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Foreword

The Małopolska School of Economics in Tarnów Research Papers Collection has already been issued for seventeen years. It is a continuous release, published four times a year. The topic of scientific articles printed in here is associated with four fields of research: economics and management, finance and accounting, tourism and recreation as well as ergonomics and preservation. It is worth emphasizing that the works of the School's employees as well as those of external authors, foreigners included, may be published in *The Papers*. A similar structure of the papers—and the authors of them—is a feature of this issue, containing nine works, seven of which have been written by external, predominantly foreign authors.

The fourth issue of the quarterly, released in the English language, consists of articles containing a great deal of cognitively and practically interesting information. For the most part, they regard: methods of estimation of human capital as well as productivity of work, survey on absenteeism from work and arduousness in work, research on digital capital of the websites of local governments, methods of advancement in international accounting systems, forming of principles of fair value as a measure of value of financial instruments. The content of subsequent papers allows perceiving strategic aspects of the management process, among which: management through creating values for the customer in a local tourist economy, strategic planning of rural tourism development, and strategies of the decision making process by representatives of trade unions as well as other social organizations.

The Reader will find a number of original theoretical approaches together with observances practical in nature, and that is why *The Małopolska School of Economics in Tarnów Research Papers Collection* may comprise an interesting and useful entry both for theoreticians, students and practitioners.

Let me thank all those who participated in releasing this issue, especially the Authors of the papers, the Editors who took the burden of giving their opinions on the articles, the Reviewers for their substantive and important comments, and finally the Editorial Team and all the co-workers.

Leszek Koziol
Editor-in-Chief

ECONOMICS

Aspects of strategic decision making in the trade unions of Latvia: Topicality and problems

Antra Line

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Academy

Abstract: *Introduction.* The present situation in Latvia can be characterized by a high, persistent unemployment level, economic emigration, stress at the workplace and individualization of society. The aim of the paper is to reveal the aspects of strategic decision making in the trade unions of Latvia, their topicality and problems evaluating the involvement of the Latvian trade union members in strategic decision making and the comprehension of constant union goals. *Methods.* The theoretical and methodological basis of the research lies in the scientific literature published in the European Union states and the United States of America. The empirical research employs qualitative research methods: semi-structured interviews and document analysis. *Material and results.* The strategic decision making process was characterized in the analysis of the theoretical sources. The practice of strategic decision making in Latvian trade unions was clarified in the empirical research. The paper *concludes* that the practice of delegation of strategic decision making should be improved to encourage members involving in the realization of the trade union's goals and objectives. It is advisable to increase unanimity of chairpersons and members in the trade unions in Latvia, which can be ensured by promoting the comprehension about strategic decisions using the form of a dialogue between the chairpersons of the LBAS and the chairpersons of Latvian field/ professional trade unions as well as a dialogue between the chairpersons of Latvian field/ professional trade unions and union members.

Key words: trade unions, strategic decision making process, goals, trade union members

1. Introduction

The present situation in Latvia can be characterized by high, persistent unemployment level, economic emigration, stress at the workplace and individualization of society. Every factor separately, as well as all of them together, makes an impact on the reduction of the number of trade union members, which is a serious challenge for every trade union, because it requires a careful analysis of the present situation, planning of further activities and the ability to work more intensively and flexibly. Researchers K. Straton Devine and Y. Reshef

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have concluded (Stratton-Devine and Reshef, 1996) that traditional work methods of trade unions are not suitable for the new external environment conditions, therefore, trade unions should use strategic planning and look for other, new work methods.

The topicality of the research is also indicated by the result analysis of the survey made and carried out by the author of the paper in 2011, surveying members of Latvian trade unions. The result analysis proved that the trade union members are little involved in the strategy development process and strategically important decision making in the trade unions.

The aim of the paper is to reveal the elements of the strategic decision making process in the Latvian trade unions, evaluating the involvement of the Latvian trade union members in strategic decision making. Objectives of the paper are: to analyze scientific literature on strategic decision making; to conduct the analysis of the empirical research in order to come to conclusions on the elements and problems of the strategic decision making process in the trade unions of Latvia.

2. Methods

The theoretical and methodological basis of the research lies in the scientific literature published in the European Union countries and the United States of America. Methods applied in the research are: theoretical research method—analysis of scientific literature, and empirical research method—surveying Latvian trade union leaders applying structured interviews and the method of document analysis. Different Latvian branch/ professional trade union chairpersons with trade union administration experience of 5 years or more, and whose trade unions represent different economic sectors, were chosen as experts. The average age of the experts is 55.4 years, and the average leader work experience is 12.7 years. Twelve Free Trade Union Confederation of Latvia (LBAS) member organization chairpersons (60% of the total amount of the member organization chairpersons) were interviewed in May 2015.

In addition to the interviews, the statutes of the Latvian branch/ professional trade unions administrated by the experts were analyzed. The aim of the statute analysis was to find out what institutions make the strategic decisions in Latvian trade unions.

The aim of the interview was to clarify what the strategic decision making practice in Latvian trade unions is. The questions used in the interview were based on: D. Channon, A. Thompson, A. Strickland and J. Gamble, R. Daft's opinions on important elements of the strategic decision making process—the necessity of a strategy establishment; the existence of a strategic direction (vision, mission, values) and the existence of main strategic goals; the existence of external environment analysis; the practice of strategic decision delegation and the creation of strategy development teams; the methods of strategic decision development.

Processing and analyzing the results of the interviews: The interviews were firstly audio recorded, then they were transcribed—qualitative transformation of the results in a printed form; based on the transcript information, a qualitative content analysis was performed.

3. Material and results

3.1. Theoretical analysis of management literature

The theoretical analysis of management literature reveals that I. Ansoff (1989) has defined strategy as a combination of decision making rules that organizations use in their operations. Management theoreticians characterize different schemes of the strategic decision making process, however, they do not significantly differ. Traditionally, the process of strategic decision making consists of:

- Determination of the mission of the organization including statements about the purpose, philosophy and the main goals.
- An assessment of the internal environment of the organization, including an assessment of its culture and history.
- An assessment of the external environment, using PEST analysis.
- The matching of external opportunities and threats with internal strengths and weaknesses, using SWOT analysis.
- The identification of desired options from this analysis in connection to the organization mission.
- Strategic choice of a relevant set of long term strategies and policies required to achieve the chosen options successfully.
- The development of short- and medium-term strategies and action programmes consistent with the long-term strategies and policies.
- Implementation programmes based on budgets and action plans based on budgeted resource allocations and monitored via appropriate management information, planning and control systems, and reward and sanction systems.
- Review and evaluation systems to monitor the strategy process and to provide an input for future decision making (Channon, 2005).

The strategic decision making process can be inspected using the strategic management process, provided by theoreticians A. Thompson, A. Strickland and J. Gamble (2008). S. Sekhar (2010) has stated that strategic management can be regarded as a complex of management decisions and actions that determines the long term operation of the organization and involves the analysis of its internal and external environment, strategic planning, formulating, evaluating and control. The model shown in Figure 1 indicates the impact and the mutual interaction of the strategic management decisions.

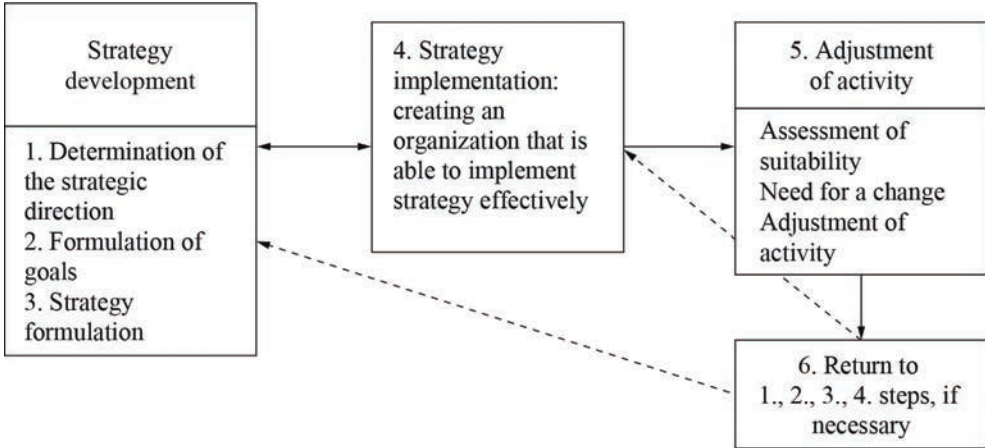


Figure 1. Strategic management process

Source: Thompson, Strickland and Gamble, 2008.

R. Daft writes (2008), ‘... decision making is a process of problem solution and opportunity identification.’ G. Bell explains (Nut and Wilson, 2010) that strategic decisions are significant decisions that influence the long-term operations of the organization, and require employee involvement, as well as substantial time and financial resources. As P. Nutt and D. Wilson (2010) have admitted, strategic decisions that are essential for the organization’s future often require profound leaders’ understanding of the decision making and socio-psychological processes in the organization. Theoreticians indicate that strategic decisions are complex because: these decisions frequently lack a single better alternative; various organizational problems that are difficult to diagnose and/ or defined are related to them; problem solutions are often related to various compromises and the effectiveness of the benefits is hard to evaluate because clear criteria for their effectiveness do not exist. In the modern changing environment, researchers admit that collective decisions are significant components of strategic decision making. As the structure and essence of unions anticipate the possibility of a high level of member participation in the trade union management, in the author’s opinion, trade unions should use the opportunities to ensure the involvement of the union members in the strategy development and implementation. Regarding the involvement of the union members in decision making, there are various models of strategic decision making that reveal the leadership style, leaders’ trust in their followers and the ability to delegate tasks. In the first model, the main strategic decision maker is the leader: in cooperation with lower level leaders the necessary information is obtained, but the interpretation of the information, taking the decision and further operations are only the leader’s responsibility—the leader is the one who develops the strategy and manages its implementation. The second model has a semi-consultative character: this model is similar to the consultative decision making style described by V. Vroom and P. Yetton in 1973. The interpretation of the information takes place together with the followers; leaders listen to the ideas of the followers and lower level leaders, but the final decision making is done by the leader alone. The third is the collective decision making model

when the leader obtains information together with the followers, interprets it, develops and evaluates alternatives, but in case of disagreement achieves a consensus (Arendt, Proem and Ndofor, 2005). The third model can be successfully implemented in teams that could be built in trade unions for making various strategic decisions during the period before a congress.

Management theories (Roberto, 2004) discover several factors that affect the success of the strategic decision implementation: employees' support of the decisions made; effective communication with employees and different level managers. Researchers P. Draker, B. Wooldrige and S. Floyd assert that for decisions to be successfully implemented, leaders should achieve the consensus of employees: understanding and support for successful decision implementation. Whereas, V. Vroom and P. Yetton stated that it is exactly the employee participation that helps to understand decisions better and leads to a larger involvement in the implementation of decisions.

F. David (2011) has also admitted effective communication to be one of the main preconditions of successful strategic management—using dialogue and participation raises employee's loyalty to the organization. Loyalty and understanding of different level managers and employees is one of the main strategic management benefits. In cases when managers and employees understand what and when is being done in the organization, when they comprehend and support the mission of the organization, they sense themselves as a part of the organization. It increases the loyalty level significantly and leaves a positive impact on the employees' creativity and innovative skills. Therefore, in the recent years organizations try to decentralize strategic decision making. It can be observed that during the process of strategic management employee involvement in decision making has an especially critical importance. According to the author of the paper, this aspect is also significant in trade union management—without understanding and loyalty of the members the implementation of the strategic decisions is difficult. Therefore, effective communication in a group is important, hence, strategic decisions are developed in a group within the process of information exchange and knowledge creation in order to clarify contradictory assumptions and avoid obscure ideas. Such communication in a group allows the group to test contradictory assumptions and to model their consequences, as well as facilitates the development of the group participants' mental models (Vallaster and Koll, 2002).

It is useful to create specialized teams of employees for strategic decision making that are not a part of the organizational structure, and the decision implementation is the special task of these teams. The team in this case is considered as a group of employees that cooperate on a voluntary basis in a coordinated manner to attain particular strategy development and implementation related goals (Daft, 2008). The specifics of trade unions comprise a variety of their members' knowledge and skills—seldom can any organization possess such a wide range of professionals as unions can. The author of the paper considers that nowadays unions should elaborate the opportunities for their members to participate in decision making. Therefore, unions need to activate teamwork principles and develop teams of the active union members that would participate in strategic decision making.

In trade unions in Europe, the USA and Japan traditional highest decision making institution is the congress (Salamon, 2000). Recently, theoreticians have indicated a decrease in the democracy level and a formal congress process: members, taking part in the congress, can

make little impact on decision making, whereas the decision making problems in the committees are sometimes caused by members' lack of knowledge about how to manage organizations. In many trade unions, committees consist of people who understand the theoretical concepts of organizational management, but in many other unions committee representatives have little idea about these matters (Rigby, Smith and Brewster, 2006). Referring to the opinion of theoreticians, it can be stated that democratic and problem analysis-based decision making is made difficult in many unions.

3.2. Analysis of the trade union statutes

The analysis of the trade union statutes reveals that all branch/ professional unions included in the LBAS have councils or committees that manage the union operations between the congresses. The next decision making bodies below them are boards. The leader of the branch/ professional union is a part of both the board and the council (*Statutes...*, 2015). Figure 2 shows the structural units involved in strategic decision making in Latvian branch/ professional trade unions.

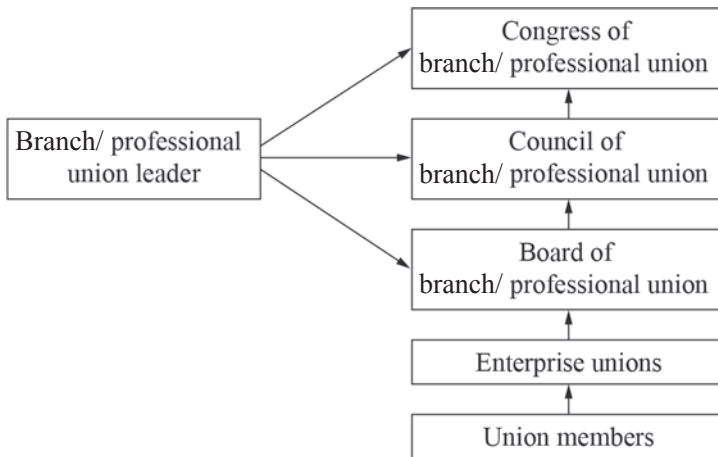


Figure 2. Structural units of Latvian trade unions involved in strategic decision making

Source: Author's own elaboration.

Members who are delegated to the industry/ professional union's congress at the enterprise level make decisions about electing the chairperson; contents of the statutes including the independent goals; priority directions of the organization's operations. Additionally, in the process of the statute analysis, the author came to the conclusion that special work groups or teams for strategic decision making are not provided in this document. The goals defined in the statutes of the trade unions of Latvia can be evaluated as independent goals because they are traditional and, mostly, remain unchanged over time (*Statutes...*, 2015). It can be observed that the trade union statutes do not establish the strategic operation of these organizations in a more detailed way, and thus, a precise and extended definition of goals and objectives needs to be provided in the strategic planning documents.

3.3. Summary of the findings of expert interviews

The total of the 12 interviewed experts comprises 60% female and 40% male respondents. No respondent was below the age of 30, 33% correspond to the age group 31–40, 17% of respondents were in the age group 41–50, 25% of respondents represented the age group 51–60, and 25% of respondents were above 60. The results approve about half of the respondents were older than 51. Respondents' responsibilities in the union administration: 25% of respondents have occupied some position in the union administration: from 1 to 5 years, 17% from 6 to 10 and 17% from 11 to 15 years, 8% have worked in trade union administration: from 16 to 20 years, but 33% have been doing that for 20 years or more. The demographic results of the respondents approve the experts' experience in trade union work.

Experts' opinions about the necessity for a strategy in trade unions

The trade union chairpersons find it hard to describe the process in which the strategic basis (priority organizational operational directions) of the operation is being developed. Nine experts have admitted that trade unions should determine their strategic basis. Whereas, three union leaders admit that there is no need for defining a strategy. Such an opinion is justified by saying that, 'Operational outcomes do not depend on the strategy but on the management's attitude to unions'; 'Strategic goals change under the influence of time and situation, therefore there is no need to define them'; 'Unions lack finance for attaining the goals.'

The results of the interviews indicate that there is no regular, systematic strategy development, which is a significant fault, in the opinion of the author.

Experts' viewpoints on formulating the strategic direction (vision, mission, values)

Only in two trade unions values, mission and vision are defined. One of these trade unions regularly revisits these aspects when the work group is preparing for the congress and they have defined a vision where their members want to see the trade union in 2020. Four key words have been used to determine the strategic direction: motivation; quality, legal protection and effectiveness. Whereas, ten trade unions have not defined the values, mission and vision. Such a practice is explained by saying that, 'Values, mission and vision should be defined by the national level trade union, we are more down to earth'; 'The trade union operates as an ambulance, therefore it is not important'; 'It is expressed through our operations, but we do not write it down on the paper'; 'We did not have time to define, we have only discussed it a little in the board meetings.' Leaders of two trade unions admit that it is not necessary to define values in the trade unions they manage '... because it is more important to defend people...', at the same time agreeing with all the other respondents who consider that the base value of trade unions is their members, for example, '... our value is the employees of the industry; we want the employees to receive a decent salary so that they could support their family and educate their children'; 'Members are the base value. The more members there are, the stronger the trade union.' The answers prove that the majority of the respondents have not immersed themselves into the essence of the mission, vision and values: therefore, in the majority of the trade unions, the strategic direction has not been formulated. All of the

respondents believe that the main value of a trade union is its members, however, it has not been formulated in a written form.

Experts' opinions about the necessity for having and formulating strategic goals

One of the interviewed leaders reveals that in the union that he manages specific and measurable goals are defined. The results of the interviews reveal that specific and measurable goals are defined in one of the 12 trade unions of Latvia, which indicates insufficient understanding of union leaders about the importance of strategic vision in trade unions.

Experts' opinions about the necessity for analyzing the external environment

In general, leaders evaluate the external environment as unfavourable and admit that the operation of trade unions is affected most strongly by the neoliberal political environment; the microeconomic situation of the country; journalists' poor understanding about the specifics of the trade union operations, bias and negativity in the assessments, as well as the critical public opinion about these organizations. Based on these considerations, the leaders admit that because of the impact of these factors, it is getting more and more complicated to manage a trade union. Despite this viewpoint, a systematic analysis of the external environment is conducted only in one of the interviewed trade unions. SWOT method is sometimes being used in this union for analyzing the internally environment. In most trade unions the external environmental factors and their impact on these organizations' operations are irregularly discussed in board and council meetings. The respondents agree with the statement that the external environmental factors of the trade unions should be analyzed more often.

Practice of delegating strategic decision making

Four out of nine leaders make decisions themselves about the priority strategic operational directions of the organization. The leaders have chosen such a practice because '... members consider that the leader knows better what goals have to be set and completely trust the leader in this matter'; 'The leader defines strategic goals on the basis of the ones of the European partnership union because he considers these goals suitable and trusts this organization'; 'The leader understands better what is important to be executed in future years, and, in fact, the goal repeats itself every four years, so we do not think about new goals'; 'The leader analyzes the current situation, develops strategic directions, but they are discussed in the board and the council and the final decision about the strategic direction is made in the congress.' Two unions have fully delegated the responsibility for developing strategic decisions to the congress. In three of the interviewed unions, the leader together with a work group develops the strategic basis before the congress. Such a practice of delegating decision making reveals that, when defining the priority direction of the organization's operations, the dominating model is the second—semi-consultative model.

Experts' opinions about the necessity for creating a strategy development team

In several unions various work groups or teams are designed, for example, a work group for developing new statutes and a work group for developing a collective agreement, but strategy development groups are not formed because the leaders do not have experience in

establishing such groups. Two experts consider that it is impossible to design strategy development teams in their unions because of the following reasons: ‘... people are too overloaded, often they cannot find time for the union activities, therefore we do not do that not to unnecessarily burden our people’; ‘The strategy development team cannot be formed because the education level and competencies of chairpersons are too low for them to work in such a team successfully.’ Only one of the twelve unions has a strategy development team. International strategic management experts are also invited to work in it. The results of the interviews reveal that to date, union leaders have not understood the benefits created by teamwork and focusing on strategy development matters, thus the practice of delegating strategic decision making needs to be improved.

Methods applied to make various strategic decisions in boards and councils

The opinion that members are not particularly interested and are not active in solving serious issues, nor that the people elected in the boards and councils want to get involved in solving the issues dominates in the interviews. Leaders of all the interviewed unions admit that most frequently a dialogue and discussions are employed in boards and councils. In one of the unions to facilitate discussions, the leader proposes three versions of decisions and invites to discuss them. Creative methods of decision making are not used in any of the unions. The results indicate to the fact that the current management practice does not provide sufficient idea generation and knowledge exchange, and as teamwork is not facilitated either, it can be assumed that the total of these factors make a negative impact on the members’ desire to get involved in implementing various trade union goals and objectives.

4. Conclusions

- Strategic decision making in Latvian trade unions mainly takes place in trade union congresses—the delegated members make decisions about electing the chairperson; contents of the statutes; strategic basis of the organization’s operations. Two trade unions have completely delegated the strategic decision making to the congress. In one trade union, the strategic decisions are made grounding on the goals of a collaborative European branch trade union, which partially restricts a specific Latvian trade union having a decision making process that is adequate to a specific situation. The practice of strategic decision making reveals that when determining the priority directions of the organization’s operation, the semi-consultative model dominates in the trade unions of Latvia, partially restricting the members from involving in the decision making process.
- In general, strategic decision making in Latvian trade unions is problematic because the result analysis of the interviews with the trade union chairpersons prove that there is no regular, systematic strategy development. The use of elements shown in the strategic decision making theory (strategic direction and existence of priority strategic goals; strategy development teams; strategic decision delegation; diverse decision development methods) is insufficient.
- Strategic decision making is difficult due to the chairpersons’ lack of comprehension about: the necessity for developing a strategy for a trade union that is suitable speci-

cally for each operational situation, in which it is important to identify the desirable operations considering the mission of the organization. However, as proven by the analysis of the interviews, only two trade unions have formulated their values, mission and vision. Trade union chairpersons' incomprehension of the essence of mission, vision and values delays the development and formulation of the trade union's strategic direction, therefore, also delaying the development of strategic decisions. Identification of the desired actions in the process of strategic decision making is worsened by not having specific and measurable goals: only one out of twelve Latvian trade unions has formulated such goals.

- The chairpersons admit the inimical influence of the economic and sociopolitical factors, however, a systematic analysis of the external environment, using SWOT method, has only been conducted in one of the researched trade unions. Nevertheless, the opinion of the interviewed chairpersons regarding the improvement of the strategic decision making process in trade unions can be evaluated positively; the external environmental factors of trade unions should be analyzed more often.
- Use of creative methods in decision development is urgent: none of the researched trade unions uses such methods, restricting the generation of ideas and knowledge exchange.
- Trade union chairpersons do not sufficiently realize the benefits of teamwork in strategy development and strategic decision making. In only one out of twelve trade unions there has been a strategy development team collaborating with strategic management experts. The main restrictions for creating strategy development teams, and, therefore, making collective decisions, according to the interviewed trade unions' chairpersons, are members' busyness with their direct work duties, as well as trade union chairpersons' lack of competence in the matters of strategy development and strategic decision making.
- Accordingly, the practice of delegation of strategic decision making should be improved to encourage members involving in the realization of the trade union's goals and objectives. It is advisable to increase unanimity of chairpersons and members in the trade unions in Latvia, which can be ensured by promoting the comprehension about strategic decisions using the form of a dialogue between the chairpersons of the LBAS and the chairpersons of Latvian field/ professional trade unions as well as a dialogue between the chairpersons of Latvian field/ professional trade unions and union members.

The author emphasizes the role of trade unions by giving an impulse for in-depth research of trade union management processes in Latvia. The paper contributes to the theoretical and practical development of strategic management and decision making in trade unions. The results are relevant and practically significant for trade union chairpersons to improve the strategic management practice.

The restriction of the research is due to the structure of the empirically researched group: the interviews were held with branch/ professional trade union chairpersons within the LBAS (89% of the total amount of Latvian trade unions), however, branch/ professional trade union chairpersons outside the LBAS (11% of the total amount of Latvian trade unions) were not interviewed.

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Aspekty podejmowania decyzji strategicznych w związkach zawodowych na Łotwie: tematyka i problemy

Abstrakt: *Wstęp.* Obecną sytuację na Łotwie cechują niezmiennie: wysoki poziom bezrobocia, emigracja zarobkowa, stres w miejscu pracy oraz indywidualizacja społeczeństwa. Niniejsza praca ma na celu ukazanie aspektów podejmowania decyzji strategicznych w związkach zawodowych na Łotwie, ich tematyki i problemów, ocenę zaangażowania członków łotewskich związków zawodowych w podejmowanie decyzji strategicznych oraz zrozumienie stałych celów związków. *Metody.* Podstawę teoretyczną i metodologiczną badań stanowi literatura naukowa opublikowana w państwach Unii Europejskiej oraz w Stanach Zjednoczonych. W badaniach empirycznych posłużono się

metodami badań jakościowych: wywiadem częściowo ustrukturyzowanym oraz analizą dokumentów. *Materiał i wyniki.* Proces podejmowania decyzji strategicznych został scharakteryzowany w analizie źródeł teoretycznych. Praktyka podejmowania decyzji strategicznych w łotewskich związkach zawodowych została objaśniona w badaniach empirycznych. Artykuł kończą *wnioski*, iż praktykę delegowania decyzji strategicznych należałoby usprawnić, aby zachęcić członków do zaangażowania się w realizację celów związkowych. Wskazane jest zwiększenie jedynomyślności przewodniczących i członków związków zawodowych na Łotwie, co można zapewnić poprzez promowanie rozumienia

decyzji strategicznych, wykorzystując formę dialogu pomiędzy przewodniczącymi LBAS a przewodniczącymi lotewskich terenowych / branżowych związków

zawodowych oraz dialogu pomiędzy przewodniczącymi lotewskich terenowych / branżowych związków zawodowych a członkami związków.

Słowa kluczowe: związki zawodowe, proces podejmowania decyzji strategicznych, cele, członkowie związków zawodowych

MANAGEMENT

Analyzing digital capital of Portuguese local governments websites

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Abstract: Studies focusing on local administration websites started in e-government field, where website management models are based on technological criteria, undervaluing relevant dimensions in the management of these organizations: transparency, relations network, etc. These dimensions are emphasized in intellectual capital field, in which there are various studies about website management. However, these innovative studies are of exploratory nature and do not present any models based on these theories to be used in the management of local administration websites.

This paper proposes a model which considers relevant dimensions of intellectual capital in the development of municipal councils' websites—Services, Democratic, Relational and Organizational e-Capital. The model was applied to analyze the contribution of the Simplex Autárquico 2010/2011 Programme to the digital capital of Portuguese municipal councils' websites, verifying that it has led to an improvement in the digital capital of 98.4% of the websites, with a higher contribution in the case of Services e-Capital.

Key words: intellectual capital, digital capital, e-government, local government, websites of municipal council, Simplex Autárquico Programme

1. Introduction

This study is intended to join areas of intellectual capital and e-government to analyze the processes of management of municipal websites. Studies about municipal websites fit on e-government area where the websites management models are based mainly on measuring technological aspects undervaluing important aspects of organizational management. These aspects are emphasized in intellectual capital area, where there are some studies that also analyze the management of websites. However, they still have a pioneering and exploratory nature, and we cannot identify models for municipal websites management based on intellectual capital theories.

In literature one can find some references that investigated the resulting impact of Internet based projects, e-government projects and development of portals on the intellectual capital

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of organizations. Among the studies that have examined the digital capital even though they were held in different organizational contexts and realities, they also sought to identify the dimensions that had the major contribution or impact on the intellectual capital. In the studies by Liu and Chen (2009) and Chen (2011) the dimension of service capital was the most significant dimension, as well as in the study by Queiroz (2003) where the quality designation has been discussed, and in the study by Cinca et al. (2001) where services were encompassed in the relational capital. In the studies by Mello et al. (2003) and Bailoa (2007) the human capital stood out. In Joia (2009) the e-government projects have found a homogeneous influence on human capital, organizational capital, relational capital and innovation capital. In Ruta (2009) the social capital stood out and in Liu (2009) and Gholamian et al. (2010) the customer capital.

Thus, the aims of this study were: to develop an analysis model of intellectual capital for municipal websites management through defining the categories of digital capital important in the development of municipal websites; and to analyze the contribution of the Simplex Autárquico Programme 2010/2011 for the digital capital of Portuguese municipal websites, quantifying the contribution of the Programme and analyzing in which categories of digital capital the Programme had a higher contribution.

This study is organized as follows. The next section introduces literature review and describes theoretical background of intellectual capital, digital capital, local e-government and digital capital of local governments' websites. The third section presents the methodology and research design of empirical study. The fourth section presents main results and conclusion. Finally, the last section presents final considerations.

2. Literature review

2.1. Intellectual capital

This is an area of research that comes with the transition to the so-called knowledge economy, due to the importance of knowledge as a production factor in today's economies. If in the past the economy was dominated by industrial machinery and the use of physical and tangible production factors, in present day we have the so-called knowledge economy, which encompasses intangibles such as information, knowledge and intellectual capital as the main production factors. As a result intellectual capital has become an important source of wealth for enterprises in the private sector and also to public sector organizations.

According to Queiroz et al. (2005, p. 213) early work in the modern development of intellectual capital was made by Brooking (1996), Sveiby (1997), Edvinsson and Malone (1997), and Stewart (1998), producing scientific texts and studies with practical application, especially in business area. Despite these research studies, according to Serrano and Fialho (2003, p. 112), the concept of intellectual capital was created in 1969 by the economist John Kenneth Galbraith.

Research on intellectual capital has taken different approaches in different areas such as accounting, strategic management, human resources, and finance, thus the concept has many definitions and interpretations. However, these have been converging and it is usual to define

intellectual capital as the set of intangible assets (knowledge, information, creativity, competences and skills of workers, trademarks, customer satisfaction, marketing, and quality, among others) that create value and competitive advantages to organizations. And it is usually classified as human capital, structural capital and relational capital.

There is a multiplicity of intellectual capital management methodologies, especially coming from the business area where the first models were produced. Some popular models of intellectual capital management are the following examples: Balanced Scorecard (Kaplan and Norton, 1992), Skandia Navigator (Edvinsson and Malone, 1997), The Intangible Assets Monitor (Sveiby, 1997), among others. Apart from business management, it is also possible to observe some other research paths with the application of the concept to the public sector management, to the territories management and to digital networks.

2.2. Digital capital

One research path is the application of intellectual capital theory to digital networks. The digital age brought new ways of working and negotiating in an economy that Tapscott et al. (2000, p. 5) call the digital economy. While industrial economy depended on physical goods, where mass production implied shortages and high mobilization costs of raw materials, manufacturing and assembly of products and their distribution, in the digital economy many products as software and electronic entertainment are not physical, they are knowledge-based products and even the value of physical goods as medicines and cars depends on the knowledge embodied in its design and production (Tapscott et al., 2000, p. 5). Callen et al. (2001, p. 4) state that the third computer revolution was characterized by the emergence of a new way of doing business, the ‘dot com’ company. The e-business or e-commerce activities are examples of these business activities on the Internet. Callen et al. (2001, p. 4) state that on this type of business, traditional inputs as work force, machines, materials and money are not enough to describe the production process of these ‘dot com’ companies where inputs in the form of intangible assets have a key and leading role in their performance. Due to the importance of these intangible assets, some authors apply the concept of intellectual capital to digital networks and we arrive at the concept of digital capital.

The term ‘digital capital’ was proposed by Tapscott et al. (2000) and arises from the application of the theory of intellectual capital to the digital business networks made possible by the Internet. For Tapscott et al. (2000, p. 26), ‘when intellectual capital moves to digital networks, it transforms entire industries and creates wealth in entirely new ways.’ The new value that is created are: the digital capital, considering Tapscott et al. (2000, p. IX), the digital networks of business B-webs (business webs) such as ‘the mechanisms for the accumulation of digital capital, the knowledge—and relationship-based currency of the new economy’, and the increasingly universal business platforms. To Tapscott et al. (2000, p. 26), digital capital adds new dimensions to the three kinds of intellectual capital (human, structural, and customer) described by knowledge-management thinkers as Leif Edvinsson and Hubert Saint-Onge. For Chen (2011, p. 3592) the concept of digital capital developed by Tapscott et al. (2000) is the specific intellectual capital of digital business networks and is the main strategic resource for competitive advantage in digital economy. According to Tapscott et al. (2000,

p. 26), one explanation for high valuations of stocks of companies operating on the Internet is the market's growing recognition of digital capital (Tapscott et al., 2000, p. 26). 'When business-Webs grow, digital capital also increases' (Liu, 2009, p. 508). Thus, digital capital corresponds to the intellectual capital within/ in digital networks such as the Internet.

Over the past decades multiple studies and methodologies have been developed to analyze and manage the intellectual capital at organizational level, however research at the level of digital networks has not expressed the same intensity. Nevertheless, this area should be worthy of attention from researchers because it is a different way of organizing work and activities of organizations with specific characteristics that one should know better. Due to the particularities involved in the digital economy, the use of models developed for organizations to analyze the digital capital of websites becomes inadequate because it does not contemplate all aspects of this reality. Liu and Chen (2009, p. 9416) state that 'existing studies of entrepreneurship development are inadequate in measuring the scale of cyber-entrepreneurship activities or analyzing the determinants.'

Thus, although not numerous, one can point some investigations that have analyzed the digital capital as the studies of Tapscott et al. (2000), Callén et al. (2001), Cinca et al. (2001), Terra and Gordon (2002), Queiroz (2003), Mello et al. (2003), Srivihok and Intrapairote (2004), Carvalho and Ferreira (2007), Bailoa (2007), Ruta (2009), Liu (2009), Liu and Chen (2009), Joia (2009), Gholamian et al. (2010), and Chen (2011). In general, studies about digital capital try to identify dimensions of intellectual capital (human, structural, customer, relational, organizational, among other categories) important to the management of websites of enterprises and other organizations and, in the case of public organizations websites, to achieve better results in e-government projects.

Among these studies that analyzed the digital capital on websites, only some propose models for the management of digital capital of websites—these are the works of Terra and Gordon (2002), Ruta (2009), Liu and Chen (2009), Liu (2009), and Chen (2011). Models that represent the digital capital of websites structure contents and functionalities of websites by a set of categories of digital capital, but they were mainly built to the management of companies' websites. However, these innovative studies are of exploratory nature and do not present any models to be used in the management of local administration websites.

2.3. Local e-government

The area where we can find the greatest amount of studies on websites of public administration is e-government. The search for new ways of providing public services with use of information technologies and, in particular using the Internet, has resulted in the development of e-government projects since the 90s of the last century. Governments in their different scales have been promoting e-government projects in order to provide information and services to citizens and businesses over the Internet.

In literature we can find several e-government definitions. In Santos and Amaral (2002, p. 25) we read: 'When we talk about e-government we refer to the use that public administration, whether central, regional or local, make of information and communication technologies.' According to West (2004, p. 16): 'E-government refers to the delivery of government information and services online through the Internet or other digital means.' One can say that

e-government consists in providing information and services to citizens and businesses over the Internet and other digital media.

ICT when applied at the level of local administration is called 'local e-government'. The responsibility for the conduct and administration of local e-government is from local authorities, which can be organized in varying degrees depending on the country concerned but which in Portugal underlies the activities of the City Councils and Parish Councils (Gouveia, 2004, p. 26). Gouveia (2004, p. 36) presents a set of local e-government functions: to publish information; interact with the public; perform transactions with citizens and remaining local public administration; integrate information with other local public administration; and transform information.

City managers need to drive these processes in order to have satisfactory results, requiring information that reflects the progress. According to Batlle-Montserrat et al. (2009, p. 4), two important aspects are needed to drive this process to a successful transformation: the existence of an e-government model for cities and measuring the development of e-government in the cities. They state that the transformation to be successful, municipal managers have to reflect on issues such as: 'How is the city doing the journey? Where is the city going? At which stage of this journey is the city?' (Batlle-Montserrat et al., 2009, p. 4).

In the e-government area, the Internet is now seen as a governance tool and, accordingly, there are many public entities that have designed their websites, making available content and providing services on the network, such as city councils. Due to this potential, the process of e-government has been widely studied. Research has focused on the benefits, evolutionary stages, barriers to its development, aspects of electronic governance, website evaluation, among others.

In literature that studies and evaluates local e-government processes, it was possible to identify two different sets of approaches. On the one hand, studies that analyze the electronic governance practices and, on the other hand, studies that evaluate the level of maturity of e-government. In the first set of studies, the electronic governance practices are represented in models that include a set of dimensions based on criteria mainly of technical and technological nature. Dimensions are analyzed as security and privacy, accessibility, navigability, services, usability, content, among others, expressing concern to show the functionality and quality of websites. Some studies that identify the electronic governance practices at the municipal level are the following examples: Holzer and Kim (2003, 2006, 2008), Holzer et al. (2010), Holzer and Manoharan (2012), Goldberg (2009), Mello and Slomski (2010), Moura et al. (2012), Stoica and Ilas (2009), Carrizales et al. (2011), Souza et al. (2012), Vrabie (2010), West (2003), Santos and Amaral (2000, 2003, 2006, 2008, 2012), Santos et al. (2003), Santos et al. (2005), Batlle-Montserrat et al. (2009).

In the second set of studies, it is possible to verify a set of models that explain the implementation of e-government and classify maturity level of websites as a set of development stages. The various phases show how it develops the government offer of information and services through Internet platforms, resulting in an ongoing process of integration and incorporation of different levels of technology as well as levels of sophistication of utilities, services and functions in the websites of organizations. In general, the maturity levels begin with the provision of information at lower levels and may even include the possibility of pay-

ments at the highest levels. Some studies that analyze the maturity levels of e-government process at the municipal level are the following examples: Moon (2002), Norris (2003), Santos et al. (2003), Santos and Amaral (2003, 2006, 2008, 2012), Santos et al. (2005), Deloitte and Eurocities (2004), Esteves (2005), Torres (2006), Pratas (2007), Nacke et al. (2012), KEeLAN (2002), Arslan (2008), and Fan (2011).

In Portugal the studies on the electronic governance practices and on the maturity level of websites of local government (city councils and parish councils) have been the work of Santos and Amaral (2000, 2003, 2006, 2008, 2012), Santos et al. (2003), and Santos et al. (2005). The evaluation of the electronic governance practices and quality of websites is performed by analysis of criteria such as: content, updating content, accessibility, navigability and facilities for people with special needs. And they assess the state of development of websites (maturity levels of e-government process) based on the degree of interactivity through a model based on four stages that we can see in Figure 1.

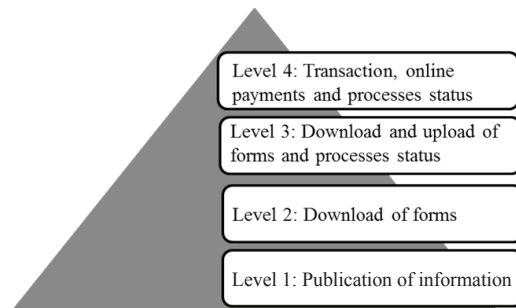


Figure 1. Maturity levels of e-government process

Source: Santos and Amaral, 2012, p. 10.

2.4. The digital capital of local governments websites

The research on e-government area showed that technological approaches are dominant. Therefore models present a set of dimensions based on criteria mainly of technical and technological nature, examining aspects such as security and privacy, accessibility, navigability, services, usability, etc. of websites. And they also analyze the maturity levels, examining the stage of integration of different levels of technology and sophistication of services and functions on the websites. Consequently, these models express mainly concern in showing the functionality and quality of websites because such studies and models are from engineering area and not from management or public administration. On the other hand, studies on digital capital, however innovative, present an exploratory and irregular nature and one could not find any models to analyze local administration websites.

Thus, the presented literature leaves open the possibility to design and explore the construction of models to the management of municipal websites based on the theories of intellectual capital. Then, in this study it is proposed a model that tries to join aspects from the areas of intellectual capital and e-government. As an analysis instrument some dimensions from both areas were selected, allowing to contemplate a wider and consistent number of

aspects. The choice of the dimensions (categories) have intended to show that the website management can be based on the sources of intellectual capital of municipalities. This way the analysis model (Figure 2) represents a set of categories of digital capital important for the development of local government websites: Services e-Capital, Democratic e-Capital, Relational e-Capital and Organizational e-Capital. The categories of digital capital of local government websites can be described as follows:

- Services e-Capital—represents the provision of local government services through the Internet, considering the following digital assets: Information on municipal services; Services with one-way interaction (downloadable forms); Services with two-way interaction (download and upload of forms); and Transaction (possibility of payments).
- Democratic e-Capital—represents the local government relationship with its citizens through the Internet, and includes as digital assets: Transparency (online publication of budgets and accounts reports, legislation, meetings minutes, etc.); and Citizen Participation (features on the website such as suggestions and complaints, surveys, FAQs, etc.).
- Relational e-Capital—represents the local government relations with several players in its external environment through the Internet, and includes as digital assets: Relations/connections network (links to government agencies, municipal associations, suppliers, etc.); Image of municipality (promotion of events, heritage, economic activities, cultural agendas, tourist information); and Usability (users registration, site map, search engine, languages, facilities for citizens with special needs).
- Organizational e-Capital—represents the content available online about the composition of local government, organizational structure, competencies, political representation, human resources and includes as digital assets: human and structural capital.

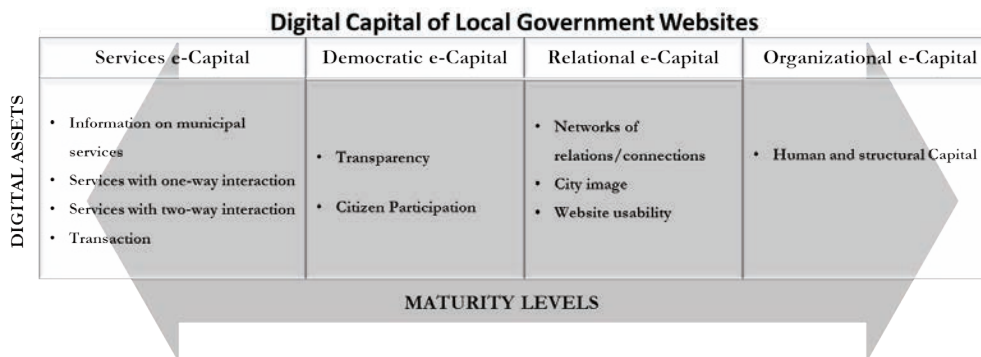


Figure 2. Categories of digital capital of local government websites

Source: Author’s own elaboration.

By analogy with the studies of intellectual capital in which it is defined as a set of intangible assets, this paper will use the term ‘digital assets’ to designate the set of digital capital elements. In all categories the maturity level of digital assets should be analyzed because the features/ devices to be integrated on the website represent different levels of technology and sophistication.

3. Methodology

The empirical study was developed in 2013 and focused on the Simplex Autárquico Programme¹ 2010/2011, which is an administrative simplification programme that exists in Portugal since 2008 and had three editions so far. The third edition (2010/2011) involved the participation of 125 Portuguese city councils.

Table 1. Editions and number of participants on Simplex Autárquico Programme

Edition	Number of municipalities participants
1 st 2008/2009	38
2 nd 2009/2010	60
3 rd 2010/2011	125

Source: Adapted from: http://www.simplex.pt/autarquico/00_index.html [online, accessed: 2015-12-02].

The programme is a set of initiatives for simplification of work processes and relationship which involved the collaboration of the Portuguese local and central governments. The programme has played an important role in improving the process of e-government and in the development of municipal websites because many measures involved the provision of contents and services on municipal websites.

The second objective of this study was to analyze the contribution of the Simplex Autárquico Programme 2010/2011 for the digital capital of Portuguese municipal websites, quantifying the contribution of the Programme and analyzing the categories of digital capital where the Programme had a higher contribution. The quantification allows to verify which municipalities benefited the most from the programme, as well as to analyze the categories with the highest contribution to the digital capital, and also make comparisons and to show how cities are progressing and evolving in the e-government process.

The empirical study involved several phases which can be seen in Figure 3.

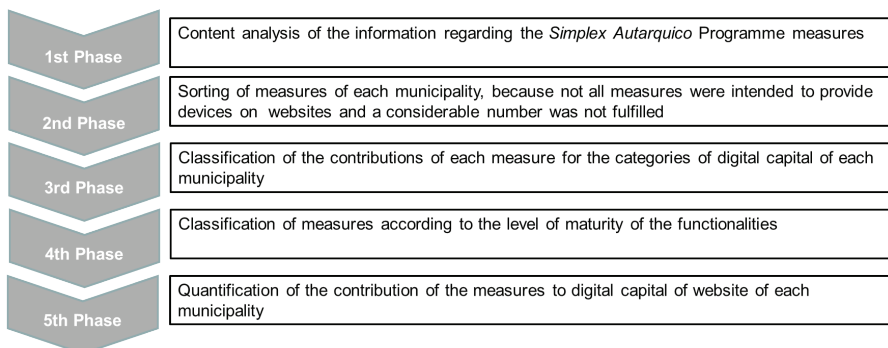


Figure 3. Work phases

Source: Author's own elaboration.

¹ All measures and information about the programme are available on its website: http://www.simplex.pt/autarquico/00_index.html [online, accessed: 2015-12-02].

The first phase involved a content analysis of the information regarding the Simplex Autárquico Programme measures contained in the programme documents (that are available on http://www.simplex.pt/autarquico/00_index.html). There was held a consultation and reading of the measures of the programme, namely the descriptive text of each measure was analyzed to understand its content and therefore its objectives. In documents of the programme one can find the description of various types of planned measures, the city councils that adopted those measures, as well as the expected time for their completion and whether they were fulfilled. All measures adopted by each of the 125 municipalities participants (from a total of 308 Portuguese municipalities existing) in the third edition of the programme were analyzed. There were participants from the 18 districts of Portugal mainland, and there was no participation of municipalities of the islands.

The second phase implied the sorting of measures of each municipality. There only have been selected the measures that pretended to provide contents and features on the websites of municipalities in other words, with a direct impact on the electronic administration and among them only those that have been completed. Some measures were excluded because not all were intended to provide devices on websites (as the measures that were intended to improve the attendance in municipal services, to simplify internal processes between the departments of local authorities, and to simplify internal administrative procedures between the central and local administrations) and because a considerable number was not fulfilled or cancelled by the municipalities (due to lack of money to invest or lack of time required to implement). From the total of 1569 measures adopted by 125 municipalities, it was determined a total of 538 which were part of the study and 1031 were excluded for the reasons indicated.

Table 2. Total measures of Simplex Autárquico Programme 2010/2011

Total number of measures	Measures considered	Excluded measures
1569	538	1031

Source: Author's own calculations.

The next two phases intended to show the relationship of the programme measures with the digital capital categories considered in the analysis model presented in the previous section. To measure the contribution of each measure, a scoring system was developed to quantify the total contribution to digital capital of the measures adopted by each municipality.

The third phase was the classification of the contributions of each measure for the 4 categories of digital capital (Services, Democratic, Relational and Organizational e-Capital) of each municipality website. The classification of the contributions had by reference the work of Ruta (2009): 0 → no contribution; 1 → some contribution, 2 → medium contribution, 3 → high contribution. Thus if the measure has no contribution it was assigned 0 point until it had a high contribution and then it was assigned 3 points.

The fourth phase was the classification of measures according to the level of maturity of the functionalities to make available. The methodology had as reference the four levels of sophistication of local e-government services (maturity levels) used by Santos and Amaral (2012): Level 1 → availability of information on municipal services; Level 2 → the availability of services

with one-way interaction; Level 3 → the availability of services with two-way interaction; Level 4 → the possibility of online transactions (online payments). Thus if the measure was associated with Level 1 it was assigned 1 point until Level 4, where it was assigned 4 points.

The fifth phase was the quantification of the contribution of the measures to digital capital of website of each municipality. Ruta (2009) and Joia (2009) works served as a reference to develop this process, where in a similar way to these studies, the contribution of each measure to the digital capital was calculated through the clearance of the average of the contributions that were attributed to the four categories of the model (Services, Democratic, Relational and Organizational e-Capital) in the third phase. Then the calculated average was multiplied by the points corresponding to each level of maturity that was associated with each measure (fourth phase), so that if the measure was associated with Level 1, the average would be multiplied by one point until Level 4, where the average would be multiplied by 4 points. With these procedures we obtain the contribution of each measure to the digital capital. To obtain the total contribution of the measures to the digital capital of the municipal website the total sum of points obtained by all the measures adopted by each municipality was made.

4. Main results and conclusions

The methodology presented in the previous section allows calculating the contribution of the measures of the Simplex Autárquico Programme 2010/2011 to the digital capital of the websites of the 125 participating municipalities. The analysis allowed building a ranking of the contribution of the programme in accordance with points obtained by each municipality. In the next table one can observe the best and worst results by the 18 districts of Portugal. The results showed that the measures of the programme had a positive contribution in the digital capital of the websites of almost all municipalities.

The municipalities that achieved the highest contributions were in the first place Loures reaching 25.25 points; in the second place Caminha with 23.50 points and in third place Portimão with 22.75 points. All these cities have achieved 14 measures affecting the digital capital of their websites. Also noteworthy among the best results is the case of Abrantes that with 6 measures reaches 15.00 points and Lisbon that with 5 measures achieves 14.00 points. The worst results were obtained by the municipalities of Arganil and Setúbal, where the contribution of the measures was zero in the first case because it has not fulfilled the only proposed measure and in the second case because the measures were not considered for the study at the stage of screening.

Table 3. Best and worst results by the 18 districts of Portugal

District	Municipalities	Contribution of programme measures to the digital capital (in points)		Position on general ranking
Lisboa	Loures	+	25.25	1
	Alenquer	-	1.25	115
Viana do Castelo	Caminha	+	23.50	2
	Vila Nova de Cerveira	-	5.50	72
	Paredes de Coura			71

District	Municipalities	Contribution of programme measures to the digital capital (in points)		Position on general ranking
Faro	Portimão	+	22.75	3
	Monchique	-	2.25	113
Porto	Lousada	+	19.75	4
	Penafiel	-	6.00	65
Santarém	Alcanena	+	17.75	7
	Santarém	-	1.25	118
Viseu	Resende	+	17.00	8
	Mangualde	-	1.25	122
Vila Real	Mondim de Basto	+	15.00	11
	Vila Real	-	1.25	121
	Sabrosa			120
Braga	Braga	+	13.50	14
	Guimarães	-	4.25	84
Leiria	Leiria	+	12.00	19
	Nazaré	-	2.50	105
Coimbra	Coimbra	+	11.25	23
	Arganil	-	0.00	124
Évora	Estremoz	+	10.75	24
	Évora	-	0.75	123
Portalegre	Elvas	+	8.75	33
	Sousel	-	1.25	117
	Campo Maior			116
Aveiro	Ovar	+	8.00	40
	São João da Madeira			41
	Mealhada	-	2.75	100
Beja	Serpa	+	7.00	49
	Odemira	-	3.50	93
Setúbal	Montijo	+	7.00	53
	Setúbal	-	0.00	125
Guarda	Guarda	+	5.75	69
	Seia	-	3.50	94
Bragança	Mogadouro	+	5.00	76
	Torre de Moncorvo	-	2.25	112
Castelo Branco	Castelo Branco	+	10.50	25
	Proença-a-Nova	-	2.75	101

Source: Author's own calculations.

Thus, the results showed the programme has improved the digital capital of the municipalities' websites because 98.4% of municipalities had a positive contribution. The number of measures by each category of digital capital was analyzed and it can be seen that the categories which included a larger set of measures were Services and Relational e-Capital, 206 measures to each category.

Table 4. Number of measures by each category of digital capital

Services e-Capital	Democratic e-Capital	Relational e-Capital	Organizational e-Capital
206	140	206	8

Source: Author's own calculations.

Then in each category of digital capital, the measures were analyzed in terms of its typology and the level of maturity of the features. On Services e-Capital, the typology that included a larger amount of measures were GIS (Geographic Information System), 'cartographic information and online blueprints', 50 (24.3%) measures. Then 'online services' with 44 measures, then 'access to processes status' with 34 measures, then 'online forms' with 29 measures and 'online fee simulator' with 23 measures. These typology of measures shows that municipalities are modernizing their online services improving mainly the processes of urban licensing because as one can observe, the typology of measures found encompass the full range of required tasks ranging from the availability of forms submission services, the possibility of online access to processes status, as well as the availability of instruments for the preparation of these processes as the availability of forms, the access to GIS, and the possibility of issuing online plants and the simulation of costs of fees.

Table 5. Typology of measures on Services e-Capital

Typology	No.	%
GIS, cartographic information and online blueprints	50	24.30
Online services	44	21.40
Access to processes status and SMS service	34	16.50
Online forms	29	14.10
Online fee simulator	23	11.20
Online payments	15	7.30
Information on municipal services	11	5.30
Total	206	100.00

Source: Author's own calculations.

By analyzing the level of maturity associated with these measures, one can find the highest concentration of measures in the 2nd and 3rd levels of maturity (86.9%) allowing to conclude that municipalities are focusing on providing online services increasingly sophisticated, in-

cluding the availability of online form (download and upload), and the possibility of citizens to consult the status of their processes.

Table 6. Maturity level of measures on Services e-Capital

Maturity level	Digital assets	No.	%
1st	Information on municipal services	9	4.40
2nd	Services with one-way interaction (downloadable forms)	99	48.10
3rd	Services with two-way interaction (download and upload of forms)	80	38.80
4th	Transaction (possibility of payment)	18	8.70
Total		206	100.00

Source: Author's own calculations.

However, only 8.7% of measures were related to the availability of online payments which shows that in many municipalities the information systems are not equipped or sufficiently developed to move forward with this type of more sophisticated service that can be confirmed by the large concentration of measures on previous maturity levels (2nd and 3rd).

On Democratic e-Capital the digital asset that included a larger amount of measures was the 'transparency' with 88 (62.9%) measures. It was possible to verify that the municipalities have tried to provide various contents in their websites seeking accountability of their actions and greater transparency in their actions such as the availability of municipal bulletins, spatial plans, legislation, minutes of meetings, among others. It was also possible to verify that the municipalities have tried a greater participation and citizen involvement in municipal activities such as the availability of online surveys, FAQs, registration of occurrences, online suggestions and complaints, newsletters, among others.

Table 7. Typology of measures on Democratic e-Capital

Digital assets	Typology	No.	%	%
Transparency	Municipal bulletin	23	16.40	62.90 (88 measures)
	Spatial planning plans	21	15.00	
	Legislation	19	13.60	
	Minutes of meetings and deliberations	13	9.30	
	Information for the citizen	11	8.00	
	Budgets and accounts' reports	1	0.70	
Citizen participation	Surveys	15	10.70	37.10 (52 measures)
	FAQ's	10	7.10	
	Online registration of occurrences	9	6.40	
	Manuals for the citizen and technical guides	8	5.70	
	Citizen participation platforms	4	2.90	
	Suggestions and complaints	4	2.90	
	Newsletter	2	1.40	
Total		140	100.00	100.00

Source: Author's own calculations.

On Relational e-Capital the digital asset that included a larger number of measures was ‘networks of relations/ connections’ with 177 measures where it stands out ‘links to government agencies platforms’ with 152 measures. These measures concern the accession of municipalities to services integrated with platforms of central government (Portal da Empresa and Portal do Cidadão), whose links were made available in municipal websites. These measures represent examples of public services online increasingly integrated, allowing the connection of different levels of government and different functions. The digital assets as the ‘city image’ and the ‘website usability’ included an insignificant amount of measures.

Table 8. Typology of measures on Relational e-Capital

Digital assets	Typology	No.	%	%
Networks of relations/ connections	Links to government agencies platforms	152	73.80	85.9 (177 measures)
	Thematic portals and platforms built at the municipal level (Education, Sport, Libraries, Museums and Municipal Archives)	19	9.20	
	Links to e-procurement platforms-suppliers exchange	4	1.90	
	Promotion of projects	2	1.00	
City image	Information about the city	14	6.80	8.30 (17 measures)
	Cultural agenda	3	1.50	
Website usability	Usability, accessibility and navigability mechanisms	12	5.80	5.80 (12 measures)
Total		206	100.00	100.00

Source: Author’s own calculations.

Organizational e-Capital included measures related to human and structural capital such as: Pages and access to intranets of local governments; Restructuring of portals; and Information on Human Resources. This was the category that included the lower number of measures (only 8). This happened because this type of information already exists on the websites, which is often available when the website is created. We can conclude that this category is not a priority in the development path of municipal websites and also because the programme intended that websites would reach higher levels of sophistication of the available services.

Table 9. Typology of measures on Organizational e-Capital

Digital assets	Typology	No.	%
Human and structural capital	Pages and access to intranets of local governments	4	50.00
	Restructuring of websites	3	37.50
	Information on Human Resources	1	12.50
Total		8	100.00

Source: Author’s own calculations.

Then the category that had the highest average contribution on digital capital of each municipality was analyzed. The category of Services e-Capital had the highest average contribution in most municipalities, in 76 cases. It shows that the municipalities have especially chosen to carry out measures relating to the availability of services on the websites.

Table 10. Category with higher average contribution on digital capital of each municipality

Categories of digital capital	Amount of municipalities
Services e-Capital	76
Democratic e-Capital	13
Relational e-Capital	41
Organizational e-Capital	1

Source: Author's own calculations.

The aggregate average contribution of all 538 measures of all the 125 municipalities was also analyzed. The results showed that the highest average contribution was found in Services e-Capital soon followed by Relational e-Capital.

Table 11. Aggregate average contribution of the programme measures to digital capital

	Services e-Capital	Democratic e-Capital	Relational e-Capital	Organizational e-Capital
Average contribution	1.76	0.81	1.43	0.05

Source: Author's own calculations.

As all results highlight the same category of digital capital that allows to conclude that the Simplex Autárquico Programme 2010/2011 had a higher contribution on the category of Services e-Capital, however results in Relational e-Capital were also significant.

5. Conclusions

The results of this research allow us to conclude that Portuguese city councils made an effort to improve service delivery to citizens and businesses especially by electronic means, adopting measures that had a more significant contribution on Services e-Capital. There was an effort for greater interaction and collaboration between the different public administrations (central and local) for accession to multiple cross-sectoral and cross-municipal measures which showed a considerable contribution on Relational e-Capital. Efforts were also made to strengthen citizenship and the quality of democracy with the adoption of measures that intensified aspects related to transparency and citizen participation, thus strengthening the Democratic e-Capital.

All these aspects show the importance that the Simplex Autárquico Programme has played in the development of municipalities' websites in recent years. Due to the positive results that are shown in the various editions of the programme, its continuity would be important

in order not to lose the knowledge accumulated through experience and the continuous pursuit of improvement and increased efficiency of public services. However, the budgetary difficulties that administrations living derived from several cyclical economic aspects are not favourable to its continuity at least in a short term.

In today's society public organizations are subject to multiple requirements such as transparency, rationalization of resources, efficiency in service delivery and challenges such as the administrative modernization and the re-engineering processes, so the local government should realize the potential that the good use of digital networks and websites can have on the implementation of these requirements.

It is intended that this study will enable a greater understanding of issues related to management of local government websites, with the extension of the research to knowledge management aspects and intellectual capital, which have had little attention in the area of e-government studies. Thus, the construction of the analysis model was based on a set of dimensions of intellectual capital important to the development of local administration websites: Services e-Capital, Democratic e-Capital, Relational e-Capital and Organizational e-Capital.

Despite the relevance of the results, this study has some limitations. The fact that empirical study has focused only on one edition of the Simplex Autárquico Programme does not allow making comparisons with their other editions and analyzing the evolution of programme development. In this way, a possible future work could be to apply the methodology proposed in this paper to analyze the remaining editions of Simplex Autárquico Programme (2008/2009 and 2009/2010) in order to compare the contributions of the respective measures, the dimensions of digital capital with more focus, the evolution of websites of municipalities that participated in all editions, among other aspects. One other limitation is the fact that this article does not analyze the global state of the digital capital in the municipalities of Portugal, it only examines the progress brought by the Simplex Autárquico Programme to the websites of the municipalities participants. So, one other possible future work could be the application of the methodology proposed to analyze the global state of the digital capital of the websites of all the municipalities of Portugal in order to examine the dimensions with more development, and to analyze the evolution of their digital capital in time.

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Analiza kapitału cyfrowego stron internetowych portugalskich samorządów

Abstrakt: Badania nad stronami internetowymi administracji samorządowej rozpoczęły się w obszarze e-rządu, gdzie modele zarządzania stronami internetowymi oparte są o kryteria technologiczne, przy czym zaniebduje się istotne wymiary zarządzania tymi organizacjami: przejrzystość, sieć relacji, itp. Wymiary te podkreślane są w obszarze kapitału intelektualnego, w którym istnieją rozmaite badania na temat zarządzania stronami internetowymi. Jednakże te innowacyjne badania mają charakter eksploracyjny i nie prezentują żadnych modeli, które byłyby oparte na tych teoriach, a które można by wykorzy-

stać w zarządzaniu stronami internetowymi administracji samorządowej.

Niniejszy artykuł proponuje model, który bierze pod uwagę istotne wymiary kapitału intelektualnego w rozwoju stron internetowych rad gmin – e-kapitał usługowy, demokratyczny, relacyjny i organizacyjny.

Model został wykorzystany do analizy wkładu programu Simplex Autárquico 2010/2011 w kapitał cyfrowy stron internetowych rad gmin w Portugalii. Dokonana weryfikacja potwierdziła, iż przyczynił się on do poprawy kapitału cyfrowego stron o 98,4%, przy czym wkład ten był wyższy w przypadku e-kapitału usług.

Słowa kluczowe: kapitał intelektualny, kapitał cyfrowy, e-samorząd, samorząd gminny, strony internetowe administracji terytorialnej, Simplex Autárquico

Causes of absenteeism in the health sector in the Alentejo region and resolution measures

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Abstract: Absenteeism in most companies is a current and worrying theme, which brings heavy workload, lack of motivation and dissatisfaction in the workplace and represents additional costs for businesses. In health institutions, while large organizations, absenteeism also requires special attention, because the final product involves health care for humans. To analyze and understand the concept of absenteeism, we performed a study through interviews with managers and employees in a health institution (constituted of hospital and health centres), located in the Alentejo region, in Portugal, to get a better perception of the causes of absenteeism and adopted measures to deal against absenteeism. Absenteeism was analyzed as two distinct components: external absenteeism (prolonged absences) and internal absenteeism (breaks in the workplace). Measures that aim minimizing absenteeism levels existing in the institution were presented.

Key words: work, human resources, absenteeism of workers, health sector, Portugal

1. Introduction

Since the beginning of the first employer-employee relations or company-employee relations, the absences by the employee/ collaborator are a major problem for the final product that the employer or company produces or provides.

The human resource management must be committed to address the issue that is absenteeism, as a way to eliminate, reduce and/ or control it.

Many employers would like to see this issue on a narrow side, while the employees preferred to observe a broader strand.

Graça (1996) defines absenteeism as an individual and unpredictable behaviour, temporary absence from work. This absence, in principle, is outside (or not internal) to the company. For this author, this concept however has to take into account general values as legislation, economic environment, region, company size, activity area, employee age, gender,

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personal satisfaction and health status, among others. Such absence may be voluntary or involuntary, justified or unjustified, paid or unpaid.

According to Teixeira (2010), absenteeism is an expression to describe the absence of employees from work. This definition, although simplistic, translates a vital essence, when viewed by the perspective of the employer in the interest of this fundamental productivity or lack of it by the employee. For the company, the absence of employee undermines the purpose of the company as an organization capable of producing a particular good or service and represents additional costs to production or service delivery. Chiavenato (2002) refers to absenteeism as the total of the periods in which employees of a given organization are absent from work, not being the absence motivated by unemployment, prolonged illness or legal license. The author reflects a view of the law in effect, in which absences legally established and planned are not considered absenteeism.

Following the definitions provided by the authors mentioned above, we can define absenteeism as temporary absences in the workplace, which can be motivated by external causes (illness, legal license) or motivated by internal causes (small breaks in the workplace), being involuntary external causes not due to the employee and voluntary internal causes, which are due to the employee.

This article aims to present the study in order to analyze and understand absenteeism, carried out in a health institution located in the Alentejo region, in Portugal. The aim is to understand the causes of absenteeism and the most appropriate measures to adopt, to deal with the problem of absenteeism. The article is structured as follows: first, based on the theoretical foundations of absenteeism, are presented the factors that induce absenteeism. The research methodology and the results of statistical analysis are described. Later the analysis of the results, which identifies the causes that induce absenteeism, is shown and measures to minimize absenteeism levels existing in the institution are identified. Finally, the contributions and the practical implications of the research study are explored, as well as the limitations of it, and proposals are made for future research.

2. Causes of absenteeism

Johns (1997, quoted by De Boer et al., 2002) states that most previous empirical studies focused on absenteeism causes are related with the individual work and offered two major explanations for absenteeism. The first, the 'withdrawal' explanation, says that absenteeism is the removal of adverse working conditions. As an example it cites the relationship found between job dissatisfaction and low employee commitment (De Boer et al., 2002, quoting Farrell and Stamm, 1988). The second explanation for absenteeism is that employees are stressed by labor demands. This 'stress' explanation is based on stress theories of Cooper and Robertson (1999, quoted by De Boer et al., 2002), who assume that employees are not able to deal with certain working conditions (stress factors) and develop stress symptoms, which manifest themselves as health psychosomatic complaints. According to this theory, various stress factors have relations with levels of absenteeism.

Simply stated, there is absenteeism as the employees temporarily do not want to work because of adverse working conditions (explanation 'withdrawal') and/ or are not able to work

because they are stressed by certain specific working conditions (explanation ‘stress’)—see Figure 1.

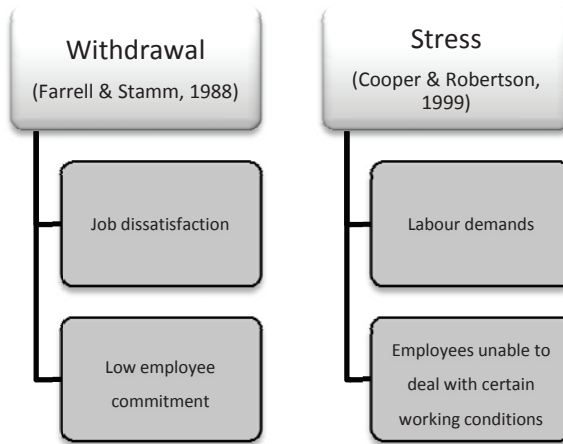


Figure 1. Theories on the causes of absenteeism related to individual work

Source: Authors' own study based on De Boer et al., 2002.

Also Freymann (2002, quoting McMurray, 1997; Paget, Lang, and Shultz, 1998) states that the studies carried out pointed to a need to better understand the causes and consequences of absenteeism in order to reduce their high costs. In addition to the more visible effects, absenteeism can lead to decreased quality products and consequent dissatisfaction of the customer.

The voluntary absenteeism from individual is influenced by the organizational culture and the group's degree of commitment to the organization (De Boer et al., 2002, quoting Martocchio and Harrison, 1998; Kaiser, 1998). Hence it competes to the institution to implement the '... post-return interviews² in order to identify the causes [of absenteeism] and take preventive measures' (Presado, 2012, p. 15).

Couto (1987, quoted by Silva and Marziale, 2000) states that absenteeism is due to one or more factors, such as work, social, cultural, personality and disease. This view shows a high degree of compliance with the definition of Graça (1996), cited above, pointing out that the cause of absenteeism can be attributed not to a single factor, but present a multifactorial cause.

Chiavenato (2002) points out several causes, all focusing on the employee: the disease effectively proven, unproven disease, several family-friendly reasons, involuntary delays for reasons of greater force, voluntary absence for personal reasons or low motivation for work. Making a simplistic analysis, the author concludes that all the 'evil' (absenteeism) lies in the employee.

However, for Silva and Marziale (2000, quoting Couto, 1987 and Alves, 1995), there is an important point to consider: it is that the causes of absenteeism are not always in the

² Interviews post-return—interviews that take place with workers who are absent, in particular those whose frequency is recognized, being this absence resulting from internal absenteeism and/ or external absenteeism.

employee, but also in the organization, by repetitive tasks, demotivation, working environment conditions and ineffective management that does not have a humanistic prevention policy.

The main problem with absenteeism studies is that although there are several studies on the causes of absenteeism in general, the applicability of their recommendations is difficult at the individual level. Presado also states that ‘The particularity of this phenomenon is the fact that it is unpredictable, and it lacks a rigorous system to bypass causes’ (2012, p. 13). Scholars of this issue have been encouraged to develop new theories and test hypotheses to solve/ decrease absenteeism (Freymann 2002, quoting Buschak, Craven and Ledman, 1996).

Alves analysis (1995, quoted by Silva and Marziale 2000) is especially discussing absenteeism in the health area, referring to the working conditions in the different areas related to health: they involve long working hours, perform shift work of a rotating basis, a multiplicity of functions, repetition of tasks and consequent monotony, anxiety, level of physical effort and control (often hard) of managers. All these conditions can cause accidents during the working hours, as well as diseases, which lead workers to take time off work.

It should be noted that in Portugal the rate of absenteeism due to illness is the highest in Europe. Each worker lacks on average 11.9 days per year, while the European average is 7.4 days per year (Simões, 2011). Presado already states that ‘... the average rates of absenteeism in the [European Union] [...] are between 3% and 6% of working time and it is estimated that the cost to reach is about 2.5% of gross domestic product (GDP)’ (2012, p. 13).

All the concepts and definitions set above do not appear to include an aspect of absenteeism which seems to us that should be explored: the internal absenteeism. The ‘short breaks’, 5 or 10 minutes long (‘the cigarette or coffee breaks’), could cause higher losses than the so-called ‘low’ (sick leave). The professional can never ‘be absent’ but the annual costs can represent more than one month of his annual salary.

This view of absenteeism, which adds the external absenteeism, as absence from work, and the internal absenteeism, while working period of inactivity, reflects to the company or organization a higher rate of absenteeism. However, not always the internal absenteeism may be negative. Short breaks can be motivational and enable better or faster performance by the employee.

As it was approached by several authors above, the analysis of the causal factors of absenteeism, be it external or internal, should always be based on the employee’s personal factors and organizational or company factors.

3. Methodology

This study tried to validate levels of absenteeism existing in an institution in the health sector in Portugal, as well as its causes and corrective actions.

3.1. Context of the research and data collection

The method of data collection used (semi-structured interview) allows for better interaction between the interviewer and the interviewee, in order to favour spontaneous responses

and to bring up issues that could be of great use for research. The interviews were designed to determine whether the two groups of professionals (managers and employees) had the same kind of perception, on the issue of absenteeism within the health institute, as well as the measures to be adopted to deal with that problem.

There has been prepared an interview guide, with closed questions (socio-demographic data and institutional data) and open questions, with support in the literature review, which were found to be relevant to the collection of information. The Internet was also an essential tool for information search in drafting the interview guide, as it has allowed a deeper knowledge on the subject.

In questions about absenteeism, we found to be relevant to divide them into two parts: internal absenteeism, which was considered as short absences, the fact that the employee does not leave the institution but your workplace (coffee breaks, smoking, etc.), and external absenteeism, long absences, in which the employee is effectively absent from the institution (sickness, family support, etc.).

For the interviews, we adopted the following method: for the managers the date and time were marked; for the employees the interviews were held to professionals who, at the time the researchers were displaced to institution, were performing their duties. In both cases, all interviews were performed on within the respective working places, in the institution.

To do this, the following information from the human resources department of the institution where the study was applied proceeded to research: the number of professionals who cooperate in the institution, respective professional categories, and functions performed by these categories and how professionals were distributed within the organization.

3.2. Sample

The total staff of the institution was 1760, distributed by hospital services and 13 health centres in 2010.³ The staff that was not interviewed⁴ represented a total of 314 professionals. Of the remaining 1446 professionals, interviews with 25 professionals, who held managerial positions, were conducted, and 30 with their employees, corresponding respectively to 1.7% and 2% of the study population. With regard to managers, an intentional non-probability sample was made, since the interviews were scheduled in advance by the authors. In relation to employees, an accidentally non-random sample was made, since they have been randomized (Oliveira, 2001).

3.3. Data processing method

Data analysis was performed through the computer programmes Excel and Word in order to group the answers. Later, the determination of the number of responses and their percentages was carried out. Some of the issues were further analyzed into sub-groups: the hospital managers versus managers of health centres and hospital employees versus employees of health centres.

³ Data provided by the Department of Human Resources of the institution where the study was applied.

⁴ Professionals who were not interviewed were due to their unavailability.

3.4. Descriptive statistic

As we note in Table 1, among the managers the female gender is dominant, overweighting more than twice as many male members (70% versus 30%). Among the interviewed employees, 77% are female, lying in a ratio of 9 to 1 compared to males. With regard to the age, the interviewed managers are all more than 27 years old, with the vast majority (48%) between 45 and 62 years. The employees interviewed have an age distribution similar to that of the leadership, reaching 72% between 36 and 62 years. Only one of the managers has qualifications at the level of compulsory education (up to the 12th grade), the remaining managers hold Graduation's degree, and five hold Master's degree. In terms of years of work in the institution, over 60% are over 25 years of work at the institution.

Table 1. Distribution in percentage of the study participants

Type of worker	Gender		Age group					Educational qualifications			
	Male	Female	18–26	27–35	36–44	45–53	54–62	Compulsory education	Bachelor degree	Graduation	Master's degree
Manager	30%	70%	0%	4%	20%	28%	48%	4%	0%	76%	20%
Employee	77%	23%	9%	19%	29%	19%	24%	53%	0%	40%	7%

Source: Authors' own study.

In the interviewed employees, over 50% had compulsory education, especially in operational assistants. It should be noted that those who hold Graduation's degree (technicians and nurses) perform functions for which there is an academic qualification required. The employees with Master's degrees perform all functions of nurses.

4. Analysis of the results

In analyzing the results, we try to understand how managers and employees in a health institution located in the Alentejo region, in Portugal (consisting of hospital and health centres), perceive the causes that induce the problem of absenteeism in the institution. On the other hand, measures to minimize absenteeism levels existing in the institution are identified through suggestions submitted by the respondents.

4.1. Analysis of the results that induce the causes of absenteeism

The comparison of the percentage of absenteeism (number of workers missing in the team at a given time), perceived by managers of health centres and the hospital, reveals that in the hospital this percentage is less than a half of the existing health centres (range 2 and 10% in hospital and 20% in health centres).

Both the managers, of health centres or of the hospital, consider that they have autonomy in the resolution of the internal absenteeism, but not in relation to external absenteeism. It

should be pointed out that two managers, one from the health centre and another from the hospital, reported that their management type does not influence the absenteeism ‘because it is caused by the responsibility of each one, or by the lack of it.’

With regard to damage the internal absenteeism, opinions differ, because while in hospital managers refer workload and change schedules as losses; all the managers interviewed in health centres refer no losses in their working team, justifying some with ‘work appears done.’

Only in the case of external absenteeism, managers, both within the hospital and health centres, agree and refer the delay in service and work overload as negative effects, because the ‘absences are longer.’

Employees of both local health institutions were interviewed and the results appeared to be quite different: in the health centres the values of absenteeism are ten times higher than those reported by hospital employees (10% vs 1%).

The similarity of views among the employees of the health centre and the hospital is again shown in variables by them, referred to as affecting internal absenteeism. Both referred by the same order, exactly the same factors: motivation, work environment, work characteristics, managers, age and integrations to service.

Among employees that report damage due to internal absenteeism, the employees of health centres point out that this only brings work overload or that it slows down the work, while some of the employees of the hospital referred that this can be beneficial because it ‘helps to unwind’—in this case, it is noticed that the analysis of the employees of the hospital to absenteeism focuses on internal consequences of absenteeism, susceptible to be controlled.

In both situations under review, employees report that ‘due to longer absences’ in the external absenteeism this causes damage. However, it is noted that 30% of employees of health centres and 30% of hospital employees or do not have absenteeism in the work team, or no damage.

The managers refer that operational assistants are the professional group with higher levels of absenteeism, being the most usual justification the illness in the case of external absenteeism, and coffee breaks and smoking in internal absenteeism.

Making an extrapolation for costs provided that hypothetically an operating assistant is missing 5 times a day (internal) and this absenteeism absence has the average duration of 12 minutes, we are talking about 1 hour per day of work. Considering a weekly average of 5 working days and an average price/ time of 3.54 €, the institution is losing only with this professional € 17.70 per week and € 920.40 per year.

Both managers and employees of the hospital and health centres agree that lack of motivation is one of the main variables that affect levels of absenteeism, along with the work environment. The student worker status appears as a factor that causes absenteeism, but only in hospital. This may be related to the schedule, not because there are no employees to study in the health centres, but because the schedule allows them to study without the need to use the student worker status.

4.2 Analysis of the results of the measures for resolution of absenteeism

From the analysis made to the results obtained, it is plausible to conclude that there is confusion or ignorance among the various concepts inherent to absenteeism, and there are no well-defined plans for dealing with the various causes which cause it. Harter states that 'strategies to reduce absenteeism in the workplace include cultivating a culture that does not tolerate excessive absences, adhering to policies and procedures relating to absenteeism, support shared governance, effective communication with employees, to analyze the causes of absenteeism, using absentee control programs, and negotiation' (2001, p. 53).

In both locations (hospital and health centres), 'the call attention' is the measure more used in an attempt to resolve the internal absenteeism, on the part of the managers. However, in external absenteeism they 'delegate' measures in the institution itself, not intervened in this type of absenteeism. When comparing answers about the measures which have been implemented to combat the internal absenteeism, the great majority of employees, for both locations, refer that the placement of vending machines for food and drinks decreases the time of internal absenteeism.

The employees of both the working places refer that measures implemented with regard to the external absenteeism don't exist, except the control of absences. The employees of the hospital refer a given extra: since it is no longer necessary to sign 'sheets of point' and there is now the biometric control of attendance, the control of absences became more effective.

Figure 2 presents a schema of the causes, consequences and measures of resolution of absenteeism, resulting from the literature review and analysis of the results obtained.

5. Recommendations for action to be taken

Because it turns out that there is a complete gap in perception on the percentage of absenteeism in the existing institution, the researchers recommend further potential measures to be taken by health institution under review. To help overcome this problem, training on absenteeism is suggested, so as to clarify the concept of absenteeism, its causes and measures of resolution.

It is also suggested that the elaboration of a common plan for preventing and combating absenteeism rates for the entire health institution, on the part of Human Resources. The same suggestion is stated by Harter (2001) in his study on nursing management strategies. It is also suggested the modification of the workplace, whether in hospital or in the health centres, by placing food and drink machines to prevent longer absences from the workplace.

It is suggested that greater flexibility in the drawing up of schedules could be a way to avoid greater external absenteeism. As it is suggested by Presado (2012), the introduction of gymnastics is also a valid suggestion and, because we speak of a health institution, the distribution of fruit and water are measures that may also contribute to the decrease of absenteeism, without high costs to the institution.

Programmes to quit smoking and the establishment of a pocket of mobile workers that may replace the absent by disease should be implemented in order to avoid the work overload. The employees must be encouraged to present measures to decrease the absenteeism as a way of resolution of this problem.

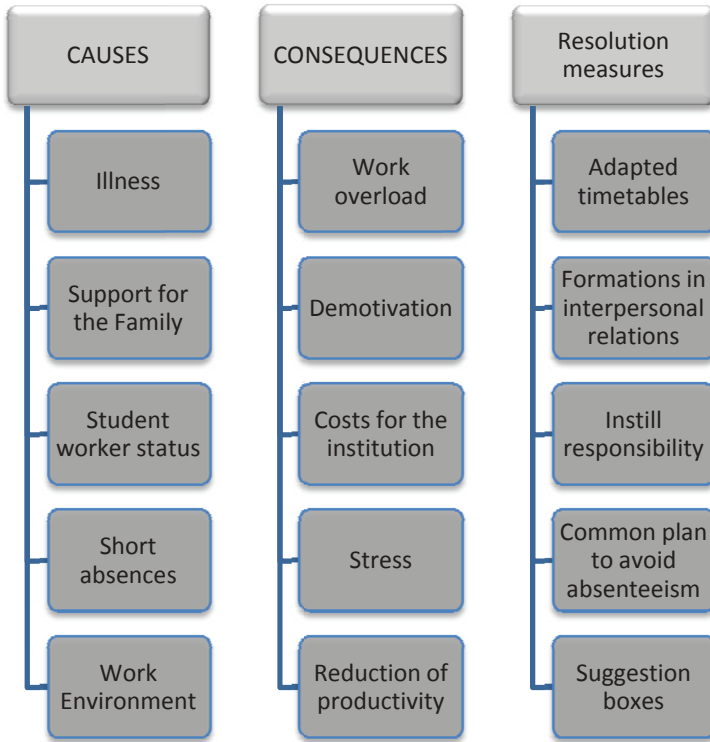


Figure 2. Absenteeism, causes, consequences and resolution measures

Source: Authors' own study.

5. Conclusions

The work overload appears referred to as one of the most common effects of absenteeism and may compromise the performance of work teams.

The present article came to contribute with a comprehensive vision of the managers and workers to perceiving the existing absenteeism in a health institution in Portugal's Alentejo. It suggests what causes influence absenteeism and its consequences and what steps the institution should take to minimize the absentee behaviours.

We conclude that the perception of the percentage of absenteeism existing in the institution differs between the hospital and the health centres (being higher in perceiving the percentage of absenteeism in health centres) and also by either of the managers, either on the part of employees.

The causes of internal absenteeism are perceived in a similar manner, either by the management, or by the employees of the institution (hospital and health centres).

The perception of the consequences of the internal absenteeism is divergent between the managers of the hospital and the managers of health centres, while the perception of the consequences of external absenteeism is consensual between both managers. The perception

of the consequences of the internal absenteeism for employees differs between the hospital (positive consequences) and the health centres (harmful consequences). The perception of the consequences of external absenteeism for employees is similar.

Resolution measures to be adopted in the internal absenteeism are perceived in a similar way by hospital managers and health centres managers. As for the external absenteeism, also both managers are of the opinion that the resolution mechanisms that they have at their disposal are legally defined (all absences from work need justification in accordance with applicable law).

Similarly, the employees have consensus in both locations, regarding the measures for a resolution to be adopted to combat internal absenteeism.

The managers of health institutions, acquainted with the causes of behaviour and the absentee consequences that these behaviours may induce for the organization, will be more prone to adopt a set of practical guidelines of a culture that does not tolerate excessive absences.

The present study presents limitations in the generalization of the results obtained. Future studies will be necessary to confirm the results obtained in this research and to replicate the same to other sectors of activity, beyond the health sector. Nevertheless, this study is a contribution to the enlargement of theoretical knowledge in the area.

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Powody absencji w sektorze zdrowia w regionie Alentejo i środki naprawcze

Abstrakt: W większości przedsiębiorstw absencja jest tematem aktualnym i niepokojącym. Powoduje ona duże obciążenie pracą pozostałych osób, brak motywacji oraz brak satysfakcji w miejscu pracy, a także generuje dodatkowe koszty dla firm. W instytucjach opieki zdrowotnej, podobnie jak w innych dużych organizacjach, absencja wymaga także szczególnej uwagi, ponieważ produktem końcowym jest tu opieka zdrowotna nad ludźmi. Aby przeanalizować i zrozumieć koncepcję absencji, przeprowadziliśmy badanie metodą wy-

wiadów z menadżerami i pracownikami w instytucjach zdrowotnych (składających się ze szpitala i ośrodków zdrowia) w regionie Alentejo w Portugalii. Dzięki temu mogliśmy lepiej dostrzec powody absencji i środki stosowane do walki z nią. Analiza absencji została przeprowadzona z jej podziałem na dwa ważne komponenty: absencję zewnętrzną (nieobecności długotrwałe) i absencję wewnętrzną (przerwy w miejscu pracy). Przedstawiono środki, które mają na celu zmniejszenie poziomu absencji w danej instytucji.

Słowa kluczowe: praca, zasoby ludzkie, absencja pracowników, sektor zdrowia, Portugalia

Ergonomic aspects and arduousness of work as a traditional warehouseman and the warehouseman supported by voice system: Comparative analysis

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Abstract: The article presents the ergonomic aspects of work storekeeper and warehouseman traditional voice-assisted system. The assessment of energy expenditure was developed while performing different activities related to work, which is important for ergonomics and also supports the work of the security services and occupational health in enterprises. The study underwent a warehouseman working in a traditional manner and assisted by warehouse voice system. With particular attention the workload for both positions was described.

A chronometric-tabular analysis by Lehmann has been carried out, allowing the assessment of energy expenditure at work. Assessment of energy expenditure was assessed by an estimation, so it was necessary to enumerate all activities of a warehouseman working in a traditional way and a warehouseman working with voice-assisted system. This was a two-stage assessment, in the first stage the body position was evaluated, which allowed to estimate energy expenditure serving to maintain this position. In the second stage, strain energy was assessed on the basis of work performed during work activities. The energy cost of operation was determined by adding the results obtained in both stages.

In the case of a clerk-assisted voice system warehouseman the energy expenditure was reduced by 115 kcal/min. Reduced energy expenditure positively contributes to the quality of work. ‘The release of’ hands of the employee and the possibility of a special kind of ‘conversation’ with the voice system involved in the process of picking goods allow for efficient operation.

Key words: warehouseman, warehouseman’s work, warehouseman’s work organization, voice-directed warehousing, warehouse ergonomics

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1. Introduction

Recently, the advancement of new technologies has a significant influence on creating systems that support human work. These systems are designed for the purpose of work facilitation and acceleration. In spite of the arising improvements, the number and volume of threats afflicting workers’ health and life still remain at a high level.

Warehouses in the cotemporary economy play a crucial role. The surface and number of the newly built warehouse properties are constantly increasing. These changes lead to the growth of expectations regarding warehouses, which comprise of quick identification of the place where goods are stored, efficient internal means of transport, and the possibility of quick complementation of products. Changes in functioning and management of warehouses contribute to a great variety of tasks that are realized in such objects. Specialization and technological advancement, which has a significant influence on the way the warehouse processes are realized, as well as on the support in management, are also vital in warehouses' operation.

The characteristic feature of work performed by warehousemen is heavy physical load. It is connected with weight lifting and moving, repeated movements of hands and arms. These activities are the reason for inter alia back pain, spasms within muscle of the neck and upper extremities. The majority of musculoskeletal complaints are linked with cumulative work, which arises from long-lasting and repeated weight moving and lifting. These ailments may also be connected with traumata which are the result of accidents of warehousemen at work. Warehouse workers are also exposed to the risk of musculoskeletal complaints, since their work requires long standing or uncomfortable position and the significant part of their work is physically arduous and taking long hours.

The risk factors concerned with musculoskeletal load resulting from the type of performed work are directly linked with working process by worker's body position, exerted force and time cycles of the performed activities. The determinants occurring in working environment such as improper body position, body movements, exerting an excessive force considering time sequences can cause damages to muscle, strings and ligaments. (Roman-Liu, 2008). The proper and objective assessment of load or risk of musculoskeletal ailments requires considering all factors which can occur during the performed work.

2. Workload of the traditional warehouseman and the warehouseman supported by voice system

The assessment of energy expenditure while performing different activities connected with professional work is significant for ergonomics and work safety regulations in companies. In order to evaluate energy expenditure, learning the elements of work in the analyzed company's departments becomes indispensable. Therefore, the traditional warehouseman and the warehouseman supported by voice system are examined.

The work of warehouseman in a traditional way requires collecting the list of goods for order picking, changing clothes for work-wear, providing personal protection measures and a handcart, a forklift and a cart type BT, namely the warehouse cart. The type of cart depends on the type of warehouse which the warehouseman works in. His work is inseparably connected with the particular posture. The posture is the position of the body, arms and legs during the performed work. Uncomfortable or improper posture may occur during leaning, weight lifting or working in narrow passages (Górska, 1998). The work of warehouseman is strictly bound to using physical strength. It becomes indispensable during weight lifting, clenching hands on the cart's handle, closing the handclasp on the carried container, posi-

tioning of the container or item towards the body and additionally engaging sight, hands and forearms in reading orders and constant twisting of the body in order to lay aside the picking list.

The warehouseman has to devote the time and attention interchangeably to the list of goods and the performed task. The repeatability of these activities is particularly dangerous for the warehouseman as it engages the same parts of muscles and joints in a constant and recurring way. The work of the warehouseman supported by voice system differs from the work performed in a traditional way. Voice system allows for releasing warehouseman's hands from the constant verification of number and sort of the picked parcels. The warehouseman is equipped with earphones connected to audio terminal (Figure 1); he is hearing voice commands generated by the system and he is confirming vocally that the task is completed.



Figure 1. Audio terminal used for warehouse management

Source: <http://www.voicesolutions.pl/terminal-glosowy-talkman-t5> [retrieved: 2014-03-01].

The information concerning parcel picking for the operator in the warehouse of the analyzed company is generated from the IT system on the portable terminal of bar coding display. Thanks to the voice system, the warehouseman has his hands and sight free, since using the terminal and confirming the performed operations take the form of voice response to the heard voice messages. This convenient solution becomes the most natural way of communication and information sharing.

Voice terminals have simple structure and they are convenient to use, for example when fastened to belt or harnessed. Voice terminals are equipped with four buttons: on/ off button, select button (sound volume, speed regulation, operator and task) and scroll button. Headphone sets with microphone are adjusted to working under intensive noise conditions and can be connected to voice terminals via the cable or wireless by using Bluetooth technology.

The picking list is received via radio from IT system and further processed by voice terminal for the warehouseman who is the operator of voice system. The worker of distribution warehouse picks the order when he hears in his earphones the instruction regarding product location and the quantity which should be collected. Performing these activities, he confirms them with voice commands and gives the actual quantity of collected goods until comple-

tion. The messages are pronounced by the warehouseman to the microphone which is connected to the earphone set and then processed by the terminal for system data. This becomes a 'dialogue' between a user and the voice control system. The work of the warehouseman supported by voice system is presented in Figure 2.



Figure 2. The warehouseman supported by voice system

Source: Materials provided by the analyzed company.

3. The chronometric-tabular method according to Lehmann and the assessment of energy expenditure in the warehouseman's work

One of the known and commonly used methods of analyzing energy expenditure during work is the chronometric-tabular method by Lehmann. It defines the volume of energy expenditure. Due to the simplicity of this method, it is frequently used for defining the arduousness of work on the particular position. The probable failures in assessment are scarce and possible to accept during empirically-based estimated method. In order to make the assessment, the following elements are analyzed (Jędruszczak and Romanowska-Słomka, 2011):

- energy expenditure of the particular activities,
- posture during work, the extent to which muscles are involved,
- degree of mono-typicality of muscles,
- degree and way of carrying and lifting weights.

The fundament of the proper assessment is making the list of working activities along with the time they take during a working day. This list is called the photography and timing of the working day. Timing should be conducted during days with the average intensification of work and it should entail activities that are typical of the particular working position. The photography of the working day assumes grouping activities into particular cycles. The basic and auxiliary activities should be registered regarding intervals at work during which the position of body is taken into consideration. The measurements have to be made several times in order to depict the average characteristics of the working day. The entire assessment of physical effort is comprised of (Janisz, 2011):

- assessment of energy expenditure,
- assessment of static effort,
- assessment of mono-typicality of movements.

Lehmann's method depends on the calculation of energy expenditure of the worker in the particular position basing on (Górska, 1998):

- time that particular activities are performed during the shift,
- unitary energy expenditure for performing different activities.

The assessment of energy expenditure will be made with estimated method. Therefore, it is necessary to distinguish all activities during work (Makowiec-Dąbrowska, Radwan-Włodarczyk, Koszada-Włodarczyk and Józwiak, 2000) of the traditional warehouseman and the warehouseman supported by voice system. This is a two-phase assessment. In the first phase, the position of body is considered, which allows for estimating energy expenditure concerning the posture. In the second stage, energy expenditure basing on the performed activities is assessed. The energy cost of the work performed is defined by adding the results received in both phases (Koradecka, 2008).

Table 1. Energy expenditure regarding the posture of the worker

Body posture	Energy input	
	kcal/min	kJ/min
Sitting	0.3	1.26
Kneeling	0.5	2.09
Squatting	0.5	2.09
Standing	0.6	2.52
Bowed standing	0.8	3.35
Walking	1.7–3.5	7.12–14.65
Walking with 10° gradient surface without load	0.7/1 m of height	3.14/1 m of height

Source: CIOP (2015). Obciążenie pracą – wydatek energetyczny. Instructional material [unpublished]. Warsaw, April 2015.

Estimating energy expenditure considering the involvement of muscles in particular working activities is an important element of this method (Table 2).

Table 2. Energy expenditure considering the involvement of muscles in particular working activities

Type and arduousness of work		Energy input	
		kcal/min	kJ/min
Finger, hand and forearm work	Light	0.3–0.6	1.3–2.5
	Average	0.6–0.9	2.5–3.8
	Hard	0.9–1.2	3.8–5.0
One arm work	Light	0.7–1.2	2.9–5.0
	Average	1.2–1.7	5.0–7.1
	Hard	1.7–2.2	7.1–9.2
Both arms work	Light	1.5–2.0	6.3–8.4
	Average	2.0–2.5	8.4–10.5
	Hard	2.5–3.0	10.5–12.6
Limbs and trunk work	Light	2.5–4.0	10.5–16.7
	Average	4.0–6.0	16.7–25.1
	Hard	6.0–8.5	25.1–35.6
	Very hard	8.5–11.5	35.6–48.1

Source: CIOP. (2015). Obciążenie pracą – wydatek energetyczny. Instructional material [unpublished]. Warsaw, April 2015.

The assessment of energy expenditure with Lehmann method assumes preparing timing of working along with energy expenditure. The results of the measurements of energy expenditure in the traditional warehouseman's work are given in Table 3.

Table 3. The results of the measurements of energy expenditure at the position of the traditional warehouseman

Timing			Energy input			
No.	Activity performed during working shift	t [min]	E_a [kJ/min]	E_b [kJ/min]	E_{a+b} [kJ/min]	E_c [kcal/min]
1	Loading on cart: – up to 5 kg	120	7.12	1.5	8.62	247
	– up to 10 kg	80	10.10	2.0	12.1	231
	– up to 20 kg	60	14.65	2.5	17.15	246
2	Document registering	40	2.52	0.4	2.92	28
3	Lack registering in warehouses	20	2.52	0.3	2.82	13
4	Cart-driving	40	2.52	2.5	5.02	48
5	Loading – up to 5 kg	120	7.12	1.5	8.62	247
	– up to 10 kg	80	10.1	2.0	12.1	231
	– up to 20 kg	40	14.65	2.5	17.15	164
6	Document management	90	2.52	0.9	3.42	74
7	Break	30	1.26	0.3	1.56	11

where:

t —duration of the activity,

E_a —energy expenditure regarding body posture during work,

E_b —energy expenditure regarding the group of muscles performing the activities,

E_{a+b} —energy expenditure regarding body posture during work and the group of muscles performing the activities,

E_c —energy expenditure for the given activity calculated as $E_c = E_{a+b} \cdot t$.

Source: Author’s own elaboration.

Traditional warehouseman works in shift system with eight hours working time. The work as warehouseman is both the manual labour which comprises lifting and moving goods, packing on the pallets, or directly on the carts, and the brain work including listing of goods, reading orders, checking the status of the loaded goods with the orders, which requires collecting the documents constantly, registering and putting them aside. These activities are the source of the constant trunk twisting, fingers, hand and forearm work. The posture in the warehouseman’s work includes walking, standing, standing position with elements of hand and fingers energy, hand and forearm work, bowed position engaging fingers. Energy expenditure of the traditional warehouseman is 1540 kcal/min. Energy expenditure at the level of 6446 kJ confirms that this work is qualified as hard.

The warehouseman supported by voice system performs the same working activities as the traditional warehouseman. However, the load he experiences is diminished by brain work and the activities connected with this. The decrease in energy expenditure occurs inter alia because there is no necessity to fill the listing and register warehouse flows. The load of energy expenditure regarding the traditional warehouseman and the warehouseman supported by voice system is depicted in Figure 3.

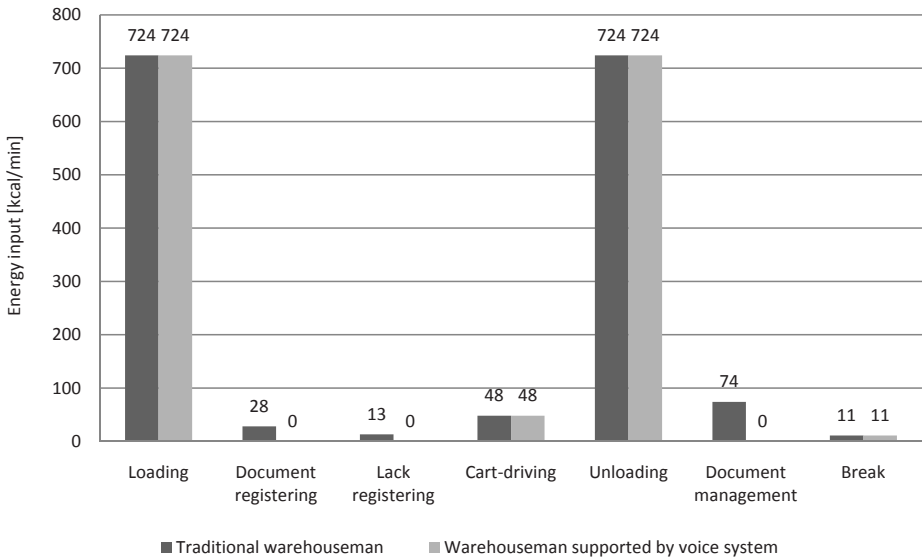


Figure 3. The comparison of energy expenditure regarding the traditional warehouseman and the warehouseman supported by voice system

Source: Author’s own elaboration.

Energy expenditure of the warehouseman supported by voice system is decreased by 115 kcal/min. Lower energy expenditure has a positive impact on the quality of the warehouseman's work. When the warehouseman has his hands free and has the opportunity to 'speak' with voice system which accompanies the process of listing, his work becomes more effective.

4. Conclusions

The work as a warehouseman is connected with large physical load and monotype activities. The requirements that the traditional warehouseman meets are also concerned with a high level of repeatability of twisted trunk movements, keeping in mind large amount of data and registering the documents. The implemented facility in the shape of voice system that supports the work of a warehouseman diminishes the load of musculoskeletal system.

Energy expenditure regarding the work as the traditional warehouseman calculated with Lehmann's method amounts to 1540 kcal/min for working shift 720 min, which classifies the performed work as hard. The work is performed by a man, therefore the intensification of work is categorized as of average hardness.

The work of a warehouseman supported by voice system allows for decreasing volume and frequency of repeatability of twisted trunk movements connected with goods listing and documents completion. Energy expenditure is diminished then and the work becomes categorized as light or of average hardness.

On the basis of the research and assessment concerning the arduousness of physical effort for warehousemen of both types, it has been found that supporting work with voice system influences the efficiency of work and diminishes significantly energy expenditure during work. The reduction of trunk movements causes that physical load is decreased and the posture of the body during work is more diversified.

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Aspekty ergonomiczne oraz ocena uciążliwości pracy na stanowisku magazyniera tradycyjnego oraz magazyniera wspomaganego systemem głosowym – analiza porównawcza

Abstrakt: W artykule przedstawiono aspekty ergonomiczne pracy magazyniera tradycyjnego i magazyniera wspomaganego systemem głosowym. Opracowana została ocena wydatku energetycznego podczas wykonywania różnych czynności związanych z pracą zawodową, co ma duże znaczenie dla ergonomii, jak również wspiera działania służb bezpieczeństwa i higieny pracy w przedsiębiorstwach. Badaniu zostali poddani magazynier pracujący w sposób tradycyjny oraz magazynier wspomagany systemem głosowym. Ze szczególną uwagą opisane zostało obciążenie pracą dla obu stanowisk.

Przeprowadzona została analiza chronometryczno-tabelaryczna według Lehmana, co pozwoliło na ocenę wydatku energetycznego w pracy. Ocena wydatku energetycznego została oceniona metodą szacunkową, a zatem konieczne było wyodrębnienie wszystkich czynności

podczas pracy magazyniera pracującego w sposób tradycyjny oraz magazyniera wspomaganego systemem głosowym. Ocena ta jest dwuetapowa, w pierwszym etapie ocenie podlega pozycja ciała, co pozwala na szacowanie wydatku energetycznego służącego utrzymaniu tej pozycji. W drugim etapie ocenie poddawany jest wysiłek energetyczny na podstawie wykonywanych podczas pracy czynności roboczych. Koszt energetyczny pracy określa się poprzez zsumowanie wyników uzyskanych w obu etapach.

Wydatek energetyczny pracownika magazynu wspomaganego systemem głosowym zmniejsza się o 115 kcal/min. Mniejsze wydatkowanie energii pozytywnie wpływa na poziom jakości pracy. „Uwolnienie” rąk pracownika oraz możliwość szczególnego rodzaju „rozmowy” z systemem głosowym współuczestniczącym w procesie kompletacji towarów pozwala na efektywną pracę.

Słowa kluczowe: magazynier, praca magazyniera, organizacja pracy w magazynie, system głosowy w magazynie, ergonomia stanowiska pracy magazyniera

FINANCES AND ACCOUNTING

The historical cost principle and the fair value concept: The basic measures of the value of synthetic financial instruments

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Abstract: The contemporary global financial market is characterized by the fact that most financial instruments can be replicated. The replication procedures involve the construction of a new financial instrument through combining other financial instruments, so that the effect of the combination is identical to the properties of the existing instrument. New financial instruments, referred to as synthetic instruments, are constructed on the basis of both primary and derivative instruments. A synthetic instrument is a financial structure based on an appropriate combination of primary and derivative instruments—their substitutes. It provides the possibility of constructing any type of a financial instrument.

The paper presents a concept for designing synthetic instruments on the basis of the call/ put parity. The call/ put parity can be a basis for designing a synthetic share, a call option and a put option, and a risk-free investment. The concepts were used to develop two strategies (strangle and straddle) based on synthetic instruments. The balance sheet valuation of strangle and straddle spread strategies was based on a mixed valuation model, making use of two basic measures of valuation—historical costs and fair value.

Key words: accounting, financial instruments, historical cost, fair value

1. Introduction

Creating new financial instruments, being part of contemporary financial engineering, reflects various strategies adopted by investors in financial markets. These strategies are applied by investors to achieve specific market objectives, and they combine primary and derivative instruments. Investor activities, or investor market behaviours, are commonly divided into three categories:

- speculation,
- arbitrage,
- hedging.

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Strategies (speculative, arbitrage and hedging) based on primary, synthetic or mixed instruments (synthetic-primary) are portfolios of financial instruments designed to achieve specific levels of risk profile or rates of return. Practically, indefinite numbers of strategies can be developed on the basis of financial instruments. New strategies are continuously designed, adjusted to the specific economic and investment needs (tailor-made solutions). Frequently, having designed and sold new strategies, financial engineers offer their products to other entities in financial markets. As a result, in the course of time, innovative investment strategies are adopted by investors and businesses as standard products.

The article presents a concept for designing synthetic instruments on the basis of the call/put parity. The call/put parity can be a basis for designing a synthetic share, a call option and a put option, and a risk-free investment. The concepts were used to develop two strategies (strangle and straddle) based on synthetic instruments. The balance sheet valuation of strangle and straddle spread strategies was based on a mixed valuation model, making use of two basic measures of valuation—historical costs and fair value.

2. The concepts of designing synthetic instruments

Literatures offer various concepts as to what base instruments are needed to design a given financial instrument (Marshall and Bansal, 1992), (Kolb, 1997), (Luenberger, 2003), (Kolb and Overdahl, 2006). It is commonly believed that the basic financial instruments used to design synthetic instruments include the following:

- shares (or futures contract),
- risk-free investments (e.g. bonds),
- call option,
- put option.

The alternation of shares and futures contracts results from the fact that the profit of a buyer of shares (*long share*) is the same as in the case of a buyer of a futures contract (*long futures*). The same relation occurs in the case of short shares and short futures.

Therefore, if these instruments are regarded to be base instruments for designing synthetic instruments, the process of designing synthetic instruments originates from the put/call parity relationship. The parity concept is based on combining a risk-free investment with the purchase of a share, the purchase of a put option and the sale of a call option for the same share (Stoll, 1969), (Merton, 1973). Holding such a portfolio in an open position (i.e. the purchase of shares, the sale of call options, and the purchase of put options) results in a risk-free investment at expiry date. It implies that the value of the purchased portfolio is equal to the current price discounted by the risk-free rate of return. It can be demonstrated as follows:

$$S - C + P = \frac{E}{(1 + R_f)^T}$$

where:

S —price (value) of share,

E —the same exercise price for call and put option,

T —the same expiry date for call and put option,

R_f —risk-free rate of return,

C —price (value) of call option,

P —price (value) of put option.

The transformation of this equation leads to the formula of the value of a put option:

$$P = C - S + \frac{E}{(1 + R_f)^T}$$

This correlation indicates that a put option corresponds to the purchase of a call option, a short share and an investment which transfers the risk-free rate of return. A risk-free investment should yield the same profit as the price of exercising a call option and a put option. This is the way in which a synthetic put option can be designed.

The equation for the call/ put option parity can be transformed to separate the value of one financial instrument on its left side, with the values on the right side representing its substitute. For example, the following formula results from transforming the equation for the put/ call parity:

$$S = C - P + \frac{E}{(1 + R_f)^T}$$

The equation indicates that a financial instrument (a share) corresponds to the purchase of a call option, the writing of a put option or a risk-free investment. As a result, a synthetic share can be designed composed of the purchased call option, the written put option and a risk-free investment which equals the current trading price of the call and put option.

The transformation of the equation for the put/ call parity (C) leads to the following formula for the value of the call option:

$$C = P + S - \frac{E}{(1 + R_f)^T}$$

The formula indicates that the financial instrument (call option) corresponds to the purchase of a put option, a long position in a share and a short position in a risk-free investment. This is the way in which a synthetic call option can be designed.

The transformation of the equation for the put/ call parity, with regard to the risk-free investment, leads to the following formula:

$$\frac{E}{(1 + R_f)^T} = P + S - C$$

This transformation indicates that the financial instrument (risk-free investment) corresponds to the purchase of a put option, a long position in a share, and the writing of a call option. This is the way in which a synthetic risk-free treasury bond can be designed.

The put/ call parity can thus be a basis for designing a synthetic share, a put option and a call option, and a risk-free investment (Bielawski, 2007a, 2007b), (Bielawski, 2010a, 2010b).

3. The valuation of a strangle strategy at the purchasing price and at fair value

A strangle strategy combines a call option and a put option. To develop a strangle strategy it is necessary to enter into a call option and a put option on the same instrument, with

the same expiry date and the call option exercise price exceeding the put option exercise price. It can be assumed that the call option exercise price is PLN 110,000, and the put option exercise price is PLN 100,000. The call option's purchase price is $p =$ PLN 6,000, and the put option's price is $p =$ PLN 12,000. Call and put options are written for shares. A strangle strategy based on the above definition (primary financial instruments) is presented in Table 1.

Table 1. A strangle strategy based on options

Value of primary instrument after 1 year (at expiry date) in PLN	Put option (exercise price $E =$ PLN 100,000), purchase price PLN 12,000	Call option (exercise price $E =$ PLN 110,000), purchase price in PLN 6,000	Strangle
50,000	38,000	-6,000	32,000
60,000	28,000	-6,000	22,000
70,000	18,000	-6,000	12,000
80,000	8,000	-6,000	2,000
90,000	-2,000	-6,000	-8,000
100,000	-12,000	-6,000	-18,000
110,000	-12,000	-6,000	-18,000
120,000	-12,000	4,000	-8,000
130,000	-12,000	14,000	2,000
140,000	-12,000	24,000	12,000
150,000	-12,000	34,000	22,000

Source: Author's own elaboration.

A strangle strategy can be based on synthetic options. To develop a synthetic strangle strategy, it is necessary to purchase a call option and a put option, enter into a long and a short position on a share, and a long and a short position on a risk-free investment. The above financial instruments are the substitutes of a call option and a put option. A strangle based on synthetic financial instruments is presented in Tables: 2, 3, and 4.

Table 2. Synthetic strangle strategy—synthetic put strategy

Value of primary share after 1 year (at expiry date) in PLN	Call option (exercise price $E =$ PLN 100,000), purchase price PLN 6,000	Value of short position on share in PLN	State treasury bond (risk-free investment PLN 80,000 – 25%) in PLN	Synthetic put option in PLN
50,000	-6,000	-50,000	100,000	44,000
60,000	-6,000	-60,000	100,000	34,000
70,000	-6,000	-70,000	100,000	24,000
80,000	-6,000	-80,000	100,000	14,000
90,000	-6,000	-90,000	100,000	4,000

Value of primary share after 1 year (at expiry date) in PLN	Call option (exercise price $E = \text{PLN } 100,000$), purchase price PLN 6,000	Value of short position on share in PLN	State treasury bond (risk-free investment PLN 80,000 – 25%) in PLN	Synthetic put option in PLN
100,000	–6,000	–100,000	100,000	–6,000
110,000	4,000	–110,000	100,000	–6,000
120,000	14,000	–120,000	100,000	–6,000
130,000	24,000	–130,000	100,000	–6,000
140,000	34,000	–140,000	100,000	–6,000
150,000	44,000	–150,000	100,000	–6,000

Source: Author's own elaboration.

Table 3. Synthetic strangle strategy—synthetic call option

Value of primary share after 1 year (at expiry date) in PLN	Put option (exercise price $E = \text{PLN } 110,000$), purchase price PLN 12,000	Value of long position on share in PLN	Short position on state treasury bond (risk-free investment PLN 100,000 – 10%) in PLN	Synthetic call option in PLN
500	48,000	50,000	–110,000	–12,000
600	38,000	60,000	–110,000	–12,000
700	28,000	70,000	–110,000	–12,000
800	18,000	80,000	–110,000	–12,000
900	8,000	90,000	–110,000	–12,000
1,000	–2,000	100,000	–110,000	–12,000
1,100	–12,000	110,000	–110,000	–12,000
1,200	–12,000	120,000	–110,000	–2,000
1,300	–12,000	130,000	–110,000	8,000
1,400	–12,000	140,000	–110,000	18,000
1,500	–12,000	150,000	–110,000	28,000

Source: Author's own elaboration

Table 4. Result of synthetic strangle strategy—synthetic call and put option

Value of primary share after 1 year (at expiry date) in PLN	Synthetic call option in PLN	Synthetic put option in PLN	Synthetic strangle strategy
50,000	–12,000	44,000	32,000
60,000	–12,000	34,000	22,000
70,000	–12,000	24,000	12,000
80,000	–12,000	14,000	2,000

Value of primary share after 1 year (at expiry date) in PLN	Synthetic call option in PLN	Synthetic put option in PLN	Synthetic strangle strategy
90,000	-12,000	4,000	-8,000
100,000	-12,000	-6,000	-18,000
110,000	-12,000	-6,000	-18,000
120,000	-2,000	-6,000	-8,000
130,000	8,000	-6,000	2,000
140,000	18,000	-6,000	12,000
150,000	28,000	-6,000	22,000

Source: Author's own elaboration.

The valuation of a strangle strategy developed on the basis of synthetic instruments can be based on two methods—historical costs and fair value.

The valuation of a strangle strategy for synthetic instruments (Table: 2, 3, and 4) can be based on the following procedure:

T_0 —purchase of a call option for PLN 12,000, and a put option for PLN 6,000 on a stock exchange, price of shares PLN 100,000, price of bonds PLN 80,000, and PLN 100,000,

T_1 —value of the call option increased up to PLN 18,000, and the value of the put option decreased to PLN 0, value of shares PLN 140,000, the value of bonds increased up to PLN 90,000, and PLN 105,000,

T_2 —value of the call option increased up to PLN 28,000, value of the put option PLN 0, values of shares increased up to 150,000, value of bonds increased up to PLN 100,000, and PLN 111,000.

Call options		Put options		Profit and loss on strangle strategy	
SP X	12,000 (3)	SP X	6,000 (3)	(3) 6,000	16,000 (3)
(1) 12,000		(1) 6,000		(3) 50,000	50,000 (3)
				(3) 10,000	20,000 (3)
Investment account at brokerage office		Shares		Bonds	
SP X	198,000 (1)	SP X	100,000 (2)	SP X	100,000 (2)
(2) 200,000	266,000 (3)	(1) 100,000	100,000 (3)	(1) 80,000	80,000 (3)
(3) 284,000		(3) 100,000		(3) 100,000	

Figure 1. Valuation of synthetic strangle strategy based on purchase price (historical costs)

where:

- (1)—purchase of a call option and a put option, and long shares and long treasury bonds from investment account,
- (2)—sale of short shares and short bonds (transfer of funds into investment account at brokerage office),
- (3)—calculation of result of the call option (profit) and put option (loss), long shares (profit) and long bonds (profit), short shares (loss) and short bonds (loss), and settlement of profit on strategy in monetary terms.

Source: Author’s own elaboration.

Call options		Put options		Profit and loss on strangle strategy	
SP X	28,000 (14)	SP X	6,000 (4)	(4) 6,000	6,000 (3)
(1) 12,000		(1) 6,000		(6) 40,000	40,000 (5)
(3) 6,000				(8) 5,000	10,000 (7)
(9) 10,000				(11) 10,000	10,000 (9)
				(13) 5,000	10,000 (10)
					10,000 (12)

Investment account at brokerage office		Shares		Bonds	
SP X	198,000 (1)	SP X	100,000 (2)	SP X	100,000 (2)
(2) 200,000	260,000 (14)	(1) 100,000	40,000 (6)	(1) 80,000	5,000 (8)
(14) 278,000		(5) 40,000	10,000 (11)	(7) 10,000	5,000 (13)
		(10) 10,000	150,000 (14)	(12) 10,000	100,000 (14)
		(14) 150,000		(14) 110,000	

Figure 2. Valuation of synthetic strangle strategy at fair value

where:

- (1)—purchase of call and put option, and long shares and long bonds from investment account,
- (2)—sale of short shares and short bonds (transfer of funds into investment account at brokerage office),
- (3)—result of call option (profit) and adjustment of the fair value of call option to market value,
- (4)—result of put option (loss) and adjustment of the fair value of put option to market value,
- (5)—result of long shares (profit) and adjustment of the fair value of shares to market value,
- (6)—result of short shares (loss) and adjustment of the fair value of shares to market value,
- (7)—result of long bonds (profit) and adjustment of the fair value of bonds to market value,
- (8)—result of short bonds (loss) and adjustment of the fair value of bonds to market value,
- (9)—result of call option (profit) and adjustment of the fair value of call option to market value,
- (10)—result of long shares (profit) and adjustment of the fair value of shares to market value,
- (11)—result of short shares (loss) and adjustment of the fair value of shares to market value,
- (12)—result of long bonds (profit) and adjustment of the fair value of bonds to market value,
- (13)—result of short bonds (loss) and adjustment of the fair value of bonds to market value,
- (14)—result of call option (profit) and settlement of strategy in monetary terms.

Source: Author’s own elaboration.

4. The valuation of a straddle strategy at the strike price and at fair value

A straddle strategy is a combination of a put option and a call option for the same instrument (e.g. a share). To develop a straddle strategy, it is necessary to buy a call option and a put option at the same expiration and exercise price. It can be assumed that the exercise price of both options is PLN 100,000. The call option's purchase price is $p = \text{PLN } 8,000$, and the put option's price $p = \text{PLN } 16,000$. A strategy defined in this way (primary financial instruments) is presented in Table 5.

Table 5. A straddle strategy based on options

Value of primary share after 1 year (at option's expiry date) in PLN	Put option (exercise price $E = \text{PLN } 100,000$), purchase price PLN 16,000	Call option (exercise price $E = \text{PLN } 100,000$), purchase price PLN 8,000	Straddle
50,000	34,000	-8,000	26,000
60,000	24,000	-8,000	16,000
70,000	14,000	-8,000	6,000
80,000	4,000	-8,000	-4,000
90,000	-6,000	-8,000	-1,400
100,000	-16,000	-8,000	-24,000
110,000	-16,000	2,000	-14,000
120,000	-16,000	12,000	-4,000
130,000	-16,000	22,000	6,000
140,000	-16,000	32,000	16,000
150,000	-16,000	42,000	26,000

Source: Author's own elaboration.

A straddle strategy can be based on synthetic options. A synthetic straddle is based on the purchase of a put option and a call option, long and short shares, and long and short positions in a risk-free investment. The above financial instruments substitute call and put options. A straddle strategy based on synthetic financial instruments is presented in Tables: 6, 7, and 8.

Table 6. Synthetic straddle—synthetic put option

Value of primary share after 1 year (at option's expiry date) in PLN	Call option (exercise price $E = \text{PLN } 100,000$), purchase price PLN 16,000)	Value of short shares in PLN	State treasury bonds (risk-free investment: PLN 800 – 25%) in PLN	Synthetic put option in PLN
50,000	-16,000	-50,000	100,000	34,000
60,000	-16,000	-60,000	100,000	24,000
70,000	-16,000	-70,000	100,000	14,000
80,000	-16,000	-80,000	100,000	4,000
90,000	-16,000	-90,000	100,000	-6,000

Value of primary share after 1 year (at option's expiry date) in PLN	Call option (exercise price E = PLN 100,000), purchase price PLN 16,000)	Value of short shares in PLN	State treasury bonds (risk-free investment: PLN 800 – 25%) in PLN	Synthetic put option in PLN
100,000	-16,000	-100,000	100,000	-16,000
110,000	-6,000	-110,000	100,000	-16,000
120,000	4,000	-120,000	100,000	-16,000
130,000	14,000	-130,000	100,000	-16,000
140,000	24,000	-140,000	100,000	-16,000
150,000	34,000	-150,000	100,000	-16,000

Source: Author's own elaboration.

Table 7. Synthetic straddle—synthetic call option

Value of primary share after 1 year (at expiry date) in PLN	Put option (exercise price E = PLN 100,000), purchase price PLN 8,000	Value of long shares in PLN	Short treasury bonds (risk-free investment PLN 80 – 25%) in PLN	Synthetic call option in PLN
50,000	42,000	50,000	-100,000	-8,000
60,000	32,000	60,000	-100,000	-8,000
70,000	22,000	70,000	-100,000	-8,000
80,000	12,000	80,000	-100,000	-8,000
90,000	2,000	90,000	-100,000	-8,000
100,000	-8,000	100,000	-100,000	-8,000
110,000	-8,000	110,000	-100,000	2,000
120,000	-8,000	120,000	-100,000	12,000
130,000	-8,000	130,000	-100,000	22,000
140,000	-8,000	140,000	-100,000	32,000
150,000	-8,000	150,000	-100,000	42,000

Source: Author's own elaboration.

Table 8. Result of a straddle—synthetic call and put option

Value of primary shares after 1 year (at expiry date) in PLN	Synthetic call option	Synthetic put option	Synthetic straddle
50,000	-8,000	34,000	26,000
60,000	-8,000	24,000	16,000
70,000	-8,000	14,000	6,000
80,000	-8,000	4,000	-4,000
90,000	-8,000	-6,000	-1,400
100,000	-8,000	-16,000	-24,000

Value of primary shares after 1 year (at expiry date) in PLN	Synthetic call option	Synthetic put option	Synthetic straddle
110,000	2,000	-16,000	-14,000
120,000	12,000	-16,000	-4,000
130,000	22,000	-16,000	6,000
140,000	32,000	-16,000	16,000
150,000	42,000	-16,000	26,000

Source: Author's own elaboration.

The above presented straddle strategy based on synthetic instruments can be valued with the use of historical costs and at fair value. The valuation of a synthetic straddle strategy (Tables: 6, 7, and 8) can be based on the following scenario:

T_0 —purchase of a call option for PLN 16,000 and a put option for PLN 8,000 on a stock exchange, price of shares PLN 100,000, price of bonds PLN 80,000,

T_1 —value of the call option increased up to PLN 20,000, value of the put option decreased to PLN 0, value of shares PLN 120,000, value of bonds increased up to PLN 90,000,

T_2 —value of the call option increased up to PLN 24,000, value of the put option PLN 0, value of shares increased up to PLN 140,000, value of bonds increased up to 100,000.

Call option		Put option		Profit and loss on a straddle	
SP X	16,000 (3)	SP X	8,000 (3)	(3) 8,000	8,000 (3)
(1) 16,000		(1) 8,000		(3) 40,000	40,000 (3)
				(3) 20,000	20,000 (3)

Investment account at brokerage office		Shares		Bonds	
SP X	204,000 (1)	SP X	100,000 (2)	SP X	80,000 (2)
(2) 180,000	248,000 (3)	(1) 100,000	100,000 (3)	(1) 80,000	80,000 (3)
(3) 272,000		(3) 100,000		(3) 80,000	

Figure 3. Valuation of a synthetic straddle strategy based on purchase price (historical costs) where:

- (1)—purchase of a call option and a put option, long shares and long treasury bonds from investment account,
- (2)—sale of short shares and short bonds (transfer of funds into investment account at brokerage office),
- (3)—result of call option (profit) and put option (loss), long shares (profit) and long bonds (profit), short shares (loss) and short bonds (loss) and calculation of strategy's profit in monetary terms.

Source: Author's own elaboration.

Call options		Put options		Profit and loss on a straddle	
SP X	24,000 (14)	SP X	8,000 (4)	(4) 8000	4,000 (3)
(1) 16,000		(1) 8,000		(6) 20000	20,000 (5)
(3) 4,000				(8) 10000	10,000 (7)
(9) 4,000				(11) 20000	4,000 (9)
				(13) 10000	20,000 (10)
					10,000 (12)
Investment account at brokerage office		Shares		Bonds	
SP X	204,000 (1)	SP X	100,000 (2)	SP X	80,000 (2)
(2) 180,000	240,000 (14)	(1) 100,000	20,000 (6)	(1) 80,000	10,000 (8)
(14) 264,000		(5) 20,000	20,000 (11)	(7) 10,000	10,000 (13)
		(10) 20,000	140,000 (14)	(12) 10,000	100,000 (14)
		(14) 140,000		(14) 100,000	

Figure 4. Valuation of a synthetic straddle at fair value

where:

- (1)—purchase of a call option and a put option, long shares and long bonds from investment account,
- (2)—sale of short shares and short bonds (transfer of funds into investment account at brokerage office),
- (3)—result of call option (profit) and adjustment of the fair value of call option to market value,
- (4)—result of put option (loss) and adjustment of the fair value of put option to market value,
- (5)—result of long shares (profit) and adjustment of the fair value of shares to market value,
- (6)—result of short shares (loss) and adjustment of the fair value of shares to market value,
- (7)—result of long bonds (profit) and adjustment of the fair value of bonds to market value,
- (8)—result of short bonds (loss) and adjustment of the fair value of bonds to market value,
- (9)—result of call option (profit) and adjustment of the fair value of call option to market value,
- (10)—result of long shares (profit) and adjustment of the fair value of shares to market value,
- (11)—result of short shares (loss) and adjustment of the fair value of shares to market value,
- (12)—result of long bonds (profit) and adjustment of the fair value of bonds to market value,
- (13)—result of short bonds (loss) and adjustment of the fair value of bonds to market value,
- (14)—result of call option (profit) and settlement of transactions in monetary terms.

Source: Author's own elaboration.

5. Conclusions

The paper presented a concept for designing synthetic instruments based on the call/ put option parity. The call/ put parity can be a basis for designing a synthetic share, a call option and a put option, and a risk-free investment. This concept was used to develop two strategies (strangle and straddle) based on synthetic instruments. The balance sheet valuation of strangle and straddle spread strategies was based on a mixed valuation model, making use of two basic measures of valuation—historical costs and fair value.

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Zasada kosztu historycznego i kategoria wartości godziwej jako podstawowe miary wartości syntetycznych instrumentów finansowych

Abstrakt: Specyficzną cechą współczesnego globalnego rynku finansowego jest to, iż większość instrumentów finansowych może być replikowana. Procedura replikacji oznacza, że można skonstruować nowy instrument finansowy poprzez złożenie innych instrumentów finansowych tak, aby efekt tego złożenia był identyczny jak w przypadku realnie istniejącego instrumentu. Do konstruowania nowych instrumentów finansowych, nazywanych instrumentami syntetycznymi (*synthetic instruments*), wykorzystuje się zarówno instrumenty podstawowe, jak i pochodne. Instrument syntetyczny jest strukturą finansową stworzoną na bazie odpowiedniej kombinacji instrumentów podstawowych i instrumentów pochodnych, będących jego substytutem.

Artykuł przedstawia koncepcje tworzenia instrumentów syntetycznych na bazie paritetu opcji kupna i opcji sprzedaży. Na podstawie paritetu opcji kupna i opcji sprzedaży można więc zbudować syntetyczną akcję, opcję kupna, opcję sprzedaży oraz inwestycję o stopie zwrotu wolnej od ryzyka. Koncepcje te zostały wykorzystane do skonstruowania dwóch strategii (*strangle* i *straddle*) na instrumentach syntetycznych. Do wyceny bilansowej strategii *strangle* i *straddle spread* zastosowano model mieszany wyceny, oparty na dwóch podstawowych miarach wartości instrumentów finansowych – zasadzie kosztu historycznego i kategorii wartości godziwej.

Słowa kluczowe: rachunkowość, instrumenty finansowe, koszt historyczny, wartość godziwa

Accounting diversity: International student survey outcomes¹

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Abstract: The paper presents the results of the Polish-American survey focused on the problem of international accounting diversity. A survey was conducted on two undergraduate students groups taught respectively on Polish and U.S. GAAP accounting standards. The results showed that American students consider shareholders and managers as the main users of the financial statements, while Polish students think that tax authorities and managers are the main users. Both groups respect the Income Statement as important core of the financial statements. However, the Americans rely also strongly on the Statement of Stockholders' Equity, while the Polish prefer more the Balance Sheet as a source of knowledge about the company performance. Moreover, we confirmed that cultural differences led to a different understanding of the word 'probable'—which is more based according to the taught set of standards on a professional judgment than on the specific probability value. American students turned out to be less prudent in the area of accounting for write-offs. We also revealed that Polish and American students can have different attitudes to ethical issues in auditing—Americans showed more concern. We pointed out that the identified differences can be essential for reporting process by companies and capital groups operating not only on different accounting standards but also in different cultures.

Key words: international accounting, accounting diversity, accounting standardization, users of financial statements, comparability of financial statements

1. Introduction

One of the most recognized accounting definitions comes from D. Kieso et al. (2001). According to these authors, accounting can be defined as 'identification, measurement and communication of financial information about economic entities to interested persons.' This process can be realized in many alternative ways. Accounting principles are 'human made,' so they are discussed and constantly under revision. Companies worldwide use different accounting standards;

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the most prominent are the International Financial Reporting Standards (IFRS) and the U.S. Generally Accepted Accounting Principles (GAAP). These differences can result in significantly different amounts reported in the companies' financial statements. For example, companies in the United States using GAAP are not permitted to report property plant and equipment at amounts greater than historical cost. In contrast, European companies using IFRS can report the same class of assets at their fair value. One can give hundreds of further examples of such differences regarding accounting for financial instruments, accounting for leases, long-term contracts, disclosures in the financial statements, etc. Furthermore, the use of the same standard often does not mean the same outcome in financial reports. Cultural factors such as knowledge, education, and acceptance of risk essentially influence the content and quality of reported data. The main goal of this paper is to illustrate the accounting diversity phenomenon with a survey conducted on Polish and U.S. students of accounting. We try to illustrate how accounting students from different cultures and standardization perceive several essential accounting issues. The outcomes, which we strongly believe, can be a signal encouraging further empirical research.

2. Accounting diversity as a subject of accounting research

It can be assumed that the existence of worldwide diversity of accounting systems is a fact that does not require any further proof but its causes and nature require explanation in a scientific sense. Although the first English-language works on this subject appeared in the 60s of the twentieth century (for example Meuller, 1967), a new direction of research in this field opened the works of Ch. Nobes (1983), G. Hofstede (1980) and S. J. Gray (1988). Ch. Nobes identified three major accounting models: the Fair Presentation/ Full Disclosure Model, The Legal Compliance Model and Inflation-Adjusted Model. While G. Hofstede and S. J. Gray focused rather on national culture as a factor that affects the accounting systems, Hofstede identified four cultural dimensions that can be used to describe general similarities and differences in cultures around the world: individualism, power distance, uncertainty avoidance and masculinity. G. Hofstede (1988), basing on a review of accounting literature and practice, identified four accounting values that can be used to define a country's accounting subculture: professionalism, uniformity, conservatism and secrecy. According to him, the accounting values of conservatism and secrecy can have the greatest relevance for the information reported in financial statements. Ch. Nobes developed his model (1998) with two explanatory factors: culture and the nature of accounting systems. According to him, the major reason for international differences in financial reporting is different purpose for that reporting (strong or weak equity-outside financing). Many authors in their later works tried to confirm or falsify the results of empirical research of these authors or add any other factors—for example Jaggi and Low (2000), Hope (2003), Marrero and Brinker (2007).

Issues on international aspects of accounting were also reflected in the Polish accounting literature. As the first Polish comprehensive studies on international accounting, and thus also the diversity of accounting systems, we can mention the book by S. Surdykowska (1999), the book edited by L. Bednarski and J. Gierusz (2001), and the one edited by A. Jaruga (2002). As far as later comprehensive works are concerned an essential one seems to be a work of

Grabiński et al. (2013), including the issue of implementing in Poland IFRS. Analysis of detailed Polish studies leads to the conclusion that the authors focus on the relationship between culture and accounting—for example Kurek (2004), Koleśnik (2010), Adamek (2011) or Klimczak (2013). Good analysis of the national literature concerning this subject show K. Koleśnik and S. Silska-Gembka (2012) in their review article. The authors draw attention to the insignificant amount of empirical studies, based on Polish conditions.

Accounting diversity remains still a vital research question, especially in times of standardization and globalization. To achieve goals of this article, we refer closer to Ch. Nobes and R. Parker (1995), who identified seven explanatory factors for accounting diversity:

- legal systems,
- providers of finance,
- taxation,
- the accounting profession,
- inflation,
- theory, and
- accidents.

Legal systems are founded on different premises. First of all, we can distinguish the common law system relying upon a limited amount of statute law and systems of codified law based on Roman Law. In the countries with common law systems, specific accounting rules are often established by the profession or by an independent non-governmental body rather than by government or parliament (Doupnik and Perera, 2014). The discrepancies cause different attitudes towards following strict regulations (for example, following accounting standards), risk of making errors (which is crucial issue in accounting), feelings of justice, and so on. As far as the providers of finance are concerned, in countries where the main sources of financing are families, banks, or the state, there is probably less pressure on public accountability and information disclosure. This kind of investor usually nominates directors and some board members and is able to obtain information and affect decisions. Furthermore, general differences in financial statement orientation can be observed (for example, stockholders can be more interested in income statements and banks in cash flow). Taxation can also have a great impact on published financial statements. In some countries—financial statements prepared on the basis of domestic accounting standards should differ slightly in these for tax reasons. In others, adjustments greatly matter. In the first group of countries, tax regulation can determine accounting choice (e.g. choice of depreciation method) and lead to the loss of information value of reports. Also, tax evasion activities can strongly distort the quality of financial statements (Górowski, 2003). The strength and competence of the accountancy profession can influence a lot of accounting and audit procedures, but it seems to be strongly combined with other factors; for example, the lack of a substantial body of private shareholders and public companies can mean that the need for auditors is much smaller. The accounting professional bodies can also promote and enact some ethic standards. The next factor causing international accounting is inflation. In countries experiencing chronic high rates of inflation it is often necessary to adopt special accounting rules adjusting historical cost numbers. For example, one of the International Accounting Standards, IAS 29 Financial Reporting in Hyperinflationary Economies, focuses on these matters. The reliability of the

accounting measurement of fixed assets is particularly vulnerable to the impact of inflation (Grabiński, Kędzior and Krasodomska, 2013). The next factor, theory, can be a bit debatable. Some authors, for example, Douplik and Perera (2014), omit this factor. Nevertheless, the fact is that every accounting system tries to support the solutions applied with a consistent theory. It can be argued that, today, the conceptual frameworks promulgated by accounting standards setters like FASB or IASB serve as theories which strongly determine accounting practices worldwide. Many other influences have been at work in shaping accounting practices. These are sometimes called ‘accidents’. For example, the crisis in the U.S. or Enron and WorldCom scandals shaped accounting regulations and practice. In this context, political factors can also be mentioned. Political and economic ties can encourage or enforce the transfer of accounting frameworks from one country to another.

Based on these and other criteria, researchers have tried to distinguish the accounting models and identify country clusters that share similar accounting orientation. One of the most simple models of R. Nair and W. Frank (1980) distinguished between four models: the British Commonwealth Model, Latin American Model, Continental European Model, and United States Model (Nair and Frank, 1980). Since then, more specific models have been prepared (e.g., D’Arcy, 2001; Nobes, 2004; Radebaugh, Gray and Black, 2006). Several models and factors included in these show that, in spite of the progressive accounting standardization, it cannot be reasonably expected that accounting diversity worldwide will disappear.

3. Indications of international accounting diversity in the Polish-American survey

In order to illustrate empirically the hypothesis of significant differences in accounting systems, a study was conducted. The study is a kind of introduction to further research, and the data it produces cannot be perceived as fully representative data. The survey was conducted in October 2014 among two groups of students. The first research group consisted of 66 undergraduates in the last year of the accounting and controlling programme at the Cracow University of Economics. The second group consisted of 36 last year undergraduate students in accounting at one of Chicago Business Schools in the United States. The study plans of both universities differ a lot but both groups of students completed at least Accounting Principle and Financial Accounting courses—so they should be familiar with basic accounting issues. The American courses of accounting were based on U.S. GAAP while Polish students were taught mainly based on Polish Accounting Act (which differs significantly from IFRS). The questionnaire was administered and then discussed in the classroom as a learning exercise. Respondents anonymously answered five questions. The survey was conducted in both countries in English and includes the following questions:

1. Who is in your opinion the most important user of the companies’ financial statements?
Rank the five groups (from 1—most important, to 5—least important)
 - Tax Authorities (IRS) (1–5)
 - Shareholders (1–5)
 - Banks (1–5)

Government (1–5)

Managers (1–5)

2. Your company is manufacturing cigarettes and was taken to court by one of its customers for causing lung cancer. The plaintiff is demanding \$1,000,000 in compensation. You want to reflect the risk of future payment on your Balance Sheet and Income Statement. You should:
 - a) record provision (Dr. expenses and Cr. liabilities) for \$1,000,000,
 - b) record provision for \$500,000, or
 - c) do nothing and wait for the trial.

3. You are a CEO of a middle-sized listed company. You hire an external auditor company. Three auditors have worked all day in your office, and you invite them for dinner to a restaurant and pay \$350. In your opinion:
 - a) there is no ethical problem in this case,
 - b) you can have dinner with your auditors, but your company shouldn't pay for it, or
 - c) you should not try to meet your auditors outside of the company when they are preparing the report.

4. The Company Alpha became aware that one of its customers may go bankrupt. The set of accounting standards that the company uses requires you to write-off (which means decrease assets and profits) the whole accounting receivable when it is probable that the customer will not pay it. Your analyst estimates that a probability of bankruptcy and not paying the debts is 55%. In that case, based on the accounting standards that the company uses, you would:
 - a) record the write-off or
 - b) not record the write-off because the probability is still too small.

5. You want to buy some shares in a Chinese company manufacturing runners' shoes. You are not familiar with the business and want to evaluate the investment only on the basis of the financial statements analysis. It costs \$100 for each of the reports: Balance Sheet (B), Income Statement (IS), Cash Flow Statement (CF), and Statement of Stockholders' Equity (SSE). Which reports would you buy?

If you had only \$100, you would buy (please circle one of the four):

B	IS	CF	SSE
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If you had only \$200, you would buy (please circle two of the four):

B	IS	CF	SSE
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If you had only \$300, you would buy (please circle three of the four):

B	IS	CF	SSE
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The first question concerns the users of financial statements. Respondents indicated (Table 1), in their opinion, the most important user of information disclosed in the financial statements. According to Polish students, the key readers are tax authorities, and in contrast,

American students indicated shareholders. For both groups, managers are in the second place and of lesser importance were government organizations.

Table 1. The key users of the companies' financial statements in the opinion of Polish and American students

Users	Points		Rank	
	Polish students	American students	Polish students	American students
Tax authorities	109	86	1	4
Shareholders	181	44	3	1
Bank	200	80	4	3
Government	340	108	5	5
Managers	160	62	2	2

Source: Authors' own elaboration.

The study confirms the discussion in literature regarding differences between Anglo-Saxon (where shareholders are the main user group) and Continental (banks and institutions) accounting systems, but still it is surprising that the tax authorities are at the top of the Polish students ranking. It can be claimed that also historical factors can influence the outcomes. In the past in communist Poland, financial reports were mainly a source of statistical data used for centralized planning purposes by all powerful government. Although we surveyed young Polish students born after Poland's transition from communism to market economy, the submissive attitude towards the government seems to be 'inherited' by the new generation. Oddly enough, the young Polish students answers are not consistent with the currently taught standards (both domestic Polish and IFRS). Meanwhile, in the U.S. the students indicated that the main recipients of the information are shareholders, which is due, among other things, to the significant role of capital markets in the U.S. and is consistent with the accounting education content. This difference can be a source of serious confusion within international organizations where employees were educated in different cultures.

Another issue tested was the role of judgments in creating provisions for future payments. As it is clear from Table 2 below, only 8% of the Polish students would create such a provision, while as much as 38% would do it in the U.S. This example illustrates the importance of the legal system for the recognition of similar events in the financial statements: students differently estimated the probability of future cash outflow for payment of the compensation. This means that almost a third of each group would have acted differently. The discrepancy can probably be explained by the differences in the legal systems of both countries. In Poland, unlike in the United States, the probability of obtaining compensation in the described case is very unlikely.

Table 2. The need to create provisions according to Polish and American students

Answer	Number of answers		Of total (%)	
	Polish students	American students	Polish students	American students
Record provision for \$1,000,000	4	10	6%	38%
Record provision for \$500,000	1	0	2%	0%
Do nothing	61	16	92%	62%
Total	66	26	100%	100%

Source: Authors' own elaboration.

The next surveyed issue was an ethical one. We asked about the attitude to an informal relationship between employees of the audited company and its external auditor. The two groups perceived ethical dilemmas differently. The majority of Polish students did not perceive inviting auditors for a meal as an ethical problem, provided the auditors would pay for themselves. In turn, American students (69%) who probably demonstrate higher ethical standards in this regard would not invite the auditor for dinner during the audit (Table 3). This can cause problems in the accounting practice. For example, in processing the accounting data from foreign departments or subsidiaries, one should first assess data credibility.

Table 3. Inviting external auditors for dinner as an ethical problem

Answer	Number of answers		Of total (%)	
	Polish students	American students	Polish students	American students
There is no ethical problem	9	4	14%	15%
Auditors pay for themselves	41	4	62%	15%
Meeting with auditors is unethical	16	18	24%	69%
Total	66	26	100%	100%

Source: Authors' own elaboration.

Table 4 summarizes the responses regarding the necessity of recording bad debts write-offs. The estimated by experts 55% probability of uncollectible receivables is perceived by 85% of the U.S. students as too low, while among the Polish students such a point of view is shared by only 55% of the respondents. It should be mentioned that both Polish

Accounting Act and the U.S. GAAP do not specify in the terms of a numerical limit when something is ‘probable’—it is rather a matter of a professional judgment. It is a good example of how cultural differences have led to a different understanding of the word ‘probable’. As it is shown by empirical research, this word in different languages and cultures assumes different degrees of probability (Doupnik and Richter, 2004). It can be taken for granted that the Polish teachers suggest to the students the term ‘probable’ should comply with IFRS ‘more probable than not’—which suggest probability greater than 50%, while research suggests that American accountants require the likelihood of occurrence to be in the range of 70 to 90 percent before recognizing the contingent liability (Doupnik and Perera, p. 181). Thus, also in this section of the survey we can find a confirmation of the existence of significant differences in the behaviour of accounting students arising from different legal and educational systems.

Table 4. Recognition criteria for bad debts write-offs

Answer	Number of answers		Of total (%)	
	Polish students	American students	Polish students	American students
Record write-off	30	4	45%	15%
Do not record write-off	36	22	55%	85%
Total	66	26	100%	100%

Source: Authors' own elaboration.

The last question concerned the usefulness of the parts of financial statements from the point of view of a potential shareholder. Students were asked to choose only one report, and the majority chose the Income Statement. This report was selected by 46% of US students and 49% of Polish students. Also, approximately 30% of the respondents from both countries chose the Balance Sheet, and the lowest number of students asked for the Statement of Stockholders' Equity (3%–5%). A slightly different situation occurred when there was a choice between two reports. While most respondents from both groups also selected the Income Statement (81% of American students and 94% of Polish students), in the second place, Polish students chose the Balance Sheet (59%) and American students rather chose Cash Flow (65%). In contrast, with a choice of three reports, only 20% of Polish students chose the Statement of Equity. Among American students, the answers were more varied, and each of the reports has been selected by more than 60% of the people participating in the poll. Most of students also chose the Income Statement and Cash Flow. It follows that in Poland less attention is paid to the Statement of Shareholders' Equity, while in the U.S. it is considered an important source of information. This supports the hypothesis that U.S. accounting is generally ‘shareholder oriented’ and this is consistent with the answers given to the first question.

Table 5. The significance of the individual parts of the financial statements for potential investors

Answer	Number of answers		Of total (%)	
	Polish students	American students	Polish students	American students
One report				
Balance Sheet	20	8	30%	31%
Income Statement	32	12	49%	46%
Cash Flow	12	4	18%	15%
Statement of Stockholders' Equity	2	2	3%	8%
Two reports				
Balance Sheet	39	9	59%	35%
Income Statement	62	21	94%	81%
Cash Flow	28	17	42%	65%
Statement of Stockholders' Equity	3	5	5%	19%
Three reports				
Balance Sheet	54	20	82%	77%
Income Statement	66	21	100%	81%
Cash Flow	65	21	98%	81%
Statement of Stockholders' Equity	13	16	20%	61%

Source: Authors' own elaboration.

4. Accounting diversity—possible consequences for multinational companies

Accounting diversity can create serious problems with respect to the multinational entities. Problems caused by accounting diversity can impact on various stakeholder groups, including management, owners, potential investors, banks, bondholders, government agencies, and business partners. A good example could be an American parent company with Polish subsidiaries. The issue primarily concerns the quality and utility of the financial information generated by the enterprises engaged in international operations where financial statements are prepared according to different accounting standards. Translation of accounting data from one standard to another, for example, to prepare consolidated financial statements, is difficult and often generates significant errors. This is because the company's accounting system

(e.g., chart of accounts, ledger, adjustments) must be organized in advance to collect the data needed to fulfill the obligations imposed by a particular standard.

In such a situation, it is necessary to collect information in different sections, use different methods of valuing assets and liabilities, prepare financial statements according to different patterns, and make various disclosures in the financial statements. The complex process may cause problems with the optimal allocation of resources by the parent company. It is also important to retain staff members who are familiar not only with the different standards of reporting but are aware of culture driven accounting differences. Another important issue is the comparability of the financial statements. It is obvious that the financial statements based on different standards are not comparable; one cannot compare the value of proceeds and property or derive it from financial ratios. International companies face the problem of comparing results and financial position to competitors or have difficulty in assessing the financial situation (e.g., liquidity or indebtedness of its customers).

Similar problems are associated with evaluation of the financial situation of an entity that is subject of a takeover. In the case of Poland and other Eastern European countries, especially in the initial period of transformation, statements prepared in accordance with local standards were considered rather useless by potential investors from Western countries (Doupnik and Perera, 2014), (Grabinski, Kedzior and Krasodomska, 2014). However, the difficulty was in the lack of understanding of the existing regulations in those countries and the lack of confidence in them rather than the total lack of value in those reports.

A similar problem may relate to raising capital in the foreign markets. Accounting is a kind of ‘language’ through which a company communicates with the market; if that language is incomprehensible, the company may have trouble in attracting new shareholders and debt-holders or borrowing from foreign banks. Such difficulties can inhibit the company’s development and expansion. Similar problems can occur in the communication within an international company or a capital group. Planners usually use, at least to some extent, the ‘professional judgment’ when preparing budgets and forecast. Differences in education, culture, and language can result in different understanding and interpretation of the particular accounting procedures. As already mentioned, a good example is the definition of the word ‘probable’. It is critical because the evaluation of the probability of an event is the basis for many accounting procedures. A similar situation may occur with more or less conservative approaches to risk.

5. Conclusions

The multiplicity of factors affecting the accounting systems in individual countries makes it impossible to achieve uniformity of the accounting practice. The lack of uniformity has a significant impact on the quality and informational value of the financial statements. Hence, it is important to further research of the associated issues and to look for similarities and differences between countries.

A survey conducted among Polish and American students has revealed substantial differences in determining who is perceived as a core group of users of the financial statements: American students indicated shareholders and managers while Polish surprisingly chose tax

authorities and managers. It is not clear what are the reasons for the discrepancy. One should take into consideration historical factors or a specific characteristic of the educational process in Poland. We also found that for both groups the Income Statement is the core part of the financial statements. Moreover Polish students are slightly more 'Balance Sheet' orientated and they attach far less attention to the Statement of Stockholders' Equity as a source of information about the companies' performance than their U.S. counterparts. We also observed different attitude towards the ethical conflict of interest and perception of risk in the accounting procedures. Knowing these differences, one should identify the issues that may arise in processing of the financial data in the international environment.

In addition, our survey demonstrated how different systems of civil law can affect the value of the reserves disclosed in the financial statements. More interesting and convergent with the conclusions of other researchers is the observation that the cultural differences led to a different understanding of the word 'probable' by the American and Polish students. A different application of the 'professional judgement' gave different results for the two groups of students. This calls for further clarification of the concepts used by the accounting standards and harmonization of the educational systems. American students appeared to be less prudent in the process of income measurement.

These preliminary results seem to be interesting enough to encourage academics to undertake a further, deeper empirical research in this field with the participation of Polish students, accountants or auditors in the international environment.

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Różnorodność systemów rachunkowości – wyniki międzynarodowego badania ankietowego z udziałem studentów

Abstrakt: W artykule przedstawiono wyniki polsko-amerykańskiego badania ankietowego dotyczącego zagadnienia międzynarodowego zróżnicowania rachunkowości. Badanie zostało przeprowadzone na dwóch grupach studentów studiów pierwszego stopnia. Na podstawie otrzymanych wyników można stwierdzić, że studenci amerykańscy postrzegają akcjonariuszy i me-

nedżerów jako głównych użytkowników sprawozdań finansowych, podczas gdy polscy studenci wskazują na organy podatkowe i menedżerów. Obie grupy uważają także rachunek zysków i strat za sedno sprawozdań finansowych. Amerykanie w większym stopniu niż Polacy doceniają znaczenie zestawienia zmian w kapitale własnym, z kolei dla polskich studentów większe zna-

czenie niż dla ich amerykańskich rówieśników ma bilans jako źródło informacji przydatne do oceny kondycji finansowej przedsiębiorstw.

Ponadto potwierdzone zostało, że różnice kulturowe doprowadziły do innego rozumienia słowa „prawdopodobne” przez amerykańskich i polskich studentów. Pojęcie to na gruncie obu standardów rachunkowości, według których kształceni są studenci, należy doprecyzowywać, uwzględniając profesjonalny osąd; jego zastosowanie w obu grupach doprowadziło do odmiennych rezultatów. Amerykańscy studenci wykazali się

mniej konserwatywnym podejściem w zakresie tworzenia odpisów aktualizujących wartość należności.

Dodatkowo wyniki ankiety sygnalizują różne podejście do zagadnień etycznych w auditingu – Amerykanie przywiązują do tej kwestii większe znaczenie. Należy zwrócić uwagę, że zidentyfikowane w badaniu różnice mogą być istotnym zagadnieniem w procesie przygotowywania sprawozdań finansowych przedsiębiorstw i grup kapitałowych stosujących nie tylko różne standardy rachunkowości, ale działających w ramach różnych kultur.

Słowa kluczowe: rachunkowość międzynarodowa, standardy rachunkowości, użytkownicy sprawozdań finansowych, porównywalność sprawozdań finansowych

Assessment of the level of management and labour productivity on the basis of accounting report data

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Abstract: The aim of following work is to present the level of management and labour productivity indicator as tools of assessing the work of company administration and its effectiveness as a whole. These indicators have been derived from production function whose form reflects the natural process of composing generative factors. These factors include traditionally understood assets and human resources. Consequently, the applied production model uses both the data of traditional calculation of costs and the calculation of human capital, which is a very dynamically developing area of economical science. Additionally, this model allows assessing the contribution of human capital in the economical effect of an enterprise, and consequently enables determining the level of remuneration of the human capital. The latter functionality, together with the theory of basic salary adequate to the value of individual human capital, is the basis for the system of bonuses based on financial effects of a unit. The above assumptions have been verified in the work on the basis of a practical example.

Key words: production function, base salary, bonus salary, level of management, labour productivity, capital, human capital

1. Introduction

The main objective of modern management systems is to maximize the effects of the activities and efforts to achieve sustainable economic effects, such as a strong market position or prestige brand innovation and readiness to take on new business challenges. A key prerequisite for achieving this goal is efficient use of existing physical and human resources in production process.

Effective management of an enterprise requires not only suitable methods and tools of management but also coherent methods allowing a reliable measurement of the effectiveness of managing the enterprise. The aim of the work is to present two synthetic measures of enterprises effectiveness: the level

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of management and labour productivity variable. While realizing the aim of the study, a case study was applied. The values of both indices were calculated based on the values coming from the financial statements of one of the Polish companies. Shape of these measures are based on properly formulated form of the production function. The applied model of the production function reflects natural mechanisms of making a product, in this connection it uses data from the accounting system of an enterprise, especially from the domain of cost calculation. In addition, using the concept of measurement of individual human capital of the employed allows including this extra category of resources into this analysis, right next to the resources which are a subject of accounting, especially subject of classical cost accounting.

The above mentioned cost accounting enables only the valuation of the degree of usage of traditionally understood assets and capital. Suitable transformation of production function allows determining the real indicator of human capital usage, and thus allows giving proper payment of human capital by the employed at the disposal of an enterprise.

2. The function of production in economy

The production process is a creative transformation of generative factors, aiming at making produce which satisfies the needs and demand of the market. Over more than two centuries of economy development there have arisen many models describing the process of using particular production factors to make a stream of products. These models with regard to their bestowed mathematical form are called production functions.

The issue of modelling the production process has been known for many years and have been solved in many attempts, especially macroeconomical and econometrical. It was Adam Smith who, in his work about the wealth of nations, presented a model of growth in a form of resources of labour (L), capital (C) and the land (T). According to this rule, the growth of a product is possible due to the growth of population, capital investments, growth of land resources and general productiveness. This kind of general deliberation is essential to the classical theory of growth, modified by consecutive authors. Since Smith's times, the key element of macroeconomical analysis has become production function, whose general form can be presented by the following formula: $P = f(L, C, T, \dots)$.

An important moment in the development of production modelling was formulating the production function mathematically by Philip Wicksteed in 1894. Half a century earlier, J. von Thunen, regarded as the author of marginal analysis, formulated a postulate that while modelling a production process one should take care to define labour, capital and land in precisely uniform units. He simultaneously assumed that the chances of fulfilling this condition in practice are small (Humpherey, 1997, p. 51).

Von Thunen's output was ahead of the achievements of his followers. He first used differential calculus in the theory of productivity. He also created a model of production incredibly similar to the one created by P. Douglas and Ch. W. Cobb. However, as he noticed, this model did not allow the possibility of work contributing to creating a product. The effect of this observation was a modification of the model. Thanks to this discovery, J. von Thunen is considered the only scientist who took up the production function allowing lack of capital in the production process (Wetzstein, 2013, p. 244).

In the economy of the main trend, the turning point is considered to be formulating the form of production function by two scientists, P. Douglas and Ch. Cobb in 1928. Originally it was a function of two variables, capital (K) and labour (L) (Romer, 2000, p. 27):

$$P = a \cdot K^{\alpha} \cdot L^{\beta} \qquad K, L \geq 0$$

where:

a —scale parameter,

α, β —parameters of production flexibility.

The Cobb-Douglas function, due to the possibility of modification, became a basis of many other econometrical models.

Analyzing the issue of modelling the production process, one can notice that a repetitive problem is a question of technology. Among many concepts of production function there are two dominant attitudes, the first one analyzes the technical-organizational efficiency, the other allocative efficiency. Most frequently, there is one attitude assumed, that technical-organizational issues concerning the creation of a product are solved, which allows not to take them into consideration and concentrate on analyzing allocative efficiency. Among others, it was due to this reason why production function is defined as a relation between input and production effects, assuming maximum use of available technology. In theoretical and practical assumptions one usually does not give the assumption that a function shows the highest possible production level and that the cost of input is the lowest possible. Such an attitude does not take into account the real process of making a product, as it does not take into consideration unavoidable errors and losses in the production process. In other words, the production function in its traditional form is not a model of business process, as it ignores the importance of management level, the existence of the costs of unfortunate decisions and it does not include the division into general and unstable costs (Mishra, 2007, p. 1).

In today's economical literature, the issue of including in production function widely understood technology and knowledge is dominated by the concept of *TFP* variable (Total Factor Productivity). It is a variable influencing the production but it is not a generative factor, like labour or capital. *TFP* is hard to present in uniform units (countability difficult to count) as opposed to capital and labour. The nature of *TFP* is enclosed between technology and human knowledge. The formulas presented below show the general form of the *TFP* factor and the possibility of its consideration in the Cobb-Douglas function (Hulten, 2000, p. 3):

$$P = F(K, L, TFP)$$

$$P = TFP \cdot C^n \cdot L^{1-n}$$

In reality the *TFP* is a residual value, which means it is calculated as the difference between product and expense.² The precision of measuring the factor depends on the precision of valuation of other factors of the production function. According to American research institutes, 50%–60% of changes in the gross domestic product in the USA is a result of the *TFP* index.

² The author of the concept of Total Factor Productivity is R. Solow, and that is why this factor in the economy literature is called Solow residual.

Robert Lucas advises carefulness not to conclude anything like that, hastily suggesting that residual changes in the dynamics of GDP are a result of changing human capital. Lucas's views are confirmed by researching of the causes of differences in GDP per capita depending on a country. The results showed that apart from accumulation of capital, the key element is the value of the human capital. The rest of Solow or *TFP* explains only 27% of differences in the national income per capita (Manuelli and Seshadri, 2007).

Judging by the effect, the issue of production modelling is divided into the functions of a single product, multi-assortment production and aggregate functions (Mishra, 2007, p. 4). A great number of works from that period, especially the ones resultant in the first period of work over the issue of production modelling, are the concepts assuming a single product (eliminating coupled production). An example of the above can be Wicksteed's model P. However, since 1960s there have also emerged concepts of the process of multi-assortment production. Nevertheless, those concepts are quite rare, and they were developed to cater for the needs of the economy of agricultural production. On the other hand, the aggregate production function is an area of the problem of modelling rich in arguments and discussions. The source of the problem is the fact, that the production process takes place in particular enterprises, where the product is made as a result of composing of expenditure, with a use of certain technology and individual scale effect. Formulating either branch or macroeconomical production function requires aggregating its elements. Thus there appears a question: to what extent the aggregated production function reflects reality, to what extent it does reflect the process of production in majority of enterprises.

The problem of aggregation was being solved by scientists into many different, conventional ways, which were a subject of strong criticism, especially from the side of the so-called Sraffa's School represented by, among others, P. Sraffa and J. Robinson from the Cambridge University. Because of the scientific genealogy of the adversaries and the subject of the dispute, the discussion starting at the end of the 60s of the twentieth century is called the *Cambridge Capital Controversy*.

The representatives of the Sraffa's School objected to seeing capital and work as abstract quantities, which are defined by recognition and what is more, regardless of the proper level of payment and interest rates.³ The adversaries of the neoclassical production function thought that it is impossible to construct a good production model without the previous knowledge of balance prices. Rates of return used in neoclassical attitude were deprived of any normative undertone, they thought that they were shaped as a resultant of technology, scarceness of resources or tastes. Sraffa and Robinson assumed that production model ought to picture only practical use of the production factors and enable, judging on this basis, making a system of income division adequately to the expenditure. A majority of neoclassical

³ The violent character of the discussion is being testified by the quotation from J. Robinson's publication: 'the production function has been a powerful instrument of miseducation. The student of economic theory is taught to write $Q = f(L, K)$ where L is a quantity of labor, K a quantity of capital and Q a rate of output of commodities. He is instructed to assume all workers alike, and to measure L in man-hours of labor; he is told something about the index-number problem in choosing a unit of output; and then he is hurried on to the next question, in the hope that he will forget to ask in what units K is measured. Before he ever does ask, he has become a professor, and so sloppy habits of thought are handed on from one generation to the next' (Robinson, 1953, p. 81).

models assumes measurement of work input and capital in natural units which disqualifies them from being a basis to an income distribution model. Those scientists thought that a way of income distribution (e.g. return rate) determines the quantity of engaged capital, and not vice versa. A proper division of income thus favours raising allocate efficiency, whilst traditional production model is not able to play a useful role in this field (Robinson, 1953).

After an almost twenty-year-old argument, critics of the traditional model point out that the established methodology led to disadvantageous results for the development of neoclassical theory, especially in the area of research on the nature of capital, production and employment (Lavoie, 2001). Pertinently summing up this twenty-year-old argument, C. Bliss puts the adversaries down many rightful remarks, but also notices that within almost a quarter of century they have not suggested any new ideas (Bliss, 2005, p. 60).

3. Capital and human capital in economic processes

The starting point for formulating a proper theory of capital is the statement that capital—unlike specific and heterogeneous assets—is abstract, aggregated and homogenous in character (Dobija and Dobija, 2003). This differentiation is reflected in the five-century-old accounting principle of asset-capital dualism. Capital defined as the ability to perform work is represented by resources, while capital concentration in a given facility determines its value.

Capital is a dynamic category, and its understanding requires identifying the factors which have an impact on changes to its value, especially the time factor. A dynamic model of capital changes is presented by formula (Dobija, 2004):

$$C_t = C_0 e^{rt} = C_0 e^{(p-s+m)t}$$

Capital is subject to three key environmental factors: natural capital flow subdued to spontaneous diffusion (s), factors diminishing the impact of destructive forces as a result of work and management (m), and an 8% natural potential growth (p). The level of 8% economic constant of potential growth is confirmed by a number of research studies, especially in the area of rates of return in capital markets where it is reflected in risk premiums in the analysis of rates of return on human capital and agricultural products (Dobija, 2004).

These factors can increase the initial value of capital (C_0) or lead to its dispersion. Another important implication of the presented model is the fact that capital does not originate from ‘nothing’—it originates from initial capital (C_0).

Human capital is based on capitalized resources necessary to build the economic potential aimed to perform work by humans. In the first place, it includes the costs of professional education increased by the costs of living. It is necessary to incur the costs of living to prepare the physical carrier of human capital—the human body. Costs are incurred in time (t), which is necessary to prepare people to perform a given profession—from the time of birth to the moment of starting a professional career. If the human body is well prepared and a young person completes his/ her education as planned, it indicates that capital diffusion (s) is compensated for by parents’ efforts (parameter m). A formula of capital can be developed for employee

(H_t), where initial outlays are represented by (H_0), constant economic value (p) and capitalization time (t) (Dobija, 2004):

$$H_t = H_0 e^{pt}$$

This human capital model can be further extended to represent capital as the sum of capitalized costs of living (K) and education expenditures (E). These outlays lead to the ability to perform work, and this ability increases in the course of gaining experience. The supplementary formulas represent the development of human capital based on the costs of living K and education costs E :

$$H(T) = (K + E) \cdot (1 + Q(T))$$

In the case of annual capitalization the particular human capital components can be presented in the following way:

$$K = k \cdot 12 \frac{e^{pt} - 1}{p} \qquad E = e \cdot 12 \frac{e^{pt} - 1}{p}$$

where:

k —monthly costs of living,

e —monthly education costs and the remaining values as presented above.

The process of gaining work experience can be graphically presented as a learning curve. This concept assumes a slower pace of an increase in the work potential in the course of subsequent work cycles (repetitions). It can be assumed that an employee performs a given task in the following year with greater efficiency (%), but efficiency increases slower in the course of time. The adjustment of the learning curve to the needs of the human capital model facilitates estimation of increased human capital in the course of work (gaining experience). This additional value of human capital is subject to valuation and is integrated into the human capital structure as capital combined with experience. Experience factor [$Q(T)$] is expressed by the function of years:

$$Q(T) = 1 - T^{\frac{\ln(1-w)}{\ln 2}}$$

where:

w —learning factor,

T —years of work experience $T > 1$.

The ability of assets to perform work is a prerequisite for their existence. Retaining the value of capital embedded in assets requires taking action counteracting destructive forces (s). This statement refers particularly to human capital. Human capital is subject to natural dispersion and this fact is the basis of fair compensation theory. Research indicates that fair compensation must balance human capital dispersion, it needs income determined by mentioned above 8% economic constant of potential growth and human capital value of the worker.

Fair compensation theory is one of the factors which make the alternative human capital research programme different from the programme undertaken by T. Shultz and G. Becker.

A carrier of capital, including human capital, is affected by the capital dispersion process expressed in the general model as e^{-st} . Human capital retention is conditioned by an appropriate flow of income which compensates for human capital dispersion. In the case of humans, losses result from the nature of life (aging). Retaining the value of human capital (understood as the ability to perform work) requires incurring compensation costs resulting from preparing future generations to perform work of the same value. In other words, fair compensation should maintain the ability to perform short- and long-term work. The loss rate expressed by random variable s is at average level $p = E(s) = 0.08/\text{year}$. Simultaneously, it represents the constant economic value indicating the level of fair compensation (W):

$$W = H(T) \cdot p$$

Lower compensation levels decrease human capital value. In practice, it manifests itself in the parents' difficulties in ensuring the same level of education for their children. A compensation system based on human capital measurement requires individualized knowledge about employees' competences. Information on education and experience is essential in setting the level of fixed compensation components. Human capital measurement is a key component of compensation systems.

4. The concept of analytical production function

The existing achievements in the field of modelling the production function apply only to describing economic reality at the macroeconomic level and then mainly the analysis of economic growth or global product. The use of classical economics on the achievements of the production function to optimize the productivity of individual companies, meaning at the micro level, is practically impossible. In modern scientific papers, reservations concerning the classical form of the production function were formulated, which will help eliminate consideration of their imperfections and expand the possibility of their use in the analysis of the production of individual companies (Dobija, 2004; 2012).

Firstly, the barrier to the use of classical models of product development is the valuation of the production function arguments in natural units. As it is known, money—goods economy allows measurement of all factors of production using monetary units. Thus, the production volume modelling requires the presentation of the factors of production, such, for example, as labour cost and the use of materials in monetary terms.

Another drawback of the production function developed by the followers of classical economics is not taking into account the economic nature of the production process. Production in fact results from the summation of inputs, for example, Cobb-Douglas model takes the form of arguments that multiplied.

Presented analytical production function uses a natural approach based on cost calculation. It presents the production function with seven specified arguments. The analytical form of production function divides operating costs into compensation understood as labour costs (W) and non-compensation costs (Km) decreased by risk-related costs (Kr). This differentia-

tion introduces the annual asset turnover rate (z), the asset impairment rate (s), and the level of pay for human capital (u). Therefore, the production function equation can be expressed in the following way (Dobija and Dobija, 2003; Dobija, 2011):

$$P = (W + Km - Kr) \cdot (1 + r)$$

$$\frac{Km}{A} = z \quad \frac{Kr}{A} = s$$

$$Km = z \cdot A \quad Kr = s \cdot A \quad W = u \cdot H$$

where:

Km —costs resulting from the use of assets,

Kr —risk-related costs,

W —compensation (labour costs),

A —value of assets,

H —staff's human capital,

u —level of pay for human capital,

z —asset turnover to non-labour costs ratio,

s —random loss in production processes.

The analytical production function corresponds to the actual process of developing products. It describes the composition of production factors in the production process. The market value of products, on the other hand, represents the historical cost of manufacture adjusted to the cost profitability ratio (r). As a result, the system of arguments determines all significant variables, and the basic analytical form of the function, unlike in the case of other popular models, does not require parameter estimations. According to the model, the market value of production can be presented as the function of the sum of outlays. The transformed formula and the inclusion of the company's intellectual capital (I) leads to the extended function:

$$P = (W + z \cdot A - s \cdot A) \cdot (1 + r) \cdot (1 + I)$$

where:

I —intellectual capital.

The transformed formula for presenting production effect (P) as the function of labour costs results in the following formula:

$$P = W \cdot \left[1 + \frac{A}{W} \cdot (z - s) \right] \cdot (1 + r) \cdot (1 + I)$$

The use of the human capital concept in the analytical production function model allows for expressing labour costs ($W = u \times H$) as a derivative of human capital value:

$$P = W \cdot \left[1 + \frac{A}{H} \cdot \frac{z - s}{u} \right] \cdot (1 + r) \cdot (1 + I)$$

The presented concept is a general form of the cost account and it includes the category of natural loss (s) related to any business activity. Consequently, the model reflects the actual production process, being a useful management tool.

The model facilitates calculation of the actual use of human capital in the production process and an appropriate level of compensation. As a result, the presented methodology for bonus compensation can be a basis for setting up a bonus fund based on a company's adopted bonus system. The level of pay for work (W), i.e. the level of total compensation composed of fixed and variable components, can be presented as follows (Dobija, 2011):

$$W = u H(T) = p H(T) + m H(T)$$

where:

u —variable representing actual pay for human capital,

p —8% economic constant of potential growth,

m —bonus (%).

Although the amount of a bonus fund is calculated as m -% of a company's human capital value, it is labour productivity and a company's profitability that provide that additional value. The transformation of the analytical function for the purpose of the use of the successive approximation method results in a formula which determines a variable indicating the actual pay for human capital (u) (Dobija and Dobija, 2003; Dobija, 2011):

$$P = u \left(\frac{L}{p} + \frac{A(z-s)}{u} \right) e^r \quad u = \varphi(u) = \frac{P e^{-r}}{\frac{L}{p} + \frac{A(z-s)}{u}}$$

where:

L —total value of fixed compensation components.

The numerical solution of the functional equation is based on the use of the iteration algorithm which assumes the existence of one point fulfilling the condition $j(x) = x$. A fixed point can be determined with any small error applying the method of successive iterations and starting with any initial value u_0 . As a result, the fixed point is convergent to sequence: $u, j(u), j(j(u)), \dots$

The use of the successive approximations method allows for estimating the value of variable (u). If the obtained value of the variable which indicates the level of pay for human capital (u) is smaller than or equal to the constant economic value (p), employees do not deserve additional compensation above their base pay. On the other hand, when the value of (u) exceeds the value of an 8% economic constant of potential growth, the amount of a bonus fund is calculated as follows:

$$F = \frac{u - p}{p} L$$

where:

F —value of bonus fund.

5. Indicators of level of management and labour productivity

The fact that the amount of bonus fund depends on the achieved economic values can be used at the stage of financial planning. The preparation of the financial plan for the next year also allows for the planned amount of bonus fund, which will depend on the scope of the plan. The development of such plan should also include the expected level of management. This level reflects management variable (Z), which is expressed by the following parameters: assets turnover ratio (z), random loss (s), level of human capital remuneration (u), and the increase in the cost of product to the market value (r). Thus, the variable (Z) can be summarized as follows (Dobija, 2004):

$$Z = F(s, r, z, u)$$

Then the production function takes the form:

$$P = W e^{(A/H)Z}$$

$$Z = \frac{L}{A \cdot p} \cdot \ln \frac{P}{W}$$

The relation between the value of a product (P) and total salary (W) is possible to calculate and it is a very popular and at the same time authoritative indicator of work productivity (Q). Using the function connection between the work productivity indicator (Q) and management indicator (Z), the relation between these quantities can be shown in the following way:

$$Z = \frac{L}{A \cdot p} \cdot \ln Q$$

In the context of the above equations, variable (Z) describes the degree of effectiveness use of resources involved, its value is possible to estimate on the basis of financial data. Thus, knowledge of level of management (Z) and its dynamics over the last few periods allows the assessment of the quality of business management. Level of management can also be calculated based on planned economic data and so on the basis of the budget for the next year. Thus, the production function can be used to analyze the future of the company, depending on the level of achievement of planned financial values. For example, what will be the increase in production due to the amount of the bonus salary, assuming that the level (Z) is constant, or how it should develop level (Z) to the level of bonus salaries has not changed.

The indicator of the management level (Z) and labour productivity (Q) have been counted on the basis of report data for ZAT in Tarnów taken from the official website of this enterprise. In Table 1, the financial data have been presented.

Table 1. Financial data and management factor (Z) and labour productivity (Q) (in PLN millions)

Financial data	2012	2013	2014	2015*	2015*	2015*
				(Budget 1)	(Budget 2)	(Budget 3)
Sales (P)	2006	1852	1852	2000	2000	2000
Value of assets (A)	2888	5376	5401	5401	5401	5401
Compensation and social benefits (L)	155	163	172	180	180	180
Loss rate (s)	0.02	0.02	0.02	0.02	0.02	0.02
Labour pay variable (u)	10.75%	13.2%	13%	11.6%	12.8%	14.7%
Bonus fund (% of base compensation)	34%	65%	63%	45%	59%	84%
Management factor	1.52	0.73	0,75	0,85	0,81	0.75
Labour productivity	9.66	6.88	6.61	7.7	7.0	6.0

* The forecast

S o u r c e: Authors' own study based on report data.

As it comes out of Table 1, in 2013 there was great growth of the value of assets, which is the proof of the investments done by the company. The growth of the value of wealth was not accompanied by the growth of employment (labour costs are comparable to the ones from 2012), and the effects of investment did not appear immediately, which is proven by little fall in the sale income.

The delay of income growth resulting from the previous investment caused worsening of assets rotation and consequently the fall of the value of management variable (Z) in 2013 from the level of 1.52 to the level of 0.73. In the next year this tendency slightly improved—there was an increase in the level of management from 0.73 to 0.75. One ought to pay special attention to the fact that in 2013 there was a great increase in the level of gratification of human capital. This phenomenon shows that the model of production spotted the increased contribution of human capital in the achieved result of the company.

The model of production function applied at work can also be applied in financial planning. In Table 1 three versions of forecast for 2015 are presented. The first one—optimistic—assumes a reasonable growth of the level of management up to 0.85. The second—realistic—growth of the level of management up to 0.81 and the pessimistic one—meaning maintaining the hitherto level of management (0.75). In a typical situation, maintaining the last year's level of management is treated as a neutral variant, however, in the case of the analyzed enterprise, one expects considerable improvement because of the previous significant investments in 2012 and 2013. It is also worth noticing, that together with the improvement of the level of management the value of the bonus fund goes down. A higher level of management means that the resources, including human capital, are used more effectively and that there is a fall in the degree of their usage.

As it can be seen, the presented concept of production function is not only a tool for sustainable and effective management of a company, but can also be a starting point for the implementation of the concept of corporate social responsibility (CSR) in the company in the area of fair remuneration. Studies indicate that a broad implementation of CSR practices can contribute to building a long-term competitive advantage of the company (Sahinidis and Kavoura, 2014).

6. Conclusions

Today's enterprises exist in conditions which require innovative actions, allowing to achieve the highest level of effectiveness of the owned resources usage. However, optimizing the economic processes requires getting to know the nature of making a product and modelling it with a help of monetary units. The presented in the above article analytical production function fulfills this postulate. It allows the analysis of many ways of achieving an assumed economic purpose (e.g. proper level of sale) and choosing the most advantageous one. An important application of analytic production function is the possibility of determining synthetic indicator of management level, representing the general level of managing an enterprise and work productiveness indicator. These indicators are a very useful tool in the hands of the managing staff, allowing to predict the future level of productiveness and preparing the organization for the expected changes. Another, not less important area of application of analytical production function is the possibility of determining the contribution of the human factor in the product made by an enterprise. For this aim there is the indicator of level of human capital remuneration, which, together with the theory of fair base salary, allows to give the bonus indicator.

One can show that the presented production function fulfils two important and simultaneously logically coherent postulates put for the production function by the representatives of the Sraffa's School. The first of them says that the formula of the production function should reliably describe the process of making a product. The second says that when the production function reliably describes the composing of generative factors, then it should be possible to determine gratification of these generative factors. On the basis of the research undertaken the postulates of this well-known economic school can be extended by another one, namely by the ability of using the production function to financial planning. The possibility of giving a reliable way of division of the benefits elaborated by the company will be beneficial for the growth of allocative efficiency. This remark concerns especially the issue of allocative efficiency of the human capital.

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Ocena poziomu zarządzania i produktywności pracy na podstawie danych sprawozdawczych

Abstrakt: W artykule przedstawiono zmienną zarządzania oraz wskaźnik produktywności pracy jako narzędzia oceny pracy kierownictwa firmy i jej efektywności jako całości. Wskaźniki te zostały wyprowadzone z funkcji produkcji, której postać odzwierciedla naturalny proces komponowania czynników wytwórczych. Do czynników tych zalicza się tradycyjnie rozumiane aktywa oraz zasoby ludzkie. Zastosowany model produkcji wykorzystuje zarówno dane pochodzące z tradycyjnego rachunku kosztów, jak i z rachunku kapitału ludzkiego, stanowiącego obecnie dynamicznie rozwi-

jającą się dziedzinę nauk ekonomicznych. Dodatkowo model ten pozwala na ocenę udziału kapitału ludzkiego w efekcie ekonomicznym przedsiębiorstwa, a w konsekwencji umożliwia określenie poziomu wynagrodzenia kapitału ludzkiego. Ta ostatnia funkcjonalność, w połączeniu z teorią płac zasadniczych adekwatnych do wartości kapitału ludzkiego, stanowi podstawę systemu premiowania opartego na efektach finansowych jednostki. Powyższe założenia zostały w pracy zweryfikowane na praktycznym przykładzie.

Słowa kluczowe: funkcja produkcji, płaca zasadnicza, premia, wskaźnik poziomu zarządzania, wskaźnik produktywności pracy, kapitał, kapitał ludzki

TOURISM

The use of tourist motivation factors trichotomy concept in the management process by creating customer value

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Abstract: The aim of the article, in a cognitive dimension, is to provide a general recognition of the tourist motivation theory and the theory of travel motivating factors in the form of tourist motivation factors trichotomy concept. The main objective of the paper, in terms of methodology, is to identify the directions and use of this concept in the management process by creating customer value in the regional tourism economy—Customer Value Analysis (CVA), as well as in the analysis of social networks—Social Network Analysis (SNA). By using the concept of tourism motivation factors trichotomy, the demand creation and the development of a tourist product (supply) is described precisely. Also, appropriately selected results of empirical research that allow to illustrate these relationships are presented.

The development of CVA method, by supplementing it with the concept of motivation factors trichotomy, formed a new model of tools, through which the main factors were identified and grouped into: motivators that cause desire and willingness to take tourist activity as well as the hygiene factors the lack of which causes reluctance to participation in tourism. Also the demotivating factors (demotivators) that cause a negative attitude towards tourism activity in a given tourist area (destination) were identified. It was assumed that these studies results constitute an important factor, which determines the structure of networks organized for the purpose of shaping and designing of tourist destinations. The identified categories of motivation, value and behaviour factors make, next to operational ties, the basis to construct a regional tourism platform for dialogue and cooperation. Adapting the aforementioned approach which integrates CVA, SNA tools and the concept of motivation factors trichotomy to the ground of travel industry, the research can contribute to the creation of organizational partnership that brings benefits for companies operating in the tourist market and at the same time it will lead to raising the competitive position of destinations.

Key words: tourist motivation, trichotomy concept, customer value analysis

1. Introduction

Numerous contemporary motivation theories adopt the thesis that any deliberate human action is possible as a result of

proper motivation, which is the reason why motivation is often the basis and starting point of research on customers' behaviour in the market.¹

Understanding the motivation of a tourist customer, in particular his/ her motivation for tourism, which eventually leads to visiting places of cultural heritage and purchase of a tourist product, is an essential prerequisite for the competitiveness of a tourist enterprise as well as a major determinant of shaping the attractiveness of a tourist destination, i.e. tourist reception area. Therefore, an in-depth analysis of tourist motivation factors is essential in the highly competitive tourist market highly saturated by a variety of tourist products in order to, *inter alia*, offer a product suited to tourists' needs, expectations and desires and related to their intended destination.

Assuming that needs are the key components of the majority of motivation concepts (need theory), tourism may be a form of satisfying human needs, just like many other areas of human activity (Winiarski and Zdebski, 2008, p. 47). It can also directly satisfy those needs (Kocowski, 1982, pp. 196–197).

A. Maslow's concept is the theoretical basis for treating tourism as a type of activity, in which a human being satisfies his/ her basic needs as well as higher needs, e.g. self-realization. This concept is constantly being developed and broadened, and Maslow's need theory was used by researchers as the basis for creating the tourist motivation theory and the travel motivating factors theory. These issues are more widely presented in the next section of this paper.

The essence of motivation is variously understood and defined. Two processes can be distinguished in the given definitions: the process of motivation, which occurs inside an individual, and the process of motivating, which is the impact on an individual by means of incentives. In the first perspective, this phenomenon is the 'process of psychological adjustment in which activities are controlled so as to lead to the attainment of the objective pursued' (Reykowski, 1975, p. 23). This type of motivation is an attribute of the human mind and determines the state of consciousness of a person so that the willingness to act appears, i.e. starting, targeting and concluding an action. Such behaviours stimulate incentives (needs) that appear automatically. These incentives include *inter alia* the willingness to study and develop intellectually as well as the desire for relaxation, recreation and freedom of action, and moreover—an opportunity for a good day out, escapism altruism (Powell and Kokkranikal, 2014).

To some extent, a similar definition is given by F. Rheinberg, according to whom motivation is an 'activating orientation of a current act of life on a positively assessed target status' (Rheinberg, 2006, p. 18). This concise definition requires further explanation. The terms 'activating orientation' and 'positively assessed target status' need to be viewed in many ways. For instance, Rheinberg states that motivation is various states and behaviours such as wanting, attempting and striving for something; it can also mean avoidance, aversion, reluctance and fear of undesirable events or experiences. Therefore, according to this author, the motivation to avoid something differs in many respects from the motivation of striving for something. This is particularly important and still relevant in the case of tourist motivation.

¹ Factors such as motivation, culture, age and sex, social status, lifestyle, family life period (stage) and opinions of social groups are mentioned among the selected most important factors of customers' behaviour in the market (Winiarski and Zdebski, 2008).

In the second approach, the process of motivating someone is functional. Here, motivating means the process of influencing human behaviours by creating and using stimuli as well as creating conditions enabling the satisfaction of their needs. This approach is adopted by Michael Armstrong.

According to his definition, motivating deals with factors that have an impact on people so that they would behave in a specified manner (Armstrong, 2000, p. 210). One of the questions to which—in this author's opinion—answers should be found is: what decides on the selection of form and direction of actions? In the case of tourist behaviours of people, those will be reasons why they decide to undertake such actions. Therefore, identification of and getting through to tourist motivation factors is a difficult and complex process.

J. L. Crompton focused on the importance of development of tourist motivation theory and practice. In his research, he emphasized that the description who, when and where travels is important as well as what the demographic and social structure of tourists is, but in the research on tourist behaviours the answer to 'why' is the most important. Recently, those subjects have been more and more frequently discussed but it seems that this is only sample research (Crompton, 1979, pp. 415–416).

2. The concept of tourist motivation factors trichotomy

The impact of a group of tourist motivation factors is presented in Table 1. Directions (vectors) of the impact of the aforementioned factors are fundamentally divergent, however, they may occur simultaneously in a given environment, destination (Kozioł and Pyrek, 2014).

Table 1. The impact of tourist motivation factors

Factors	If they occur, they trigger:	If they do not occur, they trigger:
Motivators	Willingness to undertake tourist activity.	No willingness to undertake tourist activity.
Hygiene factors	No willingness to undertake tourist activity.	Reluctance to undertake tourist activity.
Demotivators	Negative attitude to tourist activity.	No negative attitude to tourist activity.

Source: Kozioł and Pyrek, 2014.

For the purposes of development of travel motivation factors classification, the method of linear arrangement of objects in multidimensional space of features was used, i.e. the so-called comparative analysis. In this method, the set of adopted variables should be divided into: positive variables—variables of which increasing value is an indication of increase in the level of studied phenomenon, neutral variables—variables for which values indicating a high value of studied phenomenon are included in a certain interval, and negative variables—variables of which decreasing value is an indication of increase in the level of studied phenomenon (Iwasiewicz, 2000, p. 17). Assuming that, in this case, a variable is tourist motivation factors, the factors of motivation specified as motivators are deemed as a positive variable. Neutral variable will be hygiene factors² and negative variable will be obstacles oc-

² In the presented perspective of tourist motivation factors, an attempt was made to apply Herzberg's two-factors theory (of job satisfaction) in the context of tourism (Herzberg, 1987).

curing in the process of tourist activity, i.e. tourist demotivation factors. Examples of motivators may include the number and quality of natural and anthropogenic values (market solutions, museums, temples, events, etc.); neutral variables may be considered as the level of tourist infrastructure as well as communication availability of the region and ensuring proper mobility for the tourists around the area, safety of tourists, hospitality; while examples of demotivators may be climate, environmental pollution, threat of serious diseases, conflicts.

According to this concept, it is possible to increase the tourist motivation of destination even when the impact of demotivating factors has not decreased and vice versa. Therefore, actions may be and should be taken in all three fields at the same time, however, with special regard given to demotivators.

In light of the foregoing, improvement and rationalization of the tourist motivation system should include not only the identification of factors but, first of all, actions leading to the removal of demotivators (negative variable), optimization of hygiene factors (neutral variable) and maximization of motivators (positive variable), according to financial possibilities intended for the development of tourism and legal as well as organizational conditions and strategy of a tourist enterprise.

3. Theses of the concept and stages of research procedure

In a cognitive dimension, the aim of this article is to present general approach to tourist motivation theory and the theory of factors motivating to travel in the form of concept of tourist motivation factors trychotomy. The main aim of this paper in methodological aspect is to identify the directions and use of this concept in the management process by creating customer value in the regional tourism economy—Customer Value Analysis (CVA), as well as in the analysis of social networks—Social Network Analysis (SNA). Owing to the use of motivation factors trychotomy concept, the creation of tourism demand and shaping of a tourism product (supply) were precisely described. Then, properly selected results of empirical research were presented which allowed for the illustration of the aforementioned relations.

The basic problem that is presented in this article is the recognition of motivation factors of foreign tourists who visit Cracow with special attention paid to key customers as well as formulation of a model of cooperation network structure between tourist enterprises in order to have an impact on tourists' motives by shaping and designing of tourist destinations.

In the research procedure, the following stages were identified:

- 1) Determination of the subject and scope of research.
- 2) Characteristics of destination key customers.
- 3) Diagnosis of motives for travelling of key customers.
- 4) Creation of regional cooperation platforms under defined problematic areas in order to increase the attractiveness of Cracow as an area of tourist reception.

4. Research methods

In this paper, research on inbound tourism in Cracow was used. The basic research tool was an interview with a respondent using a form (questionnaire). 3651 questionnaires that met

the assumed quality requirements were collected (MOT, 2014).³ The subject of analysis was limited to the identification of visitors' motivation and the analysis of tourists' behaviours, the manner of spending time, satisfaction level, assessment of tourism offer quality as well as the assessment of quality of rendered services compared to their prices. This research referred to foreign tourists. In 2014, the number of people who visited Cracow was over 2 million, including 1,047,000 foreign tourists. Travels connected with work or education in the city were omitted in this research.

The second group of tools was desk research. As a result of using those tools, generally available data was collected, especially from the Central Statistical Office, Local Data Bank, announcements, bulletins, e-publications available on the website of customs service, airport and others.

5. Results of analysis

Re I. For many years, the most frequently indicated tourist attractions in Cracow have been the Wawel Castle (66% of indications), the Main Square, the Mariacki Church and Sukienice (66%), Kazimierz (23%), the Barbican and Saint Florian's Gate (8%). Frequently visited places near Cracow are as follows: the Auschwitz-Birkenau Memorial and Museum (49% of visitors), the 'Wieliczka' Salt Mine (41%), Zakopane (21%) and The Holy Father John Paul II Family Home Museum in Wadowice (7%). The aforementioned attractions are strong stimuli to visit Cracow, however, as it can be noticed, they do not get through to all visitors. Nevertheless, for majority of visitors, those attractions are significant motives for visiting this city.

Visits to Cracow depend also on many other motives, which were divided into motivators, hygiene factors and demotivators, developed by the authors of this paper, taking into account criteria described in Table 1. Selected and more important ones were assessed by tourists according to a five-point scale. 20 selected factors of motivation were assessed, whereas 9 of them were deemed as motivators and 11 were treated as hygiene factors. This analysis did not include demotivating factors (see Table 2), which is because demotivating factors were not part of the research subject of the Municipality of Cracow. From the scientific/ research perspective, it can be regarded as a major disadvantage.

Re II. The basis for determination of strategic (key) customers of this destination was economic and demographic criterion, in particular material status, expenditures of foreign tourists visiting Cracow and the criterion of age. The group of key customers had very good and good material status (such opinion was given by 80% out of all respondents), the average amount of tourist expenditures during their stay in the city between 2009 and 2014 exceeded EUR 150 in this group per person and the age of respondents was between 18 and 60 (MOT, 2014). The percentage of key customers in the structure of inbound tourist traffic in Cracow was circa 70%. Almost 75% of those tourists declared that they would visit Cracow again and recommend their friends to visit this city.

³ This research is conducted every year and is commissioned by the Municipality of Cracow. The results are available in print and online at: <http://mot.krakow.pl/badanie-ruchu-turystycznego.html>.

Re III. The opinions of foreign visitors on selected elements of the Cracow's tourism offer were differentiated. The atmosphere of the city, the kindness of its residents were assessed as very good, restaurant base and hospitality as good, entertainment and cultural events as rather good. On the other hand, the quality of tourist service and guide services were assessed poorly, i.e. as satisfactory, and they may contribute to the decrease in willingness to undertake tourism activity.

The hygiene factors, equally important as motivators, were assessed lower, i.e. from 3.2 to 3.8—such level was achieved by the key customer indicator. Assuming that the satisfying value of studied phenomena and processes (factors) is between 3.5 and 4.1, only one of them—cleanliness of streets—is below the adopted standard (indicator level: 3.2). The remaining factors were assessed better but—this should be emphasized—five of them are near the bottom of the satisfactory level (indicator level: 3.5). Even small deterioration in the assessment of motivation factors, such as for example the quality of tourist service, safety or cleanliness of streets may result in reluctance to tourism activity, more precisely in decreased inbound tourism in Cracow (Table 2).

Important tourist motivation factor belonging to the class of hygiene factors is the opinion on prices in relation to the quality of rendered services. As an assessment tool, a three-point scale was used: high, adequate, low prices (see Table 3).

In the opinion of foreign tourists, the prices of rendered services are adequate (more than 60% of respondents) and low (almost 16% of respondents). Similar opinions of foreign tourists were noted in surveys in previous years. This may indicate stabilization of the offer and adequate prices of individual services but also positive changes in the perception and reception of Cracow as a tourist destination.

Table 2. Tourist motivation factors in the opinion of foreign visitors—key customers—in 2014 (in %)

Assessment of Cracow's offer	Factor assessment						Key customer indicator	General indicator
	Very good	Good	Satisfactory	Bad	Very bad	No information		
Motivators								
Atmosphere of the city	44.2	47.4	4.7	1.3	0.2	2.2	4.4	4.3
Kindness of residents	32.2	45.4	11.8	1.5	0.4	8.7	4.2	4.2
Restaurant base	28.7	52.7	13.4	1.2	0.5	3.5	4.1	4.1
Hospitality	25.4	47.6	15.5	2.1	0.4	9.0	4.0	4.1
Entertainment	21.9	30.7	10.7	0.9	0.1	35.7	4.1	4.2
Cultural (mass) events	19.2	32.3	22.7	2.1	0.2	23.5	3.9	3.9
Cultural events—music events	15.1	26.5	16.1	2.3	0.1	39.9	3.9	3.9
Quality of tourist service	5.1	31.2	26.8	5.4	0.2	31.3	3.5	3.6
Guide services	0.8	14.7	21.9	3.1	0.2	60.1	3.2	3.6

Assessment of Cracow's offer	Factor assessment						Key customer indicator	General indicator
	Very good	Good	Satisfactory	Bad	Very bad	No information		
Hygiene factors								
Availability of Wi-Fi	11.9	33.5	23.4	4.0	0.2	27.0	3.7	3.7
Availability of ATMs	13.8	40.5	21.5	6.9	0.2	17.1	3.7	3.7
Accommodation facilities	10.4	34.7	15.0	2.3	0.2	37.4	3.8	3.8
Tourist information	13.0	23.3	20.7	8.0	0.0	35.0	3.6	3.6
Possibility of payment by credit card	12.7	34.6	22.2	2.1	0.1	28.3	3.8	3.7
Roads to the city	14.5	37.2	32.5	9.0	3.4	3.4	3.5	3.5
Safety	8.6	39.4	29.1	11.1	0.9	10.9	3.5	3.5
Local transportation	8.0	34.1	28.5	6.0	1.4	22.0	3.5	3.5
Cleanliness of streets	3.6	35.4	34.3	14.5	3.6	8.6	3.2	3.3
Public toilets	6.6	39.4	26.1	7.0	1.3	19.6	3.5	3.5
Tourist signs	5.3	39.6	25.6	2.5	0.1	26.9	3.6	3.7

S o u r c e: Authors' own elaboration based on: MOT, 2014, Table 49, p. 224.

Table 3. Prices in relation to the quality of services in the opinion of foreign visitors—key customers—in 2014 (in %)

Price in relation to the quality of services	High	Adequate	Low	No data available
Accommodation	7.5	57.6	6.9	28
Restaurant base	2.3	55.4	11.6	30.7
Theatre, movie theatre	6.1	17.9	7.0	69
Guide services	4.6	23.4	6.8	65.2
Local transportation	13.5	30.3	12.3	43.9
Museums	10.2	37.5	8.7	43.6
Cultural events	3.8	21.2	3.9	71.1
Sport and recreational facilities	2.7	14.0	3.1	80.2
Clubs—discos—pubs	7.3	36.1	12.8	43.8
Integrated indicator	6.4	32.6	8.1	52.8

S o u r c e: Authors' own elaboration based on: MOT, 2014, Table 51, p. 234.

Re IV. Maintaining Cracow's competitive position as a destination in a strongly competitive tourist market requires intensification of measures leading to the improvement of quality of tourist services and further development of the tourism offer. Individual actions of enterprises and institutions may not be enough. The cooperation of the mentioned entities is indispensable as well as the cooperation between them defined as network cooperation of enterprises in the tourism sector. The creation of cooperation network in the form of local cooperation platform between the entities in the tourism sector in order to exchange information, build permanent relations under defined problematic areas as well as undertaking common measures within those areas should contribute to the improvement of quality of tourist services and the development of opportunities to cooperate (specific competences).

Enterprises or institutions are represented by people, owners, managers, attorneys-in-fact, who should create more or less formalized structures of cooperation network and participate in various measures undertaken in the group of people participating in a given network structure (see Figure 1). The graphic illustration of cooperation and relations existing between the entities of cooperation platform may be sociodramas of group members, graphs illustrating social networks, clusters, maps of cooperation networks (Ahlström-Södelin, 2003; Nooy, Mirvar and Batagelj, 2005; Borodako, 2012).

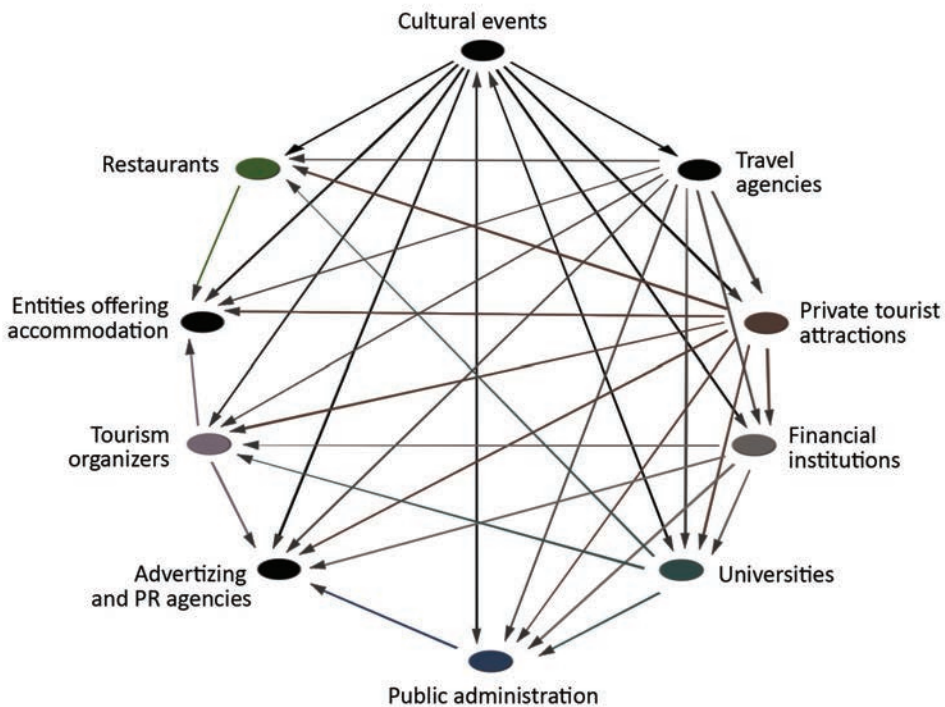


Figure 1. The map of cooperation network between enterprises and tourism institutions in Cracow with regard to the development of offer concerning cultural events, illustrating an example of cooperation

6. Conclusions

If concepts in the field of motivation are to be not only more precisely defined but also used in practice, a diagnostic system should be available, which on the one hand will be able to capture significant components (factors) of tourist motivation process and on the other hand it will be transparent and easy to understand.

Therefore, the main cognitive aim was to present the newly developed CVA method. It was supplemented by a concept of motivation factors trichotomy and a concept of cooperation network between tourist enterprises and this enabled the creation of a new model of tools, by means of which, the main factors were identified and structured: motivators which create desire, willingness to undertake tourist activity, hygiene factors of which lack results in reluctance to participate in tourism, and demotivators causing negative attitude to tourist activity within a tourist region. The results of research constitute an important premise for the determination of cooperation network structure organized for the purposes of having impact on tourists' motives by means of shaping and designing of tourist destinations.

The identified categories of tourist motivation factors, value and behaviour factors constitute—apart from operational ties—the basis for the creation of a regional tourism platform for dialogue and cooperation. Adapting the aforementioned approach which integrates CVA, SNA tools and the concept of motivation factors trichotomy to the ground of travel industry, the research can contribute to the creation of organizational partnership that brings benefits for companies operating in the tourist market and at the same time it will lead to raising the competitive position of destinations.

On the other hand, the practical aim was to present the results of empirical research. The assessment of tourist motivation factors by key customers is a little lower than in the case of all foreign respondents. Motivators and stimuli for visiting were highly assessed, six hygiene factors were assessed as rather good and the remaining five factors were poorly assessed, i.e. as satisfactory. The results of this research are therefore convergent with relevant statistical data, from which it results that in 2014 the number of foreign visitors staying in Cracow decreased by 3.6%, their stay in the city was shortened by circa 5%, the average amount of their expenditures per person dropped by circa 7.5% and all of that ultimately resulted in the decrease in the city's revenues generated from tourism by 6.25%, i.e. by circa PLN 300 million (MOT, 2014).

In conclusion, it should be emphasized that people's motives change over time, depending on their lifestyle and social position, or change under the influence of public opinion. The marketing departments of a destination and tourist enterprises should monitor those changes on an ongoing basis and try to anticipate them while paying attention especially to the given categories of tourism motivation factors.

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Wykorzystanie koncepcji trychotomii czynników motywacji turystycznej w procesie zarządzania przez tworzenie wartości dla klienta

Abstrakt: Celem artykułu w wymiarze poznawczym jest przedstawienie ogólnego ujęcia teorii motywacji turystycznej i teorii czynników motywujących do podróży w postaci koncepcji trychotomii czynników motywacji turystycznej. Głównym celem opracowania w aspekcie metodologicznym jest wskazanie kierunków i sposobu wykorzystania tej koncepcji w procesie zarządzania przez tworzenie wartości dla klienta w regionalnej gospodarce turystycznej – Customer Value Analysis (CVA), jak również w analizie sieci społecznych – Social Network Analysis (SNA). Dzięki wykorzystaniu koncepcji trychotomii czynników motywacji kreowanie popytu turystycznego i kształtowanie produktu turystycznego (podaży) opisano precyzyjnie. Następnie zaprezentowano odpowiednio dobrane wyniki badań empirycznych, które pozwoliły na zobrazowanie wspomnianych relacji.

Rozwinięcie metody CVA przez uzupełnienie jej o koncepcję trychotomii czynników motywacji utworzyło nowy model narzędzi, za pomocą którego zidentyfikowano i uporządkowano główne czynniki: motywatory, które wywołują chęć, skłonność do podjęcia aktywności turystycznej; czynniki higieny, których brak wywołuje niechęć do uczestnictwa w turystyce; oraz demotywatory – powodujące negatywne nastawienie do aktywności turystycznej w regionie turystycznym (destynacji). Przyjęto, że rezultaty tych badań stanowią istotną przesłankę określenia struktury sieci współpracy, zorganizowanej dla celów kształtowania i projektowania produktu turystycznego destynacji. Zidentyfikowane kategorie czynników motywacji turystycznej, wartości i zachowania stanowią – obok więzi operacyjnych – podstawę budowy regionalnej, turystycznej platformy

dialogu i współpracy. Zaadaptowanie na grunt badań branży turystycznej opisanego podejścia integrującego narzędzia CVA, SNA oraz koncepcji trychotomii czynników motywacji może przyczynić się do utworzenia

partnerstwa organizacyjnego przynoszącego korzyści dla firm działających na rynku turystycznym, a jednocześnie prowadzić będzie do podniesienia pozycji konkurencyjnej destynacji.

Słowa kluczowe: motywacja turystyczna, koncepcja trychotomii, zarządzanie wartością dla klienta

The State's role and the relevance of a strategical development plan in rural tourism: The Island of Madeira's case study

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Abstract: In this article we will describe the government's role in the development of rural tourism from a global perspective, while also addressing some key elements of the current implementation status set by government policies concerning the development of rural areas which have stimulated the increase in diversity of economic activities, resulting in an improvement of the living conditions for the rural community. In this context, rural tourism was considered an activity with the potential to grow the economy, create employment and retain the rural population, thus addressing the recent economic and social changes, while also supporting the growth of these rural areas meeting the new needs and social ambitions.

In Madeira Island, the State involvement in the development of rural tourism has played a decisive role in three predominant fronts: in formulating and executing in an orderly manner the regional and national policies; in creating tourist areas, but also regulating and managing them. On the other hand, there is still a long way to go, therefore this article has another purpose: to demonstrate the relevance of elaborating a Strategic Development Plan for Rural Tourism in Madeira Island, given the lack of specific orientations for this type of tourism.

In the pursuit of our goals we used the combination of qualitative and quantitative methods in the absence of studies of this nature on the island of Madeira, such as the launch of semi-structured interviews, field work and bibliographical and documentary research. The first objective was to identify the State's role in the development of rural tourism on a regional and national level and the second, to demonstrate the relevance of the release of the Strategic Development Plan for Rural Tourism in Madeira.

Key words: rural tourism, development of tourism, regional strategies, Madeira

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1. Introduction

In the last few decades, the decadence of rural means, given the evolution and convenience of urban means, caused issues that imposed the launch of new policies which tried to safeguard their territorial integrity and sustainable development.

According to Carminda Cavaco, rural development faces many challenges, but first of all it is important to establish the differences between urban spaces and the countryside: 'the countryside, in general terms, differentiates itself from urban spaces by the smaller population density and by the relative importance of agriculture in their economy and society, even in the more advanced and globalized societies' (Cavaco, 2004, p. 99). As for the weaknesses of the countryside, the same author mentions the following:

Continued reduction of the weight of agriculture in economy, reduction of agricultural efficiency, poor ability to attract investments to other sectors, unattractive living and working standards, environmental issues, associated with pollution, neglect, erosion, forest fires. Its importance does not stem from production only, but it relies also on the preservation of the environment, the landscape, the heritage, and other important elements of the identity of many populations (Cavaco, 2004, p. 99).

This really is a portrait of mainland Portugal, which is not identical to Madeira's, since two thirds of the Island is a part of a natural reserve and that its tourism is not a recent activity. Early on Madeira has been fighting for the preservation and conservation of our implemented heritage, including recovery and environmental protection measures. However, some rural areas, after Portugal joined the European Union (EU), felt the side-effects of the reduction of agricultural efficiency, rural neglect, erosion and associated forest fires. On the other hand, the Island's orography does not allow the usage of machinery to aid in the agricultural process, which, together with the EU directives, caused a massive abandon of agricultural land.

The increment of such areas, especially in rural areas, and the related structural changes affect a high number of countries and have a profound social and economic impact' (WTO, 2004, p. 9), which implies devising guidelines that target rural tourism's sustainable growth, since 'tourism can bring benefits to rural communities. Left unchecked, however, inappropriate tourism can also have an adverse impact on rural areas' (WTO, 2004, p. 14).

In Portugal, the biggest changes began registering in the early 1960's, 'from the productivist-technological paradigm of the 60's and the 70's, to the containment-conversion of the 80's, and at last, the conservation-protection of the 90's' (Cavaco, 2004, p. 101). The economic growth, the industrialization and the increase of economic transactions with the outsider world were the responsables by the intense agricultural and rural exodus which, associated with emigration, with the aging population and with the transition of the political regime, contributed to the uprising of social and cultural aspirations of the Portuguese people. As soon as Portugal joined the EU, the country went through a supplementary process of strict adjustments.

Currently the significance of tourism in the economic development of a country is an undeniable truth: 'It is an export industry and a hard currency earner that brings foreign visitors to a given destination to spend their money. It creates added value for economic problem areas such as abandoned city centres, as well as agricultural and remote areas' (WTO, 2007, p. 37).

In this scenario the high intensity of the rural/ urban dualism in Portugal is justified as well as the fact that in the late twentieth century rural development became one of the top concerns/ priorities for a country's policy:

In fact, tourism in general and in concern with rural means in particular, has been identified by many times in regional development programmes, as one of their main instruments, for being a generator of employment and inducing the growth of other activities and assets in relation to local resources [...]. Recently, however, the tourism potential, essentially connected to their natural, architectural and historical heritage inserted in the countryside, has been gradually receiving attention, both in theoretical and in practical terms in regional development (Batouxas, 1998, p. 2).

The global aim of those policies has been, mainly, to decrease the overwhelming imbalance existent in the countryside. The National Agricultural Policy was created based on three main axes: the agricultural competitive edge, the environment and rural development. The strong purpose was to reoccupy the areas deserted due to the reduction of traditional agriculture.

In this article, we will present the plans that define the prevailing economic and social development policies in Portugal and in the Island of Madeira, with particular emphasis on rural development, thus making possible to understand the need to implement a strategical plan for rural tourism's sustainable growth in Madeira.

2. The government's role in the development of rural tourism

For a long time the concerns about the countryside aimed to answer only specific problems related with agricultural activity. The rural and agricultural policy were one identical component of a country's social-economic development.

In the late twentieth century in Portugal we witnessed the regular formulation and implementation of national and community related rural development policies which favoured the tourism sector. These policies aimed to develop the countryside areas by stimulating the diversification of the economic activities and the consequential improvement of the living conditions of the countryside's inhabitants: 'In broad terms, this development model bets on, and manages the public investment in three fronts: agriculture, heritage and tourism [...]. On the other hand, the patrimonialization of a panoply of local resources, such as natural, historical and monumental' (Silva, 2009, p. 39). In this perspective, tourism was regarded as a vector capable of boosting the economy, generating employment and contributing to the fixation of rural populations, thus replying to the recent processes of economic and social change and valuing the rural development given the new social needs and aspirations:

Rural tourism, in its broadest and commercial sense, has been one of the most promoted activities between us in the last few decades, by scholars, technicians and elected officials. There is still a relatively small offer, of a few thousand beds, that is very diverse, scattered and unprofessional (Cavaco, 2004, p. 111).

The State's involvement in the development of rural tourism has played a major role in the formulation and sistematic implementation of national and community related policies, as well as in the production, management and regulation of tourist areas.

Due to the importance of tourism as a revitalizing instrument of local economies in vulnerable territories, the State has been following a highly interventional policy, creating eco-

conomic and financial instruments that support private investments, for example the direct funding systems from the Tourism Fund which preceded the diverse generations of the Financial Incentive System for Tourism Investment (SIFIT), which provided outright grants. In addition to these, there were others with less extent, however given the subject of this article, it is importante to focus our analysis on the more recent national policies and mainly on the community related policies which led to the launch and/ or requalification of some of the tourism ventures that were inserted in the empirical universe of our study.

In the context of the implementation of national and community policies, we will now briefly describe the rural development programmes that were in place during the period of this present investigation.

On the 4th of January of 2008 the Decree-Law no. 2/2008 was published, through which the governance model for the programation of rural development tools was established for the period of 2007–2013. The Strategic National Plan (PEN) and the programmes financed by the European Agricultural Fund for Rural Development (FEADER) were some of which were considered as tools. In turn, the PEN was developed through three Rural Development Programmes (RDP), from a territorial point of view:

- The Rural Development Programme for the Mainland, whose territorial incidence corresponds to the mainland;
- The Rural Development Programme of Azores, whose territorial incidence corresponds to the Autonomous Region of Azores;
- The Rural Development Programme of Madeira, whose territorial incidence corresponds to the Autonomous Region of Madeira.

These organizations are composed entirely of public sector entities, which demonstrates the considerable role of the State in Portugal's rural development policy.

In the Autonomous Regions, the Regional Governments of Madeira and Azores set in specific legislation of nature, composition and competences of the managing authorities of the Rural Development Programmes and also appointed their respective managers, which rely on the competent Regional Governments' bodies.

Through the PEN, the community strategic guidelines were conjugated with the national policies, namely the global purpose to achieve significant gains in the improvement of the competitiveness and prosperity of rural territories and companies. The National Strategy's priorities were consistent with the community's, which can be evidenced when comparing the National Strategy's goals with those of the community's policies: 'it is verified that the recommended measures in the National Strategy are contributing to meet the goals set by the EU's policies' (PEN, 2007, p. 80).

As for the Madeira Autonomous Region, the Rural Development Programme (2007–2013) was approved by the COM (2008) Decision no. 721 of the 15th February 2008, which is why its implementation dates to 2008, having been published the Regional Legislative Decree (Reg. Leg. Dec. no. 11/2008, of the 22nd of April) which set the programme's conditions. On the 30th of April of the same year, the regulations for the first measures were published.

In addition to the more targeted policies for rural development, where actions related to Rural Tourism are integrated, the Madeira Autonomous Region features, in the planning domain, a Tourism Development Plan which is the tool for territorial management of Madeira's

tourist sector, therefore it defined the strategy for Madeira's tourism development and the territorial model to adopt. This document intended to ensure the balance between the accommodations' territorial distribution and tourism related equipment and consequently better value and use human, cultural and natural resources.

According to the Tourism Development Plan, the territorial distribution and the characteristics of tourist ventures should integrate perfectly in their own social and cultural milieu, thus adapting to the realities of the different areas and contributing to the local development.

One of the meager references to rural tourism found in the Tourism Development Plan was inserted in the strategical axle, more precisely in *Complementary offer: Formatting in network and diversifying and requalifying the offer*. In the context of exploring the thematic offer by geographical areas associated with the endogenous resources, only the municipality of Santana was focused as *the center of rural tourism*, thus determining that this municipality's strategy would be to 'value Santana's ethnographic component, the history of the *modus vivendi* of the people of Madeira, the articulation between tourism and the countryside' (POT, 2002, p. 25).

Ultimately, rural tourism was again highlighted in the matter of 'Territorial decentralization of supply associated with the diversification of typologies and local tourism products (rural tourism, rental accommodation, agrotourism, inns, small hotel units in urban centres and in rural areas, Madeira's farms)' (POT, 2002, p. 27).

In the current year (2015), the Tourism Development Plan is under restructuring. To this date the new document has not been published, which prevented us from checking if Rural Tourism in Madeira will be granted greater emphasis, in the horizon of 2020.

However, a study named *Strategic document for tourism in Madeira Autonomous Region* was undertaken, and presented publicly on the 23rd of January of the current year, in which there was not identified any specific action for rural tourism in Madeira (ACIF, 2015).

Bearing in mind the structural social and economic situation of Madeira Autonomous Region, aggravated by a number of facts, among which its insularity, the Region is classified as an Outermost Region (RUP), according to the European Union Treaty's no. 2 of the article 299.

The archipelago of Madeira has been an autonomous region since 1976, with a political and administrative autonomy, a Statute, and 'its own place' in the European Union's Treaties, therefore the Region's external action 'articulates three participation levels: European, bilateral and multilateral' (PG, 2011, p. 19).

In the current Government's Programme a particular emphasis was given to fulfill the Outermost Regions' Statute and to adopt solutions in line with it that protect the Madeira's agenda and lead to a 'smart, sustainable and integrating growth like the Europe 2020 Strategy advocates' (PG, 2011, p. 21). As for Tourism, the Programme considered it as 'one of the fundamental pillars of the social and economic structure in the Madeira Autonomous Region and as such the continuity to the existing incentives' systems, thus reinforcing the support to the sector's companies which develop or wish to invest in inovative and integrated projects, hence fostering the decentralization, the diversification and requalification of supply' (PG, 2011, p. 76) became clear.

Despite the Government's Programme did not focus specifically on actions with the intent to develop rural tourism, these are inserted in the chapter of *Tourism* in general, but also

in the chapter of *Agriculture and rural development*, where the following is stated: ‘The Regional Government will intensify the support for the development of biological agriculture and livestock farming, which integrates itself perfectly in the sustainable growth strategy based in the connection between Tourism, Culture, the Environment, Agriculture and a healthy way of life’ (PG, 2011, p. 86).

Regarding Madeira’s Rural Development and its relation with Tourism, in the current Government’s Plan we can read the following:

Agriculture and tourism are symbiotic economic activities, interrelated and priority, overlapping each other, rationally and if needed, others that jeopardize the attractiveness and progression of the same, as priority activities, which constitute the main axle for Madeira’s economic development. In this scenario, Madeira’s Rural Development strategy, also molded into the Government’s Programme, will ensure the articulation between the multiple available rural and farming policies’ tools, implying the full and criterious application of community funds, directed to investment, like FEADER, and to efficiency, like FEAGA, through Regional Programmes, with the double purpose of maximizing our strong points and taking advantage of the opportunities that come, and on the other hand, of minimizing structural difficulties (PG, 2011, p. 82).

3. Methodology

Results from a broader study were used in the present article, concerning the development of rural tourism in Madeira, focusing primarily on the Country Homes and their implications in the preservation and recuperation of regional heritage, seeking to contribute to a more profound knowledge concerning the development of the Island’s rural tourism and the definition of future strategies.

In this perspective and in general terms, the following objectives were set, in the elaboration of this article:

- to identify the State’s role in the Development of Rural Tourism on a regional and a national level;
- to demonstrate the relevance of the release of a Strategic Development Plan for Rural Tourism in Madeira.

In order to pursuit our objectives, a bibliographical and documentary research on the theme and concepts implicated was conducted. To that effect we resorted to primary and secondary sources.

The non-existence of studies concerning rural tourism in Madeira confronted us with the need to use the combination of qualitative and quantitative methods, such as the launch of semi-structured interviews and questionnaires extensively conducted to many informers, in particular to businessmen and tourists, as well as field work. This supplied us with valuable data through the information gathered which allowed us to fulfill our objectives.

According to the Portuguese legislation, tourism enterprises in rural areas can be graded under three groups: Country Homes, Agro-Tourism and Rural Hotels.

In 2012, when this investigation was launched, Madeira Island had 34 Country Homes, three Agro-Tourism enterprises and two Rural Hotels. Based on this scenario and taking into account the differences between the three modalities, we have chosen to study the Country Homes: 'properties located in villages and rural areas which, for their architecture, building materials and other characteristics fit in with the typical local architecture' (Decree-Law no. 228/2009, of the 14th September).

Regarding the 34 Country Homes existing in Madeira, 16 of them agreed to collaborate in the present study, which ensured a good representation of the sample (47%), in relation to the number of ventures and geographical localization, as with the number of replies to the interviews, in relation to the universe in question.

We opted to conduct the interviews to the owners or representatives of the Country Homes, between the months of June and October of 2012.

The present study was supplemented by the investigator's visit to the collaborative Country Homes, this aimed to deepen their knowledge about the facilities and its surroundings. These visits allowed us to compare what we had observed and the knowledge acquired previously, as well as to make relevant conclusions that aided our description and interpretation of the reality in question.

4. Results

According to the conducted research and previous presentation in this article, of the existing national and regional plans, into force to date, it is possible to conclude that Madeira has no strategic plan for the development of the region's rural tourism, which has been the subject of debate in Portugal: 'the discussion carried out showed the need to elaborate a rural tourism development model, multifaceted, given the diversity of situations (contexts) of the projects and regimes (institutional, legal and financial)' (AAVV, 1993, pp. 30–36), and in Europe:

The rural people themselves should be the main actors of rural tourism to be the first beneficiaries. But the spontaneous hospitality must be accompanied by training in the tourist reception, private initiative must be part of a collective plan for overall development and the contribution of each should contribute to the development of tourist products, offering the visitor-consumer the opportunity to meet their needs of accommodation and catering, discovery and hiking, cultural events, activities and leisure. [...] Rural tourism is also conducive to partnership, whether the partnership is between the public sector and the private sector, or partnership between sector stakeholders in rural tourism development, from local to European level [...] the double concern [...] requires upgrading—and this seems to be true for all states—the marketing and sale of rural tourism products, both through better organization at the local level and cooperation at European level (CE, 1993, pp. 5–8).

In the Autonomous Region of Madeira, the State's role in the promotion and supervision substantiates in the Regional Department of Culture, Tourism and Transportation and in the Promotion Agency.

The Regional Department of Culture, Tourism and Transportation (SRT) is a department of the Regional Government of Madeira. The SRT is in charge of defining, coordinating, executing and evaluating the regional policy in the sectors of culture, tourism, transportation, the community and also parliamentary affairs.

The tourist promotion of Madeira as a destination, in addition relying on the SRT, given that one of its tasks is to 'Plan and coordinate the Region's promotional strategy as a tourist destination, its brands and products, as well as stimulate in a concerted manner the promotional actions', it also relies on the action of the Autonomous Region of Madeira's Promotional Association (AP Madeira).

This is a non-profit association, funded in August of 2004. It is composed of two entities, a public and a private one: the Regional Directorate for Tourism (DRT) and the Commercial and Industrial Association of Funchal (ACIF).

Given the importance of tourism as a regional development factor, one understands the State's role in the defense of its potential:

There are, in fact, multiple and highly visible impacts, direct, indirect and induced. Transversal, global activity with fluid boundaries, interfering with social and economic fabric, the demographic and employment dynamics, the natural and cultural heritage, the behaviours of populations, the planning and management of territory. It animates the social services and products market, thus making viable the corporate fabric and the other more diverse professional fields. It surprises nobody that it has come to know a growing integration in the territorial and sectorial development programmes, namely those which concern the promotion of the countryside (Mendes, 2010, p. 656).

During the visits and interviews to the Country Homes' owners/ representatives they were asked several questions about the development of rural tourism in Madeira.

One of the first questions asked was about the difficulties that the Country Homes face nowadays. Of the 16 'Homes', 13 stated that this type of tourism was struggling (81.2%), the remaining three homes expressed slightly different opinions: one recognized that there was no difficulty whatsoever, another stated that they 'did not know' and the third and final one answered us in the following way: 'the same as tourism in general'.

The houses that confirmed the existence of difficulties in this tourism sector pointed out the main following issues:

- the low occupancy rate;
- seasonality;
- unfair competition by unlicensed establishments;
- the lack of appropriate promotion.

When asked about the possible solutions to overcome these problems, the owners were unanimous regarding the key actions that should be taken:

- improve the tourism promotion of this type of tourism, especially on the Internet;
- improve the dissemination of the Region's tourism resources, mainly in the event and cultural attractions circle;
- increased supervision by competent authorities;

– increase the associationism in rural tourism.

The difficulties presented by the Country Homes' owners/ representatives in Madeira and the analysis that we made on the State's role in Rural Tourism mirror the pressing need for a more active role by the State in establishing the principles for a sustainable rural tourism, as well as in the elaboration of a strategical plan for the development of Madeira's Rural Tourism.

According to the World Tourism Organization (WTO), the process for the creation of a Rural Tourism Master Plan, after the principles for a more sustainable rural tourism have been set, involves two fundamental steps: *Step 1—Rural Resource Audit and Market Appraisal*; *Step 2—Rural Tourism Master Plan*, given that:

The Master Plan itself will be underpinned by a tourism product development program designed to meet market needs and address the gaps identified in the Audit. Proposals relating to accommodation registration/ standards, design guidelines, environmental protection and enhancement, organizational structures, marketing, training and investment are critical in ensuring an effective Rural Tourism Master Plan (WTO, 2004, p. 17).

5. Conclusions

Growth in rural tourism is difficult to quantify, because Madeira Island, as well as some other places, doesn't collect statistics in a way which separates purely rural from other forms of tourism. However, 'WTO considers that there is an important potential market for rural tourism [...]. It is estimated that three per cent of all international tourists travel for rural tourism purposes and rural tourism is estimated to be growing at an annual rate of around six per cent, well above the growth rate for all tourism' (WTO, 2004, p. 9).

Clearly, rural tourism in Madeira Island, while still only a minority tourism market, is already making a valuable contribution to rural economy. Its contribution can be expressed not only in financial terms, but also in terms of jobs, contributions towards funding conservation, recuperation and preservation of the Island's natural and cultural heritage, and the injection of a new vitality into some weakened rural areas.

Through the presented study based on bibliographical research and on the results of the surveys conducted to the owners or representatives of the Country Homes of the island of Madeira, we can conclude that the State has been playing a major role, characterized by moderate actions in the developing of rural tourism in the Autonomous Region of Madeira, despite the fact there is not a strategic development plan for rural tourism in the region, which could affect the tourist demand in a positive way: 'It seems to us that the activity, being feasible and desirable, should be thought of as a contribution far more important, and integrated into a development plan' (Casqueira, 1992, p. 215).

For these reasons and considering that 'Rural Tourism allows a diversification of components of rural economies, which would otherwise be condemned to disappear, entailing high human and economic costs. It also allows to maintain, to protect and even to enhance our heritage and our patrimony' (WTO, 2004, pp. 9–10), it becomes essential for rural tourism's sustainable growth in Madeira to establish a Rural Tourism Master Plan.

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Rola państwa i znaczenie planu rozwoju strategicznego w turystyce wiejskiej – przypadek Madery

Abstrakt: W niniejszym artykule opisujemy rolę rządu w rozwoju turystyki wiejskiej z perspektywy globalnej, jednocześnie omawiając także niektóre kluczowe elementy obecnego statusu wdrożenia polityki rządowej w zakresie rozwoju obszarów wiejskich, która pobudziła wzrost zróżnicowania działalności ekonomicznej, czego skutkiem jest poprawa warunków życia społeczności wiejskiej. W tym kontekście turystyka wiejska została uznana za działalność posiadającą potencjał dla rozwoju gospodarki, tworzenia miejsc pracy i utrzymania populacji wiejskiej, nie pozostając bez wpływu na ostatnie zmiany ekonomiczne i społeczne, a jednocześnie wspierając wzrost tych obszarów wiejskich, które realizują nowe potrzeby i społeczne ambicje.

Na Maderze zaangażowanie państwa w rozwój turystyki wiejskiej odegrało decydującą rolę w trzech głównych wymiarach: w formułowaniu i porządko-

waniu polityk regionalnych i narodowych, w tworzeniu obszarów turystycznych, ale także w regulowaniu ich i zarządzaniu nimi. Z drugiej strony droga, którą należy przejść, jest wciąż długa, w związku z czym artykuł ma jeszcze jeden cel: wykazać istotność opracowania Planu Rozwoju Strategicznego dla Turystyki Wiejskiej na Wyspie Madery, przyjmując, że brakuje konkretnego ukierunkowania tego typu turystyki.

Dla osiągnięcia naszych celów zastosowaliśmy kombinację metod jakościowych i ilościowych z uwzględnieniem braku badań tego typu na wyspie Madery. Składało się na nią zapoczątkowanie wywiadów częściowo ustrukturyzowanych, badań terenowych oraz badań bibliograficznych i dokumentalnych. Pierwszym celem była identyfikacja roli państwa w rozwoju turystyki wiejskiej, drugim zaś – wykazanie znaczenia opracowania Planu Rozwoju Strategicznego dla Turystyki Wiejskiej na Wyspie Madery.

Słowa kluczowe: turystyka wiejska, rozwój turystyki, strategie regionalne, Madery

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