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Aleksander Lotko[1]

CLASSIFYING CUSTOMERS ACCORDING TO NPS INDEX: CLUSTER ANALYSIS FOR CONTACT CENTER SERVICES

Abstract

The purpose of the study was to discover if, according to the assessment of contact center services quality: (1) customers using contact center services can be grouped into few homogenous items (clusters), (2) if the identified groups cover the classification proposed in the Net Promoter Score (NPS) marketing index (Reichheld, 2003) and (3) which customers belong to each of the clusters, i. e. what is a characteristic of each of the clusters.

In the paper, values of observable variables describing service quality in contact centers were measured on a sample of 1 000 contact centers customers.

The results of the research are of both cognitive and utilitarian character. The first explain the structure of groups (clusters) joining contact centers customers on a basis of their perception of the quality of contact centers services and some descriptive attributes. The second, by specifying characteristics of different groups of customers, can be used to design contact centers services with a special attention paid to the matters of quality to fully meet these customers' expectations.

The results of the research make the behavior of contact centers customers and their perception of the service quality more comprehensible. So the paper contributes into the development of the methods of classifying customers' loyalty on a basis of measuring their perception of quality of services delivered through a distant interface.

JEL Classification Code: **C38, M31**.

Keywords: contact center, service quality, cluster analysis, NPS index, Net Promoter Score, customer loyalty.

Introduction

The service sector is expanding at an increasing rate and is becoming intensely competitive (Chen, Gupta and Rom, 1994; Johnson, Dotson and Dunlap, 1988). As such, service quality has become a very important issue in marketing and has

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received much attention since the deregulation, and thus increased competition, within many service industries (Upal, 2008). Simultaneously, an intensive research on measuring quality of services continues over the last 30 years (Seth, Deshmukh and Vrat, 2005). Also, technology plays an important role in improving quality of service. Taking advantage on this technology, organizations are seeking contact with their customers to inform them, offer additional services and learn about their behavior. The essential condition for an organization's functioning is having customers and maintaining contacts with them. To reach this, organizations are trying hard to deliver high quality of services, which impacts customers satisfaction and their loyalty (Anton, 1997). Still, a problem of technology-intermediated service quality arises, contradicting a traditional face-to-face relationship during service delivery.

The contact center industry is one of the most rapidly growing industries in the developed world today (Dalrymple and Phipps, 1999; Upal, 2008). The growth has been occurred as many service providers are now seeking to lower the cost of providing services while increasing the time period access is available (Staples, Dalrymple and Phipps, 2001). It also reflects the desire of companies to improve access to their services, in a cost-effective manner, and retain satisfied customers (Bird, 1998). This can be done via a contact center. Contact center can be defined as an office in which large numbers of telephone calls are handled, especially one providing the customer services functions of a large organization, helped by advanced IT solutions.

As an integral part of most organizations, today contact centers play a key role in the service delivery chain. Presently in many industries, contact centers are the primary source of contact for customers. This important role implies that the performance management of contact centers is of critical importance to organizations, especially the delivery of customer satisfaction. Beside the others, it is possible by harnessing information technology into providing services (Gilmore, 2001; Lotko, 2009). Still, the role of people is not to be underestimated (Marr and Schiuma, 2001; Bowen and Lawler, 1992; Wallace, Eagleson and Waldersee, 2000; Bittner, 1990). Other researchers claim, that contact center employees' customer orientation behaviors meaningfully impact service quality (Rafaeli, Ziklik and Doucet, 2007). Some findings show that one bad experience with contact centers might cause customers to stop using a company's product or service (Delorey, 2003). This means that contact centers need to deliver on their service promise all the time if they want to avoid the risk of losing customers. According to other researchers (Bearden, Malhotra and Uscategui, 1998) the benefits of increased quality of the service process will be two-fold: (1) organization will improve the ability to attract new customers and (2) retention rates among current customers will increase.

The purpose of the study was to discover if, according to the assessment of contact center services quality: (1) customers using contact center services can be grouped into few homogenous items (clusters), (2) if the identified groups cover the classification proposed by F. Reichheld in his Net Promoter Score (NPS) marketing index

(Reichheld, 2003) and (3) which customers belong to each of the clusters, i. e. what is a characteristic of each of the clusters.

From such defined a goal, the following research hypotheses were drawn:

H1: customers using contact center services can be grouped into few homogenous items (clusters) on a basis of services quality assessment.

H2: linking customers into clusters covers the Net Promoter Score (NPS) index classification, grouping them into promoters, neutrals and detractors.

H3: clusters are distinguished by some characteristic features according to customers' demographical variables, contact channels and types of services they use.

Hypotheses were verified sequentially, i. e. hypothesis H3 was verified when the assumptions included in hypothesis H1 and then H2 occurred true.

1. The State of the art

1.1. Customer loyalty and the NPS index

On contemporary markets the phenomena of domination of service sector, multicultural society, mobility, postmodern, hedonistic styles of living and virtual reality can be observed (Griffin, 1997; Mazurek-Łopacińska, 2003). Customers have a high degree of market consciousness, expert knowledge reached thanks to access to different sources of information. Hence they do not trust traditional broadcasting of promotional content (Brogan and Smith, 2011). On the other hand, organizations become „seekers" of the customers. That is why customers' loyalty is of a special value in today's economy. Researchers identify models of loyalty based on customer satisfaction, brand, image, social factors and attitudes (Brogan and Smith, 2011; Dejnaka, 2007; Urban and Siemieniako, 2008).

Along with studies of loyalty impact on business performance, emerged constrains related to the correlation between those two factors. S. Keaveney (Keaveney, 1995) showed that with higher loyalty the company is exposed to more interaction with a client. Therefore company has to have high quality of the whole spectrum of services. Otherwise customers may switch to some other service provider. As the result of that, the improved loyalty will have contrary effect on long term business growth. R. Bolton and his colleagues (Bolton *et al.* 2000) also investigated the condition under which loyalty programs will have a positive effect.

Strength of correlation between loyalty and business performance growth depends on the type of loyalty. Loyal customer driven by external constrains may switch to competitors, when limitation disappear. Therefore, in order to use loyalty as a good indicator of business strength, loyalty has to reflect loyalty based on relation or social impact. In a turbulent market environment, purchases behaviors can easily change. According to P. Korneta, therefore opinions and positive experiences are better foundation for long term business development (Korneta, 2014).

The aspect of opinions and emotional engagement was embraced in definitions of loyalty presented by J. Griffin (Griffin, 1997) or K. Dziewanowska (Dziewanowska, 2007). This approach is in line with current researches. Implications from A. Lotko (Lotko, 2012) paper clearly show that: opinions spread by customers do meaningfully influence on the image of an organization defined as a way the organization is perceived by its real and potential clients. Therefore, it sounds rational to accept this approach to loyalty in this paper.

In due course of studies on loyalty emerged many metrics of customer loyalty based on emotional engagement of a consumer. F. Reichheld introduced Net Promoter Score index (NPS index) based on customers willingness to recommend a company to a friend (Reichheld, 2003). A detailed history of NPS index can be found in a paper by B. Hays (Hays, 2008).

The NPS index is nowadays widely used loyalty metric. The idea behind NPS index is very simple and is based on asking customers just one question: „How likely is it that you would recommend us to a friend or colleague?" on a 10-point scale. Subsequently, customers are clustered into 3 groups: promoters, passively satisfied and detractors. Customers who will rate 9 or 10 are considered as promoters, 7-8 as passively satisfied (neutrals, fence sitters) and the rest are classified as detractors. Each group is linked with expected customer behavior. Promoters are likely to stay with a company in case of emergence of competitors. Moreover, they are more likely to repeat purchases. Finally, they may have positive impact on other potential customers. Therefore promoters are expected to contribute to growth of company performance. On the other hand, detractors have negative impact on business performance expectations. They are likely to create negative opinions or switch to competitors. NPS is calculated as subtraction between share of promoters and share of detractors (NPS = P – D). NPS index above 0 is considered as positive and the value above 50 means excellent situation (Reichheld 2003). The idea of NPS is shown in Figure 1.

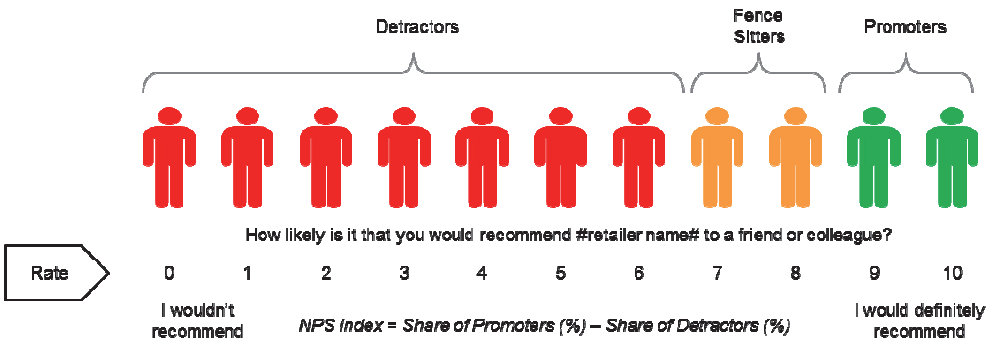

Figure 1. Classification of responders and brief view on NPS calculation method

Source: (Korneta, 2014).

Nevetheless, NPS index was criticized by N. Morgan and L. Rego (Morgan and Rego, 2006) and by T. Keiningham and colleagues (Keiningham *et al.*, 2007). In their papers, NPS index was set against company total growth measured by total profitability or revenues. Revenues growth of company may come not from like-for-like sale, but for example new stores opening or high investments. On mature markets role of loyalty and its link with overall company performance is much stronger (Korneta, 2014). Reichheld presented rational; standing behind NPS index, which make NPS index so useful and successful (Reichheld, 2006).

Knowing importance of NPS index, arise two questions: what drives positive NPS index and how to build customer loyalty and in a consequence receive positive NPS. A. Lotko showed that NPS index depends on various factors, e.g. type of offer or time for how long a customer has been with a company, and companies can undertake numerous of activities to improve customers loyalty measured by NPS index (Lotko, 2012). Research on NPS index drivers conducted also D. Jeske and others (2011). They didn't provide the answer regarding drivers, but their paper demonstrates how statistical classification model can be used to identify key drivers of NPS. E. Chang and X. Fan examined NPS index in online environment to present what aspects of e-stores are the most influential on this index (Chang and Fan, 2013). The need to conduct quantitative analysis based on consumer survey presented R. Owen and L. Brooks (Owen and Brooks, 2008). They connected this analysis with a decision making process. The quantitative studies to identify roots of NPS index have not been performed to our knowledge and the question regarding roots of NPS index is still opened for a discussion (Korneta, 2014).

1.2. Role of a contact center in modern organizations

The essential condition for an organization's functioning is having customers and maintaining contacts with them. This task is very difficult on strongly competitive markets. Hence, the main aim of an organization should be building and improving a relationship with a customer. Currently, stress is put on the importance of loyalty, responsibility and emotions, particularly satisfaction (Mazur, Jaworska and Mazur, 2001). This concept requires a departure from the traditional (i.e. transactional) attitude towards the customer. According to the classification of encounters proposed by V. Zeithaml and M. Bittner (Zeithaml and Bittner, 2000), which are: (1) the remote encounter (e.g. ATM, WWW, where there is no direct human contact between organization and the customer), (2) the phone encounter and (3) the face-to-face encounter (e.g. cashier's desk, where the customer physically interacts with service provider or his personnel), contact center encompasses the two first types.

One of the methods that can be used by the organization to gain advantage over its competitors is providing the client with a wide range of services connected with the product, forming a relationship in which the client feels respected, appreciated and

important for the organization, as well as treating the client in the most individualized manner possible (personalization of contacts). To do so, organizations have been implementing a single central contact point (organizational unit) whose task is to deal with calls, inquiries, problems and other matters connected with customer service. This contact point is most commonly named a contact center. It can be said that contact center is „an organization or organizational unit in which each contact with a customer (phone call, personal contact) may be dealt with by one or many employees with access to common information" (Kostecki, 2002). So contact center is a centralized office used for the purpose of receiving or transmitting a large volume of requests by telephone or other method of distance communication. According to Oxford Dictionary, contact center is an office in which large numbers of telephone calls are handled, especially one providing the customer services functions of a large organization. Trying to come up with a concise and precise definition of the term one may say that the contact center is a team of people, equipment and technology facilitating contacts between the supplier and the customers via all available means of communication (Lotko, 2003).

Nowadays the contact center industry expands powerfully. According to Deloitte (Deloitte, 2013):

- 77% of organizations expect to maintain or grow in size within 12-24 months,
- all contact channels expect growth of volume within 12-24 months,
- 62% of organizations view customer experience provided through contact centers as a competitive differentiator,
- 56% of organizations believe cost and quality management are equally important.

Summing up, the global call center industry is set to continue witnessing strong growth moving forward. This growth should be driven primarily by increasing focus on providing efficient customer service as a part of business development. However, industry players will need to continue investing in technology, human resources and quality of services to differentiate themselves from competitors.

1.3. Service quality in contact centers

Research on service quality began in the beginning of the eighties of the 20th century. Two trends are noticeable in this research: (1) elaboration of conceptual models and (2) elaboration of measurements scales. They are connected with each other and the first trend very often triggers the second one (Seth, Deshmukh and Vrat, 2005).

Early attempts (Grönroos, 1982; Lehtinen and Lehtinen, 1992) aimed at identification of factors composing the quality of services from the point of view of the customers. A conclusion was reached that the opinions concerning quality are derived from the comparison made between customers' expectations towards that what should be offered by organizations and the perception of provided services (Zeithaml, Parasuraman and Malhotra, 2000). The quality of a service may be de-

termined as a difference between customers, expectations and perception of a given service. It is justified to discuss the perceived quality of services. This term was introduced by Ch. Grönroos (Grönroos, 1982). The expected service is a consideration that a customer is about to receive, whereas the perceived service – a real experience of a customer. Grönroos proposed a service quality model based on a difference between the quality and provided quality and expected quality. He claimed that the quality observed by the customer has two sources: (1) technical quality – final effect of operational processes and (2) functional quality – shaped in the course of the process of providing service. One of the most important conclusions drawn up on the basis of this model is the fact that the functional quality is more important than the technical one.

This attitude is strictly connected with a definitely most popular model of service quality – service gap model SERVQUAL which includes 4 internal gaps existing between (1) customers' expectations, their perception by the management, (2) perception of expectations by the management and service specification, (3) service specification and provision of a service, (4) quality of consideration and information, (5) – between expected service and supplied service (Parasuraman, Zeithaml and Berry, 1985). SERVQUAL is an analytical tool, which can help managers to identify the gaps between variables affecting the quality of offered services (Seth, Deshmukh and Vrat, 2005). This model is the most frequently used by marketing researchers and scientists, although it is an exploratory study and does not offer a clear measurement method for measuring gaps at different levels. The model has been refined during the years and some believe that only the performance needs to be measured as the SERVPERF model in order to find the perception of service quality (Cronin and Taylor, 1992). This model is also known as performance only model.

A. Parasuraman, V. Zeithaml and L. Berry distinguished 5 dimensions of service quality on the SERVQUAL scale (Parasuraman, Zeithaml and Berry, 1985): tangibles, reliability, responsiveness, assurance, empathy. Ch. Grönroos (Grönroos, 1988) added the sixth dimension to the model's measurements – „refinement", which includes the ability owned by an organization to solve and fix problems (Hill and Alexander, 2003). The SERVQUAL scale became an inspiration for other authors. R. Johnston expanded them to the number of 18 factors determining the quality of services. Armistead (Armistead, 1990) made a division of service quality into „hard" and „soft". The first group includes the time, correctness, flexibility, whereas the second group includes style, possibility of control and safety.

The SERVQUAL model was with time subject to modifications to a multilevel attribute and overall affect model (Dabholkar, Thorpe and Rentz, 1996) as well as a hierarchical model (Brandy and Cronin, 2001). Similar to all measurements, hierarchical model differs in respect of the factors and importance of sub-dimensions regarding such services as health care (Dagger, Sweeney and Johnson, 2007) or phone service subscribers (Pollack, 2009). This model will enable the companies to

recognize problems in primary stage of their delivered services - interaction quality, physical environment quality and outcome quality.

Gummesson's model of partial qualities is of great significance. It constitutes an expansion of Grönrooson's model and introduces four elements, the so-called 4Q partial qualities. They include: (1) project quality, (2) quality of performance, (3) quality of deliveries, (4) quality of relations (Rogoziński, 2000).

The next model – J. Haywood–Farmer's attribute service quality model is based on the features and is strictly connected with the high quality of a company providing services together with the satisfaction of customers' requirements and expectations. The features of the service were divided into three groups within this model (Haywood-Farmer, 1988; Bielawa, 2010): (1) physical: facilities and processes, (2) behavioral aspects and (3) professional judgment. Each feature of a given service depends on different factors, which exert impact on its quality.

Synthetic model of quality service was formulated by A. Brogowicz (Brogowicz, 1990). He claims that the gap of service quality may exist even then when the consumer has never used a given kind of service but he became familiar with it on the basis of: opinions expressed by other users, advertisements and communications in mass media. This model refers to the factors which influence functional and technical expectations of a customer towards a given service. They include the image of an enterprise, influence exerted by external factors and traditional marketing activity.

The next model is the model of perceived quality and satisfaction developed by R. Spreng and R. Mackoy (Spreng and Mackoy, 1996). This model describes the effects of perception and expectation of qualities dependent on the degree of customer's satisfaction. Ten features were used to measure customer's satisfaction. (Stoma, 2012).

There are few other service quality models, incorporating, besides quality, other features, such as perceived value (Sweeney *et al.*, 1997), customer value and customer satisfaction (Oh, 1999). Some of the models are devoted to a special application, such as internet banking (Broderick and Vachirapornpuk, 2002) and IT-based solutions (Zhu *et al.*, 2002). This direction is important as S. Taylor and T. Baker demonstrate that the service quality relationship will vary from industry to industry (Taylor and Baker, 1994).

The significance of internet technologies in modern economy provokes the phenomenon that the unique quality of service provided in the Internet is beginning to be perceived as a tool of positive distinction from the competition (Zeithaml, Parasuraman and Malhotra, 2000). This being the case, emphasis put on the operationalization and selection of appropriate tools used to improve the quality of services provided in the Internet (O'Neill, Wright and Fitz, 2001). In 2001 Z. Yang, R. Peterson and L. Huang carried out measurements of the way the customers perceive the quality of Internet websites using six dimensions: ease of use, content displayed on the Website, accuracy of the content, timeliness of response, aesthetics and privacy (Yang, Peterson and Huang, 2001). E. Lociacono, R. Watson and D. Good-

hue elaborated the WebQual scale composed of twelve dimensions: informational suitability to the task, interaction, trust, response time, design, intuitiveness, visual appeal, innovativeness, flow, integrated communication, business processes and substitutability (Lociacono, Watson and Goodhue, 2000). V. Zeithaml, A. Parasuraman and A Malhotra elaborated e-SERVQUAL scale constituting a development of the SERVQUAL scale for the environment of electronic services. It covers the following features (Zeithaml, Parasuraman and Malhotra, 2000): efficiency, reliability, privacy, responsiveness, compensation, contact. The first four dimensions refer to the core of a service, whereas the remaining three dimensions refer to the recovery of a service, as they have the meaning only in the case where the customers make complaints and notify of the problems. Other authors also make their contributions in this subject – J. Santos with his e-service quality model (Santos, 2003).

The works of M. Stoma (Stoma, 2012), A. Ghobadian, S. Steller and M. Johnes (Ghobadian, Steller and Johnes, 1994) and N. Seth, S. Deshmukh and P. Vrat (Seth, Deshmukh and Vrat, 2005) deliver a complete, coherent and synthetic comparison of models and measurement methods of the service quality.

The conducted library query did not demonstrate any sources including comprehensive results of the study of service quality in the centers of contact with a customer and much less their model generalization. The most general model – SERVQUAL and models considering the role of technology played in the service quality, include certain guidelines. Among 19 models appropriately documented in the literature, merely 5 belong to the category considering the role of technology such as IT (Seth, Deshmukh and Vrat, 2005).

In SERVQUAL model the first and fourth gap refer to the communication with customers. The first one refers to the perception of customers' expectations viewed by the management. This gap covers the difference between consumers' expectation and management's perceptions of those expectations, i.e. not knowing what consumers expect. The fourth quality gap is also very important. This gap covers the difference between service delivery and the communications directed to consumers concerning service delivery, i.e. whether promises match the delivery.

J. Haywood-Farmer (Haywood-Farmer, 1988) points out the importance of communication with customers placing it in both behavioral aspects of a service quality (human aspect of communication) and in physical facilities and processes (technical aspect of communication). Communication is also an important attribute as a part of service strategy in IT alignment model (Berkley and Gupta, 1994). This model describes how IT can be used to improve customer service along key service quality dimensions including reliability, responsiveness, competence, access, communication, security and understanding of the customer. As it comes to self-service via technological interface, the attribute and overall effect models are engaged (Dabholkar, 1996). The author proposes two alternative models of service quality for technology-based self-service options. Self-service is becoming popular day by day owing to

high cost of labor in service deliveries. According to this models expected service quality would influence intentions to use technology-based self-service option. Also, IT-based model belongs to a category of „technological" ones (Zhu *et al.*, 2002). This model highlights the importance of IT-based service options. Service providers are using IT to reduce costs and create value-added services for their customers. It proposes a service quality model that links customer perceived IT-based service options to traditional service dimensions. The model attempts to investigate the relationship between IT-based services and customers' perceptions of service quality.

Recommendations concerning organization of the work of contact centers and an exemplary general classification of the dimensions of the service quality perceived by the customers (Anton, 1997) were found in the literature together with the results of the study in customers' satisfaction of the used contact channels (Kostecki, 2006). J. Horovitz (Horovitz, 2006) and N. Lake and K. Hickey (Lake and Hickey, 2006) discuss the issue of the quality of customers' attendance, however they do not distinguish the attendance through the telecommunication interface. K. Mazurek-Łopacińska gives some of the solutions improving the quality of the remote customers' attendance, however without pointing out the use of centers of contact with the customer (Mazurek-Łopacińska, 2003). P. Kotler observes the issue of providing high quality of services within the scope of customers attendance (Kotler, 1994). A broad comparison of the most popular tools of the measurement customers satisfaction and service quality is presented by Hill and Alexander, however there are no tools dedicated to the measurement of the quality of services provided by the telecommunication interface (Hill and Alexander, 2003).

Some results of researches performed with the use of traditional service quality models are available (Gilmore, 2001; Upal, 2008), but these seem lacking the specificity of contact centers. It is underlined, that there is a need for accurate measurement of service quality in contact center and it should be treated as a priority (Gilmore, 2001). Some authors measure customers' expectations of contact centers staff (Burgers *et al.*, 2000), still expectations are something different than quality. They influence quality, but are not identical. The suggested expectations are self-efficacy, adaptability, empathy, time, communication style, reliability, commitment, empowerment, self-attitude, explanation, competence, security, knowing the customer. They should be taken into consideration when designing services (Bearden, Malhotra and Uscategui, 1998). Then the expectations model was reduced to 4 dimensions: (1) adaptiveness - the customer clearly expects contact center employees to adjust their behavior to the customer and adapt to various situations, (2) assurance - employees are expected to provide security and explanation, (3) empathy - customers expect employees to empathize with their emotions and/or situation and (4) authority - customers expect that contact center employees have the authority to deal with their various problems or questions. Some of those findings were used by the author when building a measurement scale for a model presented in this study. Some

clues on measuring customer satisfaction and managing service quality in contact centers can be concluded in works by R. Feinberg, K. de Ruyter and L. Bennington (Feinberg, de Ruyter and Bennington, 2005) and S. Bartsch (Bartsch, 2012), in both books based on case studies. Other researches underline that the quality of contact center services is highly influenced by personal engagement and attitudes of the stuff (Bowen and Lawler, 1992; Wallace, Eagleson and Waldersee, 2000; Bittner, 1990).

In the face of the stated research gap, author took an effort to build own model measuring service quality in contact centers.

2. Remarks on methodology

The empirical part of the study was carried out with the use of infrastructure and human resources of the company Call Center Poland S.A. The method of Computer Assisted Telephone Interview (CATI) was applied. Telephone base was selected by means of the RDD method (*Random Digit Dialing*). Customers using any call center were examined.

To prepare a questionnaire, firstly, on the basis of literature analysis, a set of observable variables composed of sixteen elements was elaborated. Three potential suggested dimensions of service quality were derived directly from the literature: availability (Dalrymple and Phipps, 1999), quality of the answer (Anton, 1997) and empathy (Parasuraman, Berry and Zeithaml 1988; Burgers *et al.*, 2000). Among information quality attributes mentioned in the literature (Stefanowicz, 2004), the following were selected: comprehensibility, completeness, accuracy and relevance (variables from 9-12). Variables number 5, 6 and 8 are derived from the analysis of the literary output (Anton, 1997). Four variables (13-16) originate from the SERVQUAL scale (Parasuraman, Berry and Zeithaml, 1988). The analysis of other literature positions (Anton, 1994; Horovitz, 2006; Kostecki, 2006; Burgers *et al.*, 2000) and sessions with the managers allowed for the creation of the supply of the remaining variables.

Subsequently a questionnaire for the measurement of the values of 16 latent variables was built. 10-point Likert scales were used to register the results. Also, other features were examined. These are of demographical character (age and sex), as well as connected with the way and reason of using contact center (contact channel and type of service).

The sample was random and the sample size was 1000. For the reliability coefficient $1\text{-}\alpha = 0{,}95$ ($z_\alpha = 1{,}64$) an acceptable level of error – $d = 2{,}59\%$ was reached.

To analyze data, one of the multidimensional exploratory techniques popular in psychometry – cluster analysis was used. To identify items describing quality of contact center services, cluster analysis was applied. The term cluster analysis was introduced by R. Tryon (Tryon, 1939) and then developed by R. Cattell (Cattell, 1944). The use of cluster methods has increased dramatically in the last 30 years (Gore,

2000). Cluster analysis encompasses a number of different algorithms and methods for grouping objects of similar kind into respective categories. A general question facing researchers in many areas of inquiry is how to organize observed data into meaningful structures, that is, to develop taxonomies. In other words cluster analysis is an exploratory data analysis tool which aims at sorting different objects into groups in a way that the degree of association between two objects is maximal if they belong to the same group and minimal otherwise (StatSoft, 1997). Thus, the purpose of the analysis is to arrange objects into relatively homogeneous groups based on multivariate observations. cluster methods are used to group people (or other objects) together based on their scores across a set of variables (Gore, 2000).

Clustering techniques have been applied to a wide variety of research problems. Whenever it is needed to classify a large amount of information into manageable meaningful piles, cluster analysis is of great utility. A review of the development, applications, methods and problems of cluster analysis is provided by P. Gore (Gore, 2000). Interesting examples of cluster analysis applications are discussed by T. Hastie, R. Tibshirani and J. Friedman (Hastie, Tibshirani and Friedman, 2009) as well as P. Guidici and S. Figini (Guidici and Figini, 2009) and J. Hartigan (Hartigan, 1975).

3. Discussion on the results

Observable variables considered in the study and are presented in Table 1.

Table 1. Observable variables

Var. no.	Statement
1	Contact data of contact center are easily accessible
2	Contact center offers convenient ways of contact
3	Contact center is available in convenient hours
4	Time for waiting for connection with contact center is short
5	Contact center employees quickly solve my problems
6	Contact center employees are interested in my problems
7	Contact center employees' behavior builds trust
8	Contact center employees have knowledge allowing to give an answer
9	Contact center gives comprehensive answers
10	Contact center gives complete answers
11	Contact center gives precise answers
12	Contact center gives relevant answer
13	Contact center employees treat me individually
14	Contact center employees give special attention to me
15	My matters are close to contact center employees' harts
16	Contact center employees understand my special needs

Source: autor's own study.

In the presented research, clustering variables by rows (cases) was performed. Firstly Ward's method was used as an example of joining (tree clustering). Secondly a k-means method was used to characterize clusters in detail. The aim was to examine the research hypothesis H1 stating that customers using contact center services can be grouped into few homogenous items (clusters) on a basis of their assessment of services quality. A vertical tree graph (icicle plot) drawn in Figure 2 shows clusters for service quality obtained in another steps, while graph in Figure 3 shows the growth of linkage distance in another steps (iterations).

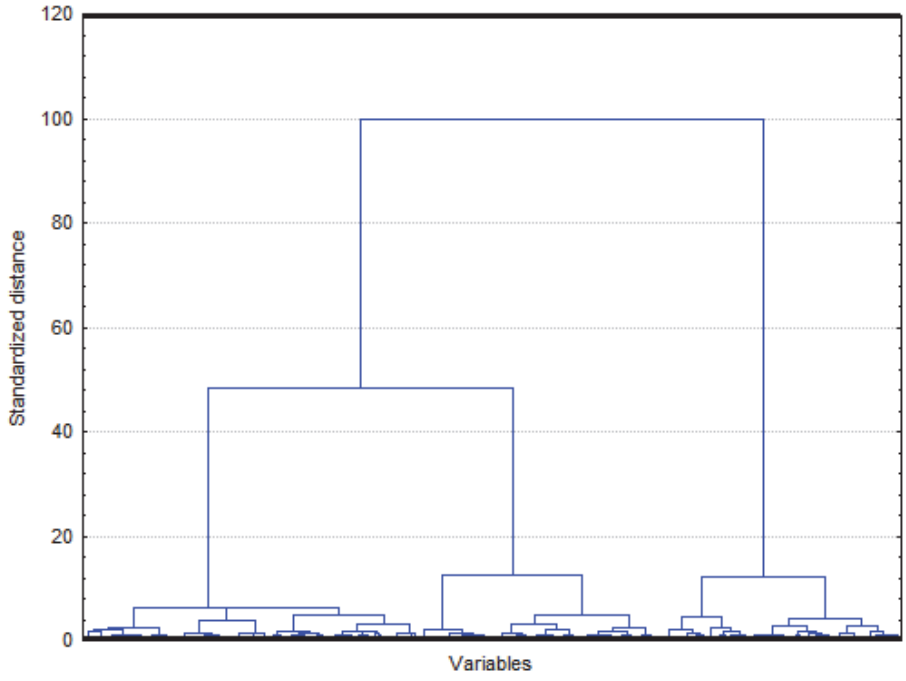

Figure 2. Icicle plot for service quality assessment cluster analysis (analysis by cases, k-means method)

Source: author's own study.

From Figure 2 it can be clearly read, that by cutting the plot at any value of standardized distance above e.g. 15 the three formed clusters are clearly visible and there is a substantial increase in linkage distance. So this solution was taken as satisfactory. Then, Figure 3 shows that a substantial increase in a standardized linkage distance indeed took place in the last few iterations.

In Table 2 distances between clusters are given. It can be seen, that there are quite long Euclidean distances between the identified clusters.

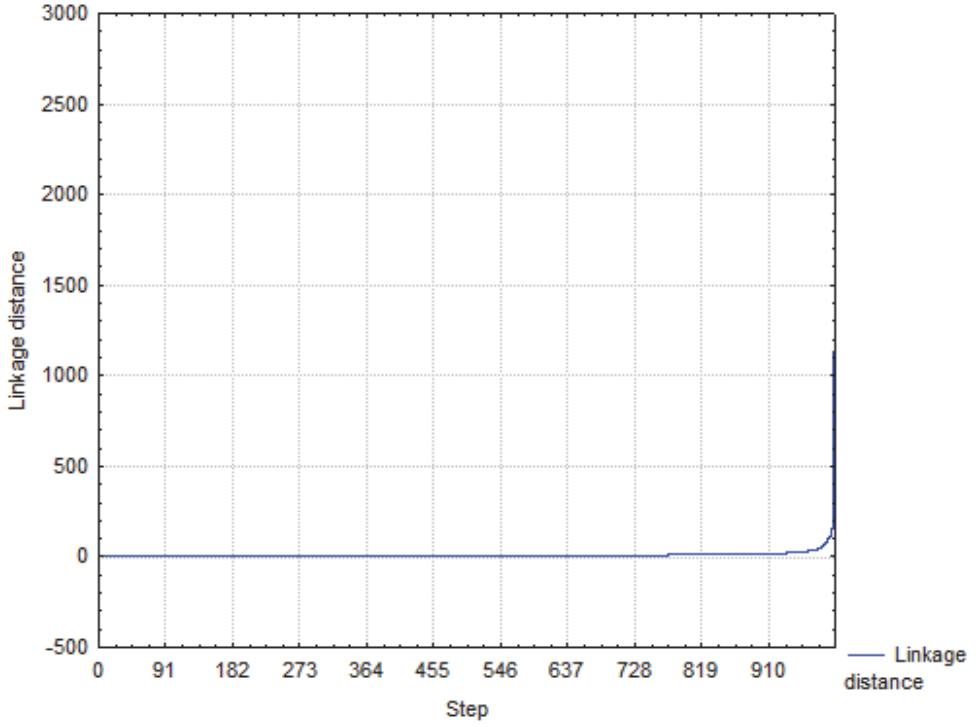

Figure 3. Linkage distance in another steps for service quality assessment cluster analysis
Source: author's own study.

Table 2. Distances between clusters

Distance	Cluster 1	Cluster 2	Cluster 3
Cluster 1	0,000000		
Cluster 2	2,522294	0,000000	
Cluster 3	2,219866	4,703042	0,00000

Source: author's own study.

After identifying clusters by linking variables, it is possible to calculate mean values of variables measuring quality of services: in clusters and overall. These are shown in Table 3 and consecutively in Figure 4.

Table 3. Mean values of variables measuring service quality: in clusters and overall

Var. no.	Cluster 1	Cluster 2	Cluster 3	Overall
1	6,04*	4,78*	8,08*	6,36
2	6,12*	4,70*	8,37*	6,47
3	7,11*	5,63*	9,20*	7,39
4	5,38	3,46*	7,40*	5,52
5	6,69	3,90*	9,05*	6,72
6	6,46	3,70*	9,09*	6,58
7	7,42	4,65*	9,58*	7,40
8	7,61	4,63*	9,39*	7,41
9	7,98	5,11*	9,55*	7,74
10	7,33	4,53*	9,44*	7,28
11	7,30	4,41*	9,32*	7,20
12	7,13	4,27*	9,18*	7,05
13	7,03	4,39*	9,42*	7,11
14	6,51	3,81*	9,06*	6,62
15	6,16	3,51*	8,72*	6,29
16	6,30	3,75*	8,94*	6,48

* – statistically significant, significance level α = 0,05, test for the difference between mean values (clusters versus overall).

Source: author's own study.

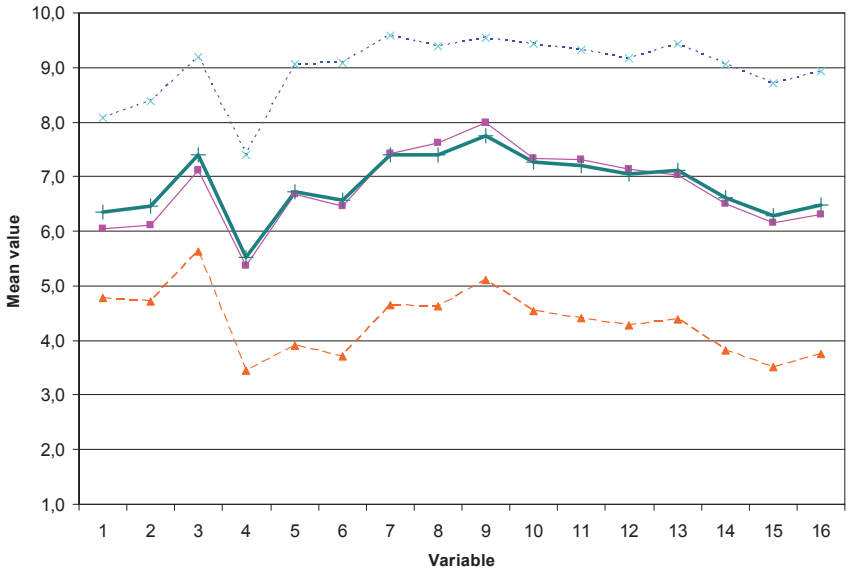

Figure 4. Mean values of variables measuring service quality: in clusters and overall

Source: author's own study.

From Table 3 and Figure 4 it can be concluded that for every cluster the dispersion of quality assessment is very similar with „summits" for variables no. 3 and nine (contact center is available in convenient hours and contact center gives comprehensive answers accordingly) and a clearly visible „pit" for variable no. 4 (time for waiting for connection with contact center is short). Nevertheless, the similar shape of the curve is drawn on different levels of the scale for each of the clusters, that is:

1. Cluster 1 joins 431 customers who are „neutrals" or „fence sitters". The shape of the curve measuring quality assessment nearly exactly covers the mean value for most variables. Apart from variable no. 3 quality assessment covers the range between 6 and 8 points.
2. Cluster 2 joins 254 customers who are „detractors". Apart from two variables (no. 3 and no. 9) quality assessment covers the range between 3 and 5 points.
3. Cluster 3 joins 315 customers who are „promoters". In most cases (11 out of 16 variables) the quality assessment covers the range between 9 and 10 points.

It was checked, that the dispersion of overall quality assessment has a characteristic of a normal dispersion. It is shown at a histogram in Figure 5.

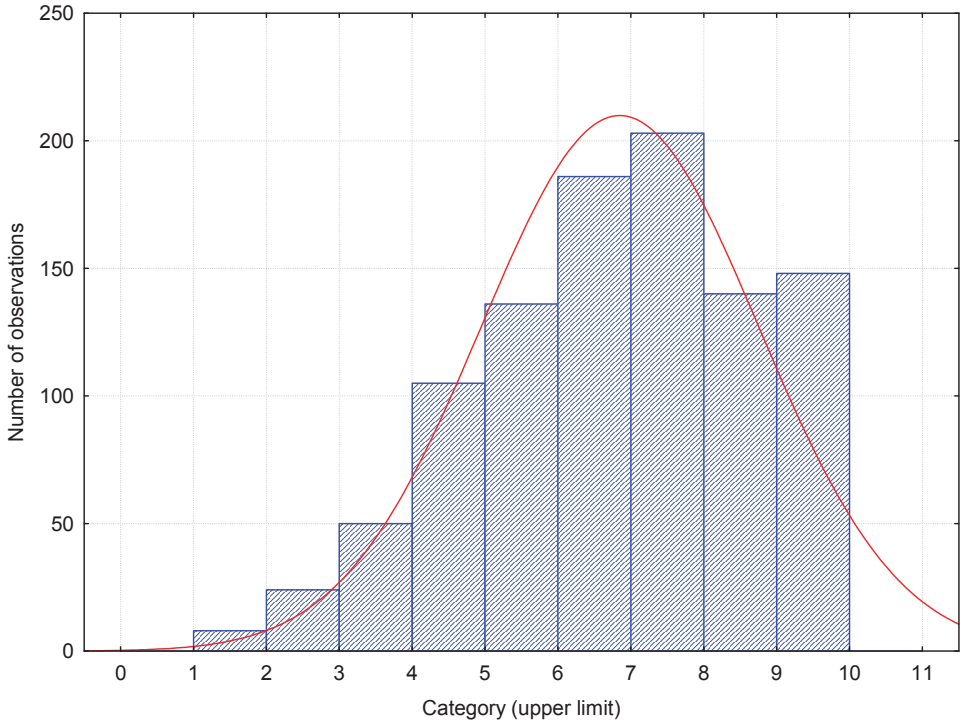

Figure 5. Overall quality assessment – a histogram and alignment of a dispersion

Source: author's own study.

From Figure 5 it can be concluded that the dispersion is close to normal. So it was possible to make the use of the variance analysis (ANOVA) to check if belonging to a cluster differentiates the assessment of service quality. For the model concerning all of the 16 observable variables, the observable value of significance level p = 0,000 was obtained, with statistic F = 89,65 and 32 degrees of freedom. For the overall quality again p = 0,000 was calculated, with statistic F = 2227,04 and 2 degrees of freedom. This means that clusters do differentiate quality of examined services (as well observable variables as the overall quality). The results can be seen in Figure 6 for all the observable variables and in Figure 7 for the overall quality.

Then, the research hypothesis H3 was examined, stating that customers into each of the clusters differ according to demographical variables, contact channels and types of services they use. Table 4 includes the percentage of knowledge workers' sex broken down into clusters and overall.

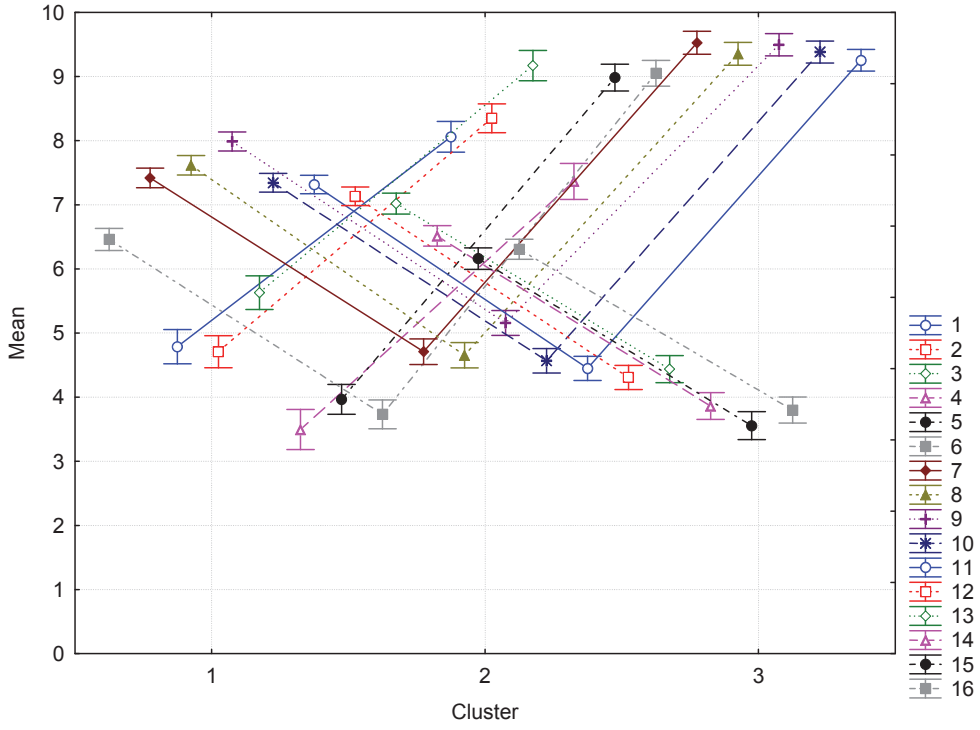

Figure 6. Results of variance analysis (ANOVA) for observable variables

Source: author's own study.

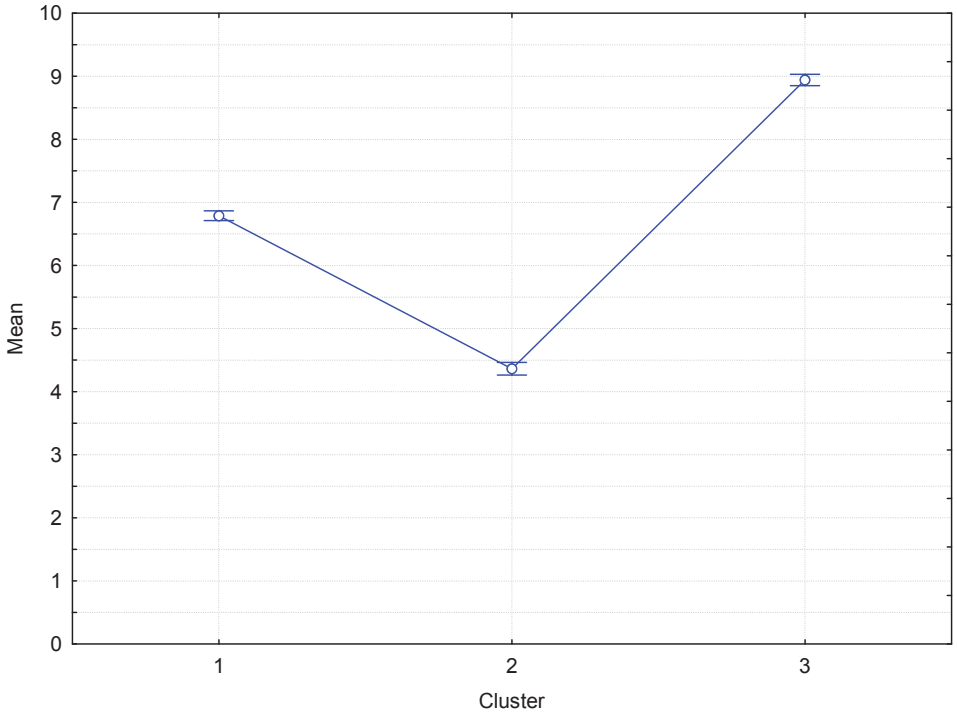

Figure 7. Results of variance analysis (ANOVA) for overall quality

Source: author's own study.

Table 4. Percentage of sex: in clusters and overall

Sex	Cluster 1	Cluster 2	Cluster 3	Overall
Man	38,52*	38,98	20,63*	33,00
Woman	61,48*	61,02	79,37*	67,00

* – statistically significant, significance level α = 0,05, test for the difference between structure factors (clusters versus overall).

Source: author's own study.

Table 5 includes the percentage of age of the surveyed contact center customers grouped into ranges and broken down into clusters and overall.

Table 6 includes the percentage of customers using different contact channels broken down into clusters and overall.

Table 7 includes the percentage of customers using different contact center services broken down into clusters and overall.

Table 5. Percentage of customers using different types of services: in clusters and overall

Age	Cluster 1	Cluster 2	Cluster 3	Overall
<=25	13,46	8,66	7,94	10,50
26-35	15,55	15,75	16,83	16,00
36-45	19,03	19,29	22,22	20,10
46-55	26,45	30,31	26,67	27,50
56-65	20,42	16,93	20,95	19,70
>=66	5,10	9,06	5,40	6,20

* – statistically significant, significance level α = 0,05, test for the difference between structure factors (clusters versus overall).

Source: author's own study.

Table 6. Percentage of customers using different contact channels: in clusters and overall

Contact channel	Cluster 1	Cluster 2	Cluster 3	Overall
Phone	95,38	95,28	94,25	95,00
E-mail	18,94	16,93	18,85	18,40
WWW knowledge base	17,55	11,42	14,06	14,90
Phone self service (IVR or SMS)	13,63	11,02	14,70	13,30
WWW form	11,78	6,69*	9,90	9,90
Fax	6,00	3,94	6,39	5,60
FAQ	4,16	3,94	4,15	4,10
Social media/chat	4,16	1,57*	4,79	3,70

* – statistically significant, significance level α = 0,05, test for the difference between structure factors (clusters versus overall).

Source: author's own study.

Table 7. Percentage of customers using different types of services: in clusters and overall

Service	Cluster 1	Cluster 2	Cluster 3	Overall
Information	78,75	73,62	85,94	79,70
Technical support	46,88	42,52	48,56	46,30
Complaints	30,25	38,58*	23,96*	30,40
Shopping/reservations	19,17	13,39	13,42	15,90
Marketing research	11,78	7,48	10,22	10,20
Loyalty program	5,08	2,36*	5,43	4,50

* – statistically significant, significance level α = 0,05, test for the difference between structure factors (clusters versus overall).

Source: author's own study.

In Tables 4-7 it is visible that each of the cluster is characterized by four features: two demographic (sex and age, shown in Tables 4 and Table 5 accordingly and two describing the way and reason of using contact center services (contact channel and type of services, shown in Table 6 and Table 7 accordingly). It can be seen that only in few cases the difference is statistically important. Hence the results were narrowed to the sample and are given below:

- **Cluster 1.** There is a bit more men in this cluster than in the whole sample. As it comes to the age, there is a visible advantage of the youngest surveyed (aged 25 or less) over the average of the whole sample. This group uses WWW contact channels: a knowledge base or a form as well as FAQ lists more frequently than average. These customers often use customer contact to do shopping or reservations, as well as take part in marketing research. Summing up, this cluster can be named „young WWW shoppers".
- **Cluster 2.** There is also a bit more men in this cluster than in the whole sample. As it comes to the age, there is less then average of the youngest surveyed persons, as well there is more than average persons aged 46-55 and the oldest – aged 66 or more. Of contact channels, these customers use internet channels (e-mail, WWW knowledge base, WW form, FAQ and social media/chat) less frequently than average. The only channel used with the above average frequency is phone. This group uses contact centers to make complaints in much more cases than average. Still, these customers visibly do not use contact center services as: gaining information, technical support and taking part in loyalty programmers. Summing up, this cluster can be named „older phone using complainers".
- **Cluster 3.** There is substantial advantage of woman over man in this cluster when compared to the whole sample. There is more than average middle-aged customers (aged 26-55) in this group. These customers often use phone self service (IVR or SMS), fax and social media/chat. They use contact center services first of all covering gaining information much more often than averagely, as well as they do for technical support. They also take part in loyalty programs most often of all clusters. They rarely make complaints. Summing up, this cluster can be named „information seeking self-servicing middle-aged ladies".

Putting together descriptive attributes of the identified clusters of customers (sex, age, contact channel and type of services) and the service quality assessment within each cluster (neutrals, detractors and promoters) allows to generate the statements shown in Table 8.

The results given in Table 8 seem sensible and easy to interpret. Each of the 3 statements in this table reflects the characteristic of each cluster. On this basis it can be claimed that in terms of (a) performed clustering concerning assessment of contact centers services quality together with descriptive attributes of each cluster and (b) NPS index customers classification: „young WWW shoppers" are neutrals or fence

sitters, „older phone using complainers" are detractors and „information seeking self-servicing middle-aged ladies" are promoters.

Table 8. Contact center customers clusters in terms of descriptive attributes vs. service quality assessment

Cluster No.	Cluster in terms of descriptive attributes	Verb	Cluster in terms of services quality assessment
1	young WWW shoppers	Are	neutrals
2	older phone using complainers		detractors
3	information seeking self-servicing middle-aged ladies		promoters

Source: author's own study.

Conclusion

Today's information and communication technology offers possibilities to communicate with customers in mass, yet customized manner with the use of multiple contact channels. This is done via contact centers, which are a tool for fulfilling the relationship marketing assumptions. Taking advantage on technology, organizations are seeking contact with their customers to inform them, offer additional services and learn about their behavior. Still, a problem of technology-intermediated service quality arises, contradicting a traditional face-to-face relationship during service delivery.

As a result of the empirical research it can be stated that the results obtained by applying cluster analysis to grouping contact center customers on a basis of their assessment of the service quality brings sensible and logical results. It was shown, that customers are grouped into the three clusters: „neutrals" („fence sitters"), detractors and promoters. These clusters cover the classification proposed by F. Reichheld in his NPS index, here considered in terms of service quality.

In more detail, it can be concluded that the results obtained using cluster analysis are as follows:

1. Cluster 1 joins 431 customers who are „neutrals" or „fence sitters". According to a four-feature characteristic in this study these customers are „young WWW shoppers".
2. Cluster 2 joins 254 customers who are „detractors". According to a four-feature characteristic in this study these customers are „older phone using complainers".
3. Cluster 3 joins 315 customers who are „promoters". According to a four-feature characteristic in this study these customers are „information seeking self-servicing middle-aged ladies".

The applied approach makes the behavior of contact centers customers and their perception of the quality services more comprehensible. The results of the research

are of both cognitive and utilitarian character. The first explain the structure of groups (clusters) joining contact centers customers on a basis of their perception of the quality of contact centers services and some descriptive attributes. The second, by specifying characteristics of different groups of customers, can be used to design contact centers services with a special attention paid to the matters of quality to fully meet these customers' expectations.

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Martyna Mostowska[1]

COMPETITIVE POSITION OF CENTRAL EUROPEAN ECONOMIES AS REFLECTED IN INTERNATIONAL RANKINGS

Abstract

The aim of this paper is to analyze the development of the competitive position of Central European countries – Czech Republic, Poland, Slovakia and Hungary – in the light of international competitiveness rankings between 2004 and 2014. The hypothesis put forward here is that these countries' membership in the European Union contributed to improving their competitive position.

The paper consists of three parts. The first one presents selected definitions of international competitiveness, coined both by economists and international organizations. Next, selected international competitiveness rankings are discussed, as well as the methods of constructing them. Based on these rankings, in the final part, competitive position of the selected countries is analyzed for the period from 2004 to 2014. The paper ends with summary and conclusions.

JEL Classification Code: **F00**.

Keywords: international competitiveness, Central Europe, European Union, Visegrád Group.

Introduction

International competitiveness of national economy is an increasingly important issue for every country's international policy and thus its development and the related benefits have been the subject of much discussion among economists. Moreover, many of them contributed valuable reflections and conclusions to the development of economics. In the continuous process of worldwide integration and progressing globalization, a high level of international competitiveness of a given national economy is highly desirable due to the resulting benefits.

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Competitiveness of national economy

Up until the early 1970s, research on international competitiveness of national economies was not a priority. It was only in the late 1970s and early 1980s, due to the surfacing of various effects of crises in the world economy and the transferring of comparative and competitive advantages within this economy (in particular the erosion of the United States economy's advantages in favour of Japan), that the issues of competing on an international scale began to be examined in more detail. This research established the foundations for the development of an academic sub discipline called the theory and policy of international competitiveness.

The research on international competitiveness of national economies was also set off by the occurrence of many other factors. The processes of internationalization, or even globalization of economic life were advancing ceaselessly. At the same time, it was the start ofthe disintegration of socialist countries with their centrally planned economy and command-and-quota system, and thus the progressing processes of regional economic integration could be observed (especially in continental Europe), with strong indication that they were irreversible. This growing interest in the topic of international competitiveness resulted in numerous attempts at defining this notion (Misala, 2009, p. 31-33).

Among the many definitions of international competitiveness, there is one developed by Polish economists J.W. Bossak and W. Bieńkowski in 2004, and modified several times since then, thatis undoubtedly noteworthy. It says that „the competitiveness of a country or an enterprise is assessed by comparing the benefits ofits business activity with those obtained by competitors. Just as the present value of a company oscillates around a certain value, so the country's competitiveness is related to the development level and economic structure, and fluctuates within the limits designated by their relative costs, quality and innovativeness as well as the state of economic equilibrium." Another definition was provided by H. Siebert in his 2006 paper, where he presented international competitiveness as „the capability to improve the prosperity level by retaining mobile factors of production in one's own country and making it attractive for foreign factors of production"(Bossak, Bieńkowski, 2004, p. 34).

Attempts to define this notion have been made by various international organizations, both those concerned strictly with analysis of such competitiveness, e.g. by collecting statistical data, and those aiming at analysing all the processes going on in the world's economy. The International Institute for Management Development (IMD) defined international competitiveness as the „country's ability to create added value and thus increase national wealth by appropriate resource and process management, attractiveness and aggressiveness, taking both global and local dimension into account and integrating all this into a uniform, coherent economic and social model"(Bukowski, Siek, 2013, p. 11). The World Economic Forum experts, on the other hand, present international competitiveness ina much broader way, namely as

„a set of factors, policies and institutions that determine the level of productiveness in the country and make the national economy able to develop fairly quickly in the mid- and long-term perspective"(Misala, 2007a, p. 66).

The world's competitiveness rankings

Nowadays, there is a great number of different measures and methods for measuring international competitiveness of a given national economy. Especially noteworthy are the world's competitiveness rankings developed by international institutions.

„Heritage Foundation and *The Wall Street Journal* publish an annual report presenting the Index of Economic Freedom (IEF). It shows the extent of all the economic liberties and rights that concern the production, distribution and consumption of goods and services, and refers to the research by the Nobel prizewinning economist Milton Friedman who in his studies was concerned with economic freedom. According to the report, total economic freedom means such things as an unlimited right to own property, fully realized freedom of migration of production factors (labour, capital and products) and a complete lack of state interventionism (or such interventionism existing only to an extent necessary to protect citizens and respect the economic liberties). The IEF is calculated as an average of all ten liberties (with each one having the same weight):

a) business freedom (the ability to start, run and close a business);
b) trade freedom – how liberal the economic exchange is (tariff, non-tariff and para-tariff barriers in foreign trade);
c) fiscal burden (taxes imposed by the government on income, including tax rates on individual income and corporate income as well as the share of tax income in the GDP);
d) government intervention, measured as the relation of all government expenditures (including consumption and transfers) to the GDP;
e) monetary policy as a measure of stability (weighted average of inflation rates from three previous years) and price control;
f) foreign investments (a measure of the freedom of international migration of capital);
g) banking and finance (a measure of the openness of the banking and financial system, i.e. government regulations on financial services, state interventionism and difficulties with starting, operating or closing a business offering financial services);
h) property rights (how well the law protects private property and to what extent the state apparatus enforces these legal regulations);
i) freedom from corruption (a measure based on the Corruption Perception Index, taking into account possibilities of corruption in business, the judiciary and administration);

j) labour rights (a measure showing to what extent can employees communicate with employers without government's intervention).

The Index of Economic Freedom ranges from 0 to 100%, with high-scoring countries seen as entirely free economies, while the lowest-ranked ones, i.e. with a score below 50%, are considered repressed economies (Misztal, Siek, 2007, p. 21-24).

Another significant ranking of international competitiveness is the World Competitiveness Yearbook published annually by the Swiss International Institute for Management Development (IMD). The ranking aims at assessing the ability of individual countries to create and support a favourable environment for competitiveness of enterprises (Piotrowski, 2009, p. 249). Each country analysed in the report can score a total of 0 to 100 points (the higher the score, the more competitive the country's economy) and the research done by the IMD encompasses four categories of factors, namely:

a) macroeconomic results (e.g. economic development, international trade, foreign investment, employment rate, prices level);
b) government efficiency (factors concerning public finance, fiscal policy, institutions, business legislation and education);
c) business efficiency (e.g. productivity, labour market, finance, management practices, the impact of globalization);
d) infrastructure quality (basic, technological, scientific, healthcare, value system) (International Institute for Management Development, www.imd.org/wcc/wcc-factors-criteria/).

Also, the World Economic Forum issues annually its Global Competitiveness Report aiming at assessing the ability of national economies to provide a high standard of living for their citizens and determining the country's competitive position with the use of the Global Competitiveness Index (GCI) (Piotrowski, 2009, p. 261). The analyses of the World Economic Forum turned out to be a breakthrough as they were the first to factor in the differences in the levels of economic development of the countries studied, which undoubtedly translates into the diversification of their international competitive ability. Asa result, three groups of countries have been distinguished:

a) countries that base their economic growth and development on using the basic factors of production (*factor-driven economies*);
b) countries basing their economic growth and development on increasing the efficiency of production factors (*efficiency-driven economies*):
c) countries basing their economic growth and development on invention and innovation (*innovation-driven economies*)(Misala, 2011, p. 186-187).

The Global Competitiveness Index (GCI) assesses the development potential of a given country for the next five years. Initially (until 2005), the GCI was constructed based on three macroeconomic variables that formed a certain basis for economic growth, namely:

a) the quality of public institutions;

b) macroeconomic environment;
c) technological progress.

In 2006, the number of variables for creating the GCI was expanded by further six, that is:

a) the quality of infrastructure;
b) health and primary education;
c) secondary and higher education;
d) goods market efficiency;
e) business sophistication;
f) innovation (World Economic Forum, 2006, p. 3).

A year later, in 2007, further three factors were added to the list:

a) labour market efficiency;
b) financial market development level;
c) market size (World Economic Forum, 2008, p. 20).

All of the above factors ('pillars of competitiveness') are assigned to one of three groups. The first one is called 'basic requirements' and concerns factor-driven economies whose development is determined by the use of the basic factors of production, such as unqualified labour force or natural resources. The second group are 'efficiency enhancers' – these are key for efficiency-driven economies, which are countries that strive for increasing productivity and improving product quality. The last group of components are 'innovation and sophistication factors'(World Economic Forum, 2008, p. 20) which refer to innovation-driven economies, i.e. the countries with the highest level of economic development, using state-of-the-art production technologies and thus engaging in quality-based competition.

An indicator of the competitiveness level is also the ease of starting, running and closing a business. The Ease of Doing Business Index is created by the World Bank organization and published in its annual reports. Their aim is to rank the countries, starting with those with laws and regulations most favourable for conducting business activity, broadly speaking, and ending with those the least business friendly (Misala, 2007b, p. 29-30).

The World Bank analyzes selected countries in terms of the following ten categories (components of the index):

a) conditions for starting a business (number of the procedures required, minimum capital necessary to open a business);
b) obtaining construction permits (procedures, time and cost of inspections and of getting a permit);
c) access to electricity (time and cost of obtaining an electricity connection fora newly built enterprise);
d) registering property (procedures, time and cost needed to enter a commercial property into the mortgage register);
e) access to credits for financing business activity;

f) protecting investors;
g) tax issues (tax rates and regulations, time necessary to fulfill tax-related formalities);
h) international trading (issues related to foreign trading of a company, i.e. the number of necessary permits for imports/exports and the time and cost of obtaining them);
i) enforcing contracts (time and cost of the procedures for resolving commercial disputes in court);
j) resolving insolvency – procedures for closing a business (time and cost of the procedures and the size of capital recovered) (World Bank Group, www.doingbusiness.org/methodology).

The ranking has been prepared with the assumption that the higher a given country is ranked, the less complicated it is to take up business activity on its territory.

Although no one questions the validity of creating such rankings, it does not mean they are not criticized. The most important among the many critical arguments seem to be those pointing out that such indices often refer only to some aspects of economy, making ita partial analysis, or those challenging the credibility of the assessments as relying too little on hard statistical data and too much on subjective opinions. The fact is that these rankings are not perfect, yet they form an indisputable source of useful information, thus allowing to compare the selected economies – at least partially – and in consequence to see the size of the competitive gap between them (Piotrowski, 2009, p. 272).

The competitive position of the Central European countries

The present paper will analyse the competitive position of the Central European countries in the light of the rankings showing international competitiveness. However, as evidenced in the literature on the subject, the area of Central Europe is not unequivocally defined (see e.g. the World Bank, the Organization for Economic Cooperation and Development). The area of Central Europe analyzed in this paper is here considered synonymous with the Visegrád Group whose members are: the Czech Republic, Poland, Slovakia and Hungary (Ministerstwo Spraw Zagranicznych Rzeczypospolitej Polskiej (Ministry of Foreign Affairs of the Republic of Poland), www.msz.gov.pl/pl/polityka_zagraniczna/europa/grupa_wyszehradzka). All of these countries joined the European Union on 1 May 2004 (Slovakia has also been the member of the Eurozone since 2009).

These four countries are not only connected with ties of culture, religion and close neighbourhood. They are also – or perhaps, from an economic perspective, above all – former members of the Eastern Bloc whose economies have undergone a systemic transformation towards market economy. This process is still underway, because, while it was possible to change the political system within several months

and create foundations for a multiparty system, the development of a reliable sector of financial services, creating infrastructure or even the structural reforms of the biggest industry branches could not be done overnight (Mościbrodzki, 2008, p. 6). Today, however, more than two decades after this change of system, the effects of these transformations can surely be assessed, which has been the subject of discussion by many authors.

The Index of Economic Freedom – the Heritage Foundation

In the annual rankings prepared by the experts of the Heritage Foundation, Central European economies had a medium degree of economic freedom during the last ten years.

Table 1. The Index of Economic Freedom values (%) and the position in the Heritage Foundation ranking for the Czech Republic, Poland, Slovakia and Hungary, 2004 – 2014

	Czech Republic		Poland		Slovakia		Hungary	
	Score	Ranked	Score	Ranked	Score	Ranked	Score	Ranked
2004	67.0	21	58.7	52	64.6	30	62.7	43
2005	64.6	20	59.6	49	66.8	33	63.5	41
2006	66.4	21	59.3	41	69.8	34	65.0	40
2007	67.4	31	58.1	87	69.6	40	64.8	44
2008	68.1	37	60.3	83	70.0	35	67.6	43
2009	69.4	37	60.3	82	69.4	36	66.8	44
2010	69.8	57	63.2	45	69.7	35	66.1	65
2011	70.4	28	64.1	68	69.5	37	66.6	51
2012	69.9	30	64.2	64	67.0	51	67.1	49
2013	70.9	29	66.0	57	68.7	42	67.3	48
2014	72.2	26	67.0	50	66.4	57	67.0	51

Source: own study based on *2004 – 2014 Index of Economic Freedom*, Heritage Foundation.

Virtually in the entire analysed period, the country with the lowest degree of economic freedom is Poland (between 2004 and 2007 it was described as 'mostly unfree,' between 2008 and 2014 – as 'moderately free'). It should be pointed out, however, that at the same time Poland is the only country of the studied four that consistently improved its score in the ranking in the researched period. Economic freedom proved to be a bit greater in Hungary and Slovakia. Throughout the studied period, the Czech Republic was the freest of the four and as the only one of them has scored more than 70% since 2013, thus being classified as 'mostly free.'

More detailed information on the reasons behind these results can be inferred from the different measures comprising the Index of Economic Freedom.

Table 2. The components of the Index of Economic Freedom for the Central European countries, 2004 – 2008 (%)

	Czech Republic			Poland			Slovakia			Hungary		
	2004	2006	2008	2004	2006	2008	2004	2006	2008	2004	2006	2008
business freedom	70	57.8	64.2	70	57	54	70	69	70	70	71	74
trade freedom	73.4	82.4	86	70.4	82.4	86.0	72.8	82.4	86.0	76.0	82.4	86.0
fiscal burden	67	68.8	71.3	64.9	68.7	68.6	68.5	89.5	89.4	65.6	68.2	70.0
government intervention	40.9	36.8	45.6	35	40	44	42	53	54	20	27	27
monetary policy	84.6	85.9	80.3	78	80	82	81	78	77	74	74	77
foreign investment	70	70	70	50	50	60	70	70	70	70	70	80
banking and finance	90	90	80	70	70	60	90	90	80	70	70	70
property rights	70	70	70	50	50	50	50	50	50	70	70	70
freedom from corruption	37	42	48	40	35	37	37	40	47	49	48	52
labour rights	–	60.3	66.1	–	61.2	61.3	–	76.7	77.1	-	69.5	70.3

Source: own study based on *2004 – 2014 Index of Economic Freedom*, Heritage Foundation.

The lowest graded components in all the four countries throughout the analyzed period are government intervention and freedom from corruption. This information shows that the countries of the Visegrád Group are stillbattling with certain constriction of economic freedom by the government, which can mean the presence of state-owned companies in the economy (e.g. the Czech energy company CEZ, Polish State Railways, Forests of the Slovak Republic, or Hungarian public television Magyar Televizió (Dančíková, Riapošová, 2013,p. 9-12)), as well as the share of state ownership in budget income. This is due to the fact that the presented economies have been operating in the free market system for a relatively short time, and thus the process of privatizing and restructuring state-owned enterprises is still underway. The problem is also the fight against corruption, pointing to the occurrence of such unwanted phenomena as smuggling or piracy of intellectual property. This seems to be confirmed by the fact that all the four countries are classified relatively high in the ranking concerning corruption (especially in public life) prepared by Transparency International (www.transparency.org).

Table 3. The components of the Index of Economic Freedom for the Central European countries, 2010 – 2014

	Czech Republic			Poland			Slovakia			Hungary		
	2010	2012	2014	2010	2012	2014	2010	2012	2014	2010	2012	2014
business freedom	65.5	67.7	70.1	62	61	70	73	71	67	77	80	79
trade freedom	87.5	87.1	87.8	87.5	87.1	87.8	87.5	87.1	87.8	87.5	87.1	87.8
fiscalburden	80.1	82	81.7	74.9	74.4	76.1	84.0	84.2	80.2	68.6	78.6	81.1
governmentinter-vention	45.6	36.8	43.8	47	40	43	65	48	56	26	24	27
monetary policy	75.6	81.5	79.4	78	79	78	78	84	78	74	76	76
foreign investment	70	70	80	60	65	70	70	75	80	75	70	75
bankingandfinance	80	80	80	60	60	70	70	70	70	70	70	70
propertyrights	65	70	70	55	60	60	55	50	50	65	70	60
freedom from corruption	52	46	45.3	46	53	54.8	50	43	42	51	47	49
labourrights	76.4	77.9	84	61.5	61.3	60.4	65.1	58.1	53.6	67.6	67.6	65.7

Source: own study based on *2004 – 2014 Index Of Economic Freedom*, Heritage Foundation.

In the period from 2004 to 2008, the highest scores were obtained in such categories as 'banking and finance,' 'monetary policy' and 'trade freedom.' The high level of freedom in these areas is probably the result of the four countries joining the European Union, especially in case of trade freedom, as evidenced by the fact that trade volumes doubled, on average (for each of the countries analyzed), within three years since the EU accession (World Trade Organization, stat.wto.org).

World Competitiveness Yearbook – International Institute for Management Development

The next ranking presented here is the World Competitiveness Yearbook, published annually since 1989 and considered to be one of the most detailed and insightful report on international competitiveness.

The competitiveness of the Czech economy from 2005 to 2014 was consistently ranked around 30th place, which is the best result among the studied countries. As for Slovakia and Hungary, their positions ranged from 30th to 50th, with Slovakia ranking slightly higher. As in the previous ranking analysed here, Poland seems to be faring worst: in 2006, for instance, it was ranked 58th, almost twenty places lower than Hungary and Slovakia. It should be noted, however, that Poland is the only country in this group that has climbed more than 20 places in the ranking (in 2014, as compared to the base year). At the same time, Slovakia and Hungary, initially ranked much higher (in the period from 2004 to 2009), have fallen several places down, making Polish economy come second after the Czech Republic in terms of competitiveness, according to the World Competitiveness Ranking.

Table 4. The position of the Central European countries and their score in the IMD World Competitiveness Yearbook, 2004 – 2014

	Czech Republic		Poland		Slovakia		Hungary	
	Ranked	Score	Ranked	Score	Ranked	Score	Ranked	Score
2004	43	56.4	57	42	40	57.5	42	57.2
2005	36	60.1	57	39	40	58.6	37	59.9
2006	31	63	58	40	39	57.4	41	57.3
2007	32	59.6	52	42.7	34	57.7	35	57.6
2008	28	62.2	44	48	30	59.4	38	52.9
2009	29	66.8	44	53.9	33	63.9	45	53.8
2010	29	65.4	32	64.5	49	51	42	54.1
2011	30	70.1	34	66.9	48	58.6	47	58.9
2012	33	66.2	34	64.2	45	57.3	47	55.7
2013	35	64.6	33	65.4	47	54.5	50	53.5
2014	33	62.2	36	61.8	45	53.3	48	52.5

Source: own study based on: *IMD World Competitiveness Yearbook* (2014) and earlier editions.

The International Institute for Management Development compiles its report based on four categories, with each one containing, on average, from 70 to 100 diverse criteria (Gorynia, Łaźniewska (eds.), 2009, p. 250-251). The values for the four categories scored by each of the Central European countries within the last four years are shown in table 5.

Considering the fact that each of the categories is assessed on the scale of 0 to 100 points, it can be said that in general the countries of Central Europe score quite average in the ranking, if not lower. The country that stand out is clearly Hungary, achieving the best grade among the four in the 'government efficiency' and 'business efficiency' categories. The first of these categories assesses economic policy in terms of its favourable impact on competitiveness and contains such factors as public finance, fiscal policy and business legislation. The second category concerns the ways of motivating enterprises by the environment, i.e. examines such factors as productivity, efficiency, labour market or business practices(International Institute for Management Development, www.imd.org/wcc/wcc-factors-criteria/). In the categories of 'macroeconomic results' and 'infrastructure quality,' Slovakia was an undisputable leader throughout the period analysed, with 57 points in 2011. This confirms that Slovakia is one of the fastest developing economies in Europe.

Table 5. The position of the Central European countries in each of the components of the competitiveness index published in the IMD Global Competitiveness Yearbook, 2010 – 2014

		macroeconomic results	government efficiency	business efficiency	infrastructure quality
Czech Republic	2010	29	33	40	26
	2011	34	28	35	29
	2012	29	30	41	30
	2013	38	36	40	29
	2014	30	38	40	28
Poland	2010	24	36	38	36
	2011	31	35	41	34
	2012	30	36	39	36
	2013	36	27	35	36
	2014	36	30	36	36
Slovakia	2010	54	41	43	40
	2011	57	42	42	41
	2012	55	43	43	39
	2013	52	48	45	41
	2014	55	45	44	40
Hungary	2010	40	51	47	35
	2011	44	52	50	35
	2012	35	51	49	35
	2013	44	52	55	38
		32	53	56	37

Source: own study based on: I*MD World Competitiveness Yearbook* (2014) and earlier editions.

Global Competitiveness Index – World Economic Forum

In its publications, the World Economic Forum has distinguished three groups of countries, divided in terms of their level of economic development. According to the 2014 report, the Czech Republic was the only Central European country rated as belonging to the most advanced group, the innovation-driven economies. Poland, Slovakia and Hungary were classified as countries at the stage of 'transition' from efficiency-driven economies to the aforementioned innovation-driven economies. It should also be noted that Slovakia was classified as one of innovation-driven economies in 2010 and 2013(World Economic Forum, 2010 – 2013).

Table 6. Positions of the Central European countries in the Global Competitiveness Ranking 2004 -2014

	Czech Republic		Poland		Slovakia		Hungary	
	Ranked	Score	Ranked	Score	Ranked	Score	Ranked	Score
2004	40	4.55	60	3.98	43	4.43	39	4.56
2005	29	4.66	43	4.21	36	4.51	35	4.58
2006	29	4.74	48	4.3	37	4.55	41	4.52
2007	31	4.6	45	4	37	4.51	38	4.47
2008	33	4.58	51	4.28	41	4.45	47	4.35
2009	33	4.62	53	4.28	46	4.4	62	4.22
2010	31	4.67	46	4.33	47	4.31	58	4.22
2011	36	4.62	39	4.4	60	4.22	52	4.33
2012	38	4.52	41	4.46	69	4.19	48	4.36
2013	39	4.51	41	4.46	71	4.14	60	4.3
2014	46	4.43	42	4.46	78	4.1	63	4.25

Source: own study based on: *Global Competitiveness Report 2013-14 and earlier editions*, World Economic Forum.

Poland was the only country that strengthened its position in the studied period, climbing up 18 places (in 2014, as compared to the base year). This conclusion reached by the experts of the World Economic Forum differs profoundly from the conclusions of the experts who prepared the previous rankings presented here. One reason for such inconsistencies is that each ranking 'assesses' a given economy on a basis of a different number of criteria. Another is that some rankings are based mostly on hard data, and some on managers' opinions (Piotrowski, 2009, p. 251).

All the other countries studied here have fallen in the ranking. The biggest loss was recorded by Slovakia: it moved down 35 places since the base year. Next comes Hungary with almost as dramatic a drop by 24 places, and then the Czech Republic with a smaller fall by 6 positions.

Until 2006, the Global Competitiveness Index of the World Economic Forum had been created basing on three components, with values for the countries studied here shown in table 7 below (see also table 7a further on).

As for the quality of public institutions, which also means how the government affects different legal aspects such as property rights or integrity and corruption, between 2004 and 2006 Hungary was the frontrunner, first ranked 37th, and then 36th. In case of the other two categories, concerning macroeconomic data and technology with the related diverse processes, the Czech Republic scored the highest. International competitiveness of Slovakia was rated as moderately good, contrary to Poland's – this country lagged behind the rest in each category but the disparity was the greatest in case of technological progress.

Table 7. The components for the Global Competitiveness Index by the World Economic Forum for the Central European countries, 2004 – 2006

		Quality of public institutions	Macroeconomic environment	Technological progress
2004 – 2005	Czech Republic	4.56 (51)	4.22 (41)	4.88 (19)
	Poland	3.7 (80)	4.05 (51)	4.19 (45)
	Slovakia	4.64 (49)	3.98 (54)	4.67 (28)
	Hungary	5.07 (37)	3.95 (55)	4.66 (29)
2005 – 2006	Czech Republic	4.63 (50)	4.31 (40)	4.31 (22)
	Poland	4.14 (79)	4.09 (51)	3.77 (52)
	Slovakia	4.73 (49)	4.23 (52)	3.99 (32)
	Hungary	5.15 (36)	3.91 (57)	4.08 (36)

Source: own study based on: *Global Competitiveness Report 2004-05* and *Global Competitiveness Report 2005-06*, World Economic Forum.

In 2007, the number of criteria used to rate international competitiveness of a given economy was significantly expanded: 12 criteria were established, assigned to the three pillars (or three subindices). It should be emphasized, however, that they were not assigned randomly. Each of the pillars (subindices) has different weight, depending on the stage of economic development the given country is at. The assignment of these pillars is parallel to the level of economic development (e.g. for a factor-driven economy, the biggest weight is assigned to the factors of the first subindex, called 'basic requirements').

The Czech Republic, as the most advanced of the four economies, dominated the majority of the categories presented. Throughout the studied period, it was rated the highest in such categories as 'infrastructure' (the Czech Republic has the densest railway network in Europe and an excellent road network), 'technological progress' and 'macroeconomic environment,' which shows the good condition of the Czech economy. Importantly, the country was the leader among the studied four in such areas as 'business sophistication' and 'innovation' which, according to the methodology adopted by the World Economic Forum, are categories of key significance to the Czech Republic as an innovation-driven economy. The country was also the frontrunner in the 'secondary and higher education' area for almost the entire studied period, but in 2011 it was outrun by Poland. The same goes for 'business sophistication' – since 2010, Poland has ranked slightly higher than the Czech Republic.

In case of Slovakia, the highest rated category was the 'financial market development level' but, as in the previous case, the country was outstripped by Poland in 2010. Hungarian economy showed promise on 'the quality of public institutions,' yet it too was outdistanced by Poland in 2010.

Table 8. The components for the Global Competitiveness Index by the World Economic Forum for the Central European countries, 2007 – 2010

		2007 – 2008				2009 – 2010			
		Czech Republic	Poland	Slovakia	Hungary	Czech Republic	Poland	Slovakia	Hungary
Basic requirements	quality of public institutions	3.84	3.65	3.99	4.14	3.93	3.90	3.74	3.77
	quality of infrastructure	4.22	3.03	3.78	3.93	4.27	2.88	3.89	4.04
	macroeconomic environment	5.26	5.01	4.92	4.22	4.99	4.56	5.14	4.50
	health and primary education	6.06	5.96	5.88	5.86	5.94	5.88	5.68	5.59
Efficiency enhancers	quality of public institutions	4.85	4.62	4.42	4.64	5.05	4.82	4.37	4.63
	quality of infrastructure	4.65	4.12	4.66	4.26	4.82	4.34	4.67	4.22
	macroeconomic environment	4.64	4.44	4.76	4.36	4.88	4.54	4.78	4.43
	health and primary education	4.60	4.32	5.02	4.64	4.64	4.61	4.82	4.20
	secondary and higher education	4.12	3.44	4.08	3.91	4.75	3.97	4.61	4.44
	labour market efficiency	4.38	4.88	3.81	4.26	4.51	5.07	4.05	4.35
Innovation and sophistication factors	business sophistication	4.71	4.04	4.26	4.35	4.80	4.35	4.29	3.89
	Innovation	3.95	3.28	3.42	3.61	4.01	3.33	3.12	3.45

Source: own study based on: *Global Competitiveness Report 2007-08* and *Global Competitiveness Report 2009-10*, World Economic Forum

Table 9. The components for the Global Competitiveness Index by the World Economic Forum for the Central European countries, 2011 – 2014

		2007 – 2008				2009 – 2010			
		Czech Republic	Poland	Slovakia	Hungary	Czech Republic	Poland	Slovakia	Hungary
Basic requirements	quality of public institutions	3.65	4.17	3.46	3.79	3.64	4.01	3.32	3.67
	quality of infrastructure	4.87	3.87	4.23	4.52	4.71	3.96	4.12	4.37
	macroeconomic environment	5.17	4.71	4.92	4.77	5.01	4.88	4.91	4.51
	health and primary education	5.91	6.06	6.04	5.81	5.84	6.03	6.07	5.88
Efficiency enhancers	quality of public institutions	4.95	4.95	4.50	4.66	4.51	4.6	4.27	4.28
	quality of infrastructure	4.58	4.36	4.36	4.32	4.85	4.88	4.4	4.72
	macroeconomic environment	4.62	4.48	4.47	4.38	4.41	4.34	4.24	4.23
	health and primary education	4.31	4.60	4.44	4.15	4.2	4.2	4.24	4.18
	secondary and higher education	4.82	4.18	4.54	4.55	4.2	4.54	4.49	3.93
	labour market efficiency	4.48	5.08	3.99	4.24	4.88	4.47	4.16	4.35
Innovation and sophistication factors	business sophistication	4.00	4.45	3.74	4.47	4.5	5.14	4.03	4.26
	Innovation	2.91	3.81	3.61	3.92	4.07	3.65	3.49	3.6

Source: own study based on: *Global Competitiveness Report 2011-12* and Global Competitiveness Report 2013-14, World Economic Forum.

It is clear, therefore, that the reason for such spectacular rise of Poland's competitive position in the Global Competitiveness Ranking are significant changes in several categories (that are key for the country in terms of its level of economic development). The crucial year turned out to be 2010, when the general condition of Polish economy proved to be important (its immunity to the global recession of 2008 and 2009 was a factor), as did the ready domestic market and achievements in the area of education, providing companies with highly qualified staff. What should also be emphasized is the significant progress in building information society, which was made from 2007 to 2010, especially the fast development of e-administration(Żuber, 2011, p. 49).

TheEase Of Doing Business Index– World Bank

Between 2006 and 2014 the countries of the Visegrád Group ranked relatively high here, as shown in table 9, given that the ranking included almost 190 economies.

Table. 10. The positions of the Central European countries in the Ease of Doing Business ranking by the World Bank, 2006 – 2014

	Czech Republic	Poland	Slovakia	Hungary
2006	50	74	34	60
2007	52	75	36	66
2008	56	74	32	45
2009	66	72	35	41
2010	74	72	42	47
2011	70	59	43	46
2012	64	62	48	51
2013	68	55	49	53
2014	75	45	49	54

Source: own study based on *Ease Of Doing Business Report 2014* and the earlier editions, World Bank.

In the period from 2006 to 2014, the most favourable conditions for doing business were created by Slovakia, despite the fact that with respect to the base year, its position became much weaker in 2014 (down by 15 places). Poland's economy in the first few years (i.e. 2006 – 2010) was ranked the lowest among the group, but ultimately in 2014 it took the highest, 45th, place in the ranking. Hungary also rose by 6 places, while the Czech Republic fell by 25 places.

These developments were affected by a series of reforms implemented in all of the four countries in the studied period. In Poland, the most effective reforms concerned, among other things, the conditions for starting a business: in 2010, starting a com-

pany was made easier by reducing the minimum capital requirements, and in 2014 it was facilitated by removing the requirement to register the new enterprise at the Chief Labour Inspectorate and the Chief Sanitary Inspectorate. Equally significant were the new solutions concerning property registration: e.g. online land registration was implemented in 2011. More facilitations are scheduled to be introduced in 2015, with computerizing property transfers (which will allow for avoiding notarial costs, for instance)(World Bank Group, www.doingbusiness.org/reforms).

Table. 11. The components of the Ease of Doing Business index by the World Bank for the Central European countries, 2010 – 2014

	2010	2012	2014	2010	2012	2014	2010	2012	2014	2010	2012	2014
	Czech Republic			Poland			Slovakia			Hungary		
Conditions for starting a business	74	64	146	117	62	45	66	76	108	47	39	59
Obtaining construction permits	76	68	86	164	160	88	56	50	53	88	55	47
Access to electricity	-	148	146	-	64	137	-	102	65	-	103	112
Registering property	62	34	37	88	89	54	11	10	11	61	43	45
Access to credits for financing business	43	48	55	15	8	3	15	24	42	30	48	55
Protecting investors	93	97	98	41	46	52	109	111	115	119	122	128
Tax issues	121	119	122	151	128	113	120	130	102	122	117	124
International trading	53	70	68	42	46	49	113	95	108	70	74	70
Enforcing contracts	82	78	75	75	68	55	61	71	65	14	19	15
Resolving insolvency – procedures for closing a business	116	33	29	85	87	37	39	35	38	58	66	70

Source: own study based on *Ease of Doing Business Report 2014* and the earlier editions, World Bank.

From 2010 to 2014, in the Czech Republic many solutions were implemented, too, such as simplifying and accelerating procedures for enforcing contracts (resolving commercial disputes in court), introducing an option for paying taxes via the Internet, and decreasing insurance rates paid by the employer for the employee. However, there were also some unfavourable changes, such as the ones concerning property registration – in 2014 the relevant tax rate was increased, which inevitably raised the cost of these proceedings – and this must have contributed to weakening the Czech economy's position in the ranking(World Bank Group, www.doingbusiness.org/reforms).

Hungary, despite many unfavourable reforms, slightly improved their position as far as conditions favouring business activity are concerned. The most harmful changes had to do with the conditions for starting a business: in 2013 the related costs

were significantly increased (e.g. by raising the registration fee for limited liability companies, and by creating a new tax taking effect when enterprises form a group). At the same time, there were also many favourable changes, such as the ones concerning the financing of business activity or the tax issues(World Bank Group, www.doingbusiness.org/reforms).

The most harmful changes responsible for lowering Slovakia's position in the Ease of Doing Business ranking are the ones concerning starting a business as well as the tax issues. In 2014, starting a limited liability company in Slovakia became more difficult because of a newly created procedure concerning it, and taxes became more costly due to an increase of the income tax rate, among other factors. However, in 2015 the country is planning to facilitate business activity by improving the credit information system and simplifying the procedures for registering a business (and thus waiving some of the fees)(World Bank Group, www.doingbusiness.org/reforms).

Summary and conclusion

Nowadays, the process of industrialization of economic life is becoming more and more intensive worldwide. The dominant reason seems to be the aspiration to achieve higher prosperity and to take all the opportunities to make profit – these are the features of competing on an international scale.

This paper has analysed the competitive position of the Central European countries (considered to be synonymous with the Visegrád Group) on the basis of international rankings compiled and published by some of the most prestigious economic organizations in the world: the Heritage Foundation, the International Institute for Management Development, the World Economic Forum and the World Bank. The analyses performed allow us to formulate certain conclusions about how the competitive position of the Central European countries evolved in the period from 2004 to 2014.

The country that got the best ratings in most of the rankings is the Czech Republic. This does not seem unusual since the Czech Republic has been and still is the leader among this entire group, despite having been hit with the global economic crisis and the fact it is still recovering from the losses suffered.

Slovakia and Hungary proved to be the countries in the middle of the ranking. Slovakia turned out to be a country that consistently reforms its economy and is more strongly tied to the center of Europe due to the implementation of euro as its currency in 2009. The high standing of Slovakia can be confirmed by the fact that is has been qualified three times by the World Economic Forum as one of innovation-driven economies, i.e. those at the highest level of development. Hungary did not fare as good as this, which does not mean it was far behind Slovakia. Hungary proved to be the leader in such categories as 'government efficiency' and 'business efficiency' in

the rankings published by the Institute for Management Development. It also slightly improved its position – contrary to Slovakia – in the 'Ease of Doing Business' ranking examining the conditions for starting and operating a business in a given country. It should also be remembered that the economic situation of Hungary improved greatly in 2014 (Eurostat's forecasts point to a GDP increase of as much as 3% (Eurostat Database, ec.europa.eu/Eurostat)) which is probably a result of a stringent budget and economical fiscal policy (Piotrowski, 2014).

The lowest rated economy – considering the entire period analysed – turned out to be Poland. All the three rankings showed a relatively large gap between the competitiveness of the Polish economy and that of the rest of the studied group. However, in the last few years, i.e. since 2010, Poland's position has begun to rise quite rapidly, and as a result the country outdistanced Slovakia and Hungary (according to WEF, in such areas as 'the quality of public institutions' and 'market size') and even the Czech Republic (in the 'business sophistication' category). One reason for this 'growth' is the fact that the Polish economy did relatively well in enduring the global economic crisis and its effects (it should be noted that Poland was the only country to record a GDP increase of +1.7% in 2010, when the rest of the group took a fall of as much as –6 or –4%(Eurostat Database, ec.europa.eu/eurostat)). Poland also proved to be an economy creating the best conditions for business activity among the Visegrád Group countries.

The analysis shows that the countries of Central Europe have yet much to achieve in the area of international competitiveness in order to match such countries as Germany or the United Kingdom, which are the leading economies of the European Union. However, one should not overlook the enormous progress that Central European countries have made since adopting the free market economic system.

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THE IMPORTANCE OF LIFELONG LEARNING IN XXI CENTURY

Abstract

The aim of article is to show importance of lifelong learning in the context of currently labour market. In that respect, the employability, adaptability and mobility of citizens is vital for Europe. To attain these objectives, European systems of education and training must adapt to the requirements of the knowledge society and the need for an enhanced level of education and better quality employment. This processes don't understand the polish entrepreneurs. The article definides of lifelong learning, describes the types of adult education and some statistical data of adult education in 28 countries integrated Europe and also possibilities to apply to costs on lifelong learning from European Social Fund in the period 2014-2020.

JEL Classification Code: **F00**.

Keywords: adult education, vocational education, lifelong learning, labour marke.

Introduction

Lifelong learning may be broadly defined as learning that is pursued throughout life: learning that is flexible, diverse and available at different times and in different places. Lifelong learning crosses sectors, promoting learning beyond traditional schooling and throughout adult life (ie post-compulsory education). This definition is based on Delors' (1996) four 'pillars' of education for the future:

- Learning to know - mastering learning tools rather than acquisition of structured knowledge.
- Learning to do – equipping people for the types of work needed now and in the future including innovation and adaptation of learning to future work environments.

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- Learning to live together, and with others – peacefully resolving conflict, discovering other people and their cultures, fostering community capability, individual competence and capacity, economic resilience, and social inclusion.
- Learning to be – education contributing to a person's complete development: mind and body, intelligence, sensitivity, aesthetic appreciation and spirituality.

This is underpinned by „Learning to Learn". Lifelong learning can instill creativity, initiative and responsiveness in people thereby enabling them to show adaptability in post-industrial society through enhancing skills to (Kunga, Machtmes, 2009):
– manage uncertaintly,
– communicate across and within cultures, sub-cultures, families and communities,
– negotiate conflicts.

The emphasis is on learning to learn and the ability to keep learning for a lifetime. The European Commission (2001) found that lifelong learning has "Four broad and mutually supporting objectives: personal fulfilment, active citizenship, social inclusion and employability/adaptability". In this regard, lifelong learning has lifewide dimensions that transcend narrow economic and vocational aspects. The European Lifelong Learning Initiative defines lifelong learning as "…a continuously supportive process which stimulates and empowers individuals to acquire all the knowledge, values, skills and understanding they will require throughout their lifetimes and to apply them with confidence, creativity and enjoyment, in all roles circumstances, and environments". (Watson 2003) In Sweden, the National Agency for Education has put forward a conceptual framework for both lifelong learning and life-wide learning (Skolverket, 2000). Lifelong learning is seen as a holistic view of education and recognises learning from different environments. As shown in Figure 1, it consists of two dimensions (Skolverket, 2000):
1) lifelong learning recognising that individuals learn throughout a lifetime,
2) life-wide learning recognising the formal, non-formal and informal settings.

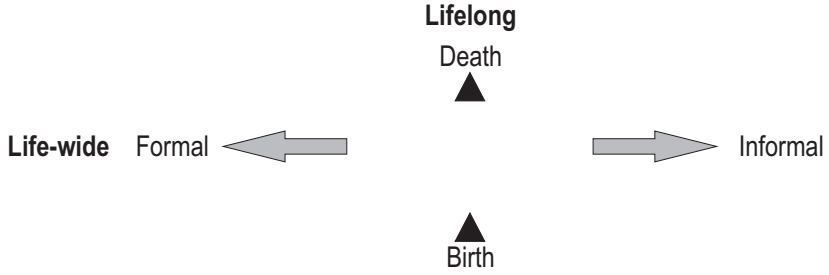

Figure 1. Dimensions of lifelong learning

The lifelong dimension is relatively non-problematic, as it simply comprises what an individual learns throughout life. It is widely accepted that as knowledge and skills become obsolete, individuals continuously update their competencies in a process of continuous learning.

Types of adult education

Adult education is a practice in which adults engage in systematic and sustained learning activities in order to gain new forms of knowledge, skills, attitudes, or values. It can mean any form of learning adults engage in beyond traditional schooling, encompassing basic literacy to personal fulfillment as a lifelong learner. In particular, adult education reflects a specific philosophy about learning and teaching based on the assumption that adults can and want to learn, that they are able and willing to take responsibility for that learning, and that the learning itself should respond to their needs. Driven by what one needs or wants to learn, the available opportunities, and the manner in which one learns, adult learning is affected by demographics, globalization and technology. The learning happens in many ways and in many contexts just as all adults' lives differ. Adult learning can be in any of the three contexts i.e. (AES, 2013):

- Formal – Structured learning that typically takes place in an education or training institution, usually with a set curriculum and carries credentials,
- Non-formal- Learning that is organized by educational institutions but non credential. Non-formal learning opportunities may be provided in the workplace and through the activities of civil society organizations and groups
- Informal education-Learning that goes on all the time, resulting from daily life activities related to work, family, community or leisure (e.g. community baking class).

This analysis of lifelong learning differs from that postulated by the OECD which classifies formal learning as a program of study that is recognised through a qualification; non-formal learning as a program of study that is not recognised through a qualification, and informal learning as that which is achieved outside an organised program (Watson 2003: 2).Non-formal education is the institionalised learning activities and structural programs.

In non –formal education (NFE) forms of learning are (Kaufmann 2015):

– workshops and seminars in the workplace,
– courses in their free time after work,
– training organized by the employer with the instructor,
– private lessons and courses with the teacher,
– guided on the job training,
– open and distance education.

Informal education this is not institutionalid education, learning events, activities on a self-directed, family-directed or socially directed basics. This is learning from a family members, friends or colleagues.

Table 1. Formal, non-formal and informal learning

Formal	Non-formal	Informal
ACE institutions	Labour market programs	Clubs
Universities	Professional associations	Libraries
VET providers	On-the-job training	Museums
High schools	Work experience programs	Art galleries
Primary schools	Volunteer organisations	Playgrounds
Pre-schools	Childcare centres	Families
U3As	Learning circles	Elder care

Source: Own study.

The distinction between formal and non-formal learning environments is about where learning takes place. Formal learning occurs within institutions established primarily to deliver education and training, often leading to recognised outcomes and qualifications. Non-formal learning has intended education and training outcomes, however, the setting is outside dedicated learning institutions, most often in places where learning is not the primary business. Informal learning is distinguishable by intent. It can occur almost anywhere, but as a by-product of other activities. It is often unplanned and without explicit emphasis on learning, yet may still lead to the acquisition of valuable skills, knowledge and attitudes.

Statistical researches of lifelong learning in the EU

The Adult Education Survey (AES) is part of the EU statistics on lifelong learning. The survey covers participation in education and training (formal, non-formal and informal learning). The reference period for the participation in education and training is the twelve months prior to the interview. The survey focuses on people aged 25-64 living in private households. The survey is carried out every five years. The first wave was conducted between 2005 and 2008 as a pilot survey. Besides detailed information on educational activities the data include comprehensive sociodemographic information such as education, employment and household characteristics.

Eurostat prepared a model questionaire and a manual which was largely followed by most countries. Thus there is a high degree of comparability in the survey instrument. However considerable heterogeneity is observed in regards to non-formal education and thus the concept might not be as readily comparable as formal education.

The legislations on statistical researches on adult education the Council adopted, in November 2004, Conclusions on European cooperation in vocational education and training, and agreed that priority should be given at European level to 'the improvement of the scope, precision and reliability of vocational education and training statistics in order to enable evaluation of progress.

On 24 May 2005, the Council adopted Conclusions on 'New indicators in education and training'. In these Conclusions the Council invited the Commission to present to the Council Strategies and proposals for the development of new indicators in nine particular areas of education and training and also stressed that the development of new indicators should fully respect the responsibility of Member States for the organisation of their education systems and should not impose undue administrative or financial burdens on the organisation and institutions concerned, or inevitably lead to an increased number of indicators used to monitor progress.

The Commission (Eurostat) is collecting data on vocational training in enterprises in accordance with Regulation (EC) No 1552/2005 of the European Parliament and of the Council of 7 September 2005 on the statistics relating to vocational training in enterprises.

There are also two regulations of European Commission concerning adult education in the European Union.

The first regulation (EC) no 452/2008 of the European Parliament and of the Council of 23 April 2008 concerning the production and development of statistics on education and lifelong learning. This Regulation establishes a common framework for the systematic production of Community statistics in the field of education and lifelong learning. This Regulation shall apply to the production of statistics in three domains:

a) Domain 1 shall cover statistics on education and training systems;
b) Domain 2 shall cover statistics on the participation of adults in lifelong learning;
c) Domain 3 shall cover other statistics on education and lifelong learning, such as statistics on human capital and on the social and economic benefits of education, not covered by Domains 1 and 2.

The Commission Regulation (EU) No 823/2010 of 17 September 2010 implementing Regulation (EC) No 452/2008 of the European Parliament and of the Council concerning the production and development of statistics on education and lifelong learning, as regards statistics on the participation of adults in lifelong learning in article notes, that the data collection for the first survey on the participation and non-participation of adults in lifelong learning (Adult Education Survey) shall take place between 1 July 2011 and 30 June 2012. The reference period for which the data on participation in lifelong learning activities are collected shall be the 12 months prior to the data collection period. Data shall be collected every five years.

The new data will be collected between July 2016 and March 2017.

The population age range covered by the survey shall be 25-64. The age groups 18-24 and 65-69 shall be covered on an optional basis.

Statistical data on lifelong learning in Poland and EU

In Poland predominantly non formal (29.0%) and informal learning (60.0%). People living in the cities learn more often than people from rural areas. In the cities rate of improving the skills amounts 14.6% and in the rural areas 11.8%.

Women participate in educational programs more often than men. Women learn primary informally.

Generally people with higher education engage in different educational programs. In all types of adult education they make up 90.2% all students. Also high graduates people and after high school more often participate in adult education than with the vocational school graduates. The least interested in improving their qualification are the unemployed people and professionally inactive. Generally adult population with the primary and basic education low stratified education and training system.

Working people tend to learn more than the unemployed and professionally inactive.

Working people have to adapt to the requirements of the skill-changing labour market, raise the qualifications to the requirements of the workplace, they receive financial support by employers or from the European Social Fund.

Young people up to 30 years of age (54.9%) more often participate in adult educational programs. From the other side the people after the age of 60. are the least interested in educational programs.

Table 2. People aged 25-64 years by participation in formal learning, non-formal and informal learning and gender and place of residence in Poland in 2011

Description	Total in 1000	Formal learning [%]	Informal learning [%]	Non-formal learning [%]
Total*	22299	21,0	29,0	60,0
Male	11054	20,6	28,3	60,5
Female	11244	21,4	29,7	59,6
Cities area	13931	25,2	33,4	54,2
Rural area	8367	14,0	21,8	69,6

*figures do not add up to totals, because one person can participate simultaneously in several forms of training

Source: *Kształcenie Dorosłych 2011 – Informacje i opracowania GUS*, Warszawa 2013, tab. 2, s. 16.

Poland has a low rate of adult education in comparison with the other EU member states.

The average value for 28 countries of EU is 40.8% (AES 2013). The largest share of adult education is observed in Nordic countries" Sweden, Danemark, Finland, as well in Luxembourg and France.

The lowest number of adult participating in educational programs can be observed in countries such as Romania, Greece, Poland, Croatia.

The differences in participation in adult education depended of type of welfare state regime in the EU. In nordic countries is more participants in adult education because this regime despite/ minimalized stating barriers.

Table 3. Participation of people aged 25-64 years in lifelong learning in the EU, 2011

Country	Lifelong learning [%]	Formal training [%]	Non-formal education [%]
Austria	14,2	5,9	45,5
Belgium	7,2	7,4	33,1
Bulgaria	1,7	2,4	24,4
Croatia	2,8	4,5	18,4
Cyprus	7,0	3,7	40,9
Czech Republic	9,4	3,7	34,9
Denmark	31,4	12,6	52,7
Estonia	12,3	6,6	48,0
Finland	25,0	10,2	51,2
France	17,7	5,5	49,1
Greece	3,0	2,6	9,6
Spain	10,1	7,0	34,1
Holland	17,7	12,3	54,8
Ireland	6,9	b.d.	b.d.
Lithuania	5,2	4,0	25,9
Luxembourg	13,8	9,9	68,0
Lotvia	5,9	4,3	30,7
Malta	7,9	4,2	34,1
Germany	7,9	3,0	48,4
Poland	4,1	5,4	21,0
Portugal	9,7	10,4	39,6
Romania	1,7	1,4	6,9
Slovak Republik	2,9	5,8	38,3
Slovenia	12,2	2,3	34,7
Sweden	28,8	13,5	67,0
Hungary	3,3	6,5	37,6
United Kingdom	15,9	15,1	40,3
Italy	7,8	2,9	34,3

Source: Adult Education Survey, Eurostat 2013, http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=trng_aes_100&lang=en (12.03.2015).

In the EU, the opportunities for living, studying and working in other countries make a major contribution to cross-cultural understanding, personal development and the realisation of the EU's full economic potential. It can be observed inequality in participation in non-formal training.

Vocational training courses are supported by employers in the large companies, for men, young age groups, fixed term workers and high skill match.

The most difficult situation in financial support of training is for women, in small companies, for part-time workers.

In adult education in European Union are mainly course (27.3%), guided on the job training (13.4%), workshops and seminars (10.4%), private lessons (1.6%). In currently time –still 45.8% population aged 25 to 64 not applicable and not participate in educational training.

For instance in Poland employer sponsor are only 5.3%, in Spain 9.2%, but in UK almost 38.0%. The rest participants of educational programs have to pay theirself for improving their skills. Respondents from all European countries give the reasons for participating in adult education/training (Kaufmann 2015):

- to do job better or improve carrier prospects,
- to be less likely to lose job,
- to increase possibilities of getting a job or changing a job/profession,
- to start own business,
- obliged to participate,
- to get skills/ knowledge useful in everyday life,
- to get skills useful on a subject their interests,
- to obtain certificate,
- to meet new people/ for fun.

The mainly fields of adult training given by surveyed: business and administration (10.8%), occupational health and safety (8.1%), computer user (7.6%), health (7.3%), foreign languages (5.8%), security services (5.7%), personal skills (5.0%), teacher training and education science (4.3%), Arts (3.4%).

As above mentioned the differences in inequality in access to adult education training are macro-indicators and individuelle characteristics (gender, age, educational level). For financial supporting of employers related of professional status, job tenese, firm size, permanent/ fixed term, part-/fulltime.

Financing of lifelong learning in the period 2014-2020

Concerning on Regulation (EU) No 1304/2013 of the European Parliament and of the Council of 17 December 2013 on the European Social Fund and repealing Council Regulation (EC) No 1081/2006 the European Social Found (ESF) should improve employment opportunities, strengthen social inclusion, fight poverty, pro-

mote education, skills and life-long learning and develop active, comprehensive and sustainable inclusion policies in accordance with the tasks entrusted to the ESF by Article 162 of the Treaty on the Functioning of the European Union (TFEU), and thereby contribute to economic, social and territorial cohesion in accordance with Article 174 TFEU. In accordance with Article 9 TFEU, the ESF should take into account requirements linked to the promotion of a high level of employment, the guarantee of adequate social protection, the fight against social exclusion, and a high level of education, training and protection of human health.

In accordance with Article 3 the ESF shall support the following investment priorities:

a) For the thematic objective 'promoting sustainable and quality employment and supporting labour mobility;
   - Access to employment for job-seekers and inactive people, including the long-term unemployed and people far from the labour market, also through local employment initiatives and support for labour mobility;
   - Sustainable integration into the labour market of young people, in particular those not in employment, education or training, including young people at risk of social exclusion and young people from marginalised communities, including through the implementation of the Youth Guarantee;
   - Self-employment, entrepreneurship and business creation including innovative micro, small and medium sized enterprises;
   - Equality between men and women in all areas, including in access to employment, career progression, reconciliation of work and private life and promotion of equal pay for equal work;
   - Adaptation of workers, enterprises and entrepreneurs to change;
   - Active and healthy ageing;
   - Modernisation of labour market institutions, such as public and private employment services, and improving the matching of labour market needs, including through actions that enhance transnational labour mobility as well as through mobility schemes and better cooperation between institutions and relevant stakeholders;

b) For the thematic objective 'promoting social inclusion, combating poverty and any discrimination':
   - Active inclusion, including with a view to promoting equal opportunities and active participation, and improving employability

For the thematic objective 'investing in education, training and vocational training for skills and life-long learning':

- Reducing and preventing early school-leaving and promoting equal access to good quality early-childhood, primary and secondary education including formal, non-formal and informal learning pathways for reintegrating into education and training;

- Improving the quality and efficiency of, and access to, tertiary and equivalent education with a view to increasing participation and attainment levels, especially for disadvantaged groups;
- Enhancing equal access to lifelong learning for all age groups in formal, non-formal and informal settings, upgrading the knowledge, skills and competences of the workforce, and promoting flexible learning pathways including through career guidance and validation of acquired competences;
- Improving the labour market relevance of education and training systems, facilitating the transition from education to work, and strengthening vocational education and training systems and their quality, including through mechanisms for skills anticipation, adaptation of curricula and the establishment and development of work-based learning systems, including dual learning systems and apprenticeship schemes

Conclusion

Education, vocational training and Lifelong Learning play important economic and social roles. Currently there are three specific goals for education and training systems:

- **Quality** – Improve their quality and effectiveness
- **Inclusivity** – Ensure that everyone has access to them
- **International Accessibility** – Open them up to the wider world These goals apply to different types and levels of education and training, including: teacher training, basic skills, the integration of information and communication technologies (ICTs), efficiency of investments, language learning, lifelong guidance, flexibility to make learning accessible to all, mobility and citizenship education.

The adult education is increasing every year. The adult education is gaining in importance in XXI century because it requires that the current labour market driven by the development of modern technology and innovation.

Raising the level of qualifications is becoming a necessity. Is the primary factor in the improvement of the quality of human capital. That is the main condition for socio-economic development (Bohonos 2014).

In the literature of subject the need for adult education is (Merriam,Brockett 2007):

- the need to suplement the qualifications,
- the need for skills development,
- the need for retraining,
- willingness to participate in social life,
- curriosity for the world,
- innovation and the rapid development of science and technology.

Focus training undertaken is related to the work.

This processes don't understand the polish entrepreneurs. They sure change their attitude and awareness to the qualification of its employees. Of course, these are costs that nobody wants to be held. There is also a question of corporate social responsibility(CSR). But CRS there is a theme for another one article.

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SHOULD TRADITIONAL RETAILERS GO ONLINE? THE IMPACT OF THE PRESENCE OF E-COMMERCE ON THE CUSTOMER VALUE OF TRADITIONAL RETAILERS

Abstract

The impact of the presence of e-commerce in the business of traditional retailers on their customer value is studied. The methodology of studies is described. Distributions of customer values for multichannel and traditional retailers were obtained. The obtained results clearly prove the positive impact of e-commerce presence in the business of tradition retailers. Managerial implications of this conclusion are provided.

JEL Classification Code: **M10**.

Keywords: customer value, customer perception, retailing, electronic commerce.

Introduction

In recent years e-commerce attracted considerable attention in the literature and in business environment (Wolfinbarger and Gilly, 2003; Evanschitzky et al, 2004; Soopramanien, Robertson, 2007). Drivers of the success in e-commerce has been discussed in numerous studies (Palmer, 1997; Brynjolfsson, Smith, 2000; Quaddusa, Achjari 2005). E-commerce is not only a mean of sells, but also the support other activities (Applegate, 1997; Basu, Muylle, 2003;Evanschitzky et al, 2004). Many traditional retailers (e.g. retailers with bricks and mortar stores) introduced to their business e-commerce channel (e.g. Auchan, Media Markt, Douglas, Leroy Merlin). They derive synergies combining offline and online channels, e.g. through adoption of click and mortar model (Steinfield et al., 2002; Adelaar et al 2004). At the same time e-commerce has still low value shares in total retailing. Therefore, the key duty of traditional retailers is to protect their core business, i.e. bricks and mortar stores.

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Entering online competition can be risky for traditional retailers (Enders and Jelassi, 2000; Ellis-Chadwick, 2010). Although researchers investigated the impact of the Internet on traditional retailing (Burt and Sparks, 2003; Weltevreden, 2007), the overall impact of e-commerce presence on the business of traditional retailer has not been specified.

The fundamental metric in marketing and management quantifying customer behavior is the customer value (CV) (Kumar 2008, Dobiegała-Korona 2010, Kotler, Armstrong 2012). This metric is a great ancestor of inter alia: repurchases, recommending a retailer and creating positive word of mouth (Eggert, Ulaga, 2002; Chen, 2014). It can be used to evaluate the impact of e-commerce presence in the business of traditional retailers on their business performance.

The purpose of this study is to determine the impact of the presence of e-commerce in the business of traditional retailers on their customer value. We defined the following hypothesis:

H1: Multichannel retailers have higher customer value than Bricks & Mortar retailers.

H2: For customers visiting e-store retailer gets higher customer value than for customers visiting only traditional store.

H3: clusters are distinguished by some characteristic features according to customers' demographical variables, contact channels and types of services they use.

In order to validate these hypothesis we used methods based on customer survey and statistical analysis (chi-square test of independence).

Question mark regarding adoption of e-commerce by traditional retailers

Benefits of e-commerce. The literature is full of examples of positive aspects of the presence of e-commerce in the retail. The large number of customers responded very positively to this innovation (Soopramanien, Robertson, 2007). It gives the retailer a great opportunity to improve customer satisfaction (Evanschitzky et al, 2004; Wolfinbarger and Gilly, 2003). The customer-company relation can be improved, because the Internet offers two-ways rich and flexible channel of communication (Basu, Muylle, 2003). Opinions spread by customers do meaningful influence on the image of an organization (Lotko 2013). Besides intangible benefits, the Internet can decrease transaction costs such as fees, time or inconvenience (Chircu, Mahajan 2006). Finally, value of e-commerce is growing at a substantial pace across many countries (see Table 1). Therefore e-commerse is seen as an additional source of revenues and opportunity to attract new customers. From traditional retailers perspective, the synergies between bricks and mortar and online can improve business performance through improving its operational efficiency, geographical extension and market differentiation (Gulati and Garino, 2000; Steinfield et al., 2002).

Question marks. The approach of presenting only positive sides of e-commerce or overestimating potential of e-commerce was criticized by Doherty and Ellis-Chadwick (2010). Doherty et.al. (1999) suggested that adoption of e-commerce might not be the right solution for all retailers. There are several potential threats for traditional retailers. The issue of cannibalization of their own customers were raised by Enders and Jelassi (2000). The Internet might have negative impact on prices and margins. The global reach of the Internet can be perceived as a threat, due to higher amount of competitors. Moreover, in the Internet successfully operate pure player retailers which have different business model than traditional retailers. Presence in e-commerce may influence perception of traditional retailer and might be inconsistent with offline perception (Adelaar et al 2004).

In Table 1 we present the growth of Internet retailing and its share in total retailing in different countries in 2014. One can notice that e-commerce still accounts for a relatively low amount of shares in overall retailing. Therefore, for traditional retailers core business is and probably will be bricks and mortar stores in the next few years.

Table 1. The growth of Internet retailing and its share in total retailing and share of pure players retailing in Internet retailing in different countries in 2014

	Turkey	Lithuania	Germany	Hungary	**Poland**	Austria	USA	UK	France	Sweden
Growth of Internet retailing value (CAGR 14 -10) [%]	33	31	22	22	**18**	17	16	16	14	14
Share of Internet retailing in retailing in 2014 [%]	2	4	8	3	**6**	5	8	12	6	7
Share of pure players retailing in Internet retailing in 2014 [%]	70	94	63	49	**82**	54	52	47	42	39

Source: own study based on Euromonitor database access on 28.04.2015.

Taking into account above mention issues, it is important to rise a question regarding the influence of the presence of e-commerce on the core business of traditional retailers.

Customer Value as a metric of business performance

Definition. The customer value is a concept which gains high attention in the literature. It is widely defined from different perspectives. The customer value can refer to customer perception of what is given to him (e.g. benefits of the product) and what he needs to give (e.g. the price) (Zeithaml, 1988; Monroe, 1990; Anderson et al., 1993).

This definition may be extended by emotional aspect of a customer. In this case the customer value comprise of customer experience, feeling, emotions and preference towards companies offers (Butz, Goldstein, 1996; Holbrook, 1996; Woodruff, 1997). The comprehensive approach to customer value comprise of functional and emotional aspects. In this case the customer value is defined as an overall evaluation of the offering based on comparison of both emotional and physical benefits less all perceived associated costs (Piercy, 2003; Szymura-Tyc, 2005; Kazarkiewicz, 2007). One can notice that in all definitions the customer value metric is related to the perception of a customer and it measures overall proposition of a company basing on perceived benefits and costs of the transaction. The difference between different definitions is related to the way, how benefits and costs are calculated and what they include.

Role of Customer Value. Currently, the customer value is a key concept of marketing and management (Kumar 2008, Dobiegała-Korona 2010, Kotler, Armstrong 2012). It is considered as a basis for differentiation and building of competitive advantages (Woodruff, 1997; Chen and Quester, 2005). Customer value has a substantial positive impact on customers repurchase intentions and customers word-of-mouth. On the other hand the higher the customer value the less are customers willing to search for alternatives and there is high correlation between the customer value and customer loyalty (Chen, 2014). This is shown in Fig. 1. Values given in this figure represent correlation coefficients.

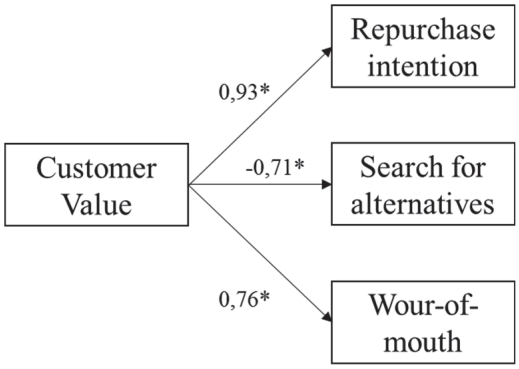

Figure 1. The impact of the customer value on different business performance indicators. Values denote correlation coefficients

Source: Eggert, Ulaga, (2002), p. 114.

We conclude that the customer value can be considered as a good metric to assess the impact of e-commerce presence in the business of traditional retailers on their bricks and mortar stores business performance. If the impact is positive or neutral, traditional retailers should move online. If it is negative, traditional retailers should consider adoption of e-commerce.

Description of the Methodology

The purpose of this study is to determine the impact of e-commerce presence in the business of traditional retailers on their customer value. For such a purpose the following two hypothesis have been stated:

H1: Multichannel retailers have higher customer value than bricks and mortar retailers,

H2: Customers who visited web page rate a retailer higher than customers who visited traditional store only.

The first hypothesis alone is not sufficient to state that e-commerce improves perception of retailers proposition. Therefore, the second hypothesis refers to the improvement of e-commerce presence in the business performance of the retailer. Both hypothesis are collectively exhaustive of the stated purpose. Description of the methodology consist of the following three aspects: the customer value measuring method, hypothesis validation and description of conducted survey.

There are several ways to measure the customer value (Meyer, Dullinger, 1998; Brilman, 2002). In this study the customer value is measured based on the assessment of retailers proposition by customers. Therefore, there was conducted online survey (CAWI). Each respondent was asked a set of questions regarding retailers. There was a question to rate in scale from 1 to 5 a retailers proposition. Customers rated only retailers which they previously visited. The customer value of the retailer CV_r was calculated according to the following formula:

$$\mathrm{CV_r} = \left(\frac{\sum_{i=1}^{n} \mathrm{raiting_i}}{\mathrm{n}} - 1 \right) \cdot 25$$

where n is the number of responders and $rating_i$ is a rating of a responder. The customer value calculated according to this formula is in the range from 0 to 100. It express how well is the particular retailer rated. This approach guarantees that customer value refers to perception of customers and measures their assessment of retailers proposition. Moreover, it secures comparability of customer values of different retailers.

Approach to validate Hypothesis 1. Each retailer was classified as traditional retailer or multichannel retailer based on having e-store or not. Then it was tested weather having e-store have an impact on customer value using Chi-square test. The following working hypothesis were tested:

H1a: „Having e-store" and customer value are independent,

H1b: „Having e-store" and customer value are not independent.

The strength of the impact was measured as the difference between Chi-squares (empirical and theoretical one). The positive or negative impact was assessed through the customer value analysis between those two groups of retailers.

Approach to validate Hypothesis 2. Customers were divided into two groups: customers who visited only physical store and not visited web site and customers who visited web site. This division was based on the following questions:

- Have you visited <<retailer name>> physical store in the past 3 months?
- Have you visited <<retailer name>> e-store in the past 3 months?

In a group of customers who visited web site, there were customers who visited also retailers physical store. Subsequently, chi-square test was applied to validate the following working hypothesis:

H2a: Visiting retailers e-store and the customer value are independent

H2b: Visiting retailers e-store and the customer value are not independent

The validation and the assessment was the same as in the approach to validate hypothesis 1.

Table 2. Online survey sample description of 2568 responders

Gender		**Age**	
Male	50%	Under 24	14%
Female	50%	25 – 34	27%
		35 – 44	26%
Voivodeship		45 – 54	18%
		55 – 64	12%
Dolnośląskie	9%	65 and over	3%
Kujawsko-pomorskie	5%		
Lubelskie	5%	**Total annual household income**	
Lubuskie	2%		
Łódzkie	6%	15 000 zł or less	7%
Małopolskie	9%	15 001 zł – 20 000 zł	4%
Mazowieckie	15%	20 001zł – 25 000 zł	7%
Opolskie	2%	25 001 zł – 30 000 zł	8%
Podkarpackie	4%	30 001 zł – 40 000 zł	11%
Podlaskie	3%	40 001 zł – 50 000 zł	11%
Pomorskie	6%	50 001 zł – 65 000 zł	13%
Śląskie	15%	65 001 zł – 80 000 zł	13%
Świętokrzyskie	2%	80 001 zł – 100 000 zł	8%
Warmińsko-mazurskie	4%	100 001 zł – 130 000 zł	5%
Wielkopolskie	7%	Over 130 000 zł	4%
Zachodniopomorskie	4%	I'd rather not say	8%

Source: own study based on OC&C Retail Index 2013.

The survey was conducted in June-July 2013 on the representative sample of Polish population (2 568 responders). Responders description is presented in the Table 2. In a sample there are ratings of 15 multichannel retailers and 15 traditional retailers from various categories: grocery, clothes and footwear, stationeries, health and beauty, electronics and "Do It Yourself" stores (DIY).

Seizing impact of a retailer web presence

The obtained probability density distribution of retailers customer values is presented in Fig. 2. Based on Szapiro-Wilk test (p.value = 0.9036) and on the analysis of QQ plot (see Fig. 3), the probability density distribution is close to the normal distribution. It is not perfect normal distribution due to very low number of retailers with low customer value (below 65 points). The majority of retailers customer values is in the range between 65 and 80.

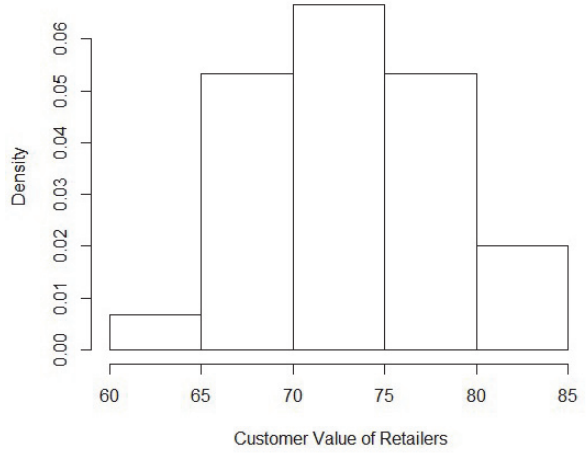

Figure 2. The probability density distribution of retailers customer values

Source: own study based on OC&C Retail Index 2013)

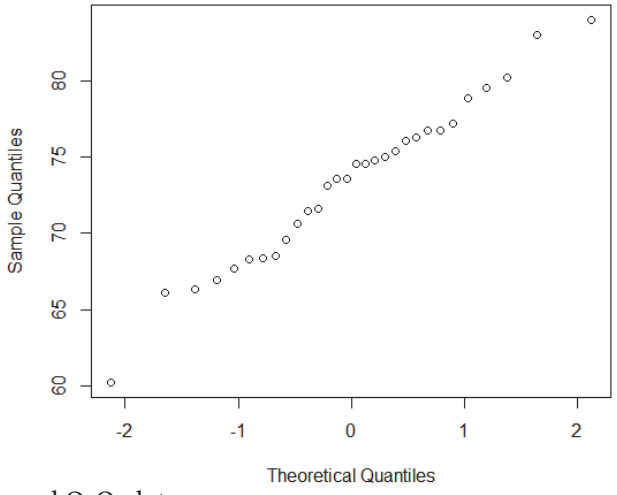

Figure 3. The normal Q-Q plot

Source: own study based on OC&C Retail Index 2013

In the Table 3 we present the distribution of retailers customer values for multichannel and traditional retailers. Mode for traditional retailers is low CV, while mode for multichannel retailers is medium CV. Based on these data, it cannot be inferred that multichannel retailers have higher customer value than traditional retailers.

Table 3. Distribution of customer values for multichannel and traditional retailers

Customer Value of retailers		Retailers	
CV range	Category of CV	Traditional	Multichannel
Below 70	Very low CV	1	0
CV between 70-75	Low CV	8	0
CV between 75-80	Medium CV	1	9
CV between 80-85	High CV	5	3
CV between 85-90	Very high CV	0	3

Source: own study based on OC&C Retail Index 2013

Therefore, we performed Chi-square test. Results obtained from Chi-square test were as follows: Chi-squared = 18.9, df = 4, p-value = 0.0008223. Theoretical Chi-square value taken from tables for 4 degrees of freedom and significance level of 5% is 9,488.

It means that hypothesis H1a regarding independence of variables should be rejected. Based on the comparison of theoretical and empirical values of Chi-square, the strength of the dependence between having e-commerce by a retailer and customer value is high. Therefore, traditional retailers with e-store have higher customer value than retailers without e-store. It means, that we can expect, that e-commerce have positive impact on customer value of retailers.

In the Table 4 we present the distribution of multichannel retailers customer values among customers, who visited e-store and customers who visited only bricks and mortar store. Mode is the same in both groups, while the average customer value among bricks and mortar visitors is lower than among e-stores visitors.

Table 4. Distribution of customer values for multichannel retailers. Data for customers who visited only e-store or bricks and mortar store are given.

Customer Value of retailers		Customers	
CV range	Category of CV	Bricks and mortar	e-store
Below 70	Very low CV	1	0
CV between 70-75	Low CV	5	0
CV between 75-80	Medium CV	7	7
CV between 80-85	High CV	2	5
CV between 85-90	Very high CV	0	3

Source: own study based on OC&C Retail Index 2013.

The results obtained from Chi-square test were as follows: Chi-squared = 10.2857, df = 4, p-value = 0.03588. **Therefore, hypothesis H2a regarding independence should be rejected**. It means that among customers who visited retailers e-store, retailers have higher customer value than among customers who visited only bricks and mortar store. While the difference between theoretical and empirical Chi-square is lower than in previous tests, it is still high.

Above results show that there is positive impact of e-commerce presence in the business of traditional retailers on their customer value.

Conclusions

In this paper we provided clear picture of the impact of traditional retailers e-store on their customer value. Basing on the statistical analysis of customers opinion we showed that multichannel retailers have higher customer value than retailers without e-store. Traditional retailers shouldn't be afraid to enter to online world. Their core business (bricks and mortar) should not be downsized due this activity. At the same time, according to our studies, e-commerce has plenty of benefits. We showed that customer value among customers who visited e-store is higher than among customers who didn't visit e-store. Traditional retailers in order to enhance their customer value should thus actively encourage their customers to visit and use their website. They can do that through organization of in-store communication or organization of special promotions which could stimulate customers to visit their web site. Of course, retailers can use pure online activities to attract e-store visitors.

In further studies it would be worth to investigate the impact of e-commerce presence on particular aspects of the business of traditional retailers. For example, whether presence in the Internet may improve the perception of retailers prices, retailers service, retailers trust etc. It's worth to mention that, in the Internet it is easy for customers to compare prices, therefore it may also have negative impact. Determination of conditions under which e-store have positive impact on particular aspects of traditional retailing is of great importance.

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