Intergenerational transfer of knowledge must come from active cooperation and communication between generations in the workplace. The red thread is mutual respect and trust and acceptance of differences between different generations of employees in the company, which is mostly born and developed through cooperation and teamwork (Žezlina, 2011).

5. Findings and discussion

Older people transmit their knowledge, experiences, and skills onto young people and the older people develop further. Knowledge of the older people can be a very good basis for further development, with this when the company adopts their knowledge and experiences they actively participate in improving the life of the entire society (Pavlin, 2012).

Again, we can mention the experiences. Older employees are aware that they have an advantage over young people precisely because of experiences, which surely affects their behaviour. Older people identify with the experience, which means that suppression of their knowledge and experiences is an attack on their identity (Brečko, 1998).

We must point out that experiential knowledge of older people is extremely important. Young people without experiences are eager to make use of their knowledge, however, the lack of experience is the main problem in the labour market, with the introduction of the work and enforcement in the company. It is very important that young people know the value of knowledge of older people since they are the best source of knowledge and young people must build good interpersonal relationships with them. However, young people have their fresh knowledge which they transmit to the older people in return.

Company X is one of the best companies in Slovenia. The company has established a personnel policy and they want improvement and best people. Their results tell us that in order

to achieve good results good interpersonal and intergenerational relations and knowledge transfer are necessary. Such a company has the objective of a long-term strategic cooperation with their customers and suppliers. Their business policy is based on mutual respect as this is the factor which brings the best results.

This article focuses on the topic which deals with the importance of knowledge and knowledge transfer.

In company X emphasis is placed on knowledge and education. The director of the company says: "Continuously learn to represent the competitiveness". The company collaborates with primary, secondary, and higher education schools in their region. They give an opportunity to primary school children to get to know the professions, they provide traineeships for students, later give them vocational work and after graduation they include them actively in the business. Their personnel policy aims at obtaining a large number of most responsible professional and managerial personnel with the vertical mobility of staff within the company. They expect innovation, responsibility, and loyalty to the company of all their employees.

6. Conclusions

We focused on knowledge, transfer of knowledge, and importance of intergenerational cooperation for the transfer of knowledge in our research work. Knowledge and investment in the acquisition of knowledge are crucial for the successful development and operation of the company in the future. Employees should be aware that knowledge is a competitive advantage.

We know several type of shared knowledge. The most frequent is the division into implicit and explicit knowledge. For the company, know-how knowledge is very important, which with intergenerational transmission remains in the framework of the company and is upgraded and adopts newer and more modern trends and makes use of modern technological equipment.

Transfer of knowledge is very important, for which knowledge management is arranged. In the case of this transfer, we are talking about the experiential knowledge of older people and fresh knowledge of young people who completed their studies. We are confronted with the problem of knowledge transfer which arises because of a conflict between the generations. Conflicts arise due to differences between generations, different interests and objectives.

For all these reasons, it is very important to highlight the good intergenerational relations and promptly resolve conflict situations in the company. Thus, the company will ensure the necessary transfer of knowledge, which is crucial for its success. The leaders must be aware of the importance of good intergenerational relations, which have the greatest impact on the internal organisational conditions and climate, while they are in direct contact with their colleagues and can affect fast and skilful resolution of the conflict.

In companies where the business policy is based on mutual co-operation, there is less chance that the intergenerational clashes would hamper the transfer of knowledge between them. Employees should be aware of their knowledge and acquired skills, and they must be favourable to the transfer of skills and multidisciplinary approach to solving these problems in the company. Companies which will provide appropriate working conditions and the environment in which it will be possible to implement intergenerational cooperation and knowledge transfer, will post high results and have a competitive advantage on the market.

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DISCOVERING AND OPTIMISING PROCESSES FROM EVENT LOGS OF DOCUMENT MANAGEMENT SYSTEMS

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Abstract: Modern information management systems are often driven by workflow engines, which require an accurate, detailed, and structured process description. Instead of theoretical modelling of such processes we propose a technique which can be a connection between traditional management (organisational structure) and business process management approach. In our work we present a case study where the automatic process mining techniques are applied to administrative processes in an environment of event logs recorded by DMS. We use event log data to discover and describe the process map of the organisation and to model structured process descriptions. Our approach allows for the extraction of models based on facts and it is a direct connection between the process model and raw data generated by the organisation. Such scenario increases consistency between the mapped model and the reality of the organisation.

Keywords: workflow, process mapping, process discovering, BPD, BPMN.

1. Differences between traditional and process driven management

Process driven management can be defined as management approach that is concentrated not on organisational structure (like the traditional approach) but on the course of processes in the organisation, seen as a collection of interrelated activities or tasks that lead to achieving a specified goal or solving a specific issue. Process-based management treats the organisation as a collection of processes performed to provide value (right service or product) to the customer at the right time and place.

There are many types of business processes in the organisation: management processes, operational processes, and supporting processes. However all the types of processes should share common features such as: definability (defined boundaries, input and), client (the recipient of the results of the process), order (the sequence of tasks), value adding (must give new value for the recipient), embeddedness (strictly defined place in the organisational structure), and multi-functionality (should include many functions). Each process should also

have the owner, so the person responsible for process course and its improvement. Therefore process driven management is a complex task and should include in a holistic manner all processes in the organisation both discovering, documenting, performance analysing, and improvements implementing. The main differences between traditional management and business process management is shown in Table 1.

Table 1.

Main differences between traditional management and business process management

No	Area	Traditional management	Business process management
1.	Accountability	Defined by hierarchical organisation structure.	Defined by the enterprise owner, and process owner and business system owner.
2.	Boundaries	Organisation boundaries typically undefined.	Clearly defined, plays crucial role in BPM. Source of many improvements.
3.	Compliance	Mostly based on difficult to create and even more difficult to maintain SOPs.	Based on process maps that are easier to create and maintain than SOPs.
4.	Customer Experience	Focused mostly only on the external customer.	Focused on internal customer needs that deliver value for external customers.
5.	Improvement	Seen as series of projects created to solve isolated problems.	Managed as a series of business and process improvement projects.
6.	Knowledge	Centralised, the employees are reluctant to share it, trying to protect their own jobs.	Transparent, documented, shared, distributed, and stored at the point of use.
7.	Measurement	Collected and managed at the department level using KPIs.	Business process level capturing and monitoring.
8.	Strategy	Difficult to implement. The cause-and-effect relationship between strategies and execution is often not established.	Organisational leadership better understands the business-processes cause-and-effect relationships.
9.	Structure	Collection of departments, functions.	Built around business processes, tasks.
10.	Workflow	Mostly undefined, sometimes partially defined by the IT system.	Defined by business processes and business systems.

Note: Adapted from: "Ten Key Differences Between Traditional Management And Business Process Management" by J. Bockerstette. Retrieved from <https://www.linkedin.com/pulse/ten-key-differences-between-traditional-management-joe-bockerstette>.

Process driven management requires a change in approach to the organisation, needs additional efforts for communication, training, IT deployment (Wu et al., 2000), and changes in education programs for both employees and managers (Borthnick et al., 2012), however it gives many advantages e.g.: organisation performance, customer satisfaction, product quality improvement; reducing the number of bad decisions; better risk prediction; better control over resources; better accountability; faster adoption to the internal and external consumer (environment) needs. BPM is crucial especially when the organisation grows rapidly and needs to restructure (Jadhav, 2011).

2. Techniques and tools for process auto discovering

2.1. Business process discovering

Appropriate process discovery is a foundation for successful business process management and critical to the success of the organisation (Jadhav, 2011). One of its main drivers is competitive pressure (Kemsley, 2015). Business process discovery (BPD) is a collection of manual or automated techniques for creation, analysing, optimising, and visualising of the business process flow (Figure 1). It is all about finding hidden processes, exposing them in order to have the opportunity for improvement (Kemsley, 2015).

BPD can create a nearly exact (AS-IS) model of real process but also identify process hierarchy and attributes like: owners, entities, tasks, and statuses. The BPD techniques explore the data gathered by the IT systems used in the organisation or collected via interviews.

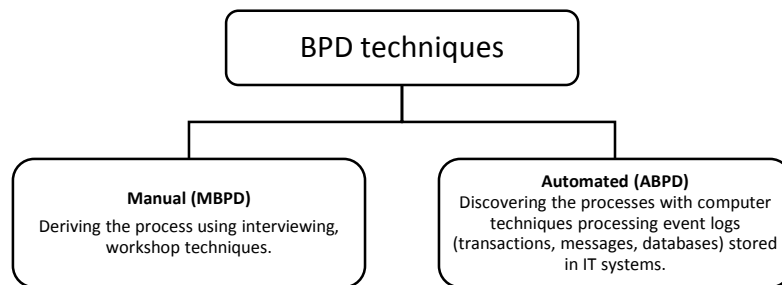


Figure 1. Business process discovering techniques. Own work.

Manual business process discovering (MBPD) uses interview techniques. Analysts have to combine pieces of information (often stored in different format) acquired from the processes stakeholders. The main benefits of manual BPD are: having a bright view on practical problems; releasing stakeholders knowledge. Sometimes manual techniques are the only way for processes discovery in the organisation (Jadhav, 2011).

Automated business process discovery (ABPD) is used when organisations become more complex, competitive and try to automate the way of operation. ABPD builds processes starting from event logs and seeks the patterns. ABPD tools merge a great amount, different formats of data, which are hardly (economically inefficient) or even impossible to process manually. It brings a lot of benefits: examination of process variations (Gartner, 2016); acceleration in process discovery; exact AS-IS visualisation; data collection with less impact on day-to-day organisational functioning (Jadhav, 2011). ABPD also gives an opportunity for wide simulation and can be used for processes optimisation.

However ABPD techniques use only IT stored data, so in order to improve automatically discovered patterns some manual techniques for capturing informal links and data are still needed. Manual and automated techniques may be used complementary, especially in medium sized organisations equipped with IT systems e.g. ERP that cover many areas of the organisation.

Due to an increase in data volume the importance of business process discovery increases rapidly. Future development of BPD will concentrate on (Jadhav, 2011):

- preparing better analysis techniques not only for AS-IS process discovering but also with the possibility of building TO-BE maps,
- intense development work on applications for automated business process discovery, to prepare “one click”, almost real time processes visualisations,
- wider integration ABPD with end-to-end business modelling specifications in order to automatically visualise the processes in an appropriate, widespread standard.

2.2. Business modelling specifications

In many cases process driven management can be supported by the IT solutions. For the past few decades information technology changed not only the course of business processes but also transformed the way of business processes management. Business process modelling was introduced for acceleration of business processes redesign (Borthnick et al., 2012; Wu et al., 2000). Implementation of a new management approach and BPM supporting tools needs some agreements and standards for describing business systems and processes in an understandable language for all stakeholders.

An example of an international consortium established for standards integration is The Object Management Group – OMG (“About the Decision Model”, 2015). One of OMG task forces established for developing requests for proposals of integrated management models is The Business Modeling & Integration Domain Task Force (BMI DTF). The BMI DTF main areas of interest in business are: planning, motivation modelling, BPM, performance monitoring, integration, B2B and B2C collaboration, security issues, and language and vocabulary standardisation (“The Business Modeling”, 2016). The specifications published by OMG in the area of business modelling contains (“About the Decision Model”, 2015): Business Motivation Model (BMM), Business Process Definition Metamodel (BPDM), Business Process Maturity Model (BPMM), Business Process Model and Notation (BPMN™), Case Management Model and Notation (CMMN™), Date-Time Vocabulary (DTV™), Decision Model and Notation (DMN™), Production Rule Representation (PRR), Semantics of Business Vocabulary and Business Rules (SBVR™), Value Delivery Modeling Language (VDML™), and Workflow Management Facility (WfMF).

The BMM, BPDM, BPMM, BPMN™, PRR concern the area of business process design and provide notation that should be understandable for all business users (Borthnick et al., 2012). The specifications are used for description of the organisation, expression of business process models, providing the maturity levels for the organisation (Van Looy et al., 2011), and graphical notation of business process for better understanding of their performance. CMMN is used for graphical expressing of cases and exchange models among cooperating IT tools. DTV specification offers a business vocabulary for the concept of date and time, models; continuous, discrete time and relationship of situations and events (Linehan et al.,

2012). DMN is a common notation understandable by all business users. It is used for describing repeatable decisions in a form that is interchangeable across organisations (“About the Decision Model”, 2015). SBVR introduces rules and vocabulary for documenting the semantics of business vocabularies and rules (“About the Semantics”, 2015). VDML describes a standard modelling language for designing and analysing an enterprise’s operation. It focuses on value creation and exchange (“About the Value Delivery”, 2015). WfMF specifies rules for workflow management processes as a kind of automatic processes involving humans, machines, and IT tools and defines interfaces used to manipulate and execute workflow objects (“About the Workflow”, 2015).

The set of business modelling specifications is quite extensive, however, it allows for a comprehensive and detailed description of the business processes, and gives the ability for better process understanding, and management. It also brings a possibility of automation and stronger processes linking among cooperating organisations. Modern business process discovery tools often offer mechanisms for automatic process visualisation according to an appropriate standard.

2.3. Tools for business processes discovering

The first IT applications due to their constraints were used only for simple repetitive calculations especially in accounting and finance departments. Development in the area of data storage and the increase in computing power allowed for storing and processing larger sets of data. The stored data were then analysed and aggregated. Due to technical limitations the business processes often had to adapt to the limitations of IT systems. In some ways the organisational structure and processes were dependent on IT tools. The next step in the IT system development was the transition from the data-driven approach to process oriented management. Management information systems (MIS) equipped with workflow management modules allowed for greater flexibility and better IT tools customisation to business needs. At present, IT tools have a very wide range of application and they allow for information flow management, supervising individual activities, mapping and visualisation of processes, building electronic forms, and designing and supervising task paths (workflow). IT solutions can also be used for automatic business process discovery. Some characteristics of IT tools used for business processes discovery are shown in Table 2.

Table 2.
IT tools used for business processes discovery

Tool	Description
BMC Atrium Discovery	The system for process discovering and mapping. It is composed of discovery engine, data model, reasoning engine, pattern language, administration and delivery tools. An advanced platform offering tools for process discovering, business mapping, reports management, data import and export, and many others. <i>More information: https://docs.bmc.com/docs/display/DISCO90/Documentation</i>
Fujitsu Process Analytics Software	A tool that integrates Fujitsu process discovery technologies with business monitoring and analytics. It allows for automatic visualisation of business process flows, real-time monitoring and alerting, the use of event collection sensors, easy process management using the Rich Dashboard and Management Console, and continuous process improvement. <i>More information: www.fujitsu.com/global/products/software/middleware/application-infrastructure/interstage/solutions/bpmgt/bpma/features/</i>
Fluxicon Disco	A tool built by experienced academics. It contains fast process mining algorithms with user-friendly interfaces. It has a built in mechanisms for: automated process discovery, process map animation, presenting detailed process statistics, cases view, inspecting history of the relevant cases, event log filtering, and data import and export. <i>More information: www.fluxicon.com/disco</i>
Lexmark Perceptive Process Mining	An IT tool for automated collection and quick analyses of the organisation's activity. It can be used for mining and refining process insight, identifying and assessing threats to compliance. It contains alerting, equipped with a filtering mechanism controlling the amount of analysed data and shown details. <i>More information: www.lexmark.com/en_us/products/software/workflow-and-case-management/process-mining.html</i>
Metastorm ProVision	A professional and easy-to-use tool for process modelling and visualisation. It enables discovering, monitoring, and improving all business events in order to improve the organisation's effectiveness. It supports: advanced capabilities in enterprise modelling, analysis and simulation of processes, group work, and integration with Microsoft Office. <i>More information: www.softwareag.com/corporate/products</i>
PRoM (Process Mining framework)	An open-source framework for implementing process mining tools. It plays a role of an easy to use and easy to extend platform for process mining algorithms for both users and developers. PRoM tends to be a standard process mining platform in the academic world with strong community of contributors and users. <i>More information: www.processmining.org/prom/start</i>
QPR Process-Analyzer	Process mining software for automated generation of processes flowcharts. It generates process visualisation and process metrics (KPIs). It has a built-in data integration mechanism. <i>More information: www.qpr.com/products/qpr-processanalyzer</i>
Software AG ARIS Architect & Designer	A tool for designing and analysing a digital enterprise. It can be used for process, enterprise architecture, governance, risk analysis; process designing; harmonising business activities with IT systems. Its main capabilities are: support for business notations, central administration, cross analytics mechanism, configurable meta model, and extension packages. The free version is the ARIS Express. <i>More information: www.dsa.com.pl/produkty/metastorm-enterprise-suite/opentext-provision,metastorm-provision.html</i>
StereoLOGIC Enterprise Discovery Suite	A tool for visualising and measuring business processes in real time. It contains mechanism for process discovery, process measuring, deviations analysing, finding root causes and inefficiencies, and preparing processes documentation. Is equipped with a fact-based process improvement mechanism for accelerating business operations. <i>More information: www.stereologic.com/products/enterprise-discovery-suite/</i>
Worksoft Analyze	A cloud based solution for discovering, visualising, and analysing end-to-end business processes. It provides to both analysts and technical staff information about business process execution, it can analyse process variants and impact on the organisation. <i>More information: www.worksoft.com/products/worksoft-analyze</i>

Note: own work based on: <https://docs.bmc.com>; www.fujitsu.com; <https://fluxicon.com>; www.lexmark.com; www.softwareag.com; www.processmining.org; www.qpr.com; <http://dsa.com.pl>; www.stereologic.com; www.worksoft.com.

The next step of BPM tools development will be (or already is) driven by the development of e-business – using ICT to support as many business activities, as it is possible. E-business means automation, interoperation across organisations, integration, great amount and variety of data and less time to deliver service, product, or information. Fast development of communication techniques, the increasing popularity of mobile technologies, social media, introduction appliances that can exchange data without human intervention, Internet of Things – IoT (Xia et al., 2012) or even Internet of Everything – IoE (Macaulay et al., 2015), development of cloud technology, requires preparing new standards, law regulations and tools for automatic data processing and visualisation.

Using modern, powerful, widespread, based on Internet communication IT tools allows for automatic gathering of data (logs) concerning not only single people, companies, organisations, but also social groups or whole societies. Logs collected by modern IT systems sometimes underestimated, ignored and simply closed in the archives begin to play a very important role. They could be used for modelling business, local-government, social, and demographical processes, especially with the use of business processes discovery tools.

3. Case study: discovering and optimising processes

In our work we describe an attempt of the process mapping which was performed in a medium-sized, self-government district institution in the east of Poland. In this institution employment is about 70 office workers who are involved in business processes of this organisation. The organisational structure of the analysed district office is presented in Figure 2.

The organisational structure is vertical and aligned through departments, functions, and jobs at the desk level. Accountability is traditionally defined through a top-down, hierarchical structure, with responsibilities assigned from the district council, through the district board, managers, and directors to front line officers (see Figure 2). The theoretical workflow is well described by an official, government document – office instruction which defines document categorisation, numbering, transmission, etc. In practice the workflow is reflected by some IT systems, especially the document management system (DMS) which uses role definition in close connection with the organisational structure. Each official is identified in the DMS by a unique account and for document classification the consistent itemised file list (CIFL) is used, where each document is assigned to a specified part of hierarchical, five level CIFL.

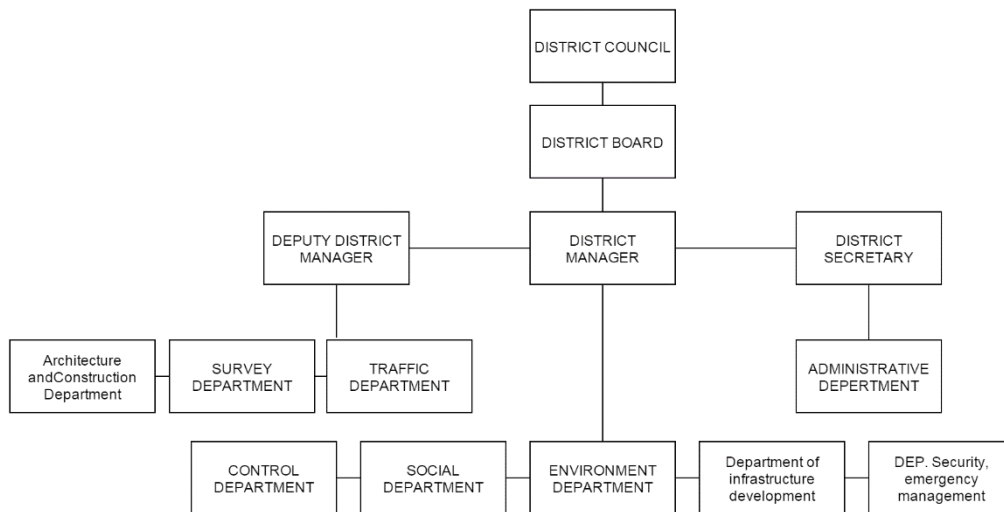


Figure 2. Organisational structure of the analysed district office. Own work.

A typical document flow is presented in Figure 3 – a document is registered in the office and next it is categorized and routed to a specific person who performs administrative work on the case. The document may be transferred to different persons several times, until the decision or final document is made. Each step in the document flow is reported in the log event of the DMS.

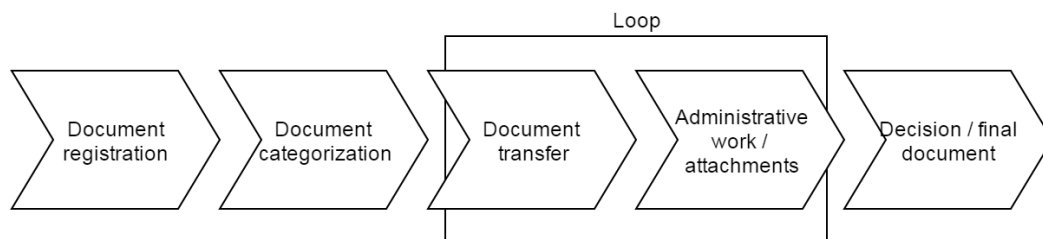


Figure 3. Typical work (document) flow scenario in the analysed organisation. Own work.

The main purpose of our work is to create a framework based on event logs of DMS which discover process maps and identify non-optimised paths and bottlenecks in the overall structure of the workflows. In the next two sections we present the structure and transformations of the real DMS log event and finally, in section 3.3., we present some results of our work.

3.1. Log event formats

The log event of the analysed DMS is stored in the database (PostgreSQL) in a single table, which consists of the following attributes (see Figure 4):

- event id (id) – record number in the log,
- event type (type) – relation to dictionary table which contains a set of seven different events types,
- event description (description) – description containing details of the event,
- user (user) – relation to user table, which contains a full description of the DMS users,
- time (time) – time of the event.

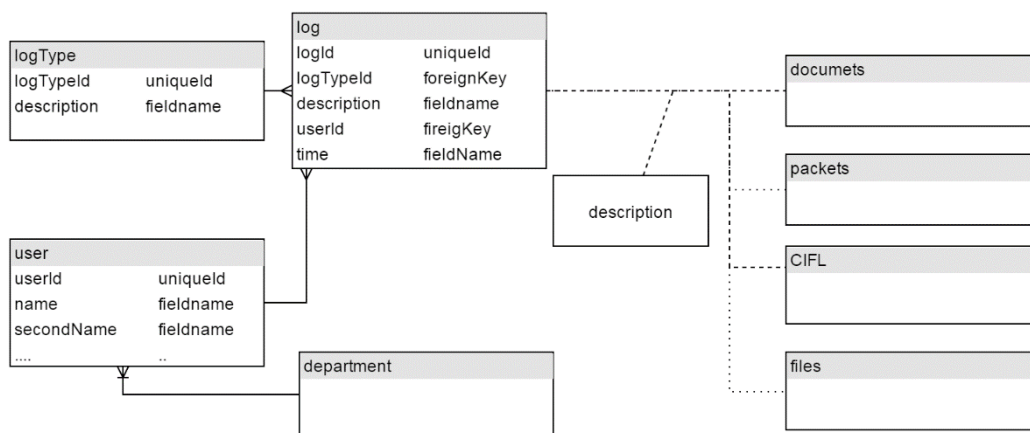


Figure 4. Database diagram of a log event and the directly connected and associated tables. Own work.

As a result of the non-normalised log architecture and the format of the event description it is impossible to analyse the data without recourse to other system tables – see Figure 4. The table log references to other tables: logType and user and the relations are realised by atomic values in the attributes: logTypeId and userId respectively. The above references are normalised, but there are also non-normalised several associations which result from the description of the log event – these associations are denoted by the dotted lines in Figure 4. The attribute description consists of the human readable sentence containing hidden references to other DMS database tables – detailed analysis of this example description is presented in Figure 5.

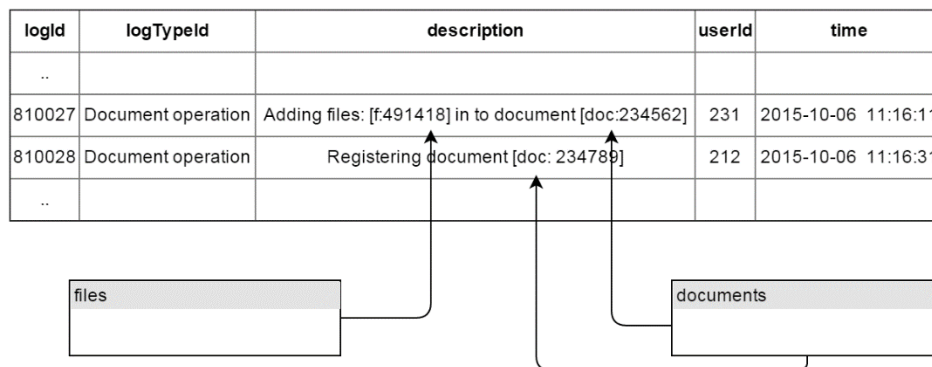


Figure 5. The structure of the sample event description and association with other DMS tables. Own work.

As a result, in order to make an analysis, the event log must be combined with other tables of DMS, and the transformation is presented in section 3.2.

3.2. Log event transformations

In order to receive information which would allow us for a full analysis of the business processes in the organisation we made some extraction and transformation of the original log data. Our purpose is to identify the cases of business processes with participants and its positions in the organisational structure and all data (files, documents, packet of documents) which is transmitted during the workflow. To this end we use ETL tool Pentahoo data integration, which allows us to make all necessary transformation in real time and pass completed and standardised log event to the process mining tool.

During the extraction we use transformations offered by Pentahoo: String operations, Value mapper, Splitting fields and Regular expression evaluation. After transformations we write all data in a single, flat table, which is the source for Fluxicon DISCO software, which we use as the main process mining tool. This step is the most important part of the analysis, because we have to correctly include all data needed by our future exploration. In our case these data come from multiple tables and we have to use whole database structure for proper data preparation: in the log, an event should correspond to an activity that is executed in the process and multiple events should be linked in a process instance or case ordered by the time attribute. Figure 6 shows the component diagram of the system used for log event preparation for data mining.

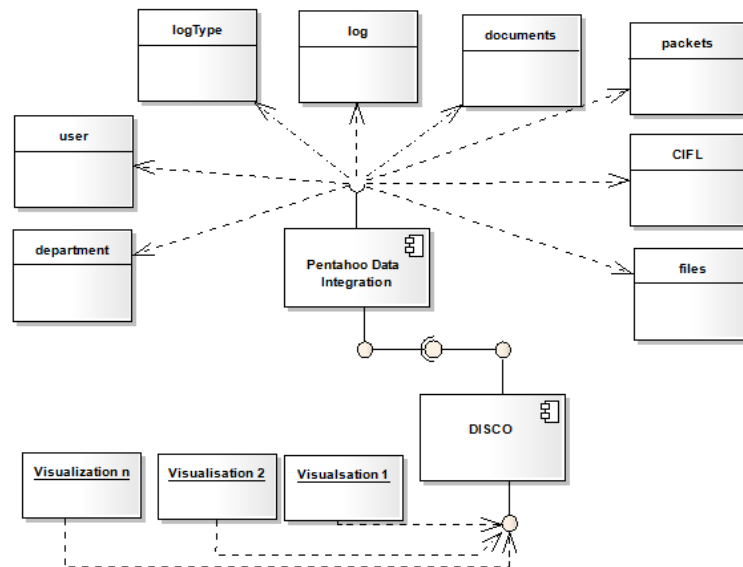


Figure 6. The structure of the sample event description and association with other DMS tables. Own work. For our research we choose generally a part of the event log, which time frame is described by the following equation: $time\ frame = expected\ time\ of\ a\ single\ case \times 4 \times 5$, where expected time of a single case is process completion time for a typical case (Rozinat, 2014). In the case of the analysed organisation, the typical time of process completion is 30 days, so our time frame covers about 1.5 years.

3.3. Process map generation

The final step in our analysis is the preparation of the process maps. The log event format required for visualisation should contain in each record the information about one event or executed activity, at least one case ID column, an activity, and one or more timestamps (Rozinat, 2014). The selection of case ID columns depends on the target analysis model, e.g. when we want to illustrate a document flow map with nodes in the form of organisational units the case IDs will be the organisation unit and the document ID, when we draw a map of the document flow between users we use as case ID columns the user and document ID.

We prepare several process maps based on the organisational structure, on document categorisation and on log event type. Figure 7 shows the sample process map – panel a) shows the numbers of different activities recorded in the log and panel b) describes the document flow between the organisational units (Dep1-Dep6) and the thickness of the line is related to the number of cases correlated with the analysed connection. Panel c) of Figure 7 displays one of the analytical views of the global statistics available in the DISCO software – the number of cases as a function of case duration. The number of analysed cases grows with time and achieves its local maximum in about 13-16 days and in about 28-30 days (the second extremum is related to the official deadline of the case proceeding).

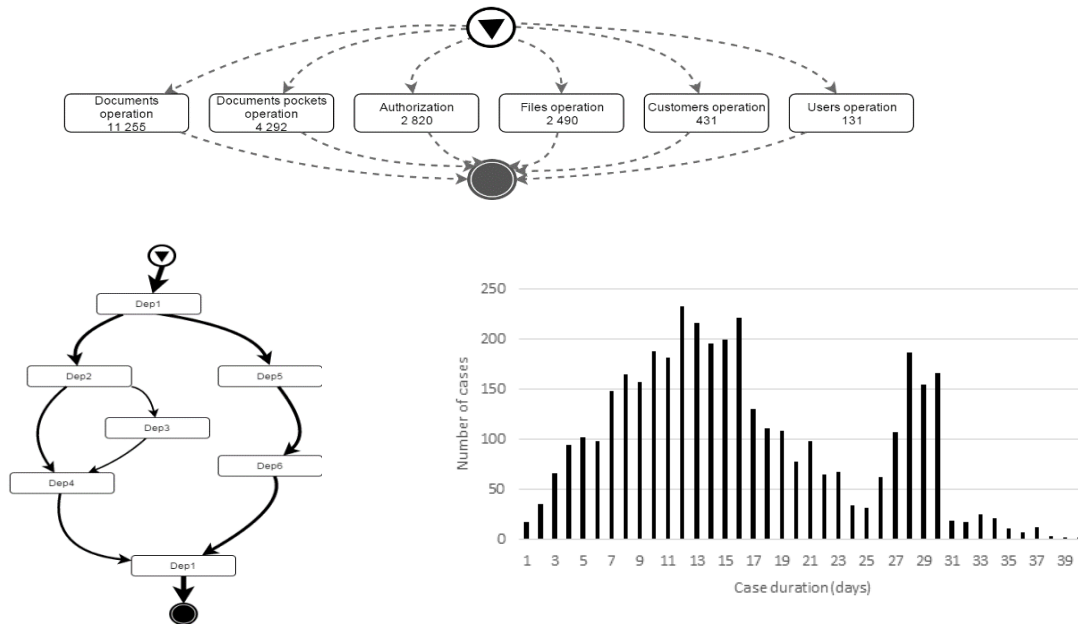


Figure 7. Sample visualisations of the identified processes. Own work.

Apart from the presented analysis, properly prepared log data allow to prepare other quantitative statistics, for example variant analysis. The variant is a specific sequence of activities and sometimes it can be useful to decompose the process map where the activities are shown for all cases together into a process map for identified variants. Figure 8 shows an example of two variants of the example process: usually (over 68%) the process consists of activities shown in Figure 8 panel b), where all activities take place in Department of Architecture and Construction (see Figure 2), while Figure 8 panel a) shows a more complicated scenario, where the documents are passed also to the Environment Department (see Figure 2).

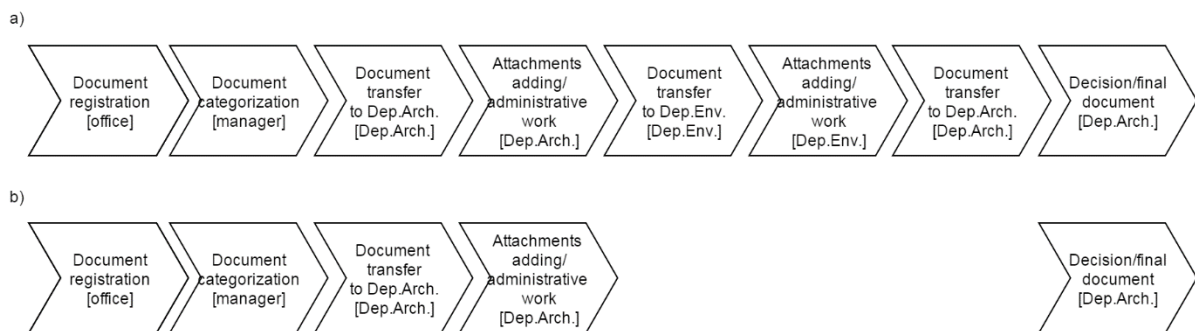


Figure 8. Two variants (activity sequence) of one case of administrative work in the analysed organisation. Own work.

The case of administrative work presented in Figure 8 shows that the workflow does not reflect the organisational structure and the metrics should be built around business processes and tasks rather than on departments and functions.

4. Conclusions

In our paper we showed a model which was developed for an automated business process discovering in one of the public institutions in Poland. We tried to build maps of the processes starting from event logs and other databases resources of the DMS used in the organisation. In our framework we merge a great amount and different formats of data to discover the relationships between activities recorded in the log.

The Performed analysis led to several process maps which show the workload and performance of different organisational units and functions. The decomposition of the discovered processes and quantitative statistics offer metrics, which can be used for performance evaluation and processes optimisation. Our work shows that the automated process discovering based on the log events of IT systems can be a useful tool for process driven management in the organisation.

Further work aiming at continuous monitoring of the process management needs to be done. In the future research we plan to introduce into the framework additional data sources like phone calls and other domain IT systems logs to better reflect the real processes in the organisation.

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INNOVATIVE COMPANIES AND THEIR COMPETENCE IN SELECTED COUNTRIES

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Abstract: The paper presents the results of empirical studies performed in order to identify organisational competencies of innovative enterprises in different countries. The study covered 476 innovative enterprises employing at least 10 people, located in five countries: Poland, USA, Thailand, Austria, and Ukraine, with the use of a specially developed questionnaire. Finally, the work presents some recommendations for managers, concerning the directions of changes that should be made in the approaches to development of organisational competencies.

Keywords: innovative enterprise, organisational competences, core competencies.

1. Introduction

Today's enterprises must meet the growing challenges of the environment, which include, among others, globalisation, the use of the opportunities created by technology, generating intellectual capital as a source of competitive advantage, or the need for action in the conditions of permanent changes (Ulrich, 1997). For this purpose, it is necessary to flexibly adapt the organisation to the changing needs of the environment. An important source of competitive advantage of enterprises is their ability to produce something that no one else can, or to do it even better (Bessant, and Tidd, 2013). P.F. Drucker mentions innovation as a prerequisite for the functioning of both the organisation and the entire economy, at the same time pointing out the role of innovation as a factor of achieving competitive advantage by defining innovation as “a special tool of entrepreneurs through which they convert a change into an opportunity to start a new business or to provide new services” (Drucker, 1992, p. 29.). Through the implementation of innovative actions, the enterprise can gain a competitive advantage (Porter, 2001), the stability of which is possible thanks to having internal, knowledge-based resources, known as “competencies of the organisation” (Łoboda, and Sitko-Lutek, 2007, p. 13), with particular emphasis on the importance of core competencies (Prahalad, and Hamel, 1990).

2. Innovative enterprise

Increasing competition, emerging markets, and different consumer preferences imply the introduction of new, innovative methods and solutions in a variety of areas of production, technology, distribution, marketing, sales and, management. P.F. Drucker concluded that innovation is a prerequisite for the functioning of both organisations and the economy as a whole, pointing to the role of innovation as a driver of competitive advantage, defining innovation as “a particular tool by which entrepreneurs make the transition to a new business. to provide new services” (Drucker, 1992, p. 29).

Innovation is an ambiguous concept, which is difficult to define. The innovation definitions highlighted in the literature emphasise the importance of introducing significant changes that lead to improved products, processes, procedures, and business models, thereby providing new value to stakeholders (Timmerman, 2009).

It can also be said that innovations are systematically implemented in order to increase the efficiency of the enterprise. Customers, suppliers, and other organisations from the company’s environment are often involved in their implementation (Kraśnicka, and Ingram, 2014).

Innovation is closely linked to innovativeness, most often defined as the ability of a company to innovate, both technological and organisational (Nowacki, 2010).

The term “innovative enterprise” appears in the literature very often, however, it is defined in different ways. According to the Oslo Manual, the characteristic feature of an innovative enterprise is the introduction of at least one technological innovation during the period under review (usually three years), i.e. a new or improved product or a new or improved process, which are new at least from the point of view of that enterprise (Stawasz, 2005). Similarly, an innovation active enterprise is defined by the Polish Central Statistical Office (GUS) as an enterprise that during the period under review has introduced at least one process or product innovation or that was implementing at least one innovative project which has been interrupted or abandoned during the period under review (unsuccessful) or which has not been completed by the end of that period – i.e. it is ongoing (GUS, 2013).

Taking into consideration these definitions, a great number of enterprises can be included in the group of innovative enterprises, and therefore it is advisable to present its components and characteristics that it should have. For example, according to A. Jasiński (1992), an innovative firm is one that:

- carries out extensive research-development works (or purchases new products or technologies),
- makes relatively large financial outlays on that type of activity,
- systematically implements new scientific and technological solutions,

- represents a large share of novelties (new products and technologies) in the volume of production and services,
- constantly introduces innovations to the market.

A. Sosnowska, S. Łobejko, and A. Kłopotek define the innovative firm as an intelligent organisation, constantly generating and implementing innovations, finding recognition among consumers due to being highly modern and competitive, and the manner and structure of management are aligned to the primary task (Sosnowska, Łobejko, and Kłopotek, 2000). The innovative activity carried out by enterprises consists mostly of three elements – processes (Szczepankowski, 2010):

- collection of information, or researching the market, its size, the structure of the buyers and their expectations,
- implications of the acquired information in the R&D activities, broken down by creating completely new technologies and products, using existing technologies in offering new products, modifications to the technology of production and sales of the existing products on the market,
- implementation of the solutions adopted in the operating activity of the enterprise and performance measurement.

Many authors indicate that the success of an innovative enterprise depends on a number of factors. According to J. Dyer, these are: the right people, processes, and philosophies, i.e. elements of organisational culture (Dyer, Gregersen, and Christensen, 2011). J. Tidd and J. Bessant claim that the innovative enterprise is made up of: a shared vision, leadership, the will to be innovative, an appropriate structure, important persons, effective team work, a high degree of commitment to innovation, an atmosphere of creativity, as well as focus on the environment (Bessant, and Tidd, 2013).

Developing an innovative company is a complex activity that requires creation and maintenance of an innovative environment in the enterprise, which is affected by a number of factors. It should be noted that the factors developing innovativeness of the enterprise depend on the type of innovation being implemented in the enterprise. For the purposes of this study, an innovative undertaking is defined in accordance with the Oslo methodology, in which it is delineated as an enterprise that has implemented at least one product, organisational, process, or marketing innovation.

3. Competences of the organisation

The literature does not provide a clear definition of the term “competence”. This concept has many different dimensions, and its definition depends on the perspective adopted by the authors. Competences are, inherently, abstract, complex and multidimensional, defined taking

into account various theoretical approaches, for example psychological, situational, and cognitive (Thierry, and Sauret, 1994).

In the management practice, the term “competence” is used in different senses. Initially, the term was used in a very narrow sense, with reference only to employees – “competences” were understood as having the formal right to deal with particular matters and to take decisions in a specified scope. Therefore, competences meant only the right, regulated by laws and regulations in force in a given organisation, to perform certain activities. The ability of an employee to work effectively was, however, associated with suitable qualifications which were usually considered a result of education and length of employment (Oleksyn, 2006). Modern approach to competences refers to the effects of actions. C. Lévy-Leboyer states that competences “refer to integrated use of abilities, personality traits, as well as the acquired knowledge and skills with a view to leading to successful implementation of a complex mission within the enterprise which burdened its employee with it in the spirit of the enterprise's strategy and culture” (Levy-Leboyer, 1997, p. 19).

These definitions relate to individual employees' competencies which make up the work potential. The employee's individual work potential is made up of his or her knowledge and skills (the so-called “hard competences”), as well as personality traits, predispositions, motivation and social roles (the so-called “soft competences”). When relating the individual competences to the level of the organisation, it can be concluded that the competency potential of the organisation is therefore the product of individual work potentials expressed in the number of employees and their individual working time (Łoboda, and Sitko-Lutek, 2007).

The second, broader approach to defining competences relates to competitive advantage of the company on the market, and the subject of interest here are the competences of the organisation which can be described as the abilities to develop, coordinate, and use the existing resources to fulfil the tasks and objectives of the organisation (Amit, and Schoemaker, 1993). This approach made managers aware of the fact that in order to maintain competitive advantage it is necessary for them to identify and develop their own specific core competencies (Scarbrough, 1998).

R. Sanchez defines organisational competencies as the ability to take coordinated action aimed at the use of existing resources in a way that allows to achieve a company's objectives (Sanchez, 2004). Competences of the enterprise, therefore, include those of its attributes which enable it to combine and coordinate its own existing resources. They constitute “a complicated bundle of resources, processes and abilities” (Bratnicki, 2000, p. 64). The resources are not valuable in themselves, but in relation to individual markets. They are meaningful only in terms of actions designed to achieve competitive advantage.

Since the beginning of the 1990s, when businesses were looking for opportunities to gain competitive advantage, more and more attention has been to factors inherent in the organisation itself. The resource-based approach to management uses the term “core competencies”. It was first introduced by C.K. Prahalad and G. Hamel who claimed that core competencies decisively

contribute to gaining and maintaining continuous competitive advantage, are developed as a result of collective learning of the organisation and are related in particular to the coordination of diverse production skills and integration of multiple streams of technologies (Prahalad, and Hamel, 1990). It can be concluded that core competencies are the result of the actual potential of the organisation and the company's success is, thus, the result of innovation, creativity, knowledge, and experience available in the organisation.

Core competencies of the organisation represent a unique combination of business expertise and human skills that create the uniqueness of an organisation, include expertise in specific areas of operation of the company and the effect of synergy of intangible resources, such as motivation and contribution of work of employees, their professional knowledge, ideas concerning collaboration, and management. Systematic and structured actions aimed at improving core competencies lead to an increase in the strategic potential of the organisation. Core competencies are inherently difficult to copy by competitors because they are unique and specific to each organisation. As a result, focusing on them helps the organisation achieve its objectives, and this, in turn, may lead to gaining continuous competitive advantage. Core competencies can thus constitute success factors of organisations and support the determination of new trends in their business activity (Bergenhengouwen, 1996).

To sum up, a reflection on competencies can be defined as a combination of knowledge and skills that reflect both basic (tacit) knowledge, as well as skills necessary to perform the necessary actions. Competencies are based on knowledge embodied in the skills of individual employees and on the knowledge that is available to individual organisational units. In general, it can be concluded that competencies are made up of specific, enterprise-owned skills in the deployment of resources, cognitive skills that allow for taking actions ensuring the attainment of the set objectives.

4. Competencies of the organisation in the light of empirical studies

In the modern economy, innovations are considered to be one of the key success factors determining the achievement of competitive advantage by enterprises, and development of an innovative enterprise is a significant challenge that managers face. One of the aims of the performed empirical study was to identify competencies of innovative enterprises with particular reference to the universal competency elements characteristic to all enterprises covered by the study, regardless of their location.

4.1. Research methodology

The study has been carried out using the method of a questionnaire survey, based on a specially prepared questionnaire. The respondents answered the questions in the survey using a 5-point Likert scale, in which the scores meant respectively:

- 1 – strongly disagree,
- 2 – somewhat disagree,
- 3 – neutral,
- 4 – somewhat agree,
- 5 – strongly agree.

The study covered 476 innovative enterprises employing at least 10 people, located in five countries:

- Poland – 357 enterprises,
- USA – 16 enterprises,
- Thailand – 40 enterprises,
- Austria – 27 enterprises,
- Ukraine – 36 enterprises.

The obtained results of the empirical study were analysed statistically using descriptive statistics in the form of average and weighted average. In addition, the percentage of positive answers given to individual questions (answers 4 and 5 in the adopted Likert scale) was calculated. The analysis has been carried out in respect of research samples from individual countries.

Competencies of the surveyed enterprises were evaluated using the 5-point Likert scale, in a variety of functional areas: management, finance, personnel policy, the use of IT, the use of technology, marketing activity, development, logistics, supply, servicing [after-sales servicing], and relationships with the environment.

4.2. The level of competencies of the surveyed enterprises

Competencies of the surveyed enterprises in the individual areas were assessed by the respondents as average and high. The score is different in different countries. The average level of competencies in the surveyed enterprises in the USA was assessed the highest, and the most high-level competences were assessed in Austria. The level of competencies of enterprises in Thailand and in the Ukraine was assessed the most critically. When comparing the obtained results with the level of innovation of the selected countries according to the 2017 Global Innovation Index, it should be noted that the highest level of innovation is in the USA and Austria, which is confirmed by the results of the study. The lowest level of innovation is in the Ukraine, whereby the competencies of the surveyed enterprises were assessed slightly higher than in Thailand. The summary of these indicators has been presented in Table 1.

Table 1.

Comparison of the innovation indicators of the selected countries and average competencies in the surveyed enterprises

Country	Poland	USA	Thailand	Austria	Ukraine
Indicator					
Innovation indicator	41.99	61.40	37.57	53.10	37.62
Average competencies	4.14	4.24	3.50	4.16	3.75

Note: own compilation on the basis of the survey results and data adapted from The 2017 Global Innovation Index. Retrived from www.globalinnovationindex.org (2017, September 29).

In the enterprises in Poland, the level of competencies in the area of relationship with the environment was assessed as high (4.23). What is worrying is a relatively low scoring related to the level of competencies of the surveyed enterprises in the area of the use of IT (3.95), especially that the subject of the study was innovative enterprises.

The surveyed U.S. enterprises have very high competencies of the organisation in the area of management (4.56) and the use of technology (4.56), while the lowest competencies, assessed at an average level, are competencies in the areas of finance (3.88), as well as servicing (3.88).

The level of competencies of the enterprises surveyed in Thailand has been assessed generally as average and low, whereby these enterprises have the highest level of competencies in the area of servicing (3.75), and the lowest in the area of development (3.4), logistics (3.2), and supply (3.15).

The level of competencies of enterprises in Austria is the highest in the area of personnel policy (4.44) and supply (4.44); the lowest – in the area of logistics (3.78).

The level of competencies of enterprises in the Ukraine was assessed as average and low. The enterprises have the highest competencies of the organisation in the area of management (4.00) and marketing activity (4.00), and the competencies in supply (3.58), servicing (3.58), and finance (3.42) were considered the lowest.

A general summary of the obtained results relating to the competencies of the surveyed enterprises is shown in Table 2.

Table 2.

The level of competencies of the surveyed enterprises in the selected countries

Area of competence	Country				
	Poland	USA	Thailand	Austria	Ukraine
Management	4.21	4.56	3.60	4.11	4.00
Finance	4.22	3.88	3.50	4.22	3.42
Personnel policy	4.04	4.31	3.50	4.44	3.75
The use of IT	3.95	4.19	3.55	4.33	3.83
The use of technology	4.17	4.56	3.65	4.00	3.75
Marketing activity	4.13	4.31	3.65	4.00	4.00
Development	4.09	4.31	3.40	4.22	3.75
Logistics	4.22	4.31	3.20	3.78	3.83
Supply	4.23	4.13	3.15	4.44	3.58
Servicing [after-sales servicing]	4.03	3.88	3.75	4.00	3.58
Relationships with the environment	4.23	4.06	3.65	4.00	3.75
Average	4.14	4.24	3.50	4.16	3.75

Note: own compilation based on the results of the study.

When comparing the assessments made in all the surveyed companies, their management competencies were assessed the highest, followed by competencies relating to the relationship with the environment and personnel policy. The competencies of the enterprises in the use of technology, in marketing activities and in finance were at a slightly lower level. Then, they are followed by competencies in the area of supply and logistics, as well as development. Competencies that are at the lowest level in the surveyed enterprises are those in the area of servicing and the use of IT. Summing up, it can be concluded that in the surveyed innovative enterprises significant attention is paid to organisation management, but also to human resources. The surveyed enterprises are open to the environment, maintaining appropriate relationships, but also conducting marketing activities well. In general, it can also be concluded that the level of competencies of the surveyed organisations in the field of financial management and the use of technologies is average. The worrying fact is attaching relatively low significance to competencies in the area of development.

5. Conclusions

The analysis of the results of the conducted study shows that the level of organisational competencies is different from country to country, however, a noticeable relationship can be observed between competencies and the level of innovation of a given country, measured by the Global Innovation Index.

Although the structure of competencies of the surveyed countries is different in each of them, it can be concluded that the greatest importance is attached to the general management of the enterprise (USA – 4.56, Poland – 4.21, Austria – 4.11, Ukraine – 4.00), but also to good relationships with the environment, owing to maintaining these relationships, however, the assessment of the level of this kind of competencies differs slightly between the countries (Poland – 4.23, USA – 4.06, Austria – 4.0, Thailand – 3.65), but also to appropriate marketing activities (USA – 4.31, Ukraine, Austria – 4.0). The appreciation of the need to take into account the impact of the environment on the enterprises' business influences placing the greatest emphasis on competencies that allow to operate effectively in that area. The surveyed enterprises have a slightly lower level of competencies related to the enterprise itself, that is management (Slovenia – 2.0) and development competencies (Austria – 4.22, USA – 4.31, Thailand – 3.4).

To sum up, it can be concluded that the high innovativeness of the surveyed companies is largely related to the competencies of the organisation, and therefore their improvement can have a positive effect on the development of the enterprises, but also on maintaining a continuous competitive advantage.

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DEVELOPMENT OF MANAGERIAL COMPETENCES OF THE FUTURE – SHAPING CURRICULA FOR HIGHER EDUCATION

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Abstract: In the world pervaded with moral crises, unethical practices not only in the private and public sector but also in various charity organisations and cultural institutions, where one faces a loss of values and authorities, a question arises about the reasons for such occurrences. Simultaneously the need for developing tools helping to diminish the effects of unethical undertakings and eventually prevent them from emerging at all, comes into being. The main purpose of the presented paper is to convince that introducing ethics, social responsibility, and anti-corruption policies in higher education programmes accounts for a significant and undoubted tool that may bring positive results for both individuals and societies in the future. Such programmes will develop managerial competences that will play an even more important role than hard skills and acquired knowledge. The authoresses support the thesis with an example of a good practice based on a case study of a programme introduced at one of the Polish universities educating future managers for public administration. In the conclusions the authoresses will underline the necessity of educating responsible, conscious, and ethical managers especially for public sector institutions as well as they will suggest the paths for further research in this area.

Keywords: public sector, administration, CSR, anti-corruption, ethical managers, higher education, managerial competences.

1. Introduction

In the face of reforms in the public sector that one can witness every time when changing governments and power, and also against the background of many years of experiences, which show that most incidents of corruption take place in the public sector and on the line of contacts between business organisations and the public sector, one should ask about the cause of unethical behaviour among decision-makers. The occurrence of corruption, which in the short term reflects in gains for narrow groups or individuals, in the long term generate tremendous

damage and losses not only moral, but often also material for these individuals and the entire society.

The fact that corruption is not profitable in the long-time and from the point of view of the well-being of the society as a whole was proven by the research that has been conducted since 1995 by Transparency International, under which the so-called Corruption Perceptions Index (CPI) is designated. This index indicates the perceptions of public sector corruption in approx. 180 countries and territories (number of countries covered by the index varies in different years). The research shows that countries with a high economic position, developed both economically as well as socially, implementing sustainable practices, are countries with a very low level of corruption in the public sector. It is worth mentioning here that there are no countries in which the level of corruption equals zero. Over the years 2010-2015 in the top of the rankings there were countries only slightly contaminated with corruption. These were the following: Denmark, New Zealand, Finland, Sweden, Norway, Singapore, the Netherlands, Australia, Switzerland, Canada, and Luxembourg. Simultaneously, more than two-thirds score below 50, on a scale from 0 (highly corrupt) to 100 (very clean).

According to Transparency International the consequences of public sector corruption reflect in poorly equipped schools, medicine, and elections decided by money. "Bribes and backroom deals don't just steal resources from the most vulnerable – they undermine justice and economic development, and destroy public trust in government and leaders" ("Corruption is threatening", 2015).

On account of the above the need arises to educate more and more responsible managers for the public administration, leaders of the future who will successfully meet the increasingly difficult challenges posed by the changing environment (Rutherford et al., 2012), who will be able to function in accordance with the principles of sustainable development, ensuring economic growth of the national economy with a simultaneous concern for the good of the society. Responsible leaders recognise better the need for wise cooperation for a new – though still not entirely determined development paradigm, leading ultimately to a high quality of life (Rok, 2012). The only question which arises here is if it is possible to teach being ethical? Could ethical behaviours be simply taught or ethics are something rooted deeply in human beings? (see also: Gentile et al., 1993; Payne, 2000; Callahan, 2004; Koehn, 2005; Giacalone, and Thompson, 2006). There is a plurality of views concerning when and how individuals acquire their ethical opinions and orientations. This debate has practical implications for teaching ethics and polarises around two positions (Perri et al., 2009). The first is that ethical decisionmaking is a product of the individual's inner moral compass. The alternative position is the argument that ethics can be taught (Jonson et al., 2015). In the paper we assume that educating morally appropriate behaviours, especially among students being prepared to hold managerial positions in business and public administration is possible and desired. Tips for educating managers are given by PRME (Principles for Responsible Management Education), The "Oath" project and the Global Alliance in Management Education (CEMS). The above-mentioned countries, which

scored very highly by the corruption perception index, can furthermore serve as good examples and good practices of shaping the idea of integrity and morality in the public sector. It is worth highlighting the example of the Netherlands which are the pioneers in managing integrity in the public sector. Public integrity was placed on their agenda in the early 1990s and is still sustained and developed, which reflects then in their stable position in the CPI (see: Huberts, and Hoekstra, 2016).

To start the discussion about teaching ethics and integrity management in the public sector and to clarify the basic notions it is worth exemplifying both ethical and unethical behaviours. Key values that should be transferred in the process of ethics and integrity education are for example (Huberts, and Hoekstra, 2016).

- wholeness (consistency, including in the private sphere),
- incorruptibility (no conflicts of interests),
- justice (compliance with rules, laws and codes, including within the profession),
- compliance with moral standards and values,
- integration into the environment,
- professional responsibility,
- conscious and open action based on moral reflection,
- exemplary moral behaviour.

On the contrary, within the main integrity violations and unethical actions one may distinguish the following (Huberts, and Hoekstra, 2016; OECD, 2012):

- corruption: bribery,
- corruption: favouritism (nepotism, cronyism, patronage),
- fraud and theft of resources,
- conflicts of (private and public) interest through “gifts”,
- conflicts of (private and public) interest through sideline activities,
- improper use of authority,
- misuse and manipulation of information,
- indecent treatment of colleagues or citizens and customers,
- waste and abuse of organisational resources,
- perverting transparency and accountability,
- misconduct in private time.

The aforementioned list does not exhaust all the possibilities of ethics and integrity facilitators and violations. It constitutes only an outline of probable behaviours one may perform and encounter within their professional activity. The most popular tool used to implement ethical behaviour in organisational policy is code of conduct. Although there are different variants of codes of conducts the spirit of all of them is usually that public officers should conduct themselves with honesty, integrity, and diligence (“What is misconduct?”, 2016). Having the examples of proper and improper actions within managerial activity we may

develop a theoretical basis for an ethical dilemma and its need to be incorporated into managerial curricula in higher education programmes.

2. Theoretical background

Ethics in a managerial activity are understood as the need to respect ethical standards in an activity and taking into account any other purposes than only maximisation of profits and individual benefits. Ethics deal with a wide range of how people or organisations operate or should operate in relation to others (Jastrzębska, 2011). Ethics belong to a group of philosophical disciplines (Philosophy and Science. Encyclopedic outline, 1987), which subject of interest are the values like truth, goodness, and beauty. In these disciplines one can identify: theory of cognition (epistemology), and axiology (the study of values and criteria of evaluation) involving ethics and aesthetics – the science of beauty (Vardy, and Grosch, 1994). Ethics as a science of evaluating the validity of the degree of human activity remain in close connection with the philosophy of society and its main work – political philosophy. This connection is present in the works of Plato, Aristotle and the Stoics, St. Augustine, the Renaissance and Enlightenment thinkers, in classical economics and monetarism, in German philosophy, and historical materialism (Szulczewski, 2011; Philosophy and Science. Encyclopedic outline, 1987). Ethics with their reliable and comprehensive judgment on moral good and evil, indirectly provide moral support to man (Stankiewicz, 2000). Aristotle came out with the assumption that all arts, tests, actions, and resolutions are striving to some goodness and therefore the general goodness is described as a purpose of human aspiration (Aristotles, 1970).

There are a number of important and different approaches to ethics including consequentialist, deontological, and relativist (Jonson, and McGuire, 2015). The deontological position is one according to which an action is morally right or morally wrong in virtue of its intrinsic qualities. As such, an action that is morally wrong in one circumstance is morally wrong in all circumstances (Singer, 2011). Two other approaches, namely consequentialist and relativist are non-deontological. The first one states the morally correct action in any set of circumstances is the action with the most good and the least bad consequences, compared to the alternative actions when all of the consequences on all of those affected by the action are taken into account. Relativism on the other hand reduces ethical rightness and wrongness to the judgement or opinion of the culture to which the moral actor belongs. Unlike the deontological approach, both utilitarianism and relativism are more pragmatic and realistic in their judgements and prescriptions (Jonson, and McGuire, 2015; Harman, 1975; Wong, 1991).

The issue of business ethics has been recently gaining in importance for several reasons, among which one can list the severity of adverse events of modern times as inequality, poverty,

unemployment, the growth of social pathologies, consumerism, productivism, degradation of the natural environment, or terrorist threats (Jastrzębska, 2011).

Well-known corruption scandals in US corporations such as Enron, WorldCom, Tyco, Adelphia, and Arthur Andersen, have raised questions about the effectiveness of training in business and triggered a wave of criticism of this kind of education that instead of preventing unethical proceedings of future managers, rather encourages this type of practices. This is the result of limited emphasis on the development of ethical management students (Sims, Felton, 2006). Currently it is noted that ethical values are best rooted in the initial period of teaching, and if students do not learn to appreciate and act ethically during the preparatory period – undergraduate studies, it will be difficult to expect from them appropriate behaviours in their future work (Stachowicz-Stanusch, and Wankel, 2011). To promote reasoning having regard to ethical issues in management and decision-making, managers need training programmes which in a better way develop problem solving skills, moral and ethical use of knowledge, sensitivities and beliefs of management students (Wankel, Stachowicz-Stanusch, and Tamanta, 2011). Today's students are tomorrow's management executives in the business world as well as in the public sector. Hence, they will have a huge impact on both the daily practices, as well as the rules governing organisations. This view is shared by many scholars and may partially explain the dissemination of research on ethical development of students conducted in the last 15-20 years, particularly students of management.

For example, the study of 1998 (Borkowski, and Ugras, 1998) related to factors affecting the level of ethicality, pointed to two characteristics that have an impact on an ethical approach of students: gender (women showed more stringent ethical standards than men) and age (older students demonstrated a higher level of ethicality than the younger ones). The test results did not confirm the existence of a significant relationship between the field of study (business students and students of non-economic directions) and the ethical approach of the surveyed students (Borkowski, and Ugras, 1998). Other studies (Lopez et al., 2005) indicate a turn for greater tolerance towards unethical behaviour of business students in the first years of education, and graduates of these courses of study. In another study business ethics were analysed within the meaning of both students and practitioners taking into account factors such as the environment (Peterson et al., 2001; Wimbush et al., 1997); level of education and level of career (Abbey et al., 2009), and sex (Abbey et al., 2009; Whipple, and Swords, 1992). In response to the growing interest in the ethical dimension of business education, contemporary leaders assumed civic responsibility for finding solutions to the current problems of the world economy, e.g. in the form of public-private partnerships, social innovation, and leadership initiatives.

Although it is generally known that honesty is the essence of effective business and education in this field, still too little is known how to educate future managers and public sector representatives to allow them to develop their moral skills and implement a business venture in a fair manner. According to some, unless they fundamentally change, business schools are

“no more than brain washing institutions educating their graduates only in relatively narrow shareholder value ideology” (Matten, and Moon, 2004). While real ideology, meaning a set of values, beliefs, and assumptions that constitute a coherent worldview that is “what objects or experiences are good or bad, and what objectives, behaviours and relationships are desirable or undesirable” should be the fundamental basis in managerial schools curricula (Trank, and Rynes, 2003; Koltko-Rivera, 2004, Giacalone, and Thompson, 2006). A sound worldview and the ability to distinguish between what is good or bad for both the organisation and the society should constitute a principal trait of public administration managers as these organisations should serve more the general public than particular individuals. Therefore, that is the main reason for which ethics, CSR, and morality dilemmas should be incorporated and discussed within educational programmes especially those dedicated especially to public institutions managers.

The first step with a global reach, serving regard to fairness in the education of future leaders is an initiative of the United Nations Global Compact, namely Principles for Responsible Management Education – PRME.

The main objective of the PRME initiative is to promote corporate social responsibility and sustainability in management education. Institutions such as business schools and other academic entities that have joined this initiative, take advantage of their mission, strategy and core competencies to realise their values in accordance with the six PRME principles, which are as follows:

- **Principle 1** – Purpose: We will develop the capabilities of students to be future generators of sustainable value for business and society at large and to work for an inclusive and sustainable global economy.
- **Principle 2** – Values: We will incorporate into our academic activities and curricula the values of global social responsibility as portrayed in international initiatives such as the United Nations Global Compact.
- **Principle 3** – Method: We will create educational frameworks, materials, processes and environments that enable effective learning experiences for responsible leadership.
- **Principle 4** – Research: We will engage in conceptual and empirical research that advances our understanding about the role, dynamics, and impact of corporations in the creation of sustainable social, environmental and economic value.
- **Principle 5** – Partnership: We will interact with managers of business corporations to extend our knowledge of their challenges in meeting social and environmental responsibilities and to explore jointly effective approaches to meeting these challenges.
- **Principle 6** – Dialogue: We will facilitate and support dialog and debate among educators, students, business, government, consumers, media, civil society organisations and other interested groups and stakeholders on critical issues related to global social responsibility and sustainability.

The Six Principles of PRME are inspired by internationally accepted values, such as the United Nations Global Compact's Ten Principles, and provide an engagement structure for academic institutions to advance social responsibility through incorporating universal values into curricula and research (UNPRME).

The PRME's mission is to inspire and improve education on responsible management, research, through leadership thinking globally. This initiative provides a framework for academic institutions to spread the idea of social responsibility and implement universal values in curricula and research. PRME initiates actions such as the development of training programmes on issues of corporate responsibility, expanding research programs in the field of sustainable management systems, whether running public debate and the shaping of leaders' opinion in the area of improving the practice of responsible business. PRME are guidelines allowing to change the orientation of the previous educational methods of business schools towards creation of a more responsible educational model (Reichel, 2011). Under the coordination of the UN Global Compact and leading academic institutions, the PRME task force developed a set of six principles which lay the foundation for the global platform for responsible management education (UNPRME):

PRME are an incentive for the academic world to implement solutions, apply methods and conduct research conducive for development of the new model (UNPRME). It is important to implement PRME in educational curricula and other academic activities, not only at the theoretical level, but also through possibility of practical familiarisation with examples of companies that observe the principles of corporate social responsibility. PRME involves also a network of contacts allowing for exchange of knowledge and good practices. The principles of responsible management education for business schools are not a collection of guidelines to implement that are then assessed and certified, but rather a global platform for exchange of ideas and good practices (UNPRME).

Furthermore, PRME oblige the participating institutions to create a programme framework and dialogue with business, consumers, and other stakeholders in order to develop practical solutions within the scope of education of socially responsible staff.

Establishing social relations with the stakeholders has to be treated as a long-term strategic goal that should contribute to creating long-lasting relations built on trust. For the purposes of integration of actions it is necessary to use communication tools, involve and mobilise stakeholders and promote good practices. In order to encourage various stakeholder groups to active participation, it is necessary to introduce certain standards in the field of social communication and consultations with interested parties and promote social responsibility and sustainable development. In order to promote sustainable development it is important to implement mechanisms of effective transfer of information.

Therefore, it is vital to use multiple instruments of social influence. These instruments include every tool, that on one hand shapes the pro-ecological ("eco-development") awareness of units and social groups (such as education), and on the other – is a symptom of this awareness

(instrument allowing to use the right to information on the environment) (Borys, 1998). These are fundamental instruments of this group (Borys, 1998):

- education and ecological promotion,
- negotiations, contracts and agreements,
- social initiatives,
- lobby instruments,
- service tools, such as running information centres or providing free legal services,
- complementary actions tools – understood as a totality of actions complementary to existing procedures or repeating these procedures independently from official organs.

Schools and universities educating managers for public sector have a responsibility to provide future practitioners with training in the basics of ethics, which would ideally act as a catalyst to stimulate socially and ethically managed organisations (Cornelius et al., 2007).

3. Corporate social responsibility

As we mentioned in the previous point that PRME is a tool of developing and implementing CSR in managerial education curricula it would be worth explaining the very notion of corporate social responsibility and its significance for public sector. Until recently, the concept of social responsibility used to be analysed exclusively in the aspect of advantages the enterprises and their stakeholders can obtain (Wiszcun, 2013), where the scope of responsibility of business entities towards various groups of stakeholders is broadly discussed (Laszlo, 2011). Currently, concept of social responsibility is also associated with care for the environment, justice, and social order as well as with ethical practices of not only of business entities but also of public sector institutions and organisations. Nowadays, the notion of social responsibility means broadly understood responsibility of the private, public, and non-governmental bodies. The issue of responsibility refers both to individual persons as well as to various aspects of human activity, including business, social, and ecological activities. This concept, understood as a voluntary process, which takes into account the broad scope of social and ecological matters in all business activities as well as contacts with stakeholders, has become very popular and is an element of sustainable management (Bojar et al., 2012). CSR comprises all voluntary actions taken by an organization to address economic, social and environmental impacts of its business operations and the concerns of its principal stakeholders (Christensen et al., 2007). The environmental innovations, eco-innovations, sustainable innovations implemented in organisations are gaining increasing significance. Introduction of these innovations is connected with economic, environmental, and social results (Klosok-Bazan et al., 2015).

Implementation of the concept of corporate social responsibility and sustainable development has a great impact on the formation of a pro-ecological as well as an ethical approach in the society. The empirical research of a group of authors (e.g. Delaney and Sockell, 1992) concludes that training programs of ethics have a positive influence on organisations because their aim is to stress the importance of ethical conduct which is supported by the management of these organisations. Moreover, as other authors claim (see: Kolb, 2008) it is also important to teach employees how to make good ethical decisions by focusing on their moral reasoning skills, which reportedly results in long-term benefits for an organisation. Other research which analyses the perception of the ethical climate and ethical practices as exemplified by Polish organisations and relations between the ethical climate and practices connected with managerial efficiency show that there is a positive relation between the success of an organisation and its ethical conduct (Simha, and Stachowicz-Stanusch, 2012). Managers should try and promote principled cultures and behaviours, which would yield positive and beneficial outcomes (Stachowicz-Stanusch, and Simha, 2013). It is therefore undoubtable that implementing CSR programmes in the organisation will bring positive effects to its performance results but moreover such programmes may attract, retain, and motivate more effectively better graduates – valuable human capital – who want to contribute to CSR development (Martinez et al., 2015).

To sum up the general CSR practices we have applied the research results of Martinez et al., enumerating the following activities within Corporate Social Responsibility actions (Martinez et al., 2015):

- excellent customer service,
- investment in training and development of employees,
- the production of high quality products and services,
- the efficiency and flexibility of operations,
- operating according to an ethical code,
- the attraction and retention of excellent employees,
- competitive remuneration,
- stability in employment,
- faithfulness to the mission of the company,
- adherence to environmental policies,
- the creation of products and services that benefit society,
- offering high dividends to shareholders,
- management transparency,
- commitment to employee diversity.

The main role of public administration units is to promote the CSR concept broadly: to build the awareness of the CSR and its implications, to provide information on the overall drivers of the CSR, build capacity to shape the CSR agenda, to build a stable and transparent environment

for pro-CSR investment, to facilitate and set clear overall policy frameworks and positions to guide business investment in CSR, to show public political support for particular kinds of CSR practice in the market place or for individual companies and to engage the private sector in public policy progress (Dalsou, 2016).

4. Managers of the future

To facilitate the group productivity, effective performance of a team, attaining desirable results and serving the society and stakeholders in a good manner, a manager should hold both hard as well as soft skills. Hard skills stand for the professional knowledge and abilities related to their occupation while soft skills are those related to empathy, trust, effective communication, ability to lead people, positive relations establishing and sustaining as well as facilitating the climate and culture enabling people to share their knowledge and work together for the common purpose with simultaneous satisfactions of their own ambitions and goals. However as multiple research results show there is a significant negative correlation between the group leaders' technical competence and their managerial role adoption while there is a positive correlation between managerial role adoption and group productivity. Therefore, it is suggested that those holding high technical competences tend to reject the role of the manager (Slusher et al., 1972). Effective managers should be primarily people oriented, respecting and listening to their subordinates' voices, open and responsive to the ideas and suggestions of individuals and encouraging bottom-up changes initiatives (Fast et al., 2014). Today's managers must successfully adapt to changing demands and situations, manage multiple lateral relationships, set and implement agendas, and cope with stress and uncertainty (Dragoni et al., 2009). According to Carlos Ghosn, CEO of Renault-Nissan Alliance, the leader of the future should know how to motivate people who speak different languages, who have a different cultural context, who have different sensitiveness and habits. They should be able to deal with multicultural teams and to work with people who think differently and they should strive for getting to know things, to learn, be open, and possess the ability to manage diversity (Stahl, and Brannen, 2013).

The fact that there is a necessity for business schools to teach management, leadership and other interpersonal skills is undoubted and highlighted by many scholars (Bennis, and O'Toole, 2005; Ghoshal, 2005; Mintzberg, 2004; Rubin, and Dierdorff, 2009). However, it is also claimed that 70-90% capabilities are typically acquired through informal work experiences, on-the-job experiences and informal training and mentoring (Pfeffer, and Sutton, 2006; Tannenbaum, 1997; Rakowska, 2011). Nevertheless, then they require systematising and ordering via formal training, courses, and certificates which seem to be more effective and less time consuming than the years of gaining the experiential learning and trial and error based

knowledge (Rubin, and Dierdorff, 2009). Ethics and ethical behaviours are rarely mentioned within managerial soft competences, although as the previous literature evidence shows, they are desirable from the point of view of bringing a positive impact of the organisation's performance on the greater public. From that perspective, teaching ethics gain even higher importance as on the one hand managers acquire appropriate knowledge, their awareness of the necessity of ethical activity rises and on the other hand the probability of their ethical behaviour increases, so they can act as good examples to their subordinates.

5. Case study – good practice of implementing ethical issues in higher education for the public sector

In the Polish public sector, one may identify a set of unethical behaviours like misconducts, malfunctions, abuses of power and authority, nepotism, favouritism, and corruption. To support this thesis one may find below selected real examples:

- Employing at the position of Deputy-CEO of a national bank one of the Members of Parliament (belonging to the governing party) who does not have experience in the banking sector at all (has never worked for any banking institution).
- Employing a 25-year old son of a prominent political activist who died in the “Smolensk catastrophe” at the position of the Head of the Supervisory Board of the Military Property Agency.
- Group layoffs of experienced reporters of national TV, radio, and national paper journalists. Some of them have worked for the national media for more than 20 or even 30 years.
- Multiple meetings of public administration and government representatives during which they misused and manipulated confidential information. The meetings were held mainly in restaurants and the talks were recorded; the so-called “tape scandals”.
- Misuse of public money by government representatives for private meetings in restaurants – also revealed thanks to the “tape scandals”.
- Purchase of malfunctioning software for national police stations.
- Purchase of software and IT solutions for ministries, which was malfunctioning or much more expensive than it should be.

The study carried out by Earnst & Young has confirmed that public administration in Poland is the most prone to different pathologies like corruption and misconducts – 68% of respondents pointed out just this sector (Gazeta Podatnika, 2016). Although the survey was conducted in 2016 it only proves and gives evidences of a long history of corruption and general public misconduct in Poland. It is commonly known (but rarely implemented in reality) that the best solution for fighting unethical behaviours is to prevent them from emerging at all than

counteracting against their results. Therefore, the Silesian University of Technology has for many years been running activities related to issues of corporate social responsibility, sustainable development, and issues of corruption and anti-corruption practices – according to the principles of PRME. The Faculty of Organisation and Management of the Silesian University of Technology, at which future administration managers are educated, was one of the twelve faculties in the world, participating in the pilot project for implementation of the principles of PRME in higher education, under the 4-year project "Sensitizing Future Business Leaders: Developing Anti-Corruption Guidelines for Curriculum Change" carried out by the foundation of the Global Compact acting within the framework of the United Nations.

Within a set of directions the Faculty of Organization and Management runs the Administration direction. A graduate of the study should have the ability to use knowledge of interpretation of law (mainly public law) and general knowledge in the social sciences as well as basic economic knowledge. The graduate should demonstrate knowledge of the constitutional basis for the Polish political system, rules of functioning of government administration and local administration as well as the sphere of activity of other legal entities regulated by the public law. These students are to be prepared to hold various managerial positions in the public sector.

To prepare students for their future professions, the faculty has introduced in their curricula a variety of activities (according to PRME) raising the moral and ethical consciousness of future graduates. The activities are described below:

I. Classes at the Faculty – Administration direction – related to ethics and anti-corruption

To develop the moral abilities of students, the Faculty has included in the curricula issues concerning CSR, sustainable development, ethics, and anti-corruption (relating to Rule 1, 2 and 3 of PRME). The classes are organised for both full and part-time students of the field of Administration. Particular lectures that are delivered are as follows:

- Philosophy and Ethics in Public Sector and
- The Significance of Preventing Activities of Corruptive Behaviours in Organisations.

The classes run by the faculty in the field of ethics and corporate social responsibility issues are discussed in both theoretical and practical terms. Their purpose is to familiarise students with the idea, concepts, assumptions, and development of standards and norms both in Poland and around the world. The barriers, difficulties, and motivations to implement CSR in companies and public sector organisations are analysed. In addition, the good practices of different units in these areas are presented and the declarations and actual activities of various organisations that implement the principles of corporate social responsibility, ethics, anti-corruption actions against various stakeholders (see: Appendix No. 1) are analysed. Students learn about and discuss case studies prepared by the lecturer and themselves. Moreover, reports

and documentary programs showing the cases of frauds, serious malfeasances, and misappropriations, with their effects for individuals and the greater public are presented. These negative examples give students a lot to think about and make them realise how serious the consequences can be by making unethical decisions and taking part in all the inappropriate ventures.

II. Research conducted on CSR, sustainable development, ethics, and anti-corruption

In accordance with the 4th principle of PRME, the University engages and conducts research related to sustainable development, CSR, ethics, and anti-corruption. Moreover, a an EU-funded project was implemented in 2011-2012 "Education for sustainable development" under the Operational Programme Human Capital, Measure 9.4 – highly qualified staff for education (number: FSD-84; 2011-2012). The research and analysis in this area are also conducted in the framework of students' final theses. Research teams which investigated the issues in many studies were also organised. The results were presented during international conferences and within international institutions (like UN Global Compact or Higher Education Teaching and Learning) and published in a set of monographs and publications of an international reach.

III. The activity of the University to interact with managers of public sector and business in order to expand awareness of the problems in the implementation of social and environmental commitments

The Silesian University of Technology conducts activities for partnership and dialogue (Principle 5 and 6 of PRME) with stakeholders, namely students, businesses, local authorities, the media, and NGOs. They organise conferences related to the area of sustainable development, ethics, CSR as well as regular meetings within the framework of the so-called "Forum of Governance" organised jointly with the municipalities, to which decision-makers and representatives of major companies and institutions in the country are invited. These meetings provide an excellent foundation for the discussions in the classes with students, in particular with part-time students who are often decision-makers in companies and public sector institutions, representatives of the management boards as well as for the discussions held during various conferences, meetings, involving employees, university students, and representatives of the business and public sector.

6. Conclusions

Education in the field of ethics, corporate social responsibility, and sustainable development in both the private and public sector in Poland is on a much lower level than in more developed countries such as the Scandinavian countries, the United Kingdom, Germany, New Zealand, the Netherlands, or Canada. This may be the reason why the level of corruption in the public sector is still so high. However, also in Polish universities educating future managers one can identify specific instruments, which are a set of actions in the framework of the educational process, which is consistent with the Principles for Responsible Management Education.

A good practice implemented at the Faculty of Organization and Management at the Silesian University of Technology can certainly serve as a benchmark for other universities in the country and around the world (especially in these regions where the level of corruption and public sector misconduct is high). It is therefore to be hoped that representatives of the future in business and the public sector will be people manifesting high moral standards, and the decisions they will make will lead to changes and reforms that will serve exclusively the well-being of all citizens rather than selected groups or individuals.

In further research the authoresses plan to develop the proposed topic by conducting research on shaping high standards of moral and ethical managers in the broad context of diversity. How higher education curricula affects managers with diversified backgrounds, how they develop and form their managerial competences and what systems of value they comply with. It is also planned to conduct research on the styles of leadership supporting and facilitating ethical behaviours in the public sector, on the effects of introducing a code of conduct and governance policies in practical activities of managers in the public sector, as well as a survey of the willingness of introducing an ethical approach, CSR actions, and sustainable development practices of the current public administration managers. The findings of this research will fill the research gap in the field of the effects of higher education programmes on future leaders, diverse in many ways, in the public sector as well as in business.

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Appendix No. 1

Table 1.*Framework for integrity standards for civil servants*

Standards	Regulations
Pursuit of an integrity policy	Civil Servants Act, Basic Standards
Annual report on integrity policies (to the elected body)	Civil Servants Act
Relevant information in centralised internal registers (including the total number of breaches of integrity, reported conflicts of interest, etc)	Basic Standards
Code of conduct	Civil Servants Act, Basic Standards
Taking an oath or making a pledge	Civil Servants Act, Basic Standards
Integrity as part of human resource management	Civil Servants Act, Basic Standards
Attention to integrity in recruitment and selection	Basic Standards
Security and antecedent investigations and Certificates of Good Conduct (VOG)	Civil Servants Act, Basic Standards
Overview of vulnerable positions and measures to prevent breaches of integrity	Basic Standards
Regular analysis of integrity risks relating to vulnerable actions, positions and processes	Basic Standards
Regular analysis of integrity risks relating to vulnerable actions, positions, and processes	Basic Standards
Reporting, registration and disclosure (for high risk officials) of side-activities	Civil Servants Act, Basic Standards
Reporting and registration of financial interests (for high risk officials)	Civil Servants Act, Basic Standards
Regulation and reporting obligation for gifts	Civil Servants Act, Basic Standards
Taking measures aimed at protection of confidential information	Civil Servants Act, Basic Standards
Procurement and contracting procedures	Basic Standards
Procedure for reporting suspected misconduct	Civil Servants Act, Basic Standards
Confidence officer for integrity	Basic Standards
Procedure for investigating and sanctioning (alleged) violations of integrity	Basic Standards

Note: Adapted from “Policy review on Integrity (Policy)” by Ministry of the Interior and Kingdom Relations, May 2014. Appeared in L. Huberts and A. Hoekstra (2016). *Integrity management in the public sector: The Dutch approach* (p. 39). Den Haag: BIOS.

ORGANISATIONAL SOCIAL IRRESPONSIBILITY IN HIGHER EDUCATION

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Abstract: Organisational social irresponsibility (OSI) as an indicative symptom of organisational malfunction (not only associated with large corporations but also with various types of organisations) has become a popular subject of the research interest, also in reference to the academic world. This paper presents various examples of socially irresponsible practices in higher education according to stakeholders they refer to. Some determinants of this phenomenon are also indicated.

Keywords: organisational social responsibility (OSR), organisational social irresponsibility (OSI), higher education, corruption, academic integrity.

1. Introduction

The popularity of corporate social responsibility (CSR) concept in general management discussion is undeniable. Scholars argue its utility (see for instance: Carroll, 1979; Lee, 2008; Frederick, 2008), but also indicate that CSR does not prevent a company from irresponsible practices (Gonzalez-Perez, 2011). Corporate social irresponsibility (CSI) may refer to many organisational levels and may harm various company's stakeholders (Murphy, and Schlegelmilch, 2013), that is why it may be used as a useful indicative symptom of organisational malfunction.

Today, those concepts (CSR and CSI) usually associated with large corporations, need reconsideration as the public demand for socially responsible impact has expanded to other types of organisations – e.g. public or non-profit institutions (Popa. and Salanță, 2014). The new approach in the literature is reflected in notions such as organisational social responsibility – OSR (see: Popa, 2010; Vandekerckhove, 2006) and organisational social irresponsibility – OSI (Stachowicz-Stanusch et al., 2017).

In recent years, the literature on management sciences more and more often reveals scientific reports on academic irresponsible behaviours (Neubaum et al., 2009), what has resulted in the occurrence of the current research focused on the diagnosis of the causes of misconduct occurrence in the widely understood academic community as well as searching for the solutions for its prevention by integrity development (Randall, Bender, and Montgomery, 2007) at all levels as well as within and by various stakeholders – students, faculties, and academic staff (Stachowicz-Stanusch, 2012). That is why some efforts are made to create an environment that reflects the academic integrity in an individual attitude of academic community members (McGowan, 2005), but also in the organisational conduct (McCabe, Butterfield, and Trevino, 2006).

This paper presents various examples of socially irresponsible practices in higher education according to stakeholders they refer to. Some determinants of this phenomenon are also indicated.

2. Academic integrity and academic corruption

Defining integrity, Peter Drucker argued that it is “concurrence between actions and words, between behaviour and professed beliefs or values” (Drucker, 1992, p. 115). Thus, it is the notion that is strongly associated with morality and is understood as one of personal virtues (Huang, 2011) that may be shaped by leaders, who may enhance ethical as well as unethical behaviours within an organisation (Sims, and Brinkman, 2002). In the subject literature, integrity is usually associated with particular attitudes and behaviours, which causes its recognition at the individual level (East, 2010).

However, it has been noticed that a kind of integrity may be shaped and recognised at the organisational level, namely the institutional integrity (Bertram, Gallant, Beesemyer, and Kezar, 2009). This idea has also been reflected in academic institutions, but we should still be aware that the integrity of universities’ authorities is not enough to build the university’s integrity as a whole. Integrity of this kind of institution depends on integrity and moral attitudes of all the members of the academic community – students, faculties, and academic staff (Stachowicz-Stanusch, 2012). An instrument of rationalisation of academic community members’ behaviours that functions at particular universities, is ensuring the ethical infrastructure, namely creating adequate policies, procedures, codes, etc. (Kuranchie et al., 2014).

On the other hand, it is worth remembering that the problem of widely understood corruption has become one of the most intensively discussed problems in several recent decades. The problem is discussed not only in popular journals but increasingly often in scientific publications, including papers on management sciences. Scientists have been trying

to define this phenomenon precisely for years, although there still exists an opinion that the applied definitions are too general to be utilitarian (Waite, and Allen, 2003). Some of the authors indicate the material gain (Anechiarico, and Jacobs, 1996), others focus on its private character (Nye, 1967), while others notice the strong embeddedness of this phenomenon in the public office (for instance: Jain, 2001). Not surprisingly corruption is quite often discussed in association with sectors especially prone to the abuse of public functions, including police (Bouza, 2001), politics (Kotkin, and Sajo, 2002), or the health care sector (Nishtar, 2010). The sector of education has not been ignored in this discussion (Hallak, 2007). An important field in these considerations is the education of widely understood business and economics, what is caused by the common critics of this sector (Swanson, 2004; Bennis, and O'Toole, 2005; Sims, and Felton, 2006). Many scholars indicate the higher education (in business) as the indirect cause of global corporate collapse and of the global economic crisis a few years ago (Ghoshal, 2005; Mitroff, 2004). However, there are some authors that express their hopes for active shaping of the future moral climate in business activity, as they notice that today's students will be the future employees, managers, executives, and public officers (Jaffe, and Tsimmerman, 2005). That is why in the proposed project efforts will be made to identify corrupt behaviours in such organisations (business, schools, universities educating in economics and management).

3. Academic irresponsible behaviours

Most of the available research reports on the irresponsible behaviours in higher education focus on cheating (see for instance: Nowell, and Laufer, 1997; Teixeira, 2013), that includes the use of prohibited crib notes, helping someone else to cheat in a test, learning in advance what the test was about from someone who took it previously (Teixeira, and Rocha, 2010), use of unauthorized electronic equipment during exams, or work on assignment with others when asked for individual work (Lin, and Wen, 2007). This specific misconduct has been investigated in detail by a great number of authors. Determinants of cheating, such as demographic characteristics, attitudes toward cheating, personality variables, and situational factors (Freire, 2014) have been indicated. Moreover, cheating occurs to be a very rational activity and it depends on the perception of potential benefits, risk of being caught, and perceived costs of detection (Williams, and Hosek, 2003).

Cheating is also often associated with plagiarism (see for instance: Kiehl, 2006; Park, 2003), understood as the failure to proper credit ideas or materials taken from another, namely the deliberate use of another's work, without any indication, as one's own (East, 2010). Also in Poland the problem has been recognised and some systemic solutions are being

implemented in the universities' procedures with the use of IT technology (Kawczyński, 2007).

A noticeable characteristic for the presented research is the focus on dishonest conduct of students as they are the only group of interest in this field of investigation. Also the research on perception of corruption in the higher education sector is usually conducted just from the students' perspective (McKibban, and Burdsal, 2013). However, Rumyantseva (2005), who presented the taxonomy of corruption in the higher education, argues that other aspects of corruption exist in that sector which include the various groups of academic community in the investigation process. Academic corruption has been distinguished which is connected with the relation between students and a faculty, as well as the academic services corruption that includes the activity of administrative and university's staff. Also Heyneman (2011) indicated corruption of different university's members and divided examples of dishonest academic behaviours into two groups.

The first one is the corruption committed for personal gain which includes faculty's research falsification, plagiarism, sexual favours, and personal favouritism, as well as students' sexual exploitation, exchange cheating, and plagiarism. The second one is corruption for monetary gain, which is strongly related to bribery. Behaviours such as purchasing accreditation (rectors buying from the ministry of education), enrolment (students buying from the rector, dean, or enrolment committee), transcripts, housing, library use (bought by students from administrators) and grades (purchased from faculties) have been mentioned.

In accordance with the above, there are some research studies that indicate those and other rarely investigated examples of academic misconduct, such as falsification of biographies in research papers (Stachowicz-Stanusch, 2012), nepotism (Orkodashvili, 2011), bribery (Jain, and Shelly, 2013), financial frauds (Kranacher, 2013), or ghostwriting (Logdberg, 2011). This set of unethical behaviours among the academic community may be supplemented by the cases discussed in the Global Corruption Report on Education prepared in 2013 by Transparency International (Sweeney, Despota, and Lindner, 2013), where practices such as teacher absenteeism (Ngwé, 2013), selling fake diplomas (Diallo, 2013), shadow education understood as providing extra-fee charging classes (Bray, 2013), or sexual harassment (Leach, 2013) are also mentioned. Nnodum (2008) also mentions compelling students to buy handouts or extortion, and neglect of duty (by faculties).

4. Determinants of academic social irresponsibility

Some studies related to irresponsible behaviours in higher education concentrate on recognition of the determinants of such conduct. The most discussed determinants are demographics that shape people's attitudes to the phenomenon of corruption. In the literature demographics such as gender (Abbey, Abukabar, and Boghossian, 2009), age (Borkowski, and Ugras, 1998), studies profile – business-related or non-business (Tse and Au, 1997), or education level – undergraduates, graduates, post-graduates (see: Lopez, Rechner, and Olson-Buchanan, 2005; Stachowicz-Stanusch, 2011) have been discussed. The impact of other environmental factors (see: Peterson, Rhoads, and Vaught, 2001; Wimbush et al., 1997) has also been analysed.

Moreover, in the field of study that is focused on recognition of determinants of academic misconduct, we may notice culture as the another discussed issue. For instance, Mirshekary & Lawrence (2009) investigated corrupt issues in relation to the universal ethical values and ethical behaviours in the international context with the use of cultural values as the significant variables. There have also been other studies that were conducted from cross-national perspectives (see: Whipple, and Swords, 1992; Wankel, Stachowicz-Stanusch, and Tamtana, 2011). Some of them focus on national cultures or contexts as comparative investigations have been conducted between the United States and the nations such as Chinese and Mexicans (Waite, and Allen, 2003), Czechs (Preiss et al., 2013), or Emirians (Williams et al., 2014). Corrupt processes at the universities in European countries such as Portugal (Freire, 2014) or Romania (Teodorescu, and Tudorel, 2009), African ones such as Ghana (Kuranchie et al., 2014), Arabic regions such as Pakistan (Ramzan et al., 2012), or Taiwan from the Asian continent (Lin, and Wen, 2007) have also been scrutinised.

5. Conclusion

Irresponsibility in academia happens in each part of the world, at each level and refers to various university's members. However, it is usually described as a separate phenomenon without scrutiny of its organisational and societal context and the presented studies do not reveal the mutual impact between behaviours of different groups that compose the academic community. There are still many challenges in this research problem and still an open discussion on its nature.

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FOREIGN INVESTORS ON THE STOCK MARKET IN POLAND

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Abstract: The aim of the study is to analyse the activity of foreign investors on the stock market in Poland in the period between 2006 and 2016. Foreign investors generated over a half of trading in shares on the Main Market of the Warsaw Stock Exchange in the first half of 2016. It is important to define which factors determine so high turnover value of foreign investors. The article focuses primarily on the relationship between the profitability of stock exchange investments in shares counted in Euro and the activity of foreign investors. The profitability of investments on the WSE has been determined on the basis of the rates of return of two main indices WIG and WIG20 expressed in Euro. The activity of foreign investors was measured with the turnover value of this investor group.

Keywords: market activity of investors, foreign investors, exchange fluctuations, turnover value.

1. Introduction

Foreign investors play a prominent role among the participants of the capital market in Poland. They have actively taken part in trading at the Warsaw Stock Exchange (WSE) for many years. They are mostly interested in stocks, especially those from the Main Market of the WSE. Since the financial crisis which began in 2007, the interest in the stock market of individual domestic investors has been declining, while it has been increasing in the case of foreign investors, who, at present, generate over a half of the turnover. The question arises what factors determine stock exchange investments of foreign investors and how they are different from the factors determining the activity of other groups of investors.

The aim of this article is to define the main factors influencing foreign investors' activity on the stock exchange in Poland – especially those connected with profitability and risk of investment. In the case of foreign investments, rates of return result not only from the fluctuation of the share price, but also from the volatility of exchange rates, which can improve or reduce the profitability of investment. Therefore, the risk of investment incurred by foreign investors is more considerable than in the case of domestic ones. Its main reason is

the risk of changing exchange rates, which are affected not only by the international situation, but also the political risk of the country where investments are made.

The article focuses primarily on the relationship between the profitability of stock exchange investments in shares counted in Euro and the activity of foreign investors in the sample period 2006–2016. The profitability of investments on the WSE has been determined on the basis of the rates of return of two main indices WIG and WIG20 expressed in Euro. The activity of foreign investors was measured with the turnover value of this investor group.

2. The structure of stock exchange investors on the Warsaw Stock Exchange

Foreign investors' share of stock trading on the Main Market of the WSE has varied so far, which suggests that the profitability and risk of investment for individual groups of investors were not identical. In the years 2001-2004 and 2006-2007, foreign investors generated approximately 1/3 of the total turnover. Since 2009, their share has been systematically increasing and, in 2015, it exceeded 1/2 of the turnover. In the first half of 2016, it reached 54% (Figure 1). This increase occurred at the expense of domestic individual investors, whose activity on the Polish stock exchange has dropped alarmingly in recent years.

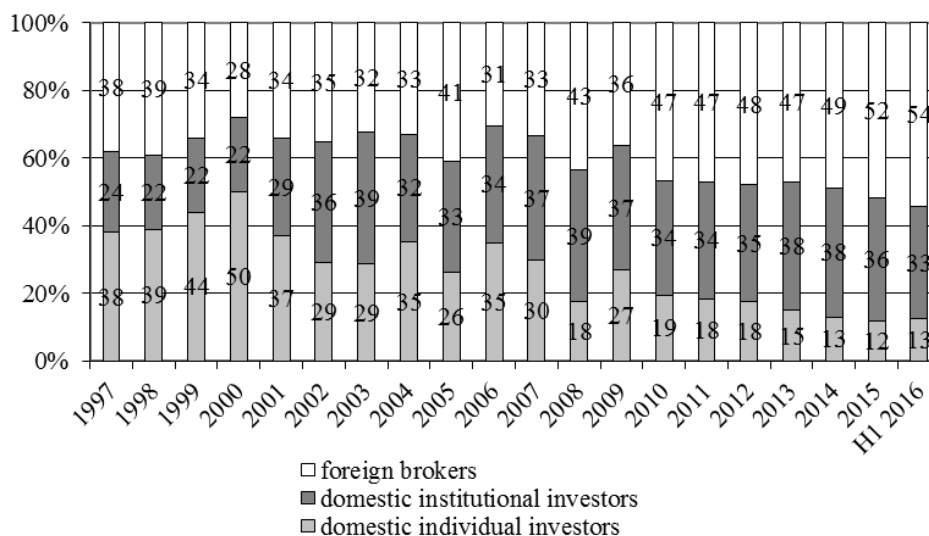


Figure 1. The share of turnover value by investors on the Main Market of the WSE. Own presentation based on the WSE data.

In the meantime, the turnover of foreign investors in the analysed years 2006-2016 was relatively more variable than the turnover of all investors put together. The volatility of the monthly turnover of foreign investors – measured with its standard deviation – amounted to

4,044,000 PLN (at the average monthly turnover of 12,447,000 PLN), whereas the variation in the turnover of all investors was 6,811,000 PLN (at the average monthly turnover of 29,780,000 PLN). This means that the coefficient of variation in the turnover of foreign investors (the ratio of the standard deviation of turnover to the average turnover) was 32% and it was higher than the coefficient of variation in the turnover of all investors (23%).

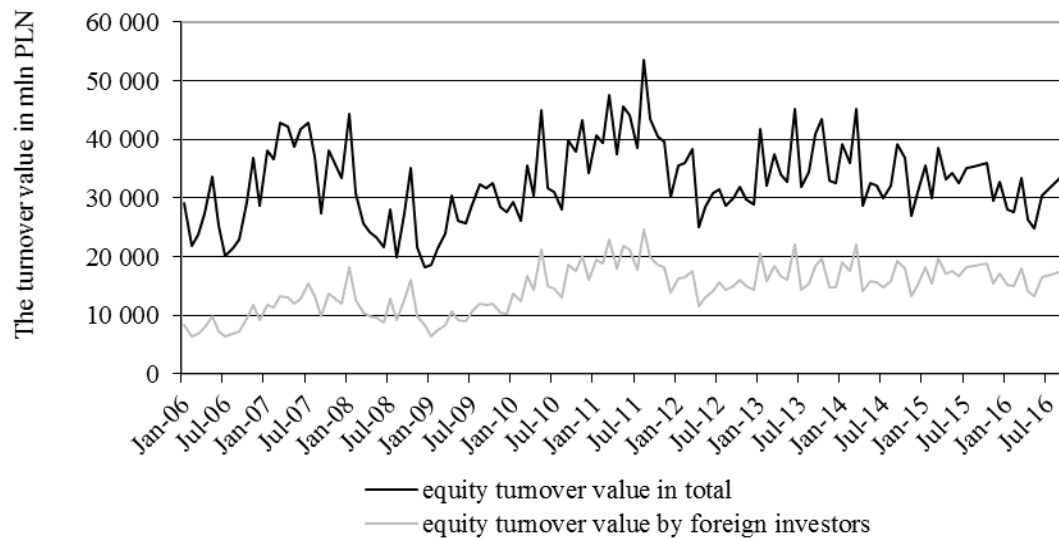


Figure 2. The volatility of the turnover value on the Main Market on the WSE. Own presentation based on the WSE data.

The analysis of foreign investors' country of origin indicates that this group consists of investors mainly from Great Britain. In 2014, their share of stock trading was 76%. Investors from Belgium, France, Austria, Slovakia, and Cyprus generated another 13% of turnover.

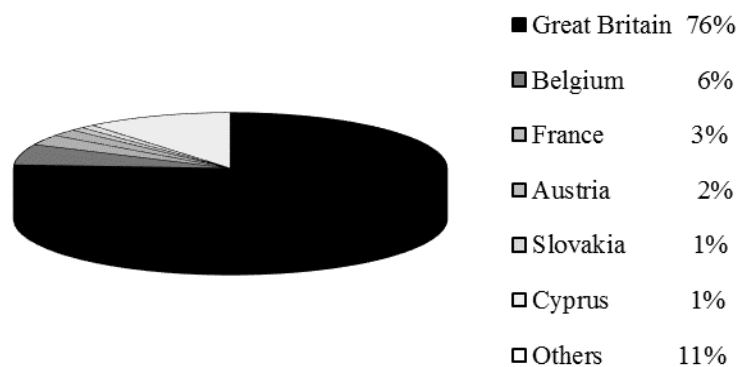


Figure 3. Share of foreign brokers in trading on the Main Market on the WSE in 2014. Own presentation based on the WSE data, 2014.

3. The determinants of foreign investors' activity on the stock market

Basic expectations of investors as to stock investments consist in security of trading and settlements. Institutions responsible for these issues which are of crucial importance here can be divided with respect to their function: regulatory, clearing, and managing. Investors' positive perception of the capital market depends on their activity. It builds the prestige of the capital market as a place of long-term and safe allocation of one's savings. Investors' activity is next influenced by the investment climate in a specific country resulting from its current financial, economic, and socio-political situation (e.g. the level of interest rates, inflation, and capital gains tax). Last but not least, investors' engagement into the stock market is determined by the present stock exchange situation and investors' expectations as to the future level of stock market prices (Widz, 2016). A long-term boom and decline in the market determine investor sentiments and influence their activity, e.g. a long decline in the market adversely affects the turnover on the stock exchange (Wasilewski, and Juszczuk, 2015).

Each investment is characterised by specific income and risk, and investors' decisions depend on their expectations and forecasts regarding the rate of return and risk of investment (Ostrowska, 2007) – irrespective of a group a given investor belongs to (whether it is a domestic or foreign investor, individual, or institutional). In general, the risk of financial investment is higher if the value of the profit rate of investment is more variable. Significant stock market fluctuations can encourage some investors (with bigger inclination to risk-taking) to invest on the stock exchange, creating opportunities to achieve an over-average return. In the meantime, other investors are likely to restrain themselves from making investments, especially short-term ones. Long-term investments should be profitable, and investors acting within such a time horizon should be rewarded for the risks incurred due to this form of allocating their savings (Widz, 2016).

Next to general situation on the stock market, factors which investors find important include: the economic situation of the company, the company's policy regarding dividends, and structure of the shareholding (Wasilewski, and Juszczuk, 2015). The policy of dividend payments, in turn, arouses interest in the shares of a company which follows such policy and brings greater stability of the price of this share. As a rule, the State Treasury's share in the shareholding structure guarantees increased dividends, but it also means lesser effectiveness of a company, which translates into lower rates of return on investments in its shares.

Investors also take into account the liquidity of a given instrument on the market. The profit rate of investment, which is characterised by lower liquidity, should be higher since it includes an additional bonus for the lack of liquidity. Lower liquidity of investment means risk of liquidity. In such a case, investors expect a higher profit rate.

In the case of foreign investors, there are additional risks related to investing abroad. This group includes, among others, political risk in a country where investment is realised.

This risk is related to political stability, existing – often different – market infrastructure, and binding legal regulations. Political risk is also connected with the possibility of introducing regulations affecting the profitability of investment such as regulations concerning additional taxation on generated profits.

What is particularly crucial for foreign investors is the risk related to exchange rates. It exists when investment is realised in a currency different from the domestic one. The rate of return on investment may depend then on the changes in currency rates. The weakening (depreciation) of an investor's domestic currency in relation to foreign currency is beneficial (Jajuga, 2009). The conclusion is that foreign investors – comparing to domestic investors – find their investment horizon more important since leaving of the investment can coincide with an adverse change in exchange rates, which increases the risk of investment. Some of the main factors which determine the activity of foreign investors on the stock market include the volatility of the shares and exchange rate fluctuations, which influence the rate of return on investment.

Figures 4 and 5 compare the rates of return on indices WIG and WIG20, counted in EUR and PLN. It turned out that the risk related to the volatility of investment in indices WIG and WIG20 is higher when investment income is counted in EUR, that is after considering the volatility of EUR/PLN exchange rates. The volatility of the rates of return on WIG20 EUR (measured with the standard deviation of the rates of return of WIG20 EUR) was 7.88% whereas the volatility of the rates of return on WIG20 PLN was 6.14%. As for the volatility of the rates of return on WIG EUR (measured with the standard deviation of the rates of return of WIG EUR), it was 7.81% whereas the volatility of the rates of return on WIG PLN – 6.06%.

Factors determining the activity of investors, foreign as well as domestic, can range from the temptation of speculative gains and arbitrage to securing oneself against risk. Accordingly, investors can be divided into: speculators, arbitrageurs, and hedgers, where the first group seems to be dominant. A more thorough analysis of investors' motivation indicates a variety of motives depending on whether these are individual or institutional investors.

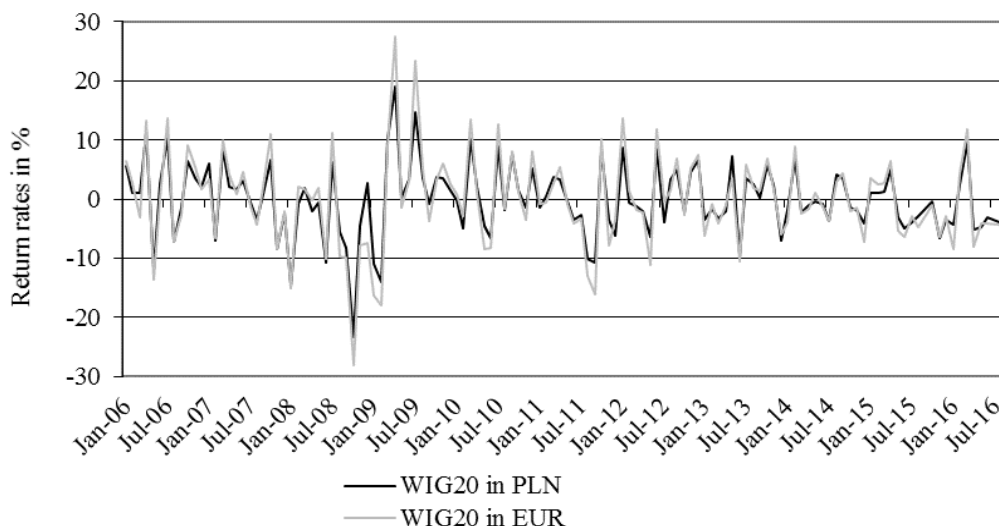


Figure 4. The return rates on indices WIG20 PLN and WIG20 EUR on the Main Market on the WSE. Own presentation based on the WSE data.

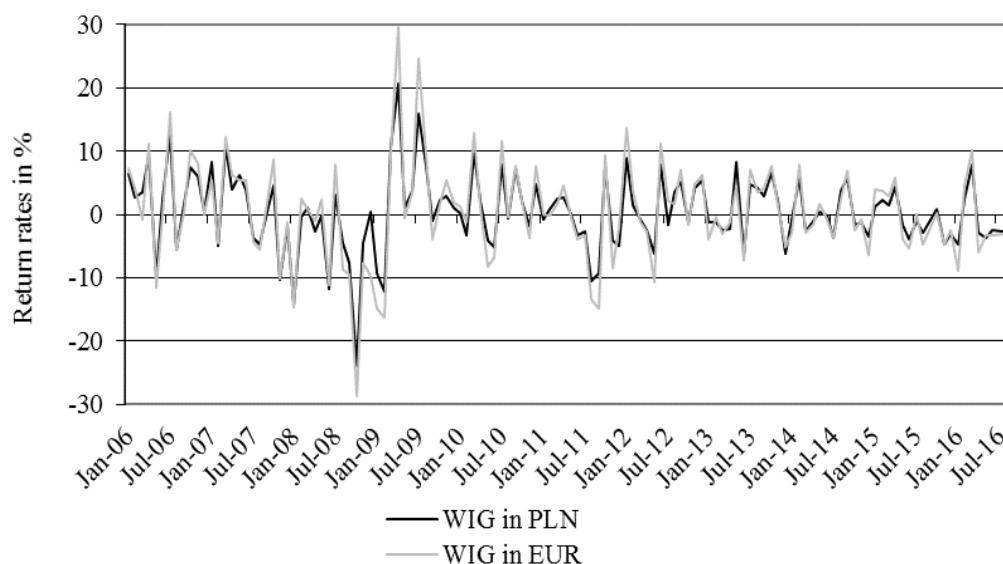


Figure 5. The return rates on indices WIG PLN and WIG EUR on the Main Market on the WSE. Own presentation based on the WSE data.

Individual investors can invest on the capital market either directly or through institutional investors, who act in the name of their clients but also in their own name. Investment objectives of institutional investors are specified in their statutory documents and differ from one institution to another. The main groups of institutional investors can be divided into: investment funds, hedge funds and private equity, pension funds, securities firms (brokerage houses), commercial and investment banks, insurance companies, and asset management. These are large financial institutions professionally dealing with allocating funds on the financial market and having a much broader knowledge which investments are the most attractive at their disposal than individual investors. It naturally results from the fact that institutional investors employ professionals and have tools facilitating the analysis of the

market and specific financial instruments. It gives them an advantage over individual investors.

4. The influence of market fluctuations on foreign investors' turnover on the Warsaw Stock Exchange

The year 2006 on the WSE started a tendency for the increasing share of stock trading of foreign investors. In the years 2006–2016, this group of investors was the most active in August 2011. A high turnover of this investor group was recorded also in May 2010 as well as in March, May, and June 2011, in June 2013, and in March 2014. Interestingly, the highest turnover in August 2011 was accompanied by highly negative rates of return on WIG20 in EUR (-12.96%) and WIG in EUR (-13.31%). It means that investors withdrew from investment due to falling share prices which additionally overlapped with an unfavourable decrease in the EUR/PLN exchange rate. The withdrawal of foreign capital from Poland contributed to an even greater appreciation of EUR, bringing a further decline in the profitability of investment. A similar situation happened in October 2008, when an abrupt decline in the profitability of stock exchange investments (-28.16% on WIG20, -28.71% on WIG) was accompanied by a sharp increase in turnover. Also in May 2010, June 2013, and March 2014, falling share prices and negative rates of return led to an increase in the activity of investors, who withdrew from investments.

The lowest turnover of foreign investors was recorded in February and July 2006 and January 2009, when the market also registered negative rates of return. The negative profitability of investments deterred investors from new purchases. Throughout 2009, the turnover of investors was on a definitely lower level in each investor group, which should perhaps be connected with the massive losses they had incurred in 2008. Investors' general pessimism and a decidedly higher risk of investment brought a very slow increase of foreign investors' turnover in 2009, even though investments rendered a high rate of return.

As for the years 2012-2015, changes in turnover level were relatively well-correlated with the level of investment profitability. Still, even in this period, there were situations when turnover was increasing by leaps due to falling share prices, e.g. in June 2013 and March 2014 (Figures 6 and 7).

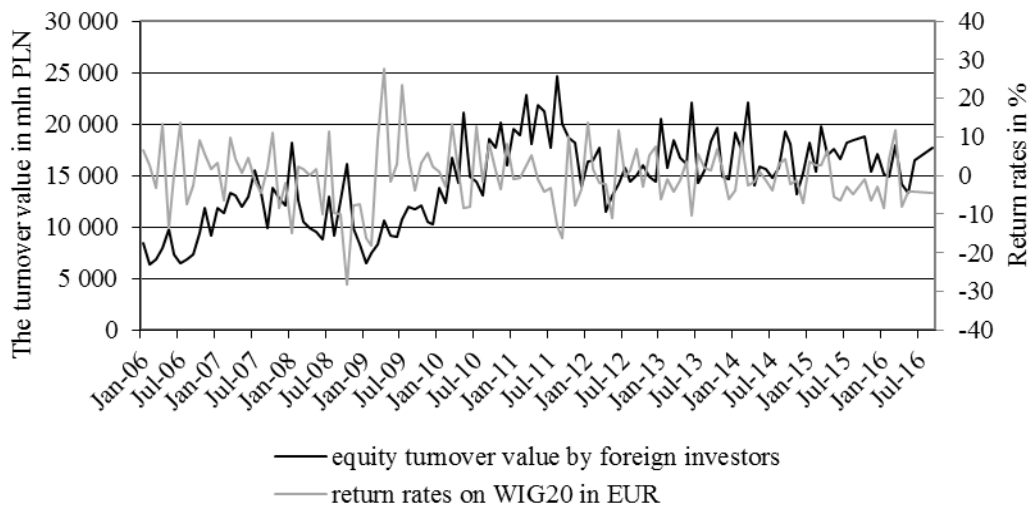


Figure 6. Foreign investors' turnover value on the Main Market on the WSE against the monthly return rates on WIG20 index in EUR. Own presentation based on the WSE data.

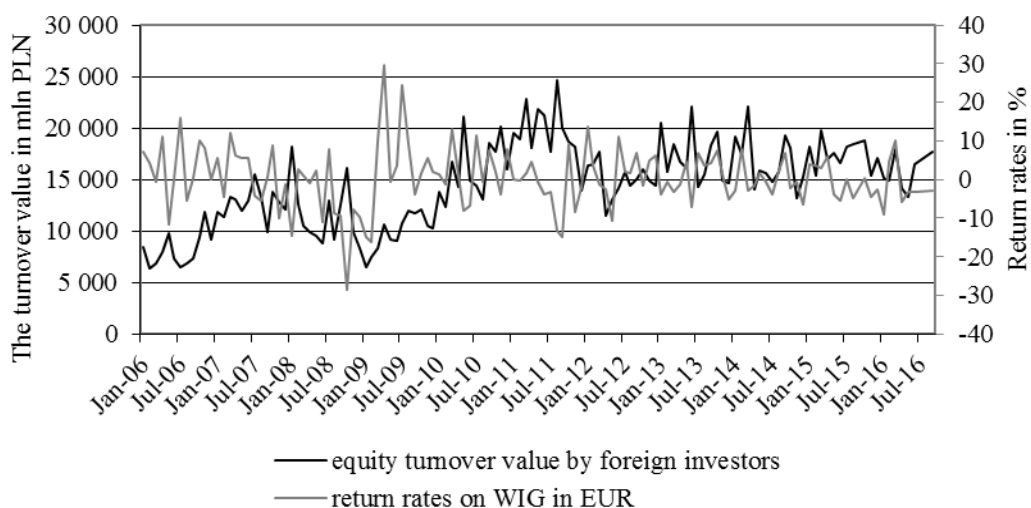


Figure 7. Foreign investors' turnover value on the Main Market on the WSE against the monthly return rates on WIG index in EUR. Own presentation based on the WSE data.

The analysis of the relationship between the level of foreign investors' activity – measured with turnover on the WSE – and fluctuations of stock exchange situation – measured with the rates of return on indices: WIG20 EUR and WIG EUR – indicates that an intense activity of investors can be connected with both positive and negative rates of return, and positive rates of return do not always guarantee an increase in the interest from investors. It is, therefore, expected that Pearson correlation coefficients will not be very high.

The study of the whole sample period (years 2006-2016) showed no statistically significant correlation between investors' turnover on the stock exchange and the rates of return on main stock exchange indices either in the case of all investors or foreign investors. It results from the fact that the growth in turnover can happen not only in the period of

a dramatic increase in share prices, but also during their dramatic fall (as a result of the increase in the turnover volume). The volume of turnover would be a more reliable measure for the current analysis (Rogalski, 1978; Karpoff, 1987) – the WSE does not keep such statistics though. What was observed were statistically significant correlations between the turnover value and the volatility of return rates on indices. During periods of high volatility of investment profitability counted in EUR (when the risk of investments was decidedly higher), investors' activity measured with their turnover significantly decreased. This is demonstrated by negative correlation coefficients at the level of -0.63 and -0.67 (Table 1).

Table 1.

Correlation matrix of the Main Market of the WSE (based on monthly data)

Correlation	Turnover value	Turnover value of foreign investors
The return rate on the WIG20 EUR index	-0.0160	-0.1036
Volatility of the return rate on the WIG20 EUR index	-0.5585	-0.6311
The return rate on the WIG EUR index	-0.0141	-0.1151
Volatility of the return rate on the WIG EUR index	-0.5400	-0.6706

Note: Statistically significant parameters ($\alpha=0.05$) are in bold. Own calculations based on the WSE registers.

5. Conclusions

Fluctuations of the stock exchange situation significantly affect investors' behaviour on the stock market, including foreign investors. It turns out, however, that these relationships are not unambiguous. A rapid fall in the rates of return can increase the activity of investors, who withdraw from investments. Persistently low or negative rates of return, in turn, discourage investors from making new investments. The result of the decline in the profitability over a short period of time is then the growth in turnover – which is a reaction to falling prices – and, in the long run, their fall. As a rule, high rates of return increase the turnover, but – if they are accompanied by the very high volatility of prices – investors who do not allow for such a high risk can be deterred.

The fact which also has to be considered is that there can be simultaneous as well as sequential (cause and effect) relationships between rates of return and the turnover level, although the research results have not confirmed it clearly (Smirlock, and Starks, 1988). In many cases, a bi-directional Granger causality has been found to exist in the stock returns-volume relation, although some other works could only find evidence of a uni-directional causality: either returns would Granger-cause trading volume, or vice versa (Chen and Liao, 2007).

It must be remembered that the profitability of investments made by foreign investors is influenced by the level of exchange rates. Increase in foreign currency exchange rates

(depreciation of the Polish zloty) for the duration of the investment makes investing in shares in Poland less attractive for foreign investors. The high volatility of EUR/PLN exchange rates in the analysed period made the risk of investment measured with the volatility of profitability counted in EUR higher than the risk of investment measured with volatility counted in PLN. The analysis also indicated that the level of investment risk was considered important by foreign investors. During periods of high volatility of investment profitability counted in EUR, investors' activity measured with their turnover significantly decreased, e.g. in 2008 and 2009.

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