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Barriers of SMEs internationalization and strategy for success in foreign markets

Martina Toulova
Mendel University in Brno, Czech Republic

Marcela Votoupalova
Mendel University in Brno, Czech Republic

Lea Kubickova
Mendel University in Brno, Czech Republic

Abstract

Small and medium-sized enterprises (SMEs) count among main actors not only in the Czech economy. They are an important source of GDP growth and, moreover, they play a major role in job creation. One of the strategies for SME's growth and competitiveness enhancement in today's globalizng world is to get involved in the internationalization process. Despite being able to respond faster to changing business environment unlike large enterprises, SMEs face specific barriers in the internationalization which impede or even prevent them from taking part in this process. The aim of this paper is to find out which factors are perceived as the most important barriers to the internationalization of SMEs in the Czech Republic, which means barriers that 'worry' SMEs. Based on these findings, the paper further examines whether these factors affect the SMEs success in the internationalization process. Several partial surveys among SMEs from different sectors of Czech economy were conducted. For this paper are used data from IT, agriculture, food and wood processing industry. The biggest barriers to internationalization as perceived by Czech SMEs are the lack of language skills of employees, the lack of experience with foreign markets, the high costs of promotion in foreign markets, the lack of public support or subsidies and the lack of information about foreign markets. This article also examines whether there is a correlation between success in the internationalization and the particular factors associated with these barriers. The results show that the success depends on whether the enterprise has previous experience with foreign trade or whether it searches for information about foreign market before the foreign market entry. Surprisingly, there is no positive correlation between the level of key employees' language skills and the success of SME's internationalization, or between the use of public support and the success in foreign markets.

Key words: barriers, SMEs, internationalization process, success

Introduction

The role of small and medium-sized enterprises (usually abbreviated to SMEs) in national economies as well as in the European union economy (EU) is essential. Not only account they for 99.8% of all economic entities be it in the Czech Republic or in the EU, but they also represent a major source of job creation (approximately two thirds of all employees work for SMEs) and account for more than 53% and 57% of value added produced in the Czech Republic and the EU respectively (EC, 2013; MPO, 2013). As they have a great innovation potential and can cope more flexibly with changes in their environment, the growth and development of SMEs will be still more and more important for the prosperity of the EU in future, as stated in the Small Business Act for Europe, fundamental strategic document of European Commission regarding the role of SMEs released in March 2008

(EC, 2008). Nowadays the strong emphasis is put on the enhancement of SMEs competitiveness, sustainable growth and performance, as both the European Commission and the Ministry of Industry and Trade in the Czech Republic state. Moreover, they agree that the internationalization of SMEs may be one of the ways how to achieve these goals (MPO, 2013; EC, 2008).

The internationalization has been scrutinized for many years primarily in accordance with large enterprises that are thought to be strong enough to enter foreign markets and suceed in the more intense competition abroad. Nevertheless, despite the fact that SMEs often lack financial resources and skilled human resources they have many characteristics and advantages suitable for involvement in the internationalization. Apart from being more flexible in the decision-making process due to the less complex organizational structure and smaller size than large companies, they can also adopt more quickly and effectively to changes in the environment and thus meet the ever changing requirements and needs of customers (Paunovic and Prebezac, 2010; Kislingerova and Novy, 2005). With regard to these features, Hutchinson et al. (2006) recommend SMEs to exploit the strategy of differentiation or the advantages of networks in internationalization.

Many authors have been dealing with the influence of internationalization on company's performance and competitiveness, for exapmle Tarpczynski, Wrona (2013), Nkongolo-Bakenda et al. (2010), Kadocsa, Borbás (2010). Some authors (e.g. Nkongolo-Bakenda et al., 2010) state that in case of some SMEs the internationalization lead to success and better performance whereas for other SMEs it is better to remain local and operate only in regional market. On the contrary, some authors (e.g. Pangarkar, 2008) find the influence of internationalization on SMEs' performance as rather positive. Pangarkar (2008) encourages SMEs to involve in internationalization because he believes that the advantages of this proccess exceed its disadvantages and states that the SMEs' performance increases with growing involvement in internationalization. Nevertheless, the success of SMEs in internationalization is affected by many factors such as motivating factors or driving forces, and factors that impede the process, often called as barriers (Korsakiene and Baranauskiene, 2011). According to Leonidou (1995) the studying of barriers is important because it may help to better understand why some enterprises fail or why they are not able to succeed in internationalization. Moreover, he states that it may lead to the reduction of negative effect of barriers and thus improvement in the export performance or firm's propensity to export.

The authors throughout the world have been dealing with the issue of entry barriers for at least 30 years. The studies have focused on barriers for foreign market entry of enterprises from different countries. However, there has not been carried out enough research regarding barriers that hamper the foreign market entry of SMEs from the Czech Republic. The aim of this paper is to find out which factors are perceived as the most important barriers for Czech SMEs in their internationalization. Furthermore, the aim is also to scrutinize the influence of individual factors connected with barriers on the success of SMEs in the internationalization process.

Literature review

According to Korsakiene and Tvaronaviciene (2012) the globalisation of economies and strong competition drive enterprises to seek for ways how to internationalise, thus supporting the development of national economies and productivity growth. Few definitions of a term 'internationalization' emerge in the literature. The well-known and

often presented definition regards internationalization as a '*process of increasing involvement in international operations*' (Welch and Luostarinen, 1988, p 36). This definition corresponds with the theory of stage models of internationalization which build on the thought that internationalization is a gradual process of increasing firm's commitment in foreign markets (Frynas and Mellahi, 2011). From the same point of view as Welch and Luostarinen perceive the internationalization also Paunovic and Prebezac (2010) who state that internationalization include all business activities beyond national borders that are based on international marketing. However, they add that it occurs not only in stages but also rapidly, so they admit that not all internationally active businesses need to undergo the long process of increasing commitment to foreign market. A more general approach to the definition of internationalization hold Calof and Beamish (1995, p 116) who define internationalization as '*the process of adapting firms' operations (strategy, structure, resources, etc.) to international environment*'. It means that internationalization is to be understood not only in terms of entry into foreign markets, but also in terms of the development of any international operation or activity even without going beyond national borders (Tarpczynski and Wrona, 2013).

Many authors deal with the influence of internationalization on competitiveness and firm performance (for example Kadocsa and Borbás, 2010; Pangarkar, 2008). Abor (2011) found that export intensity positively influences the firm's productivity and marginally also firm's profitability. On the basis of export intensity can be, according to Bonaccorsi (1992), assessed the success of firm's internationalization process. He defines export intensity as export sales to total sales ratio. Kubickova, Peprny, Novakova (2010) go further and suggest a simple model for assessing the success of SMEs in internationalization that draws on the rating of key success factors.

Previously, the attention was paid only to internationalization of large multinational companies as the internationalization was thought to be a very risky process for SMEs. SMEs were thought to have not enough resources to cope with the negative impacts of global expansion as operating in global environment is very tough for them (Dileep, 2012). However, nowadays authors are becoming aware of SMEs characteristics suitable for internationalization and the importance of SMEs for economic growth and development. SMEs, defined by the European Union (EC, 2003) as all companies with less than 250 employees and/or with annual turnover lower than 250 milion euro and/or with annual balance sheet lower than 43 million euro, are in most economies the fastest growing segment (Dileep, 2012). Apart from being more flexible and having less complex organizational structure, SMEs adopt decisions more quickly and therefore may promptly adapt to changes in customer's needs. Nevertheless, they suffer from lack of resources in terms of finance, information or skilled labour force, and many other constraints (Paunovic and Prebezac, 2010; Kislingerova and Novy, 2005).

When entering foreign markets, SMEs may encounter many barriers. There have been much discussion regarding barriers that impede internationalization. Arteaga-Ortiz and Fernández-Ortiz (2010) found that many studies examine the relationship between barriers' perception and the firm's exporting activity. They also investigated the literature on export barrier definition and found that some authors define as barriers only the external factors. Therefore the definition by Leonidou is broader and more accurate. Leonidou (1995, p 31) defines export barriers as '*attitudinal, structural, operative or other constraints that hinder or inhibit companies from taking the decision to start, develop or maintain international activity*', thus incorporating both external as well as internal factors within the scope of the definition.

While internal barriers stem from the company's internal environment, so they refer to the company's resources and market strategy, the external barriers have the basis in external environment, it means they are connected with industry, market and other macro characteristics be it in foreign market or domestic market (Leonidou, 1995; Pinho and Martins, 2010). According to research by OECD, the internal barriers that are connected with firm's abilities and competences are the most important in internationalization of SMEs whereas external barriers are less important (Fliess and Busquets, 2006). The research also pointed out that the perception of barriers by non-internationalised enterprises differs from the perception of barriers by internationalised enterprises as non-internationalised SMEs concern more significantly about 'financial' and 'access' barriers than the internationalised ones (Fliess and Busquets, 2006). It implies that SMEs operating only in domestic market perceive as more hindering the internal barriers, so they are not confident enough in own resources and competencies, while SMEs with international experiences perceive as more significant mainly the external barriers that are not under their control. This finding supports the theory of internationalization as a learning process connected with stage approach. As a firm has more experience, it overcomes own internal barriers and becomes more concerned by barriers stemming from the external environment (Fliess and Busquets, 2006). A more detailed classifications of export barriets can be found in the literature. For example Kahiya (2013) divides internal barriers into resource-related, managerialrelated, marketing-related and knowledge-related barriers while among external barriers counts home-based market barriers, host-based market barriers and industry-level barriers. But some other authors divide barriers into different categories. Wolfmayr (2004) divides constraints to internationalization into 3 categories: enetrpreneurship and strategic aspects (1), general regional conditions (2) and infromation and financial apsects (3). Into first category falls for example the small size of enterprise, strong competition, low sale prices, high transport costs etc. The second category includes for example language barriers, customs (duties), risk of payment delay. And the third category encompasses barriers such as high costs or lack of finance for export activities and export insurance, lack of information about target market etc.

It was confirmed by many authors that export barriers cause really great problems. Pinho and Martins (2010) ascertained that the export barriers may for non-exporting firms represent one of the reasons why they never decide to internationalise. Fillis and Lee (2011) add that in case of exporters the export barriers may limit their internationalization process by decreasing the available strategic options. At worst these barriers may cause that firms start to de-internationalise, in other words, they abandon their international activities (Crick, 2002).

Kahiya (2013) investigated the relationship between export barriers and a path to internationalization and found out that export barriers influence the path to internationalization. Her research suggests that the lack of resources in terms of skills and knowledges (internal barriers) leads to rather gradual process of internationalization, meanwhile the lack of confidence in home market together with managerial determination and international orientation provide conditions for rapid internationalization. Nevertheless, not only export barriers influence the internationalization, but also a risk tolerance and a tendency of proactive behaviour do so (Acedo and Galán, 2011).

Methodology

The paper draws on data from several partial questionnaire surveys conducted between 2010 and 2012. The surveys were aimed at small and medium-sized enterprises from the

Czech Republic. The questionnaires were sent by e-mail to SMEs registred in the database Amadeus where also contact details are presented. The paper uses data from SMEs operating in food industry, wood processing industry, agriculture and IT sector. Totally 135 respondents are included. The respondents comprise SMEs that are involved in internationalization or that were involved before but nowadays operate only in home market.

For the data processing, especially for identification of important barriers, the descriptive statistics, such as relative frequency was used. For verifying the independence between the success of an enterprise in internationalization and the factors related to barriers which reduce the impact of barriers or precede them, the hypothesis testing was used. There was performed a non-parametric testing of hypothesis of independence between two variables. The null hypothesis of independence between two variables was rejected and so the alternative hypothesis accepted in case when the pvalue exceeded the chosen level of significance. In this paper the 5% significance level was used.

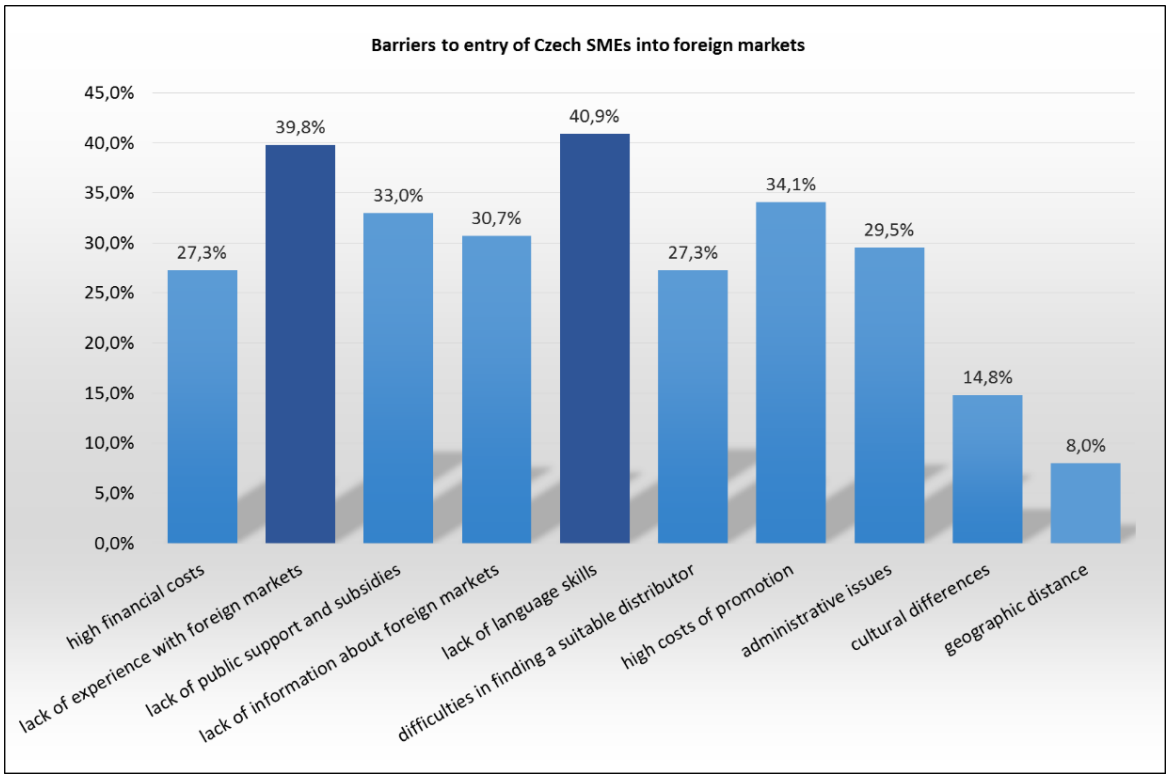
The success of enterprise was expressed as the ratio of sales from foreign trade to total sales, known as export intensity, that can be used, according to Bonaccorsi (1992), as a measure of enterprise's success in foreign markets. Because the respondents were reluctant to state the exact figure of this ratio, they stated rather the intervals which contained their ratio of foreign to total sales. Because the intervals are not expected to have a normal distribution the Spearman's rank correlation coefficient, which can be used for ordinal variables that are not expected to have normal distribution, was applied. The coefficient is based on the ranking of subjects arranged according to their size considering two variables. The values of Spearman's correlation close to zero indicate that the ranking is randomly jumbled, therefore no dependce exists between observed variables. The values close to 1 or -1 implies that there is a strong positive respectively negative dependence between both variables.

Results

On the basis of questionnaire surveys among SMEs from the Czech Republic (Czech SMEs) operating in the food and wood processing industry, significant barriers to internationalization were revealed. These barriers are shown in the graph in Figure 1. Most SMEs perceive lack of language skills (41%) and lack of experience with foreign markets (40%) as a barrier to internationalization process. It means that language barriers and lack of experience, which fall into internal barriers, are for Czech SMEs two most significant barriers. The third most frequently mentioned barrier to entry of Czech SMEs into foreign markets is the high costs of promotion (marketing campaigns) abroad (34%). Almost the same percentage of SMEs (33%) considers as an barrier the lack of public support and subsidies. Another significant barrier is the lack of information about foreign markets that was mentioned by almost 31% of Czech SMEs. Surprising is the fact that almost 30% of respondents perceived as an barrier to internationalization the administrative issues associated with the entry and operating in foreign markets. Therefore, first of all, the state authorities should attempt to mitigate the administrative burden on businesses when promoting foreign trade because this barrier is not caused by a lack of firm's resources or skills but by the requirements imposed on businesses by state. It is also interesting to note that cultural differences and geographic distance are perceived as a barrier by only a small percentage of Czech SMEs, 15% respectively 8%. This implies that for Czech SMEs are these barriers not so important, probably due to the fact that they enter mainly into the markets of the neighbour states that are geographically close and culturally familiar.

Moreover, interesting is that the financial costs associated with internationalization do not mean the main barrier as only 27% of Czech SMEs perceive them as high. Thus, the lack of finance may be considered as an equally significant barrier as the difficulties in finding a suitable distributor abroad mentioned also by 27% of SMEs.

Figure 1: Barriers to internationalization of Czech SMEs



(Source: author's results)

Based on these findings, the paper also raises the question whether the success of SMEs in foreign markets may be affected by the fact that the company has enough resources or capabilities which reduce the impact of identified barriers or precede them. Therefore in other words, the paper examines whether the success of SMEs in foreign markets depends on the possession of these factors. As an indicator of success was chosen the foreign sales to total sales ratio, known as export intensity. Among the factors associated with the identified barriers were selected these:

- Language skills of key employees
- Previous management's experience with operating in foreign markets
- The way of product promotion used in foreign markets
- The use of state support when entering foreign markets
- Obtaining information about foreign markets before entry

Hypothesis 1: The language skills of key employees

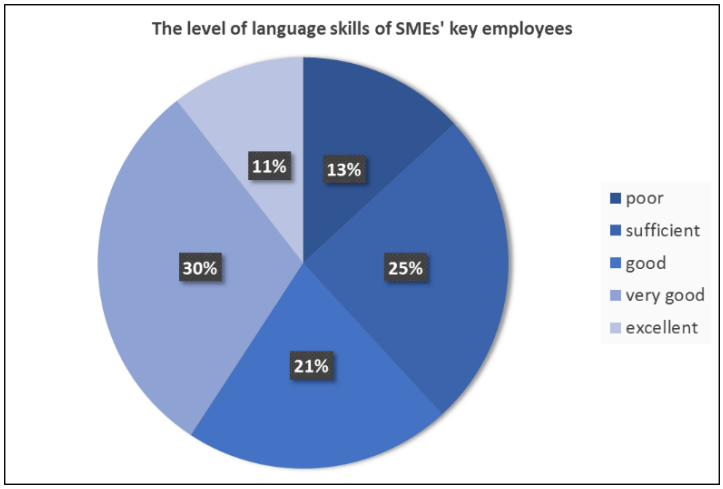
Does the success of SMEs in the internationalization process depend on the language skills of key employees?

H_0: The foreign sales to total sales ratio is independent of the language skills of key employees.

H_1: The foreign sales to total sales ratio is dependent on the language skills of key employees.

This hypothesis was tested on data from SMEs operating in food and wood processing industry. The results of the relative frequencies (see Figure 2) shows that excellent language skills have key employees in only 11% of SMEs and very good language skills have key employees in only 30% of SMEs. As good can be assessed the language skills of key staff in 21% of SMEs. Unfortunately, low-level of language skills have key employees in approximately 38% of Czech SMEs.

Figure 2: Language skills of key employees in Czech SMEs



(Source: author's results)

Based on the comparison of the test criterion Student's t-distribution with 74 degrees of freedom (0.2805) with its critical value ($t_{0.05}(74) = 1.9925$), the null hypothesis can not be at the 5% significance level rejected and the alternative hypothesis about the dependence between the observed signs accepted. The same conclusion provides also p-value (0.7799), which is greater than the significance level of 0.05. This means that the correlation between the foreign sales to total sales ratio (success in internationalization) and the level of language skills of key employees is not statistically significant, thus there is no provable dependence between both signs.

Table 1: Results of hypothesis 1 testing

	correlation	test criterion	p-value
Spearman's rank correlation	0.0326	$t_{(n-2)}$= 0.2805	p = 0.7799
Kendall's tau b	0.0286		
Goodman-Kruskal's gamma	0.0381		

Source: author's results

Hypothesis 2: Previous management's experience with operating in foreign markets

Does the success of SMEs in the internationalization process depend on whether their managers have previous experience with foreign markets or not?

H_0: The foreign sales to total sales ratio is independent of previous experience of firm's management with operating in foreign markets.

H_1: The foreign sales to total sales ratio is dependent on previous experience of firm's management with operating in foreign markets.

This hypothesis was tested on data from SMEs operating in food and wood processing industry and in agriculture. Previous experience with foreign trade activities before entering the foreign markets had 54% of SMEs, while 46% of SMEs had no prior experience with foreign markets. The critical value of the Student's tdistribution with 98 degrees of freedom is at the 5% significance level 1.9844, therefore, when compared with the value of test criterion (3.2159), the null hypothesis can be at the 5% significance level rejected and the alternative hypothesis about the dependence of both observed signs accepted. The same conclusion provides also pvalue (0.0018) that is greater than the significance level of 0.05. The p-value also implies that the existence of dependence of both observed signs is statistically significant even at a significance level of 0.01. This means that the correlation between the foreign sales to total sales ratio (success in internationalization) and previous management's experience with foreign trade is statistically significant. According to the Spearman's rank correlation coefficient (0.3090), between the observed signs exists a medium degree of linear dependence.

Table 2: Results of hypothesis 2 testing

	correlation	test criterion	p-value
Spearman's rank correlation	0.3090	$t_{(n-2)}$= 3.2159	p = 0.0018
Kendall's tau b	0.2860		
Goodman-Kruskal's gamma	0.4624		

Source: author's results

The results of the contingency table shows that 50% of SMEs who lacked previous experience with foreign markets, reached only a small ratio of foreign sales to total sales (no more than 19.9%) and 24% of these enterprises reached medium large ratio of foreign sales to total sales (from 20 % to 39.9%). Only 26% of SMEs without previous experience with foreign markets reached the ratio of foreign sales to total sales of more than 40%. On the other hand, 40% and a higher ratio of foreign sales to total sales reached 52% of SMEs that have previous experience with foreign markets. Even 41% of SMEs with previous foreign experience reached a ratio of foreign sales to total sales higher than 60%. Only 20% of SMEs that have previous experience with foreign trade reached a low ratio of foreign sales to total sales (no more than 19.9%).

Hypothesis 3: The way of product promotion used in foreign markets

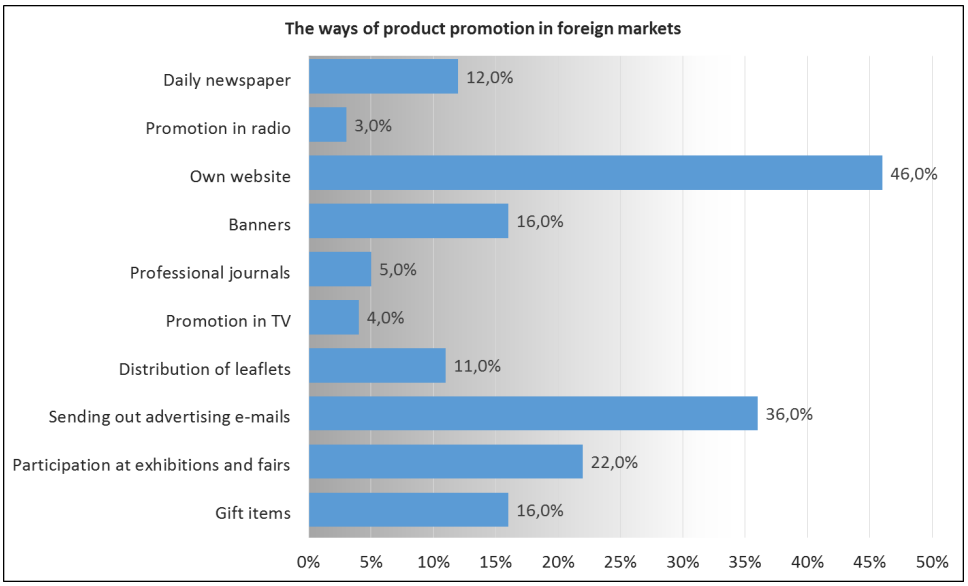
Does the success of SMEs in the internationalization process depend on the selected way of product promotion in foreign markets?

H_0: The foreign sales to total sales ratio is independent of the selected way of product promotion in foreign markets.

H_1: The foreign sales to total sales ratio is dependent on the selected way of product promotion in foreign markets.

This hypothesis was tested on data from SMEs operating in food and wood processing industry. The most common form of product promotion used by Czech SMEs in foreign markets is having their own website (46% of SMEs) and sending out advertising e-mails (36% of SMEs), as shown in Figure 3. On the contrary Czech SMEs do not actually use billboards, advertisements in public transport or in cinemas. To a lesser extent, SMEs use the promotion in media, in particular television or radio (4% respectively 3%), and journals (5%).

Figure 3: The ways of product promotion of Czech SMEs in foreign markets



(Source: author's results)

Hypothesis 3 was divided into several sub-hypotheses, each of which tested the independence of a particular way of product promotion and the foreign sales to total sales ratio. The values of Spearman's rank correlation, Student's t-distribution and pvalues for each hypothesis are shown in Table 3. Null hypothesis, marked with star (*), can be rejected as the p-value is higher than 0.05 significance level.

Table 3: Results of hypothesis 3 testing

Way of promotion x sales ratio	Spearman's correlation	test criterion	p-value
Daily newspaper	- 0.0570	$t_{(n-2)}$= - 0.4913	p = 0.6247
Promotion in radio	0.1682	$t_{(n-2)}$= 1.4682	p = 0.1463
Own website	0.0876	$t_{(n-2)}$= 0.7569	p = 0.4515
Banners	0.0355	$t_{(n-2)}$= 0.3059	p = 0.7605
Advertising in professional journals*	0.2516	$t_{(n-2)}$= 2.2361	**p = 0.0284**
Promotion in TV	0.1171	$t_{(n-2)}$= 1.0142	p = 0.3138
Distribution of leaflets*	0.2399	$t_{(n-2)}$= 2.1262	**p = 0.0368**
Sending out advertising e-mails*	0.2479	$t_{(n-2)}$= 2.2016	**p = 0.0308**
Participation at exhibitions and fairs*	0.2778	$t_{(n-2)}$= 2.4879	**p = 0.0151**
Gift items	0.0672	$t_{(n-2)}$= 0.5796	p = 0.5640

Source: author's results

The hypotheses of independence of the success in internationalization (measured by the foreign sales to total sales ratio) and the selected ways of product promotion were tested using the test criterion Student's t-distribution with 74 degrees of freedom. The values of test criterion were compared with the critical value ($t_{0.05}(74)$ = 1.9925). The same results for the decision whether to reject or accept the null hypothesis also provides a p-value. Table 3 shows that the null hypothesis can be at the 5% significance level rejected only for following ways of product promotion (p-value is lower than the significance level 0.05):

- Advertising in professional journals
- Distribution of leaflets
- Sending out advertising e-mails
- Participation at exhibitions and trades

Thus, these forms of product promotion have among surveyed SMEs positive effect on the relative sales from foreign trade. The values of Spearman's rank correlation coefficient (ranging from 0.25 to 0.28) suggests a slight to moderate degree of linear dependence between the fact whether the enterprise uses particular form of product promotion and the foreign sales to total sales ratio, thus the success in foreign markets. Therefore it can be assumed that promoting through advertising in professional journals, distribution of leaflets, sending out advertising e-mails or participation in exhibitions and fairs may contribute to the success of SMEs in foreign markets. Interestingly, the distribution of gifts and existence of own websites do not affect the revenues from foreign trade operations.

Hypothesis 4: Use of state support when entering foreign markets

Does the success of SMEs in the internationalization process depend on whether they use public support (support from the state) when entering foreign markets?

H_0: The foreign sales to total sales ratio is independent of the use of public support.

H_1: The foreign sales to total sales ratio is dependent on the use of public support.

This hypothesis was tested on data from SMEs operating in food and wood processing industry. Of SMEs surveyed 73% did use public support or subsidies when entering foreign markets, in contrast to 27% of SMEs that did not use any form of public support. Based on the comparison of critical value of Student's t-distribution ($t_{0.05}(73) = 1.9930$) with a value of test criterion (1.2185), the null hypothesis can not be rejected. The same information provides also p-value (0.2270), which is substantially higher than the significance level of 0.05. It means that the dependence between the foreign sales to total sales ratio and the use of public support when entering foreign markets is not statistically significant. There is no dependence between the observed signs.

Table 4: Results of hypothesis 4 testing

	correlation	test criterion	p-value
Spearman's rank correlation	0.1412	$t_{(n-2)} = 1.2185$	p = 0.2270
Kendall's tau b	0.1304		
Goodman-Kruskal's gamma	0.2357		

Source: author's results

Hypothesis 5: Obtaining information about foreign markets before entry

Does the success of SMEs in the internationalization process depend on whether the enterprise obtains information about foreign market before its entry?

The information that surveyed SMEs obtained before entering a foreign market can be divided into three groups. The first group comprises 'market information', the second group consists of 'information on the competition' and the third group includes 'information on the preferences of the target group of customers'. Market information include information on market development and the market potential. Information about the competition include information on competitor's product range and on the market share of competition. The last group includes only one category that is the information about what are the preferences of the target group of customers in the foreign market. This hypothesis was tested on data from SMEs operating in food and wood processing industry and in IT industry.

H_0: The foreign sales to total sales ratio is independent of whether the enterprise searches for market information (1)/ information on competition (2)/ information on the preferences of the target group of customers (3) before entry into foreign markets.

H_1: The foreign sales to total sales ratio is dependent on whether the enterprise searches for market information (1)/ information on competition (2)/ information on the preferences of the target group of customers (3) before entry into foreign markets.

Table 5: Results of hypothesis 5 (1) testing

Market information (1)	correlation	test criterion	p-value
Spearman's rank correlation	0.2931	$t_{(n-2)}$= 3.1857	p = 0.0019
Kendall's tau b	0.2704		
Goodman-Kruskal's gamma	0.4356		

Source: author's results

Table 6: Results of hypothesis 5 (2) testing

Information on competition (2)	correlation	test criterion	p-value
Spearman's rank correlation	0.0852	$t_{(n-2)}$=0.8887	p = 0.3762
Kendall's tau b	0.0786		
Goodman-Kruskal's gamma	0.1410		

Source: author's results

Table 7: Results of hypothesis 5 (3) testing

Information on customer's preferences (3)	correlation	test criterion	p-value
Spearman's rank correlation	- 0.0539	$t_{(n-2)}$= - 0.5605	p = 0.5763
Kendall's tau b	- 0.0497		
Goodman-Kruskal's gamma	- 0.0833		

Source: author's results

Based on the comparison of the critical values of Student's t-distribution ($t_{0.05}(108)$ = 1.9821) with values of test criterion, only the hypothesis of independence between the foreign sales to total sales ratio and the fact whether the enterprise searches for information about foreign market before its entry (1) can be at the 5% significance level rejected. The same information provides also p-value (p= 0.0019), which is lower than 5% significance level. According to Spearman's rank correlation coefficient (0.2931) there is a moderate degree of linear dependence between the two observed signs. On the contrary, the hypotheses of independence between the foreign sales to total sales ratio and the fact whether the enterprise obtains the information on competition (2), or the information on the preferences of the target group of customers (3) can not be rejected. For these two hypotheses the p-value significantly exceeds the 5% level of significance.

The contingency table shows that 44% of SMEs that did not obtain information about the market before its entry reached a maximum of 20% ratio of foreign sales to total sales. Further, 31% of SMEs that did not obtain information about the market before its entry reached from 20 to 40% ratio of foreign sales to total sales. On the other hand, 39% of

SMEs that obtained market information prior to the foreign market entry reached the ratio of foreign sales to total sales higher than 60%.

Conclusion and discussion

For Czech SMEs as for SMEs from other countries of the EU the internal barriers are more important barriers than the external barriers when entering foreign markets. Czech SMEs perceive as the most significant mainly *the lack of language skills* and *the lack of experience with foreign markets* that fall into internal barriers. It implies that Czech SMEs are still not confident enough in own resources and capabilities. Among important barriers for Czech SMEs can be counted also *the high costs of promotion in foreign markets*, *the lack of public support or subsidies* and *the lack of information about foreign markets*. Surprising and alarming is also the fact that *administrative burden* connected with internationalization matters when it goes about barriers, as it was mentioned by almost two thirds of SMEs. The bureaucracy associated with internationalization is really severe matter, as for example in case of Lithuanian SMEs as well as Norwegian SMEs the administrative burden stands for the barrier number one (Korsakiene and Tvaronaviciene, 2012). The public support for SMEs' internationalization should therefore focus on reducing the administrative requirements that may discourage many SMEs from going abroad. On the other hand, t*he cultural differences* and *the geographic distance* is not so impeding barrier for Czech SMEs, probably due to entering mainly the neighbour state's markets which Czech SMEs are familiar with. Moreover, it can be argued that *the lack of finance*, one of often mentioned disadvantages of SMEs, is not the prime barrier in internationalization of Czech SMEs as it was mentioned by only 27% of respondents. To compare, the most important barriers, namely the lack of own resources, be it language skills or lack of experience, were mentioned by 41% of respondents. This is a difference between the findings regarding Czech SMEs and the results of a survey among all European SMEs (EIM Business & Policy Research, 2010), which revealed that the lack of finance was the most important external barrier.

The paper further examines the relationship between factors connected with identified important barriers and the success of SMEs in internationalization. The interesting finding is, that although the lack of language skills and the lack of public support stand for important barriers for Czech SMEs' internationalization, the language skills of key employees and the use of public support when entering foreign markets do not influence the success of SMEs in foreign markets (expressed as the ratio of foreign sales to total sales). Nevertheless, the success of SMEs in internationalization depends on the previous experience of manager's with foreign markets and on the obtaining of market information prior to the entry. With regard to information, the success of SMEs, according to our results, does not depend on the obtaining of information on competition or customer's preferences. It may be caused by the smaller number of respondents or because these information only facilitate entering the markets or trigger the decision of SMEs to enter foreign markets but in copmarison with market information are not so significant. As far as the way of product promotion is concerned, the ratio of foreign sales to total sales (the success in internationalization) is influenced by advertising in professional journals, distribution of leaflets, sending out advertising e-mails and participation at exhibitions and faires. The results of the dependences between success of SMEs in internationalization and factors proceeding from important barriers comply with the model for assessing the success of SMEs in the internationalization process proposed by Kubickova, Peprny and Novakova (2010). This model includes key success factors such as previous experiences, share of revenues from abroad to total sales and amount of information about foreign

market (and other). The difference can be found only with regard to language skills of key employees that represent one of key success factors in the model but according to our results do not relate to the success of SMEs in internationalization. In addition, we could supplement this model for assessing the success with the three mentioned ways of product promotion. As for the limits of our paper, the amount of respondents counts among the main limitations. However, we do believe, that our results would be even more statistically significant proccessed with larger number of respondents.

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The specifics of internationalization process of Czech SMEs with the focus on strategies used in foreign markets

Marcela Votoupalova
Mendel University in Brno, Czech Republic

Martina Toulova
Mendel University in Brno, Czech Republic

Lea Kubickova
Mendel University in Brno, Czech Republic

Abstract

Small and medium-sized enterprises (SMEs) are an important part of any economy. They represent almost 99.8% of all enterprises in the Czech Republic. SMEs contribute significantly to job creation and GDP. They are considered to be the important source of economy growth and their innovative potential is emphasized too. One of the ways for their increase in competitiveness or achievement of growth is taking part in the internationalization process. These reasons point out the importance of paying special attention to SMEs. This paper focuses on the specifics of the internationalization process of Czech SMEs. Attention is paid to strategies that Czech SMEs use in foreign markets and to factors which may influence the use of particular strategies. The outputs of this paper are made on the basis of primary data obtained through several partial questionnaire surveys across different sectors of the Czech economy. Based on the data processing it was found that the most often used strategy in foreign markets by Czech SMEs are the 'focus' strategy, the strategy of differentiation and the cost leadership strategy. Interesting facts are found out by detailed look at the particular strategies. Micro and small enterprises use more often the 'focus' strategy. On the other hand, medium-sized enterprises follow rather the strategy of differentiation or the cost leadership strategy than the 'focus' strategy. It was found out that the use of particular strategy in foreign market is significantly affected by whether the enterprises have previous experience with foreign trade. In this context the paper focuses on the verification of the role of this previous experience and particularly on the findings what is the impact of this experience on the enterprise's success in internationalization. Based on the data processing the positive correlation between previous experience and success in internationalization was verified.

Key words: SMEs, internationalization process, strategy, experience

Introduction

Small and medium-sized enterprises (abbreviated to SMEs) are important actors in any economy. In the Czech Republic, as well as in the European Union they account for nearly 99.8% of all businesses. SMEs also play a significant role in GDP creation and employment. Moreover they are an important source of growth and their innovative potential is emphasized as well. Not only due to these reasons should be paid to SMEs the considerable attention.

The current economic situation can be characterized by intensified competition and by the growing globalisation causing that the significance of national borders is diminishing. It is

therefore important that companies search for a way how to become more competitive and be able to face ever increasing pressure of competition, even if they operate only in local markets (European Parliament, 2012). The way how to achieve growth, strengthen competitiveness and long-term sustainability of the enterprise may be the engagement in internationalization (EC, 2013). According to Renata and Emoke-Szidonia (2009, p 1) *'internationalisation emerge as an unavoidable stage in the strategic evolution of small and medium sized enterprises'*. Wilson (2006) adds that internationalization is increasingly important, and if SMEs start to act globally they can quickly take benefits from cross-border activities, which represent an opportunity not only for increase in profit, but also for company's growth, exchange of knowledge and strengthening of capacities, as well as long-term competitiveness of enterprises. Thus, the involvement in internationalization counts among strategic decisions of the enterprise (this is confirmed for example by results of empirical studies dealing with Polish companies that perceive internationalization as a very important part of their development strategy as for example Sliwinski (2012) states).

It is crucial to realize that SMEs differ from large enterprises. On the one hand, they are more flexible than larger businesses and they can better adapt to changes in environment (Gunasekaran et al., 2011). But on the other hand, SMEs are more vulnerable and face many barriers (such as the lack of financial, human and other resources) that hinder their participation in the internationalization process. One of the ways how can SMEs succeed in internalization process, according to Hutchinson et al. (2006), is the involvement in network of relations and the use of differentiation strategy.

Lee et al. (1999) and Kraus et al. (2007) stress that specific conditions and characteristics of SMEs are important factors that should be taken into consideration in the context of assessing the appropriate strategy for SMEs. What strategy do SMEs from the Czech Republic choose for their activities in foreign markets? The aim of this paper is to find the answer to this question. At the same time, the paper also focuses on the verification of what factors may affect the use of specific strategy. Does the company size play the role? Or the number of target export markets? Or do the previous experiences of company's management with foreign trade play the role? What impact do the experiences have on the success of internationalization process? Even these topics are addressed in the paper.

Literature review

There are various definitions of the concept of internationalization. Welch and Luostarinen (1988, p 36) defined internationalization as '*the process of increasing involvement in international operations*', similarly explained this concept also Johanson and Vahlne (1977). This definition corresponds with the phase models of internationalization and emphasizes the importance of international experience in internationalization process because the more the enterprise learns (accumulated knowledge) the more gradually it increases its commitment in internationalization (Camison a Villar-Lopez, 2010). Calof and Beamish (1995, p 116) then define internationalization as the '*process of adapting the firms operations (strategy, structure and resources) to the international environment'*. Mejri and Umemoto (2010) look at internationalization as a complex phenomenon that is influenced by various factors (such as firm characteristics, culture, environment, etc.) and state that we can understand the internationalization only in case we understand the various factors which influence this process.

Korsakiene and Tvaronaviciene (2012) mention that if we take into account the fact that SMEs often lack resources and capabilities, what restricts their ability to seize business opportunities, the 'smallness' (or the small size) can be considered as a disadvantage in internationalization process. However, some authors (e.g. Hutchinson et al., 2006) state that SMEs can cope with these obstacles by using a strategy of differentiation or by engaging in networks. Papatya (In Karacaoglu and Ozkanli, 2011) states that firms should adopt some competitive strategy, which may vary depending on time or other conditions in order to maintain their activities in the rapidly changing environment and gain a competitive advantage. In this connection Camison and Villar-Lopez (2010) state that the company implements mostly the strategy that is corresponding with its available resources or capabilities. Leitner and Guldenberg (2010) mention that competitive strategy is a kind of a plan that enables to set out a profit and competitive position against other companies operating in the sector. What competitive strategies can be appropriately used by SMEs?
This paper focuses mainly on strategies proposed by Porter, who identified three basic generic strategies, namely 'cost leadership strategy', 'strategy of differentiation' and 'focus strategy' (Porter, 1980). Lee et al. (1999), Kraus et al. (2007) and Camison and Villar-Lopez (2010) emphasize that it is very important to take into account the specific characteristics of SMEs when selecting a particular strategy. According to them, all these strategies are useful for SMEs, but some of them are more appropriate. But how can be the different competitive strategies specified?

Porter (1980) defined three basic strategies that can companies use to 'outperform' their competitors. Within *the cost leadership strategy*, the company focuses on the leadership in total costs throughout the sector thanks to a variety of measures. These can include for example the introduction of high-performance equipment, the minimisation of costs in areas such as research and development, services, marketing or advertising. Very important is the strict control of costs. The use of this strategy requires to gain a high market share, or other benefits, such as an access to raw materials. At the same time it may require a higher initial costs put into technological equipment, aggressive pricing or initial losses when obtaining a market share.

Differentiation strategy is based on the uniqueness, the special benefit in some area that the customers will appreciate more than by the competition. The company may differentiate itself in different ways, by design, technology, features, customer service, etc. *'Focus' strategy* means that the company focuses on a narrow segment of market, while achieving certain differences, or it focuses on costs, or both.

With regard to the already mentioned need to take into account the limited resources of SMEs, some authors state that the 'focus' strategy (Lee et al., 1999; Leitner and Guldenberg, 2010) or differentiation strategy (Leitner and Guldenberg, 2010; Camison and Villar-Lopez, 2010) is particularly suitable for SMEs. Nevertheless they add that when the company chooses a differentiation strategy it needs considerable resources and capabilities to maintain the competitive advantages. Camison and Villar-Lopez (2010) go even further and mention that the international experience May be useful for developing the company's resources or capabilities that are needed for establishing the competitive position in the market.

Kraus et al. (2007) pointed out that when it goes about SMEs the differentiation potential is often hidden in their business idea or innovation. A major mistake that, however, young SMEs often make is the negligence of confrontation of their ideas with reality, it means that they forget to ask the basic question whether there is a target market for their product or

service (Kraus et al., 2007). On the other hand, according to Lee et al. (1999), when employing the 'focus' strategy SMEs may not achieve any of the two strategic advantages - the low costs or the uniqueness perceived by their customers. Nevertheless Lee et al. (1999) emphasize the necessity of finding sufficiently suitable market. They have also reservations about the cost leadership strategy, especially due to the requirement of having the advantage of low costs, and a broad market coverage. Moreover they emphasize that the precondition to use this strategy is the existence of economies of scale, which is almost unreal in case of SMEs. They also coincide about this with other authors, e.g. Kraus et al. (2007), Camison and Lopez-Villar (2010).

Another area addressed in this paper is the verification of the role of previous experience with foreign trade. The importance of international experience in internationalization process is emphasized by many authors (e.g. Johanson and Vahlne, 1977; Welch and Luostarinen, 1988; Majocchi et al. 2005; Camison a Villar-Lopez, 2010), also in accordance with the phase models of internationalization, as mentioned above in this chapter. Majocchi et al. (2005) add that the accumulation of experience leads to a better understanding of business opportunities be it in domestic or in foreign markets, which gradually increases the international activities of companies.

So what is the role of experience for success in internationalization? Searching for an answer to the question whether SMEs that have experience in international trade achieve better results, it means whether they are more successful than other SMEs, was also addressed by Camison and Villar-Lopez (2010). Majocchi et al (2005) further emphasize that the company's experience is an important determinant of success in internationalization.

Objective and methodology

The aim of this paper is to determine the specifics of the internationalization process of Czech SMEs, especially the strategies used by Czech SMEs in foreign markets in the greatest extent, and the factors which may affect the use of individual strategies. The paper pays attention also to verification of the role of previous experience with foreign trade, especially in the context of the success of SMEs in internationalization process.

As a measurable indicator of success was chosen the indicator intensity of export that is the share of sales from exports to total sales (taken from Bonaccorsi, 1992). Also other studies use the export intensity in this sense (Majocchi et al. 2005; Camison and Villar-Lopez, 2010).

In order to find out the specifics of Czech SMEs internationalization process, there have been performed several partial questionnaire surveys between 2010 and 2012. Questionnaire surveys were conducted in wood processing industry, food industry and wine industry. The questionnaires were created electronically in the system RELA (software for creation of questionnaires produced for use by researchers at Mendel University in Brno) and distributed to Czech SMEs from different sectors via e-mail. The contact details were obtained from the database AMADEUS which gathers information about many European business entities.

Some hypotheses were tested on a larger amount of data (the particular number of respondents is specified in chapter Results and discussion for each hypothesis separately), as we managed to get some necessary data also from SMEs operating in

other sectors (namely the mechanical engineering, agriculture, IT and textile industry). The final number of respondents at each hypothesis depends on the number of fully completed questionnaires. Data processed in this paper was obtained from companies that are already involved in the internationalization process, as these companies can provide an objective view of the issue.

The SMEs are divided to micro, small and medium-sized enterprises in accordance with Recommendation No. 2003/361/EC (European Commission, EC, 2003) which deals with classification and a new definition of SMEs. SMEs are classified according to: number of employees, annual turnover and annual balance sheet total as shown in Table1.

Table 1: Classification of SMEs

Category of enterprises	Number of employees	Annual turnover	Annual balance sheet total
Medium-sized	< 250	≤ 50 million euros	≤ 43 million euros
Small-sized	< 50	≤ 10 million euros	≤ 10 million euros
Micro-sized	< 10	≤ 2 million euros	≤ 2 million euros

Source: Mandysova, 2009

For data processing was used descriptive statistics, such as absolute and relative frequencies. The verification of independence between variables was performed on the basis of hypothesis testing. Pearson's Chi-Square for independence between qualitative variables was applied. There was used a 5% level of significance ($\alpha = 0.05$) and the basic decision rule for rejection of null hypothesis. The null hypothesis on the independence of variables was rejected when the calculated pvalue was lower than the significance level. In order to test the independence of qualitative signs which are not expected to have normal distribution is used Spearman's correlation coefficient.

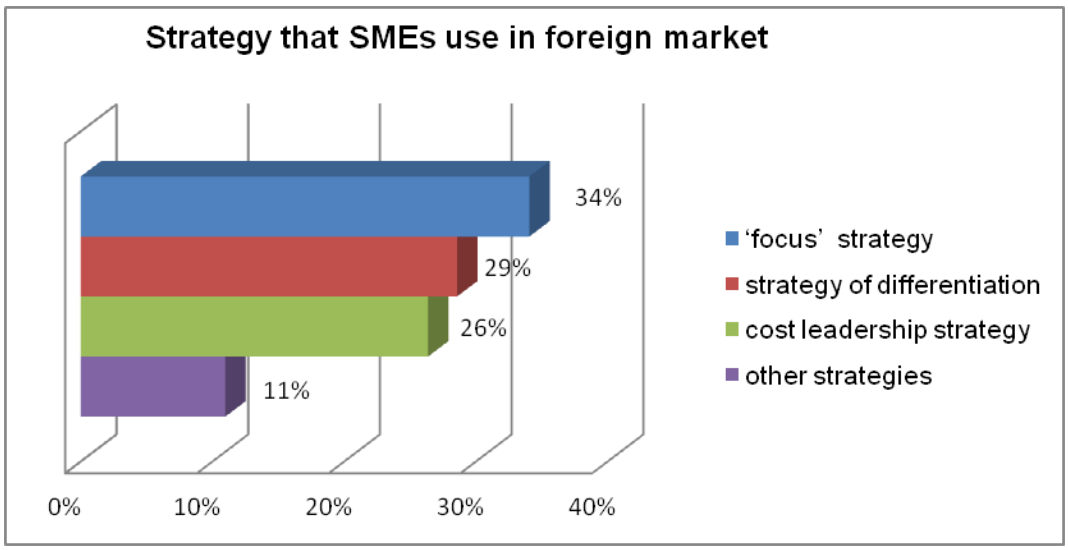
Results and discussion

This chapter presents the results of primary research and simultaneously confronts the results with the similarly oriented studies.

Strategies used by Czech SMEs in foreign markets

Based on the questionnaire survey conducted among Czech SMEs in the wood processing industry, food industry and wine industry (total of 91 fully completed questionnaires were included), the strategies used by Czech SMEs when operating in foreign markets were found. Figure 1 shows that the most often used strategies by Czech SMEs when operating in foreign markets are the 'focus' strategy (34%), the strategy of differentiation (29%) and the cost leadership strategy (26%). The category other strategies (11%) includes for example the strategy of low prices. Therefore it can be seen that Czech SMEs use primarily those competitive strategies defined by Porter.

Figure 1: The most used competitive strategy by Czech SMEs



(Source: author's results)

As reported by Leitner and Guldenberg (2010) and Lee et al. (1999) SMEs most often follow the 'focus' strategy and the differentiation strategy, which in fact is also confirmed by Figure 1, from which it is evident that also for Czech SMEs they are the most important strategies.

The paper also focuses on examining the factors that may influence the use of particular strategies in foreign markets. What about size of the company or number of countries in which the company exports its products? Or does the previous managers' experience with foreign trade influence the use of particular strategy?

Strategies that Czech SMEs use in foreign markets and the size of enterprise

Hypothesis 1: Does the size of enterprise influence the use of particular strategy in foreign markets?

H_0: The strategy used in foreign markets is not dependent on the size of enterprise (classified according to number of employees).

H_1: The strategy used in foreign markets is dependent on the size of enterprise (classified according to number of employees).

This hypothesis was tested using data from SMEs from wine, food and wood processing industry (91 respondents).

Table 2: Results of hypothesis 1 testing

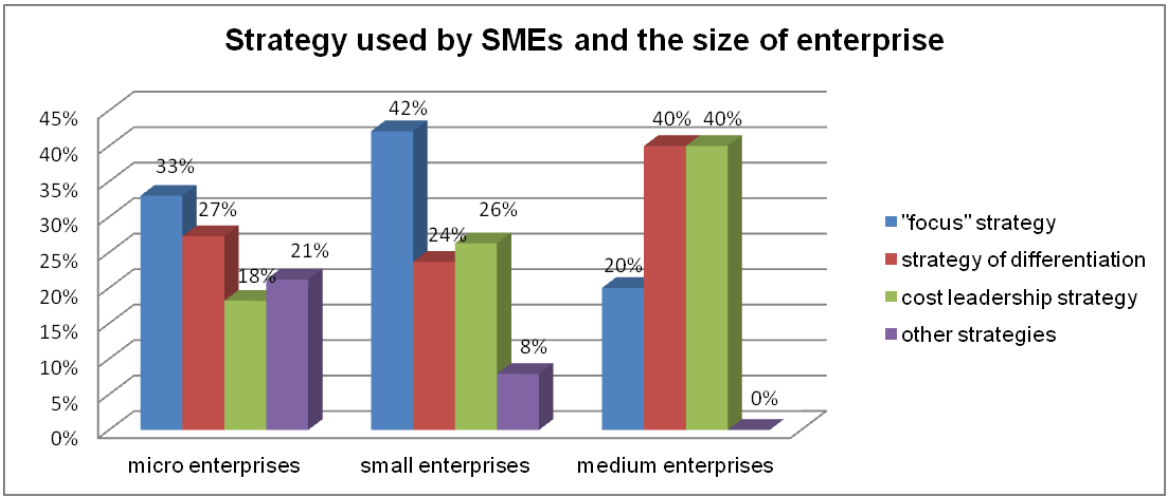
	Chi-square	p-value
Pearson's Chi-square	15.6914	p=0.1088
Contingency coefficient	0.3835	
Cramer's V	0.2936	

Source: author's results

Based on p-value (0.1088), which is greater than the selected significance level α (0.05), the null hypothesis of independence between both signs cannot be rejected. It means that there is no dependence between the strategies used in foreign markets and the size of enterprise.

However, if we look at the most frequently used strategies in more details via analysis of contingency tables (see Figure 2), it can be noticed that the 'focus' strategy is used mostly by micro-enterprises (about 33%) and small enterprises (about 42%). Medium-sized enterprises more frequently apply the strategy of differentiation and the cost leadership strategy. It is also interesting that the larger the enterprise is, the more likely it uses the cost leadership strategy when entering foreign markets. This corresponds with the views of some authors (Lee et al. 1999; Kraus et al., 2007; Camison and Villar-Lopez, 2010), which state that the cost leadership strategy is for small and medium-sized enterprises more difficult to follow because it may require the achievement of economies of scale.

Figure 2: Strategy used by Czech SMEs in foreign market and the size of enterprise



(Source: author's results)

Strategies that Czech SMEs use in foreign markets and the number of countries in which they export the products

Hypothesis 2: Does the particular strategy for operating in foreign market depend on the number of company's export markets?

H_0: The strategy followed in foreign market is not dependent on the number of company's export markets.

H_1: The strategy followed in foreign market is dependent on the number of company's export markets.

This hypothesis was tested on data from wine, food and wood processing industry (89 respondents).

Table 3: Results of hypothesis 2 testing

	Chi-square	p-value
Pearson's Chi-square	16.6892	p=0.3378
Contingency coefficient	0.3974	
Cramer's V	0.2500	

Source: author's results

The obtained p-value (0.3378) is greater than the selected significance level α (0.05) therefore there is no dependence between the strategies used by SMEs in foreign markets and the number of countries in which SMEs export.

Strategies that Czech SMEs use in foreign markets and previous experience with foreign trade

Hypothesis 3: Does the particular strategy used in foreign market depend on the management's previous experience with foreign trade?

H_0: The strategy followed in foreign market is not dependent on the management's previous experience with foreign trade

H_1: The strategy followed in foreign market is dependent on the management's previous experience with foreign trade

This hypothesis was tested on data from wine, food and wood processing industry (90 respondents). It is also important to mention the proportion of SMEs that already have experience with foreign trade and the proportion of SMEs which do not have any experience. The total of 62% of SMEs has a previous experience with foreign business operations and the remaining 38% of these enterprises do not have experience with foreign trade operations. Thus, more than the half of respondents already entered the foreign markets with some experience.

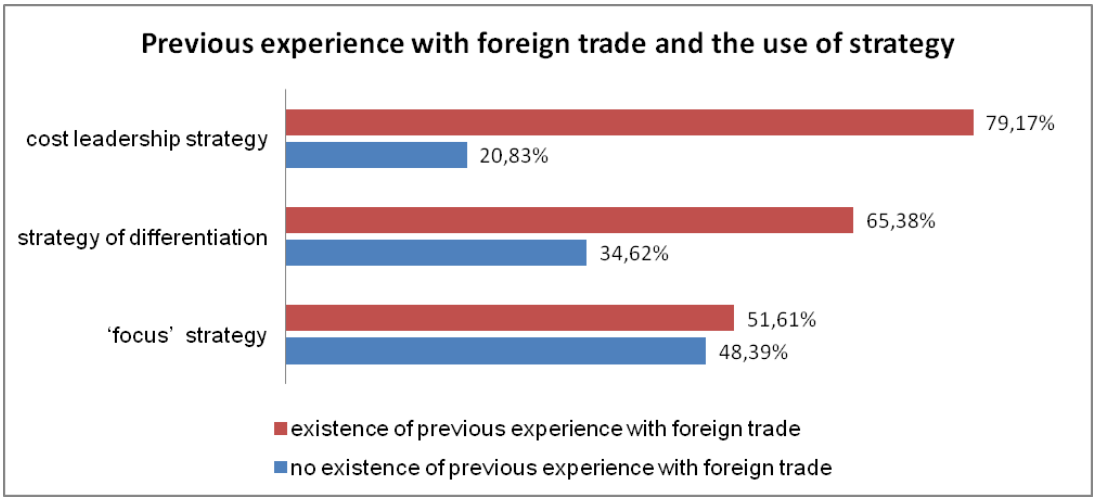
Table 4: Results of hypothesis 3 testing

	Chi-square	p-value
Pearson's Chi-square	13.0633	p=0.0228
Contingency coefficient	0.3560	
Cramer's V	0.3810	

Source: author's results

The obtained p-value (0.0228) is lower than the significance level α (0.05) therefore the null hypothesis of independence between both signs can be rejected. It means that there is dependence between previous experience with foreign trade and the strategy used in foreign markets. Interestingly, Cramer's Contingency Coefficient reaches 0.3810 and it indicates that there is moderately strong dependence between both signs.

Figure 3: Strategy used by Czech SMEs in foreign market and the previous experience with foreign trade



(Source: author's results)

Based on the contingency tables analysis (see Figure 3) it can be pointed out that the use of particular generic strategy with regard to whether the company has or does not have previous experience with foreign slightly differs. The strategy of differentiation and the cost leadership strategy are evidently used by enterprises that already have previous experience with foreign trade. The results regarding 'focus' strategy (most often followed by Czech SMEs) are different. Whether the enterprise uses this strategy is not so much influenced by having or lacking previous experience with foreign trade ('focus' strategy is followed by 52 % of SMEs that have experience with foreign trade and by 48 % SMEs that do not have such experience). This finding connected with the 'focus' strategy is quite interesting, because for this strategy it is very important to know the target segment very well, respectively to have experience with that market/segment or to have enough information about it. However the company has various possibilities to get information about market/segment (information available from studies and reports, participation in fairs and exhibitions, own market research etc.).

At this point it can be interesting to confront these results with the study which was conducted among Spanish SMEs (Camison, Villar-Lopez, 2010) and shows that when companies have international experience, which they then transfer into knowledge ('intangible' assets), they more incline to the differentiation strategy. This fact was proven also in case of Czech SMEs, which tend to follow the differentiation strategy when having previous experience with foreign trade. This may be caused by the fact that if the company has to assess its competitive advantage properly (in what is the company better than the competition) and at the same time what the customer highly appreciates, then it really needs plenty of information and experience (respectively knowledge).

For Czech SMEs were also tested the hypotheses that dealt with the verification of relationship between what strategy the enterprise uses and whether it at the same time deals with obtaining the information about market, or competition. The only dependence that has been verified was the dependence between the use of differentiation strategy and the obtaining of information about the competition (namely the information about the offer of competitors, their market share and their price policy). This finding completes the facts mentioned above, i.e. the enterprises need to set out its competitive advantage when following the strategy of differentiation, therefore they need to assess own skills and find out the thing in which they may differentiate themselves from the competitors, i.e. they have to know very well their own competitors and have enough relevant information about them.

Strategies that Czech SMEs use in foreign markets and their impact on enterprise's success in internationalization

The success of enterprise in internationalization is assessed by the proportion of foreign sales to total sales. This hypothesis is tested on the basis of the Spearman's rank correlation.

Hypothesis 4: Does the success of enterprise depend on the strategy used in foreign market?

H_0: The foreign sales to total sales ratio is not dependent on the use of particular strategy in foreign market.

H1: The foreign sales to total sales ratio is dependent on the use of particular strategy in foreign trade.

This hypothesis was tested on data from SMEs operating in food and wood processing industry and wine industry (86 respondents).

Table 5: Results of hypothesis 4 testing

	Spearman's correlation	p-value
Spearman's rank correlation	0.1570	p=0.1489

Source: author's results

P-value (0.1489) is greater than the selected significance level α (0.05) therefore there is no dependence between the enterprise's success in internationalization (measured by the ratio of foreign sales to total sales) and the strategy used in foreign markets.

Leitner and Guldenberg (2010) who examined the use of generic strategies and their impact on the enterprise's success mentioned that the choice of strategy is an important decision and at the same time they stated that the enterprise's success depends also on the consistency of the strategy and its long-term use because enterprises can by the long-term use of strategy benefit from accumulated experience and thus constantly improve themselves.

Previous experience with foreign trade and the number of export markets

Hypothesis 5: Is the number of export markets affected by previous experience with foreign trade?

H_0: The number of foreign markets is not dependent on previous experience with foreign trade.

H_1: The number of foreign markets is dependent on previous experience with foreign trade.

This hypothesis was tested on data from 342 respondents, namely from IT, food and wood processing industry, textile industry, mechanical engineering, agriculture and wine industry.

Table 6: Results of hypothesis 5 testing

	Chi-square	p-value
Pearson Chi-square	5.5644	p=0.2341
Contingency coefficient	0.1265	
Cramér's V	0.1276	

Source: author's results

P-value (0.2341) is greater than the selected significance level α (0.05) therefore there is no dependence between the number of foreign markets and previous experience with foreign trade. This may be caused by the fact that the vast majority of enterprises (92%, 315 enterprises) have just 1-5 export markets (regardless of whether they already have some previous experience with foreign trade).

Previous experience with foreign trade and the enterprise's success in internationalization

The success of enterprise in internationalization is assessed by the proportion of foreign sales to total sales. This hypothesis is tested on the basis of the Spearman's rank correlation.

Hypothesis 6: Are enterprises that have previous experience with foreign trade more successful in foreign markets?

H_0: The foreign sales to total sales ratio is not dependent on previous experience with foreign trade.

H_1: The foreign sales to total sales ratio is dependent on previous experience with foreign trade.

This hypothesis was tested on data from SMEs operating in IT, food and wood processing industry, mechanical engineering, agriculture and viticulture (245 respondents).

Table 7: Results of hypothesis 6 testing

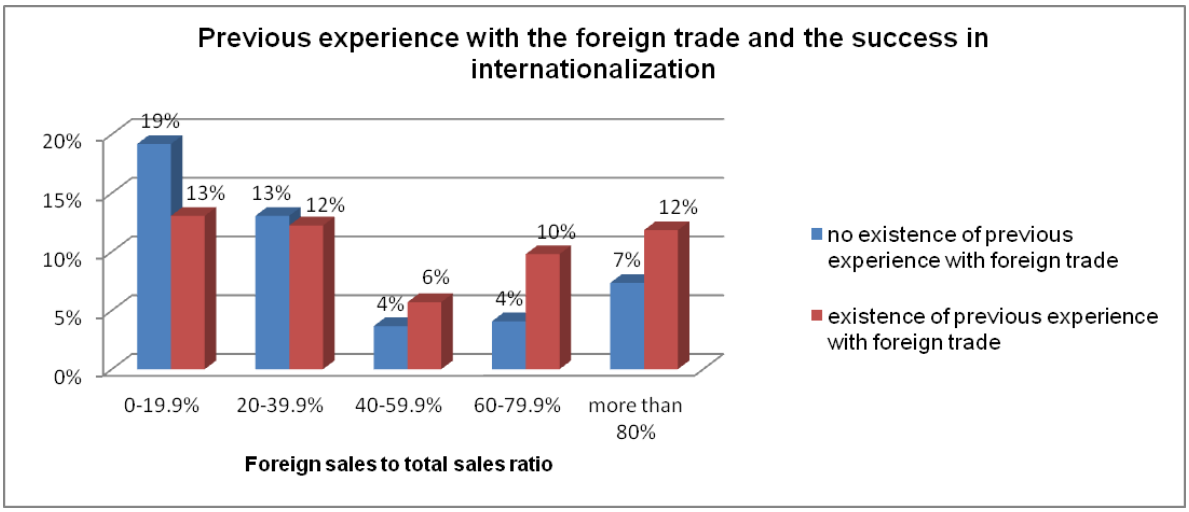
	Spearman's correlation	p-value
Spearman's rank correlation	0.1984	p=0.0018

Source: author's results

P-value (0.0018) is lower than the significance level α (0.05), therefore there is dependence between the previous international experience and foreign sales to total sales ratio (the success in internationalization).

Based on the analysis of contingency table and results shown in Fig. 4 it can be assessed that for enterprises whose foreign sales to total sales ratio reaches up to 40% it is not important whether they have or do not have previous experience with foreign trade. On the other hand, it is evident that enterprises with foreign sale to total sales ratio higher than 40% which have at the same time some previous experience with foreign trade achieve higher proportion of foreign sales to total sales.

Figure 4: Previous experience with foreign trade and the success in internationalization



(Source: author's results)

Conclusion

This paper focuses on the determination of the most frequently used strategy by Czech SMEs when operating in foreign markets. Among the most frequently used strategies that Czech SMEs follow in foreign markets count the 'focus' strategy, strategy of differentiation and the cost leadership strategy. These are generic competitive strategies defined by Porter. The paper also deals with examining the factors which may influence the choice of strategy followed in foreign market. It was found out that on the use of specific strategies in foreign markets has no effect the company's size or the number of export markets. Based on analysis of contingency tables the interesting facts were found out: micro and small enterprises are more inclined to use 'focus' strategy rather than medium-sized enterprises. On the other hand medium-sized enterprises tend to use more often the strategy of differentiation and the cost leadership strategy than the 'focus' strategy. Regarding the cost leadership strategy also one interesting fact appeared: the larger enterprise is, the more likely it follows the cost leadership strategy (medium-sized enterprises use the cost leadership strategy rather than micro enterprises). The results of this paper also showed that the previous experience with foreign trade effect the use of particular strategy. This correlation can be assessed as moderate. The previous international experience of company's management is also very important as it can, in the first place, encourage (motivate) firms to engage in internationalization (this issue is discussed also in other papers of author's collective) and it can also affect the enterprise's success in internationalization. That was confirmed by the hypothesis testing performed in this paper. In this context the paper focuses on the verification of the role of previous experience with foreign trade. The existence of dependency between previous experience with foreign trade and the number of export countries could not be unfortunately confirmed on the basis of hypothesis testing that means, whether the firm has previous international experience does not influence the number of export countries. Some tested independences between variables were not rejected on the basis of hypothesis testing what could be caused because of a lower number of respondents involved in the research. It would be interesting to observe the use of competitive strategies in the long-term perspective because as mentioned by some authors it is important to stay consistent in the use of particular strategy and follow it over a longer period of time (for example Gibcus and Kemp, 2003; Leitner and Guldenberg, 2010). Taking into account the long-term perspective is more appropriate in case when assessing the strategy's impact on the enterprise's success in internationalization. The strategies can be observed in context of competitive reactions of other firms, such as modelling the situations on the basis of game theory (an approach used in the study conducted by Lee et al., 1999). Another interesting direction which could be followed-up in similarly oriented studies would be to verify whether enterprises follow in all foreign markets, in which they operate, the same competitive strategy or whether they adapt the different strategies according to country's specifics. In this context, namely Gibcus and Kemp (2003) mentioned that the strategy should be always assessed in relation to the resources of the company and also to the environmental conditions. These mentioned suggestions are possible directions which could be followed in further research.

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A classification of business models in video game industry

Chin Osathanunkul
University of Gloucestershire, UK

Abstract

Over the last few decades, video game industry has grown quickly from a small market to a massive industry. Along with industry growth, business models in the industry also have developed rapidly to meet emerging technologies and innovations. There have been a lot of studies on business models in video game industry. However, the classifications concept of business models in video game industry is still vague and ambiguous. The objective of this article is to propose a classification scheme for surveyed business models in video game industry. This will make the study of video game industry in business and management development disciplines more practical. In the study, business models in video game industry are introduced and classified through a research paradigm built upon literature. Two kinds of classification scheme are presented; the first one is a classification scheme according to customers' accessibility and the second one is a classification scheme according to video game publishers' revenue model. The former scheme can be classified as: Pay-to-Play and Free-to-Play. The latter one can be classified as: Coin-operated, Retail, Digital distribution, Advertising, Subscription, Micro-transaction and Player-to-Player trading.

Key words: business models, classification schemes, gaming business, video games industry

Introduction

Video game industry has developed remarkably over the past few decades and become a tremendous industry compared with the film industry in its annual revenue. In 1999, the U.S. Video game industry accounted for US$7.4 billion in sales revenue, while the worldwide video game industry revenue exceeded $32 billion (Williams 2002; Chou 2003). From 2000 onward, video game industry has become the fastest growing segment of the entire entertainment industry. The worldwide video game industry's rate of growth accounted for over 9% in 2013 with exceeding US$76 billion. It is expected to reach nearly US$86 billion in 2016 (Galarneau, 2014).

Another phenomenon which believed to be part of this fast growing video game industry is business models. As the industry has become highly competitive environment, the method by which a firm sets and uses its availed resources to offer its customers better value than its competitors is needed. This is where business models could come in and give a chance for the firms to stand in this high competitive industry. Considering the factors such as development costs and spiraling production times, these factors have forced firms to look for alternative strategies to run the business. Owing to the existence of new innovation and technology (e.g. digital distribution systems, subscription-based technology and online micro-transactions technology), the traditional circuits of game development firms are required to reform themselves to adapt to the approaching phenomena (Sotamaa & Karppi, 2010).

In the area of informatics and marketing, video game business models display an innovative ways of running businesses and generate revenue with the use of information

technology. There are a number of articles about video games and business models in video game industry over the internet. However, far too little attention has been paid to the whole picture of video game business models and the classifications concept of business models in videogame industry. One of the limitations result in Lack of documents which focus on both video game business models and the classifications concept seem to be partly from the technical terminology 'business models' in video game area which are still unfathomed and whose definition is not generally accepted (Wolf, 2002; Shafer et al, 2005). It results in confusingly use with other terms (e.g. genres, themes, and types) in both academic and non-academic literatures. It is necessary here to clarify exactly what is meant by 'business models'.

This article will focus on description of the existed business models in the video game industry and classify them through a research paradigm built upon literature in both perspective of the consumers and the publishers. This will assist the future study of video game industry in business and management development disciplines and make them more practical.

Background

The term 'business model' has emerged since 1990s, with the lack of a common definition as the term was quite novel in the academic literature. The term emerged with the advent of the personal computer and internet around mid-1990s then their concept was introduced into the mainstream vocabulary (Maggetta, 2002).

The lack of clear definition results in dispersion instead of convergence of perspectives. To prevent future confusion, technical terminology in video game industry area should be conformed. In this section, the terms 'genres', 'types' 'themes' and 'business models' in video game industry will be clarified.

Genres, themes and types

Video games genres are used to classify video games based on their gameplay interaction regardless of visual interaction and platform they operate. Video game genres are categorized independently from game setting or in-game content. At present, there is still lack of general agreement in reaching accepted formal definitions for game genres. However video game genres have usually defined in terms of having a common style or set of characteristics which are defined in terms of perspective, gameplay, interaction and objective (Konzack, 2002; Adam, 2003; Apperley, 2006). The example of video game genres are action, adventure, casual, first-person-shooter, music, online, puzzle, role-playing, simulation, strategy and sport.

Video games themes are used to classify video games based on visual interaction regardless of gameplay interaction and platform they operate. Video game themes are only categorized based on how in-game visual content look like (Nitsche, 2008). The example of video game themes are ancient world, fantasy, medieval, movie, pirate, history, robot and space.

Video games types are used to classify video games based on specific combination of electronic components or computer hardware. These electronic systems (known as platforms) imply any type of display device that can produce two or three dimensional images (Corts & Lederman, 2009; Srinivasan, 2010). Video game types normally are

categorized on their game operated platform regardless of gameplay and visual interaction. The example of video game types are arcade, computer, console, handheld and mobile.

Business models

Different from the terms genres, themes and types, business models in video game industry are generally used to describe how the firm plan their strategy for their product or service to gain revenue. Business models are quite independent from the product or service gameplay interaction.

In the perspective of general industry, a term of business model, strategy and tactic are often used in the place of each other. Therefore confusion in terminology is very common. This has become an obstacle of research progress in business model field. Until recently, there is still no common definition of business model construction exist. Many researches (Timmers, 1998; Hamel, 2000; Amit & Zott, 2001; Weill & Vitale, 2001; Chesbrough & Rosenbloom, 2002; Dubosson-Torbay et al, 2002; Magretta, 2002; Morris et al, 2005; Shafer et al, 2005; Johnson et al, 2008; Casadesus-Masanell & Ricart, 2010; Teece, 2010) have proposed different definitions in their publications (Table 1). However the significant mutual approach between them is a holistic perspective on how firms do business to create value as a main goal.

Table 1 - Definitions of business model

Authors	Definition
Timmers (1998)	'an architecture of the product, service and information flows, including a description of the various business actors and their roles; a description of the potential benefits for the various business actors; a description of the sources of revenues'
Hamel (2000)	'A Business Concept is a radical innovation that can lead to new customer value and change the rules of the industry'
Amit & Zott (2001)	'the content, structure, and governance of transactions designed so as to create value through the exploitation of business opportunities'
Weill & Vitale (2001)	'a description of the roles and relationships among a firm's consumers, customers, allies, and suppliers that identifies the major flows of product, information, and money, and the major benefits for participants'
Chesbrough & Rosenbloom (2002)	'the heuristic logic that connects technical potential with the realization of economic value'

Dubosson-Torbay et al (2002)	'A business model is nothing else than the architecture of a firm and its network of partners for creating, marketing and delivering value and relationship capital to one or several segments of customers in order to generate profitable and sustainable revenue streams'
Magretta (2002)	'stories that explain how enterprises work. A good business model answers Peter Drucker's age old questions: Who is the customer? And what does the customer value? It also answers the fundamental questions every manager must ask: How do we make money in this business? What is the underlying economic logic that explains how we can deliver value to customers at an appropriate cost?'
Morris et al (2005)	'concise representation of how an interrelated set of decision variables in the areas of venture strategy, architecture, and economics are addressed to create sustainable competitive advantage in defined markets'
Shafer et al (2005)	'a representation of the underlining core logic and strategic choices for creating and capturing value within a value network'
Johnson et al (2008)	'consist of four interlocking elements that, taken together, create and deliver value'
Casadesus-Masanell & Ricart (2010)	'A business model is a reflection of firm realized strategy'
Teece (2010)	'A business model articulates the logic, the data, and other evidence that support a value proposition for the customer, and a viable structure of revenues and costs for the enterprise delivering that value'

From consideration of industry business models and company business models, this implies that several business model levels exist. However, there are only a few authors discussing different levels of business models within their literature. Schallmo and Brecht (2010) have suggested that there are 2 levels of business model (Generic and Specific), which have contained 5 sub-levels; abstract sub-level, industry sub-level, corporate sub-level business unit sub-level, product or service sub level.

1.) The abstract sub-level is defined as generic level which is independent from industries describing general principles on how to operate.

2.) The industry sub-level is still in generic level, but is more focused on how companies operate depending on an industry. Commonly, in newspapers, magazines, newsletters and websites, business can generate revenue in a variety of ways such as advertising-based business model compared to a subscription-based model.

3.) The corporate sub-level is more specific, focused on firm, less focused on the environment and describes how a company should operate or is operating. Dell is an example company which has general corporate business model.

4.) The specific business unit sub-level describes the business units of a corporate, where the corporate level is too abstract to capture the different business models at work. Although similar to the corporate level, it can be seen in companies, which have separate business unit models and operate in several business fields or countries.

5.) The most specific sub-level is the product or service business model level where most are fixed components and specific to a product and service that are released.

If considered the level business model level concepts by Schallmo & Brecht (2010) in video game industry, some constrains must be applied and the business model in video game industry should be consider in specifically different level. Thus Business model in video game industry can be reconstructed as a new figure which focuses on differentiated in channels and revenues which will be represent as a product or service business model level.

Result of study

As mentioned above, definition of business models in video game industry is generally considered as a holistic perspective on how firms do business to create value and business in video game industry will considered as model product or service sub level. A simpler and more understandable criterion to defy the business models in video game industry was proposed here. The classification scheme was based on (1) customers' accessibility and (2) video game publishers' revenue track.

1. Customers accessibility classification scheme

The first classification scheme is according to accessibility of customers. This classification scheme will consider ability of customers to access a significant portion of their content in product of service with or without paying. This scheme can be classified as: Pay-to-Play and Free-to-Play.

1.1 Pay-to-Play

Pay-to-Play (P2P) business model is a tradition model in video game industry that customers need to make a payment before they obtain a fully functional content in a product or service. This business model can be found in common product or service purchased which can be seen in other various industries where customers acquire a product or service by paying for it.

In video game industry, the term P2P is also used as a slang word to refer to internet services which require users to have a payment before using them. Sometimes, the term has referred to Massively Multiplayer Online Role-Playing Games (MMORPGs) which customers have to subscribe to a product or service to maintain their game account (Lin & Sun, 2007).

1.2 Free-to-Play

In contrast to the P2P model, Free-to-Play (F2P) model is a product or service which allow customer to access a significant portion or fully functional of content before they have to pay for any extra features (Solidoro, 2009; Marchand & Hennig-Thurau, 2013). There are several kinds of F2P model i.e. Shareware, Freemium, Freeware and Open source.

Shareware refers to a free trial version of variable in-game content. The objective of shareware is to convince customers to buy a fully functional version of the P2P product or service after a trial period end (White & Morand, 2002; Sotamaa, 2005). Shareware is also known as game demos. Shareware usually allows customers to try the product or service with a limited of time and/or functionality.

Freemium refers to a fully functional product or service that provides a free of charge, but extra payment is required for advanced features, functionality, or virtual goods (Hung, 2010). Usually, freemium comes together with advertising and micro-transaction model which will be discussed further in next section.

Freeware refers to a fully functional product or services available for use with no cost or an optional fee at all (Coleman & Dyer-Witheford, 2007). However, sometime freeware have a restricted of usage rights and is a close source product or services.

Open source refers to a fully functional product or services available for use with no cost or an optional fee at all (Scacchi, 2004). In addition, open source product or services has also their source code available to the public, enabling anyone to copy, modify and redistribute without fees.

2. Revenue model classification scheme

The second classification scheme is according to revenue model of video game publisher. This classification scheme will consider what channel that product or service delivers value to their firms. This scheme can be classified as: Coin-operated, Retail, Digital distribution, Advertising, Subscription, Micro-transaction and Player-to-Player trading.

2.1 Coin-operated

In the early age of video game industry, Arcade video game machine have reached their golden age. All of the arcade video games machine in the era have coin-operated model which provide an entertainment service for their customer via coin-operated machine. Inserting a coin into a slot can activate the machine. The amounts of revenue generated in coin-operated model service have measured from the total value of coins that inserted into machines (Wolf, 2008).

Arcade video games machine reached its peak popular in the late 1970s to the mid-1980s. The machines remained relatively popular during the late 1990s in the western countries and had begun a continuous decline in its popularity since the further development of home-based video game consoles. However, in many part of Asia arcade, video games machine still remains popular (Kum & Kim, 2011).

2.2 Retail

Retail model is a tradition way of selling product or service in physical form such as cartridge, compact cassette tape, floppy disk, CD-ROM, DVD or Blu-ray disc. Retail

purchasing is usually made via store or by shipment. The revenue can measured from their physical copy sales.

2.3 Digital distribution

Since the mid-1990s, the internet has had a revolutionary impact on culture and commerce, Electronic software distribution (ESD) have been introduce for a purpose to delivery of media content such as audio, video and software without the use of physical form. Usually, EDS have process over online delivery mediums such as online publisher. Video game industry also adopt this this technology for their product or service (Postigo, 2008).

Digital distribution model is a way of selling product or service in digital form. The term digital distribution is also applied to stand-alone digital products and downloadable add-ons, which is commonly known as downloadable content in video game industry. With the advance development of network bandwidth capabilities, digital distribution has obtained a significant market share in video game industry in the early 2000s. The revenue from digital distribution is usually measured by their digital copy sales.

2.4 Advertising

Advertising model in video game industry is commonly referred to In-Game Advertising (IGA). For products that are fully or partly financed through advertising, these products will display sponsors' advertisement into in-game banner, background, billboard or loading phase (Iris et al, 2008). This model is very common in F2P mobile games, or in sport and racing games which can naturally include advertisement banner in their game design. The revenue in this model comes from advertising sponsorship.

2.5 Subscription

Pioneered by magazine and newspaper industry, some product or service in video game industry has adopted this subscription model. The model requires a subscription fee to be paid to allow continued play. Instead of selling products individually, the product or service requires customers to pay periodic fee to use or access (Williams, 2009). The revenue in this model is generated from a new registration or renewal of a subscription which may be activated automatically, and the cost of a new period is automatically paid via a pre-authorised charge to a credit card or a checking account.

2.6 Micro-transaction

Micro-transaction or micropayment model are often seen in F2P online games which the product has feature to sell virtual goods or virtual currency in-game content (Whitson, 2011). These virtual goods or virtual currency can be bought with real world currency, but the customers cannot return the virtual goods or virtual currency back into real world currency. The revenue in this model is generated from micro-transaction payment.

2.7 Player-to-Player trading

Similar to Micro-transaction model, Player-to-Player Trading model allows customer to buy virtual goods or virtual currency with real world currency. Using virtual currency as a medium of exchange can usually trade these virtual goods, and virtual currency can be transferred back to real world currency (Prax, 2012). The revenue in this model usually generated from in-game virtual good trading fee and transfer fee between real world and virtual currency.

Classified Business model in the former and latter scheme are usually independent. In a product and service, it normally has at least one model from each scheme. However, sometimes a product or service may have hybrid model which adopt more than one model in a single a product or service.

Conclusion and discussion

This study investigates the classifications concept of business models in video game industry, to assist the further study of video game industry in business and management development disciplines to be more practical.

Two kinds of classification scheme are introduced; the first scheme is a classification scheme according to accessibility of customers which classified as: Pay-to-Play and Free-to-Play model. The second is a classification scheme according to revenue model which classified as Coin-operated, Retail, Digital distribution, Advertising, Subscription, Micro-transaction and Player-to-Player trading.

This study has a limitation concerning a definition of business model as a pattern of how firms do business to create value and consider only product or service business model level. If the study concerned other definition(s) of business model and business level(s), the result might be different.

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Business Impact in the Education Sector: The Case of Oil&Gas Company MOL

Majda Tafra-Vlahović
University of Business and Management, Zaprešić, Croatia

Abstract

This case study deals with the problem of shortage of highly qualified employees that would be working in oil and gas industry and in other sectors in demand of technical professions in coming decades and the way it has been dealt with by MOL, the leading Central East European oil and gas company based in Budapest. The problem was caused by decreasing interest of secondary school students to study natural and technological sciences which are considered very difficult. In addition, young people's perception is that the chances for employment after diploma would be very limited. This has not only been the problem for the companies that rely on staff qualified in technical and natural sciences but also a wider social problem since with the rapid development of technology the need for qualified professionals in natural and technical sciences has been increasing.

The purpose of the case study research was to investigate the process, results and implications of MOL`s policy and its social impact in the education sector. The theory behind the case is the concept of creating shared value as it is stipulated by Professor Michael Porter. Through seven years, MOL had followed the logical evolvement scenario implied in the possible elaboration of this concept. The company management was stimulated by the challenge to search a solution that would benefit both business and the society. The fact that in the process the company grew to be the second most desired employer in Hungary illustrates the argument that shared value implementation contributes to 'legitimising business'.

Programs for young people that are subject of this case study have received extensive media coverage in a number of countries, which has additionally contributed to raising the bar in recruitment policies of businesses in these countries. The rate of students enrolling in technical schools also increased. The case study research is based on secondary sources from the company archives, public web sites and media and interviews with former and current executives of MOL and the participating students.

Key words: corporate social responsibility, shared value, human resources

Is Future Fresh and Growing for MOL?

It was the end of May, 2013 in Budapest, Hungary. Members of MOL Group Human Resources team were checking the last details of the final competition and award ceremony of their star programme that was to be held next day. The programme had started seven years ago and had significantly developed ever since, yet, hundreds of things still needed to be put in place to ensure that everything would go smoothly.

Two years before that this particular programme by MOL group had won highly recognised European human resources award, an excellence award in the recruitment category that was given to any company for the first time. The ceremony of this award in 2011, which had been launched to recognize and reward organisations that

demonstrated excellence in human resources management practices, was an occasion to receive a wider public and social recognition for MOL HR team. It had been presented on 25 October at Budapest during the Human Asset 2011 Conference. This had, indeed, been a considerable achievement because 65 nominations from 14 different countries were entered.

It had all started eight years ago in Budapest, in MOL, oil and gas international company having its headquarters in Hungary. At that time, this dynamic growing company in a demanding oil and gas sector was faced with the challenge of long term thinking and responsible corporate behaviour at the same time. One of very important questions to solve was: who would work for the company in the decades to come, where would all engineers and technicians come from? The data about education trends that the company had got hold of showed that high school graduates and undergraduates preferred social sciences and humanistic studies to technical sciences. How was MOL to plan the future expansion and growth without reliable employee base? HR team in the company was aware of the problem at the time and its members were debating various possible solutions none of which seemed to be sustainable. An immediate action trigger occurred when the president of the company requested that they offer a long term solution to the problem of shortage of highly qualified technical staff that the company would face in the future and to come back with the proposal in a month. The main request was that the solution to the problem should, at the same time, be beneficial to the company and to the local communities in which MOL operated.

That was a burden since a resolution to this problem in a sustainable and socially beneficial manner was a condition for future long term company development, maybe even survival. MOL HR team was, thus, requested to find a solution to the problem that did not yet exist but would become a big problem in years and decades to come. It was, in fact, a future problem which needed a present solution, therefore long-term strategic thinking and immediate action and investment.

The context of the situation at the time and even more so, the prospects for future for both the sector and the business strategy of the company as they were known to them at the time, were main elements of the framework in which they would look for solution. The solution itself, however, was left to the competence and innovative initiatives of HR team.

The context of the problem

Background to oil and gas industry

Oil and gas industry was mainly perceived by general public as a rich sector. People believed that the reserves of oil and natural gas were huge and companies drilling black gold and gas from the earth and producing the fuel that fuelled every other imaginable consumption, or so they were taught to believe, were on the top of the world with future painted in bright colours. Maybe not so bright because, though, since it could be that the happy days of more than a century of easy going growth of oil and gas industry had come to an end, at least in the form known so far. The oil and gas sector has been burdened with numerous challenges in the last several years. Some of those were related to the increased efficiency in power supply, some to the more or less successful and definitely persistent search for alternative energies, and many were related to legislative obstacles to careless consumption that fed the fuel and gas

market. MOL would need to deal with all these challenges in its strategic planning and would need to find solutions that would help sustain its competitiveness.

According to the report “What next for the Oil and gas Industry?” (Mitchell, Marcel, Mitchell, 2012), oil and gas supplied 57% of the commercial energy the world had consumed and their combustion accounted for roughly the same proportion of CO2 emissions. The report particularly pointed to the strong correlation between actions of consumers and governments in that context, warning of increasing interventions by governments and stating that in the situation of economic crisis no reliable predictions about the future of the sector could be made. Nevertheless, the six main conclusions of this report drafted a solid framework for consideration, and indicated many questions in need of further investigation for all those particularly interested in the sector.

One key finding was that oil industry would no longer be able to rely on its monopoly of the transport market. Logical arguments for this were increasing demand for more efficient vehicles to which vehicle industry responded, driven by an increasingly severe legislation trying to control the problem of carbon emissions. The legislation would continue to be tougher as the problem would remain, and as a result, the growth in the use of petroleum for transport would be slowed down in developing countries and reversed in developed countries.

Moreover, the role of OPEC would change since the investors would calculate when considering investments in new sources of oil and substitute fuels and those that reduced the use of oil by greater efficiency. The competitors residing outside the oil sector were a threat to demand for oil and new strategies on the part of industry were needed to attract the investors. (Mitchell, Marcel, Mitchell, 2012)

So as to the golden age for gas coming, since, presumably, oil industry could start running gas as major product instead of oil, caution was suggested, as the investors would also be cautious about investing into gas the prices of which were very different in different markets. The role of government in gas market regulation was also crucial and that was driven by factors like policy on nuclear energy, therefore, not the context of oil and gas sector itself. These elements suggested some relevant strategic projections on the part of oil and gas companies, MOL included, in order to be at least partially secure for future positioning.

Furthermore, the concept of “peak oil” (point when the maximum level of petroleum extraction is reached, which was allegedly happening in 2005 and then again in 2011 and 2012 - and after which the production rate would enter terminal decline), was a misleading concept according to the report. The main problem was transforming resources into reserves for future which were growing faster than the increase in production. The key word in this context was technologies, particularly those for developing reserves of unconventional oil (produced using techniques other than the conventional method) the supply for which was growing. The trends were not clear and no predictions were possible as all would depend on investments in transport market and new reserves creation.

The financing of future investment in oil and gas industry would be qualitative question of matching opportunities and risks with sources of funds. That meant that the investors would need some proof of reliable strategies for managing value downstream (refining crude petroleum and processing and purifying raw natural gas, including marketing and

distribution) that was declining in many cases or of innovative solutions for opportunities upstream (exploration and production sector). According to the report, already, within the oil industry, there were choices emerging in which some companies developed as industry giants with interests throughout the whole value chain while others were turning into companies focusing either on upstream or downstream.

Finally, the report warned that the oil security problem had moved to Asia and that Asian markets absorbed more oil that the Middle East countries could supply, and this affected the price risk for Western countries. In addition, the weight of security and political issues added to the complexity and raised numerous questions about the future of the sector with many possible but no certain answers. (Mitchell, Marcel, Mitchell, 2012)

All things considered, the changing world was affected by changes in oil and gas industry and vice versa, so, the final recommendation was a very general advice to companies to rethink their strategic positioning and understand all the elements in the context in which the industry operated to be able to assess its future options.

That was also the context in which, back in 2006. MOL Plc. could have expected to be operating in future. Apart from many other serious challenges, the company was faced with future serious recruitment problem.

Background to MOL plc.

The Hungarian Oil & Gas Company Plc (MOL Rt.) was founded in 1991, which was considered a milestone in the history of the Hungarian petroleum industry. The company prided itself for being not only a company that embraced the entire Hungarian petroleum industry, but the one that had grown into one of the largest multinational corporations in Central Europe. The company was a leading integrated Central and Eastern European oil and gas corporation with an extensive international upstream portfolio. Market capitalisation was over USD 7.5 bn at the end of 2011 and the company shares were listed on the Budapest, Luxembourg and Warsaw Stock Exchanges. MOL`s depository receipts were traded on London's International Order Book and OTC in the USA. According to the statements of company's 2011 report, MOL was committed to maintaining and further improving the efficiency of its current portfolio, exploiting potential in its captive and new markets and to excellence in its social and environmental performance.

Based on 2011. year company report, the Upstream (Exploration and Production) segment had a diverse portfolio with oil and gas exploration activities in twelve countries and valuable producing assets in eight countries. MOL Group had more than seven decades of oil and gas industry experience in the Central and Eastern European region and a proven international track record of over twenty years and was in the position of reaping the benefits of its outstanding exploration drilling successes. Several discoveries were recorded in Hungary, Russia, Kazakhstan, Pakistan and the Kurdistan Region of Iraq in recent years. Besides the company's traditional core Central and Eastern European arena, more recent focus had been on Russia and Kazakhstan due to their reserve addition as well as on flagship assets in the Kurdistan Region of Iraq.

The Downstream (refining and marketing, retail and petrochemicals) segment operated 5 refineries, 2 petrochemicals units and a modern retail filling station network supplied

by a region-wide logistics system, all optimised by very effective supply chain management. The segment's integration was significantly enhanced in 2011. by continuing to exploit sequential and interactive business processes, keeping the focus on operating efficiency whilst moderating negative effects of the external economic environment. The Group's two most complex refineries, Bratislava and Danube, continued to enjoy the advantages of their strong asset structure, high net cash margins and central positions in landlocked markets.

So as to gas Midstream, FGSZ Ltd. (Natural Gas Transmission Closed Company Limited by Shares) was the exclusive holder of natural gas transmission and system operator licences in Hungary. The company owned and maintained full operational control of the total domestic high-pressure pipeline system. FGSZ transited natural gas to Serbia and Bosnia-Herzegovina as well as transfer to Romania and Croatia. MOL Group was an active participant in the gas storage business through the gas storage facility of MMBF Ltd. which finished its second year of successful operations in 2011. According to the 2011 MOL report the company had recently been analysing the opportunities to create a diversified generation portfolio.

There was no way that such growth could have been projected back in 2006. Yet, they were familiar with strategic development direction of the company and particular portfolio segments and that helped Human Resources function picture the business environment imperatives in the area of necessary human capital. As it turned out, their accounts and assessments were basically correct and in line with the development of the company.

The company vision which stated that «MOL Group kept people moving ahead by discovering new ways of serving their energy needs better and creating value for generations to come», provided just about right framework to plan a solution for the problem of shortage of qualified staff the company would be faced with in future.

The mission of MOL was that «operating across and from Central Europe, MOL Group would systematically overcome all frontiers, inspired by its management and relying on the expertise of its people. The values stated publicly were:

- Success and Growth - moving ahead
- Courage and Decisiveness - to act without fear and overcome frontiers
- Teamwork and Partnership - together, leaving no one behind
- Expertise and Responsibility - through more intelligent solutions

Health and safety environmental system was consistently applied throughout the company. In recognition of its long-term economic, social and environmental performance, MOL was included in the Dow Jones Sustainability World Index for the second time, in 2011.

Strategic orientation of MOL towards further strengthening of upstream operations and commitment to sustainability and corporate responsibility remained the dominating force behind operational decisions in many sectors of the company, function of Human Resources included.

Background to MOL Human Resources function

Majority of employees spend half of their time at work and the working environment affects the quality of life of employees and their families. In the last couple of years MOL had been developing a sustainable and socially responsible human resources strategy that recognised human capital at MOL group as a key for sustaining long term growth and success. This section of case study describes crucial elements of human resources area in MOL as it has been developing since the year 2006. when HR team had first been requested to submit a sustainable recruitment strategy. That recruitment strategy was to fit the needs of future MOL`s expansion including the HR general strategy.

Human capital had been defined as one of the key building blocks in the overall sustainable strategy of the MOL group which was clearly shown in the growth of Dow Jones Sustainability Index measurement of HR areas.

Attracting, retaining and motivating employees remained the principal long term goal of the company, the success of which depended to a large extent on the expertise of the employees and on their personal and professional development. Human Resources team had been fully contributing to a number of measures in this respect.

MOL Group was a continuously growing and expanding company; therefore it was particularly important for the company to be flexible and act proactively in order to be effective. To maintain efficiency having the right people with the right capabilities at the right place was crucial.

In the company the general belief was that the long-term success and growth depended to a large extent on the expertise of employees and on their personal and professional development. The HR function aimed at delivering professional systems and development programs which reflected business requirements and contributed to the employees' outstanding performance in a challenging business environment. In order to support the business effectively achieving greater success, they set a number if goals in managing people.

In retaining and motivating employees, MOL Group had shown significant expansion which had been taking place through mergers and acquisitions and therefore its human resources systems and processes showed wide variety. One of the key HR challenges was the support of the successful and smooth integration of these newly acquired businesses in terms of processes and systems.

In the Career Management System (CMS), the goal was an integrated group level career management and succession planning. In the employee engagement segment the goal was to enhance responsible employer practices to ensure engagement. At the Group level employee engagement survey was being conducted biennially to measure the engagement and satisfaction level of the employees. After each engagement survey, many targeted actions were defined and implemented within a 2-year period. In line with the diversity initiatives, result reports could be generated based on gender, age and years of service to ensure dedicated actions that focused on the most important areas.

One of the most demanding issues was human capital development. At MOL, investing in people's development was vital in order to build a successful company, especially under the circumstances of the energy industry, when finding the right, skilled experts was exceptionally challenging. By investing into human capital development, the company was contributing to the improvement of people's competencies and besides the growth in effectiveness; it also resulted in an increase of their economic, social and personal well-being. This was strongly supported by MOL Group's people development programs such as International Talent Program, Navigátor, Master Academy, Dynamism, Leadership Reinforcement, IT Development, Petroskills, Jolly Joker, Refinery Complex.

In the area of technical competencies the goal was to roll-out at the Group level a competency assessment and development process. As the part of longer term capacity development, MOL Group had launched a technical competency management pilot programme within the Upstream Division using PetroSkills, a leading oil industry alliance's learning and development methodology. After a successful pilot project, the Group joined the alliance as a member company and started to roll out the system.

MOL's approach to competency management consisted of a biannual cycle of repeated competency requirements review, on-line assessment compared to the required profiles, and planning and delivery of learning and development interventions to address identified gaps in competency. The results of the competency gap analysis were utilised as a basis of the Upstream technical training planning process.

By the end of the second half of 2012 MOL technical competency management system had covered 750 people from the Upstream expert pool and another 550 people from Downstream. Further roll-out was planned in Downstream in the course of 2013-2015.

In the International Talent Program the goal was to continue and rollout divisional level development talent programs to support succession planning and handling aging workforce. OL Group's Upstream division had world-wide reputation based on the outstanding knowledge and experience of its people. As the oil industry required thorough knowledge and preparedness the company needed to take extreme care of its talent supply in time. MOL Group's first Talent Program was launched in 2006 mainly involving Hungarian participants. During the second program it became obvious that because of the foreign acquisitions MOL Group need more and more professionals and managers who were able to work in an intercultural environment. In 2011 the company launched the third program called International Talent Program with participants from Hungary, Croatia, Russia and Pakistan in the hope of developing an efficient, international project team. The aim was not only to develop the competencies of the participants but also to enrich their technical knowledge.

In 2011. MOL Group established the framework for the E&P Corporate Academy (Exploration and Production) and formed Geosciences, Petroleum engineering and project management content owner groups. In order to fill in specific strategic competency gaps at Geosciences and Petroleum Engineering in-house training courses were organized.

In line with the company`s commitment to fair employment the goal of employee relations was to enhance responsible employer practices to ensure engagement and diversity of workforce. The employee representation was ensured via employee

representative bodies, as the right to exercise freedom of association and collective bargaining was considered to be the crucial aspect.

In line with equal opportunity and diversity policy, the company ensured equal opportunities to all current and future employees. In fact, MOL exceeded national regulations: equal treatment for all was guaranteed through collective agreements and the Code of Ethics, Trade Union agreements, Group-wide guidelines and internal regulations. MOL Plc. introduced its first Equal Opportunity Plan valid for the period 2010 – 2012.

In the whole HR programme portfolio the programme they had been requested to design back in 2006. was of a crucial importance. They were asked to design a programme of recruitment which would satisfy the future needs of the company in highly qualified staff, first of all engineers, to ensure long term basis for such recruitment, to foresee future needs and ensure sustainable pipeline of professionals contributing simultaneously to the overall HR efficiency within MOL, to MOL`s new strategic initiatives and planned acquisitions and increasing sustainability rating and corporate responsibility performance. In addition, the expectation was to contribute with these measures to the overall quality and strength of human resources strategic building block functioning within the company and also, to create a multiplying effect of both social and business benefit at the same time.

The business challenge for MOL belonging to oil&gas industry was in the big change worldwide. HR team was aware that “baby boomers” would be retiring in the next five to ten years which would leave a huge gap behind. In addition to that, the corporation went through a fast paced growth both in organization and geographic areas and was still expanding. Parallel to this in the last 20 years negative trend hit the oil & gas industry worldwide starting with decreasing attractiveness of natural sciences among potential qualified workforce. It had an impact on the number of applicants for engineering and earth science faculties at the universities where there was a 25% drop. On the top of it, younger generations were having negative perceptions regarding Oil & Gas industry CSR activities, so it was increasingly difficult to attract them.

Innovative HR programs

Based on the process in which they had engaged in a root cause analysis, brainstorming sessions and SWOT analysis as well as predicting the potential social impact of MOL activities, HR team had finally decided to propose that MOL recruiting activities should start beyond generation Y’ers (born in the eighties) and start feeding the talent pipeline with generation Z`ers (secondary school students). In addition, they wanted to attract also the university student population. New HR tools and channels were needed to be able to deliver results across these groups. In clarifying the objectives and defining goals for approaching new solutions for recruiting, HR team had focused on two objectives: a) finding the most effective way of recruiting; b) having sufficient number of talents. Their first elaborated programme was Freshhh.

Recruiting beyond generation Y’ers

HR team decided that they needed a holistic solution for this complex challenge via innovative and interconnected programs and tools throughout the entire talent pipeline, and that meant starting from secondary schools students. Continuous and ongoing

projects were gradually developed and connected together to form an integrated system.

One of the key success factors was the improvement of the attractiveness of natural sciences among secondary school students so that quality and the number of pupils going to technical universities would increase. It was planned that this would boost the graduate market and fill talent pool after graduation.

An umbrella brand called Freshhh was created with all visual appearance design elements to support early engagement of young generation in natural sciences and with MOL company as well.

In 2007. MOL HR launched Junior Freshhh online natural science competition which was organized with 2500 pupils in teams of three focusing on tasks related to math-chemistry-physics disciplines in a generation Y'ers fashion. Complete story board was built up based on the idea of having a cartoon figure Junior Frisco in the middle of the story. He had to solve several tricky tasks to be able to organize a party. Over 900 participants were registered from five different countries and 89 towns/cities since the start. Junior Frisco collected almost 1000 friends on the Face book within 5 weeks, few of them were senior directors of MOL group.

MOL had been maintaining close and regular cooperation with secondary schools. A lack of natural and technical science experts had been observed at the global level as well as on the local market. Special attention had therefore been paid to promoting natural science studies in secondary schools to build a longer term recruitment opportunity for MOL talent pipeline. In 2012. MOL Group continued its Junior Freshhh initiative and handed over the MyMaster Award for the 3rd time to selected secondary school teachers for their outstanding efforts to promote natural sciences and orientate their students towards sciences through their personalities and teaching approaches. Additionally, the company was a founding member in a Together for Future Engineers alliance and initiated & organized the Dialogue Conference aiming at future partnerships on the common interests in education background.

Freshhh EDU online teaching & learning tool was developed both for the teachers and pupils. This tool was a great example of the cooperation among school teachers and the company based on the experiences of Junior Freshhh competition. Teachers were able to group pupils and create homework for them online. As an advantage, the system was flexible enough for the teachers, so they could measure task solutions of the given students from several aspects (time spent on each task, for instance).

MOL Group had also created strategic partnership with secondary school pupil's and teachers associations. Thanks to this, the company was able to bridge the gaps among students and the company and the cooperation enabled the HR team to increase the number of involved students into MOL programs as well as to provide great opportunity to select the most talented pupils at the earliest ages.

Another project under Freshhh brand was supporting math-chemistry-physics competitions. Thousands of students were competing in these competitions and a lot of talented ones achieved good ranking also on the international natural sciences games. As one example, the sponsored team, sponsored by MOL, won 3 third place on the International Earth Science Olympiad (IESO) in Modena, Italy in 2011.

Once the teacher evaluation about most talented and the best secondary school students was completed they were offered scholarship program contractual agreements. These students then usually selected those universities and faculties which were crucial for MOL and were generally considered in deficit. MOL Group was aiming to initiate a dialogue among the parties having interest in teaching and making natural and technical sciences more popular: secondary school and university teachers, policy makers, academics, NGOs and company representatives. Therefore MOL Group organized the Dialogue Conference in March 2012 for the second time. The major topics needed to be discussed were how did the new secondary and higher education law affect the natural sciences and technical education system; what were the most innovative tools and best practices for teachers to raise awareness; what was the experience of the Hungarian team winning 3rd place at IESO – International Earth Science Olympiad; what could companies, governmental institutes and schools do for a high-quality education. In short, a process of creating a common platform for future inter-sectoral partnerships for education was launched with support from all sectors.

In 2012. MOL had already witnessed major successes of ten programmes they had initially launched in 2006. In Freshhh 2012 over 2000 students in three member teams from 60 countries participated in the competition. The 'P.P.S.' team of University of Miskolc (Hungary) had won MOL Group's international oil and gas industry competition. The top ten teams competed in the finals for prizes worth EUR 20,000. MOL Group, which operated in a great number of countries, was able to offer students international career opportunities in addition to prizes.

In 2012, the number of participants had almost doubled, compared to the first year of this event, 2007. Since its introduction, the Freshhh competition database has registered 7,904 students from 67 countries, in a total of 2,756 teams (including incomplete teams). As a result, MOL Group recruited almost half of the 150 Top ten team members in various ways since 2007.

The game for smart and curious

In the first phase of the three-round competition, entrants had to compete in a virtual scenario, through the Internet. Participants had to solve industrial and strategic online MOL Tycoon game tasks developed by MOL, using computers. This was followed by a creative round in which the qualifying 40 teams had to prepare strategies related to unconventional gas production technology and create a script for a related short film. The jury, consisting of MOL Group experts, then evaluated the excellent inputs and selected the best ten teams who were then invited to Budapest to take part in the finals where teams had to present as well as "sell" their ideas on the creative round's topic to the Jury and the Audience.

The Freshhh concept required an even more complex approach from the participants than ever before. The tasks, developed by specially appointed and volunteer MOL Group experts, were interrelated, whilst again proceeding along the oil supply chain.

The structure of this industry related simulation game and its modularity was appealing and exciting for the target group, on the regional and international levels. Due to WEB 2.0 applications e.g. Facebook, not only was it more interactive within each team but it also generated vivid info and knowledge-sharing among the competing teams. The most discussion (e.g. comments, questions etc) took place on the contest's Facebook

page. During the game, mostly expert oil industry specific competence and strategic thinking were measured by task and would be present in contests in the years to come. The rate of students pursuing studies in engineering and natural sciences increased to 75% compared to students involved in economics/other studies. As the main goal was to recruit the best young talents

from the universities the company offered professional career opportunity for the final round participants.

Recruiting activities at the Universities – injunctions with secondary school programs

The entire energy industry was facing an increasing skills gap due to the large number of experienced professionals who were retiring and the lack of natural science experts on the global labour market. In these circumstances, employing talented people with the necessary skills and qualifications was essential for the long term stability and sustainability of our business. MOL Group therefore developed strategic partnership with eleven universities which provided education in relation to its core businesses in the region. Scope of the cooperation included common activities such as MOL group experts giving lectures or organizing site visits in the refineries. University professors were also involved in the project. As a result of the close cooperation, HR team was able to detect the most talented students even in the university years and offer them scholarship and internship programs.

MOL group has established MSC faculties in the field of oil and gas engineering and chemical engineering specialized to the industry requirements. The cooperation itself provided an opportunity to fulfil the need of competent fresh graduates of the corporation. Due to the fact that curricula were designed based on MOL Group needs, the technical competency level was higher than that of the other university graduates. Besides feeding the young talent pool MOL Group faculties had also become the centre of excellence in terms of higher education. Evidence of this was when MOL agreed with Iraq's oil ministry that new engineers from Iraq would come to study in these faculties of oil & gas engineering.

MOL had, in addition, further developed strategic partnership with universities by partnering with student associations. Due to this, the company was able to bridge the gaps among university students and the company and build increasingly successful relationships. The cooperation enabled the company to increase the number of involved students into the programs and to increase their interest towards the oil and gas business as well as provided great opportunity to select the most talented pupils at the earliest ages.

In MOL Group Internship & scholarship programs, the company involved more than 200 students from its strategic university partners. MOL offered scholarships for high performer students who were proving their knowledge and capabilities during the internship program.

HR pursued the need to keep innovating and developing the programme. The framework of the game enabled them to further develop the competition in which new, even more demanding challenges would be introduced. Simultaneous professional and financial management of the integrated (upstream and downstream) virtual company

was to be the core task with high focus on the technical issues. Beside the business advantages (e.g. strategic and law cost recruitment, employer branding) this system also aimed to be a teaching tool for universities in the long run.

The best 10 teams of the Freshhh challenge got the opportunity to join MOL fresh graduate program called Growww. The company hired more than 300 youngsters in 2011 and the company received more than 10.000 applications in 2 years on a yearly basis throughout the Group (the program retention rate was over 92% since 2007). Growww program was running with the same principles and design from Pakistan to Russia. The company was offering a one year fixed contract for the best Freshhh graduates and once they joined they were rotated within the given business. They were involved into challenging projects where they could prove their capabilities. The best performers got permanent contract offers from the company at the end of 1st year.

In 2010. the alliance of Together for Future Engineers was established with the participation of MOL Group and several companies which were facing shortages in well-trained and experienced engineers and natural sciences professionals in Hungary. The biggest area of focus was the supply of engineering and earth sciences professionals (e.g. electrical engineer, geology), but at the same time it was also challenging to find experts with potential and with chemistry and mechanical engineering background. MOL had a strong representation in two of working groups of the alliances Secondary School and University Relations. The member companies started to work on the project plan of 2012-2013 aiming at strong and long-term orientation of students towards natural and technical sciences and handling the hot issues of higher education.

MOL Group in association with a consultant firm initiated an employer branding research. One of the main objectives was to be able to define authentic messages and effective way of communication on the given labour market segments both in the internal & external communication. In the research quantitative (online questioners) and qualitative (focus groups) methods were used. Target groups (relevant labour market segments) of the research were defined by the project team which included members from Human Resources and other areas of the business.

The following areas were in the focus of the research:

- Attractiveness – Is MOL Group recognized as an attractive place to work?
- Characteristic Image – How does MOL perform on the labour market?
- Credibility– How powerful is MOL's reputation as an employer internally?
- Harmony - External and internal research comparison
- Distinctiveness – How attractive is MOL relative to its competitors?

The results showed that there was a "harmony" – alignment of the external and internal perspectives – and that the company was able to define employer value proposition and send massages accordingly during and after the recruiting process.

According to the 2012 Aon Hewitt survey, MOL Plc. was the 2nd most desirable company to work for in Hungary. While the results were based on the opinions of graduates, in 2012, the professionals who were already active on the labour market were involved in the survey. Creating and maintaining the Employer of Choice image throughout the countries MOL Group strategy was crucial to attracting and retaining young talents of the profile needed to deliver MOL´s strategic goals. MOL´s Employer

Branding strategy aimed to translate the success of its business strategy to both potential and current team members who were targeted at by communicating the message that MOL Group was a highly-desirable place to work with opportunities for both professional and personal growth. Corporate values were at the core of the new approach which was designed in 2012. and launched in 2013. The entire strategy was driven by the energy, inspiration and wealth of diversity of MOL Group employees who were agents of change.

The business impact of the recruiting strategy was considerable and justified the investment, particularly in the long term because the company had established high level partnerships with universities in the region, secured talents, and also motivated young people for choices of universities and future professions that were in demand and therefore, satisfied a very important social need. Both Freshhh and Growww programs thus have had measurable results that fully justified the investment and supported the company's orientation on long term strategic social investment that created shared value for business and communities in which MOL operated.

At the end of yet another successful finals of Freshhh contest in May 2013. lessons learned from experience of partnerships with schools and universities as investment in human capital were that, beside the business advantages (e.g. strategic and law cost recruitment, straightening the employer branding,) Freshhh online competition was also a teaching tool for universities in the long run. In addition, no doubt that consistent and authentic employer value proposition and values were keys for sustainable business growth and success of the corporation as well as the creation of social impact. Finally, success factor in the recruiting strategy was that secondary and university programs were built on each other and that employer value proposition and social value was clearly defined and authentic both internally and externally.

The question that remained hanging in the air for the whole HR team and key executives was - where to go from there. What would be their next activities? They would, of course, continue with the programs under Freshhh brand and within the framework of investment into human capital as one of key HR strategic thrusts of the company. But was that all? How could they increase the quality of candidates even more? How could they contribute to raising awareness about the need for adequate education matching the social and market needs satisfying at the same time the needs of the company that was growing in the direction of developing upstream, and thus, was fully aware of the type of employees it would need in, for example, in twenty years.

Was it time to lower the limit for considering recruitment even further to elementary school or was it too early? What kind of multidisciplinary education should they support in their strategy aiming to create shared value? Should they expand their collaboration and partnership initiatives outside the education system and include civil society sector? What would be the role of recruitment and building human capital in further strategies of their business and what tasks would that present to them?

Many questions to which HR team and other executives, discussing after the end of Freshhh competition, a very successful program that benefited society and created value to business, had no final answer. Many ideas, though. Some of the ideas were given during the Freshhh final competition itself by the members of ten teams in the finals on Budapest on 30th May 2013. They were invited to Budapest to participate in the finals after having passed as the best on the on-line competition among 887 registered teams

from 15 countries and over 250 universities from all over the world (most from MOL Group strategic universities).

Their first challenge was to provide a concept, roadmap and tools to manage the transition of MOL into a truly global upstream player operating in new and international environment with special focus on people related aspects.

A number of good ideas figured in finalists presentation: regional MOL academy with regional academics as coaches, competence and motivation centres, rotating field posts, expansion of partnerships with regional and local universities, cross-cultural training, cycle tutoring, and, even, a new program, a continuation of Freshhh and Growwww called Intensityyyy which was featured by the team who presented MOL as if it were already the year 2020.

Indeed, on 30th May 2013 in Budapest, the year 2020 might have seemed very distant future for thirty young students, who, in the second part of the competition titled "Give Wings to Your Brain" had to face very practical challenges in a simulation game "Cooperating Corporations" and the team game also titled "Give Wings to Your Brain". Both programs were an eye opener for executives at MOL who now better understand what the next generations of MOL working force would want and what would be their expectations. For HR, the team developing numerous HR strategic initiatives to be rolled out and implemented within the company, it would be a challenge not only to further improve current HR projects but also design new programs which would be efficient in supporting the achievement of business goals and beneficial to the communities.

Analysis and Conclusion

The concept behind the case is the concept of creating shared value as it is stipulated by Professor Michael Porter in the document Creating Shared Value: The Role of Corporations in Social and Economic Development (Porter, June 2010). It is clear that executives at MOL had followed the logical evolvement scenario implied in the possible elaboration of this concept although not necessarily aware of a particular concept by that name. They were, nevertheless, stimulated by the challenge to search a solution that would benefit both business and the society. The fact that in the process the company grew to be second most desired employer illustrates the argument that concept of shared value contributes to "legitimising business" as explained by professor Porter.

The key driving trends affecting the oil and gas industry are the following.

- Oil prices have moved to a permanently high level. Other industries are capturing some of the demand for transport by producing more efficient engines and vehicles and by supplying alternative fuels.
- New technologies are providing various opportunities for producing 'unconventional' oil and gas in many parts of the world but these opportunities do not provide any long term security regarding market position.
- Private-sector companies find opportunities in the traditional oil-exporting countries where the industry is under state monopoly, but this involves cooperation with the state-controlled oil or gas companies.

- Oil and gas industry does not develop independently of governments whose policies are driven by climate change policies and economic and physical security and generated by political processes.
- Oil industry is losing its monopoly on a transport market

The case implies the subject of trends and policy measures in education in Europe which are particularly relevant to MOL`s human resources strategies and recruitment policies.

Two main policy actions are relevant for making science, technology, engineering and mathematics (STEM) studies and professions more popular with high school graduates. One is the development of attractive and efficient curricula and teaching methods and the other is to improve teacher education and professional development. In line with this strategic orientation MOL partnership with universities relies also on custom tailoring curricula for the needs of the company which secures jobs for the students. The other element of partnership is an exchange of expertise and knowledge transfer between teachers and internal experts in order to strengthen the partnership of the company with universities in countries where it operates.

MOL engaged in the cross-sector partnership to create social value. The reasons for businesses to engage in cross-sector partnerships are numerous. Since the 1990s, partnerships between business and public sector and civil society have become commonplace. Through dialogue, NGOs and businesses are moving from confrontation and limited corporate philanthropy to finding new ways of influencing each other.

Why do businesses do it? Is it the external social pressure, the green wash, the reputation, the pressure of the demand for constant growth? Is it simply that business needs to make money in order to do good and partnership had proved to be an efficient way to serve this goal? Each business on its way through partnership building faces all of these and many other questions. The two most common reasons that are often put forward by businesses are: committing to the company's own values, principles, policies and traditions; and protecting corporate reputation and brand. In addition, the argument is that successful stakeholder relations help leverage resources and networks of business operations and thus enable businesses to be more effective in their social and environmental impact.

Put together, the reasons behind business engagement may turn to be purely "business" although the impact of this engagement may turn to be socially beneficial thanks to business engagement and the synergy of partnership also affects the business and its initial reason for partnering. It is the curve of this process that brings particular value to the beneficiaries and to businesses.

Micahel Porter had critical observations regarding four prevailing justifications for CSR.

The problem with the first approach based on moral considerations is that moral obligation is by nature absolute standards which are contrary to multiplicity of factors like costs, investments, interests and values. Weaknesses of the so called sustainability approach find it difficult to match economic, social and environmental interest of the company simultaneously when they can be opposed as long-term and

short-term interests in some situation, while in others, when economic interests coincide with social and environmental interest the principle of triple bottom line is reliable and efficient.

The limitation of the licence to operate approach, according to Porter, which is rather pragmatic and therefore often used as an argument in favour of company's CSR strategies and policies has, is turning over the primary control of CSR agenda to external stakeholders, or, at least, loosing partly control over the agenda that is in a way often dictated by legislators, activists or governmental bodies which does not necessary coincide with business interests.

Finally, the reputation argument according to these authors confuses public relations interest with business interests because, like in a sustainability approach initiative on CSR, the agenda is initiated by external elements and the reputation of the company. As a results consumer driven companies like those in FMCG sector, for example, produce great number of cause related marketing campaigns while "guilty" companies like extracting and "dirty" industries end up with untargeted donations that are not necessarily well invested or contribute to the competitiveness of the company. (Porter&Kramer, 2007)

MOL is using all four types of strategies in its CSR agenda. However, many of its strategies and particularly recruitment strategies display higher level of mutual benefit to the society and the company, and substantial social as well as business impact. Social impact is evaluated through the numbers of newly employed graduates in the countries with high unemployment rate and increased numbers of students in technical universities and on targeted curricula and studies with scholarships. 'The most desired employer reputation survey outcome, as well as numerous awards, additionally contribute to the reputation of the company and also to the reputation of, otherwise by young people underestimated, technical professions.

Porter and Kramer stipulate three types of social issues for the company as stipulated that apply to MOL CSR polices and programmes in HR area.

Initial claim is that the choice of cause and related partners should not be made on the basis of the worthiness of cause, no matter how worthy it were, but on the level of opportunity it presents to create shared value.

Social issue affecting companies fall roughly into three areas. The first are social issues that are called generic social issues that cannot be related to the company since they cannot affect company's competitiveness. In the case of MOL that would be numerous social problems of corresponding societies and local communities in which the company operates, which, however, could not contribute to the sector or the company itself, like, for example, social problem of human rights of national minorities, or the problems of children with social needs.

The second category is value chain social impacts that are affected by the company's activities in regular functioning of business. In MOL`s case that would be various environmental issues and related to them numerous investments into environmental improvements of its operations, heath and safety in field operations and refineries. MOL heavily invests in these areas that protect both business and

society. Many of these, however, are legislative obligations for the companies and therefore are not necessarily the primary source of competitiveness.

It is the third category of social impact, though, the social dimension of competitive context, the elements within external environment that affect the competitiveness of the company that should be of primary concern when choosing priorities on CSR agenda. In the case of MOL, such a problem of the external environment is lack of future educated engineers, therefore a social problem that is also a problem directly affecting the competitiveness of MOL because without the staff they would not be able to be operational and competitive.

As these elements fully match, it fully complies with the Porter model as the company has been investing into education of young people, into promotion of specific type of education, into attracting young professionals and raising awareness of general public about the importance of technical education of the overall social benefit as well as attracting young people to be their future work force. The investment created shared value and presents a case of positive elaboration of the Porter shared value concept.

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Entities of trade sector in the market of IT products in Poland

Izabela Sztangret
University of Economics in Katowice, Poland

Katarzyna Bilińska-Reformat
University of Economics in Katowice, Poland

Abstract

Contemporary customers more and more frequently demand products, which are supplied to the market more efficiently, and which are tailored to meet their requirements and preferences. The application of complex IT solutions supporting typical commercial processes such as making decisions on the supply of goods to the shop, collection changes, the analysis of market expectations or a typical consumer behaviour are the response to an increase in customers' expectations and fluctuations in demand within the retail chain. The IT sector has evolved from the position of cost centre to the role of a partner in business and a creator of added value for trade sector, which may seem paradoxical in the period of economic crisis.

Key words: purchasing behaviours in IT market, reasons for purchasing behaviours.

Introduction

Knowledge is the key element in the process of management in organisation. Knowledge transfer, as an element of knowledge management is determined by skills and competencies of participating entities inside the organisation and copetitors (cooperating parties and competitors). Day[1] defines **competencies** as a complex set of **skills** as well as team learning and experiencing in business processes. It is a unique combination of tangible and intangible resources based on knowledge and determining the size of accomplished goals through involvement of clusters of those resources[2]. Drucker[3] compares enterprise competencies to the process of generation of knowledge about customers and cooperating entities and competitors as well as integration of such knowledge with technology. We can talk about synergy effect resulting from integration of knowledge, competencies and ways of thinking of various entities, organisations and individuals that apply IT solutions favouring effective knowledge management as the condition of competitiveness in difficult economic reality.

The purpose of this article is to distinguish and analyse the reasons for implementation of IT solutions by entities of trade sector, to identify the largest suppliers of IT solutions for the sector of retail trade and to identify the purchasing behaviours of selected customers / entities of the trade sector within the IT market.

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[1] G.S. Day, *The Capabilities of Market-driven Organizations*. "Journal of Marketing" 58 October 1994, pp 37-52

[2] M.A. Hitt, R.D. Ireland, R.E. Hoskisson, *Strategy Management,* West, New York 1997

[3] P.F. Drucker, *Innovation and Entrepreneurship – practice and principles*. New York, Harper & Row 1985

As it is supposed, the aspiration to increase the speed of access to business information, the accuracy of prepared reports and simplification in the context of team work are the reasons for the access to new versions of IT products.

Literature review

Enterprise competencies – identification of research category

Enterprise assets, including knowledge, are nothing without organisational skills of their mobilisation and exploitation in such a way that it is be possible to create added value for customers[4], and the key competencies[5] are the notion that best describes strategic skills. According to resource school, **competencies of an organisation** (enterprise / network competencies[6]) are capabilities of an organisation (enterprise / network) to integrate knowledge in the way that makes it possible to implement strategic intentions[7] .

Competencies are a conglomerate of:

a) knowledge acquired in a particular field (I know what),
b) skills (procedural knowledge – I know how and I am capable of),
c) attitudes (I want and I am prepared to apply my knowledge)[8].

Some authors also supplement this set with personality features as the fourth element of competencies[9]. According to D. Thierry, Ch. Sauret and N. Monod, in general meaning, competencies are the employee capabilities, and thus, the organisation capabilities, to undertake actions leading to achievement of an intended goal in specific conditions, by means of specific measures. Competencies are the whole of knowledge, skills, experience, attitudes and readiness to act in particular conditions and therefore also the ability to get adjusted to these changing conditions[10]. Because enterprise competencies

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[4] K.Obłój, *Tworzywo skutecznych strategii*. [*Material for Effective Strategies*] PWE publishing house, Warsaw 2001.

[5] The issue of enterprise competencies as sources of competitive advantage constitutes the object of interest of representatives of the concept of competency-based competition that is C.K. Prahalad and G. Hamel. The key competencies of enterprise were defined by them as collective learning in the organisation, particularly in the sphere of coordination of various production skills and integration of many technology streams. C.K. Prahalad, G. Hamel, *The Core Competence of the Corporation*, „Harvard, Business Review", May-June 1990,

[6] The notion of networks of enterprises is comprehensively defined in the book: *Marketing produktów systemowych* [*System Product Marketing*] ed. by L. Żabiński, University of Economics Katowice 2012

[7] M. Bratnicki, *Kompetencje przedsiębiorstwa* [*Enterprise Competencies*], Placet publishing agency, Warsaw 2000

[8] M.Kossowska, I.Sołtysińska, *Szkolenia pracowników a rozwój organizacji* [*Employee Training and Organisation Development*], University publishing house, Krakow 2002, p 17

[9] S.Whiddett, S.Hollyforde, *Modele kompetencyjne w zarządzaniu zasobami ludzkimi [Models of Competencies in Management of Human Resources*], University publishing house, Krakow 2003, p 53

[10] M. Egeman, preface to the Polish edition of D. Thierry, Ch. Sauret, N. Monod, *Zatrudnienie i kompetencje w przedsiębiorstwach w procesach zmian* [*Employment and Competencies in Enterprises in Processes of Changes*], Poltext publishing house, Warsaw, 1994, p 6

are the process of skilful knowledge generation and integration[11], the notion of „processes" suggests a series of activities. On the other hand, Prahalad and Hamel[12] identify the processes of interaction with market and functional interaction with key enterprise competencies.

Integrated process of formation of enterprise competencies includes the following elements: the process of knowledge exchange with a competitor and the process of knowledge-based relationships inside the organisation, the development of which is supported for example by IT sector solutions for a specific customer category.

Data and methodology

In the article the method of **critical analysis of opinions** included in press interviews (in sponsored interviews) of managers of IT sector enterprises of Polish and global leaders is applied. They were selected according to the criterion of their share in IT market. Analyses of their responses were performed according to the following problem areas:

- Commerce demands and preferences towards the IT sector.
- Preferable features of IT products.
- Preferred IT suppliers.
- Key determinants of IT product selection.
- Tendencies in evolution of preferences in the segment of customer of the trade sector.
- Size of demand on IT products and their dynamics.
- Structure and scope of „smarter products" for trade.
- Measurable results of technologisation of business processes in trade.

The objects in the study were enterprises that, according to rankings presented in trade magazine „Computerworld", were significant suppliers of IT solutions. More extensive attention was focussed on three leading IT suppliers in the trade sector: Wincor Nixdorf, Oracle, INFOVER and on IBM and Microsoft, the enterprises that are world IT leaders. The research was conducted between 2006 and 2013.

Additionally, the **case study** method that illustrates purchasing behaviours in the IT market of selected commercial entities was applied. In the article the cases described in secondary sources, published in trade magazines and reports ("Computerworld", "IT-manager", "CIO") between 2006 and 2013 are analysed. A direct interview that was categorised in Polish branch of Tesco Company was performed, and monitoring of Internet pages of the company was conducted in the aforementioned period according to problem areas.

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[11] T. Li, R.J. Calantone, *The Impact of Market Knowledge Competence on New Product Advantage: Conceptualization and Empirical Examination*. "Journal of Marketing", vol. 62, October 1998, pp 13-29

[12] C.K. Prahalad, G. Hamel, *The Core Competence…as before* pp 79-91

Findings and discussion

1.IT products, reasons for implementation of business applications, tendencies in development of needs in the market of trade entities

Nowadays the entrepreneurs expect specific benefits from implemented business applications and clearly determine their demands. Customers are interested in solutions in three major classes:

- ERP – serving management of enterprise resources.
- Business Intelligence – business analytics and reporting tools.
- CRM – tools of management of relationships with customers.

In the users' view, the tools supporting management ought to respond to definite business problems and produce specific goals. The map of business processes optimised for this line of business is of great importance in the systems of knowledge management for enterprises. Demand on professional services of pre-implementation analyses and integration services is growing. The specific character of projects for **ERP** class system implementation has changed over the years. Solutions that often undergo re-configuration took the place of large, long-term implementations.

Solutions of **Business Intelligence** class constitute complementation for solutions of ERP class. Specialisation and configuration according to the needs typical of employees of a determined level and specific nature of the customer is expected from BI tools. More and more often BI is becoming a tool applicable in operational decision-making. The tools of business analytics allow for creation of simulations, multidimensional analyses and comparisons as well as forecasts, while applying, among others, statistical algorithms that facilitate visualisation of data and results of analyses. The group of these tools also includes Business Discavery that allows for in-depth data analysis and the assessment of their correlation.

In the opinions of entities of trade sector, **CRM** is another business tool that is most often integrated with ERP and BI that requires constant modernisation and development, due to progressive globalisation, pressure from competition and the need to ensure a homogenous level of customer service by means of many communication channels. CRM tools are equipped with functions associated with planning, implementation and optimisation of activities that support sale. The customer is particularly interested in mobile solutions or those operated through a web browser. **Mobile CRM applications** ought to facilitate the access to information, for example to sales representatives in field. Because of noticeable endeavours to personalise the contacts with the customer, the need to integrate CRM mechanisms with other solutions is observed. Enterprises show interest in systems supporting customers' self-service and also in tools that allow for successful customer acquisition in virtual communities.

The customers emphasise real business benefits of a particular IT solution, flexibility of implementation, ease of use and its adjustment to the work nature of the user as well as independence from particular hardware platform (computer, telephone, and tablet). The needs of the customer of the trade sector probably will evolve according to the arising concept of teleinformation ecosystem that is based on four strategic pillars:

- Mobility in the sphere of appliances and access to network.

- Amount of data and the need of their analysis (big data) that has not been observed before.
- Extensive relationships between users and fading away the boundaries between private and professional spheres.
- Cloud computing as a sphere in which the processes take place.

On operational level, the trade entities express the need, among others, of more effective management of promotions (62% of studied retail trade enterprises)[13] , better price planning (61%), increase in customers' loyalty (44%), better price forecasting and stock replenishment (53%), better stock planning (50%), improved management of supply chain (48%) and demand management (48%) as well as also improvement in the process of information about the stock in warehouses.

2.The largest suppliers of IT solutions and IT services for the trade sector in Poland quantitative approach.

In 2012 the Polish branch of SAP Company was again the leader in the segment of suppliers of ERP solutions. We can find Comarch, before Assesco Business Solutions, Oracle and Unit4, in the second position on Polish market, after the growth by about 140% in comparison with the previous year.

In 2012 SAP, SAS Institute and Oracle were respectively the largest software suppliers of software supporting business analyses and reporting. All the aforementioned companies reported increase in income in **Business Intelligence** segment when compared with the previous year.

SAP, OUTbox and Oracle respectively, are leading enterprises in Polish market with respect to supply of **CRM** class software.

Leaders of IT business solutions on Polish market, **Oracle** and **Unit4 TETA**, also occupy a significant position in the market of suppliers of solutions and services **for trade sector**. With respect to income from trade and service sector **Wincor Nixdorf** is also in the lead. 60% of the company revenue in the whole period of research was from the trade sector. The company, suitably to the market demand, specialised in providing services for wholesale or retail trade. The trade sector generated respectively 86 and 70 percent of revenue of **INFOVER,** a relatively new company that is also specialised and important for the market of trade sector, and of **Jantar** Company that was functioning in the whole period of research.

[13] Results of studies of medium-sized retail trade enterprises in 2013, conducted by Forrester Consulting. www.tech.money.pl/artykul/sieci-handlowe [access of 27.08.2013]

Tab. 1 Largest suppliers of IT solutions and services for the trade sector in Poland Between 2007 and 2012

Position in 2012	Company	Revenue from the sector of trade and services 2012 PLN/$ *thousand	Percentage share of trade in IT revenues 2012 year/%	Percentage share of trade in IT revenues 2011 year/%		Percentage share of trade in IT revenues 2009 year/%		Percentage share of trade in IT revenues 2008 year/%		Percentage share of trade in IT revenues 2007 year/%	
				retail	wholesale	retail	wholesale	retail	wholesale	retail	wholesale
1	Wincor Nixdorf	200,521/66,840	60	60	-	-	60	-	60	60	-
2	Comp	94,360/31,453	38	8,3	-	-	3,7	-	-	-	-
3	INFOVER	65,940/21,980	86	83,6	4,3	-	-	-	-	-	-
4	OPTeam	24, 333/8,111	27	16,1	-	6,5	-	1,8	-	5	9
5	Oracle Polska	20,130/6,710	3	2	-	3	-	3	-	-	-
6	UNIT 4 TETA	19,665/6,555	44	4	-	-	-	-	-	-	-
7	Jantar	17,206/5,735	70	70	-	70	-	70	-	60	10
8	e-poin	13,353/4,451	75	75	-	-	-	-	-	-	-
9	Sygnity	13,034/4,344	3	4	-	-	5	6	-	-	-
10	HICRON	12,672/4,224	32	10	-	-	-	-	-	-	-
11	ComArch	-	-	15,5	15,4	17,3	16	9,6	11,2	8,5	10,5
12	Advatech	-	-	-	-	30	-	30	-	45	-
13	Qumak-Sekom	4,252/1,417	1	8,9	0,3	6,4	-	7,4	-	7	0,4

*The rate of 14.02.2014 1$ =3,02PLN

Source: Own case study on the grounds of „Computerworld Poland", Ranking of Information and Teleinformation companies, IDG Business Media, 2007 – 2012

Slightly more than only a half of studied IT companies provided services for the trade sector in the whole six-year period of research. Thus we can conclude that relationships between the entities of IT sector and customers of trade sector are quite unstable.

In the current economic situation, during economic crisis and economy slowdown, a large part of enterprises have changed their strategy from offensive to preventive or even defensive one, for example in the sphere of investments in information technologies. This means focussing on optimisation of possessed solutions and better exploitation of resources and as well as focussing on return of current investments in IT. This finds expression in definitely decreasing revenues of IT industry (table 2) from sectors of retail and wholesale trade.

Tab. 2 Revenues of IT enterprises by selected sectors in Poland between 2008 and 2011

Sector	year/thousand PLN/$		dynamics in %	
	2011	2010	2011/2010	2009/2008
Retail trade	579,217/193,072	553,805/18,4601	5	40
Wholesale trade	196,323/65,441	256,581/85,527	-23	22
Total IT revenues	10,630,077/3,543,359	9,854,815/3,284,938	8	-10

*The rate of 14.02.2014 1$ =3,02PLN
Source: own case study on the grounds of „Computerworld Poland", Ranking of Information and Teleinformation companies, IDG Business Media, 2007 – 2012

It is interesting that revenues generated by trade sector in the period of recession in IT sector showed a high positive dynamics while in the next studied period of definite improvement in business cycle in IT sector, purchases of the entities of trade sector were quite protective which was even more observed in the group of entities of wholesale trade.

3.The largest suppliers of solutions and IT services for the trade sector in Poland, a qualitative approach

All studied enterprises, particularly the leaders in the group of IT suppliers have a wide offer of IT solutions (table 3), and this concerns both national and international companies.

Tab. 3 IT solutions of leaders of the sector of suppliers for the trade segment

Module	WincorNixdorf	Module	Oracle	Module	INFOVER
Direct trade	Self-serviced till systems BEETLE/iSCAN Module interactive Kiosks	Web commerce	Oracle ATG Web Commerce Oracle ATG Web Commerce Customer Service Oracle Endeca Experience Manager Oracle Endeca Guided Search Oracle Recommendations on Demand	Etail Insignum Retail Sale	Automation of processes Automatic receipt of goods based on orders Reception of products from suppliers based on documents in the form of XML files Generation and printing of price tags Cross docking (mini production) Sampling (filing system and gadget distribution) Regular customer Cards

Cash management systems	Automation of processes of cash management in a commercial outposts (CCMS – Cash Cycle Management Solutions)	Merchandise Operations Management	Oracle Retail Allocation Oracle Retail Invoice Matching Oracle Retail Merchandising Analytics Oracle Retail Merchandising System Oracle Retail Price Management Oracle Retail Sales Audit Oracle Retail Trade Management	Insignum Head Office and Insignum Retail trade	Management of assortment base and majority of parameters of sale program necessary for appropriate functioning of PSD Collecting data concerning: Sale and stock balance of goods Progress of processes occurring in sale program that allow for recording in the FK system Data accounting Product stock: Chain-wide and local products Group products Chain-wide or local prices Suppliers of goods – chain wide or local Parameters of local orders Product base exchange: Automatic data transfer (AWD, KOLEx system) one file for all PSD – simple logistics, lack of mistakes ergonomics and automation Import of goods from Micosoft Excel files Simultaneous change of parameters for several goods – „wholesale” management of parameters Product bases – comprehensive and incremental Tools supporting price management Broad range of reports and analyses

Debit and Store card systems	Software for payment terminals, Software for host systems. Integrated payment systems Equipment for execution of payment and debit card transactions,	Merchandise Planning and Optimization	Oracle Retail Allocation Oracle Retail Assortment Planning and Size Profile Optimization Oracle Retail Category Management Oracle Retail Item Planning Oracle Retail Macro Space Management Oracle Retail Markdown Optimization Oracle Retail Merchandise Financial Planning Oracle Retail Regular Price Optimization	INSIGNUM WHOLESALE TRADE	Management of numerous warehouses – exchange of goods between these warehouses Electronic exchange of documents, Management of diverse price policy Management of commercial credits and contractors' payments, Management of work of sales representatives, Analysis modules, Support for orders from customers to suppliers, and price offers, Stocktaking support HelpDesk assistance
Storehouse Management	Software for sending and reception of shipments, Software for stock management, Software to be applied while working with fork-lift trucks,	Store Solutions	Oracle Retail Back Office Oracle Retail Central Office Oracle Retail In-Store Space Collaboration Oracle Retail Point-of-Service Oracle Retail Store Inventory Management		
Consultan	Access to all sale channels, Effective and immediate reaction to customer	Supply Chain Planning and Execution	Oracle Real-Time Scheduler Oracle Retail Advanced Inventory Planning Oracle Retail Demand Forecasting Oracle Retail Replenishment Optimization Oracle Retail Warehouse Management System Oracle Supply Chain Management Oracle Transportation Management	INSIGNUM CHAIN WHOLESALE TRADE	The software is adjusted for provision of services for multi-branch wholesale stores (chain of selling centres), iCashier module – sale also in the case of break in terminal connection, Internal exchange of documents between branches – shift between warehouses, Central orders to suppliers, MWS – Warehouse of Large Storage Service, Management of diverse pricing policy, Management of commercial credits and contractors' payments

ufan cy for retail trade	c u s t o m e r demands, Management of contacts with customer P r o d u c t portfolio management	M a r keting a n d L o y alty Man a g e men t	O r a c l e CRM OnDemand O r a c l e 's S i e b e l Contact Centre and Service O r a c l e 's S i e b e l Loyalty O r a c l e 's S i e b e l Enterprise Marketing Suite Oracle's Siebel Quote and Order Capture	DE	credits and contractors' payments, Management of work of sales representatives, Developed module of analysis, Support for orders from customers to suppliers and price offers, Inventory support, HelpDesk service
		Busi ness Intell igen ce	O r a c l e Retail Customer Analytics Oracle Retail Data Model O r a c l e Retail M e r c h a n d i s i n g Analytics		

Source: own case study on the grounds of: www.wincornixdorf.com, www.oracle.com, www.infover.pl, access of: 14.02.2014

As it is shown in table 3, the offer of selected international companies and the leader of Polish companies in the sector of suppliers for trade is diversified and wide.

Despite the fact that **IBM** company, the leader in IT market in Poland and all over the world, is not found in the ranking of companies, the largest IT suppliers for the segment of trade entities, it can be observed that it regularly develops innovative initiative of the **„smarter commerce"** of new software and services in the cloud supporting the work of marketing managers and purchasing managers, including trade entities sector.

According to IBM research concerning effectiveness of marketing department, 48% of studied marketers believe that advanced technological infrastructure shall let them satisfy better the needs of customers whose interaction with brands recently has been taking place more and more frequently through a lot of digital channels. For example, in the last intense commercial season related to the beginning of the school year, 15.7% of the global sale online was conducted via mobile devices[14].

In connection with the aforementioned, the new IBM offer includes:

- „IBM Marketing Center" – „IBM SmartCloud Solution" that integrates analytical tools and functions of performance of marketing activities in real time. This allows the marketing managers to satisfy the needs of customers better through fast analysis of consumer purchasing behaviours and creation of smart commercial offers adjusted to every customer on the basis of this information.
- A range of services that allow the customers in the trade sector to implement e-trade environment faster and more effectively.

[14] IBM research "*State of Marketing 2012*", www.ibm.com [access of: 14.02.14]

•A new offer in the sphere of „Strategic Supply Management", also available as a solution in „SmartCloud", that accelerates and improves the control over suppliers, risk management and compliance with regulatory requirements.

Then, thanks to the new solution, „IBM Emptoris Strategic Supply Management", purchasing managers obtain an absolute control over expenses, contracts, services and information concerning the process of supply chain. Optimisation of supply chain is as essential for fulfilment of customers' expectations as marketing and sale.

Smart Commerce offer ensures flexible and fully integrated solutions that include all stages of commercial process, from resource acquisition through personalised marketing, sale of products and services by means of various channels, to the establishment of relationships with customer. The offer includes solutions in the following spheres:

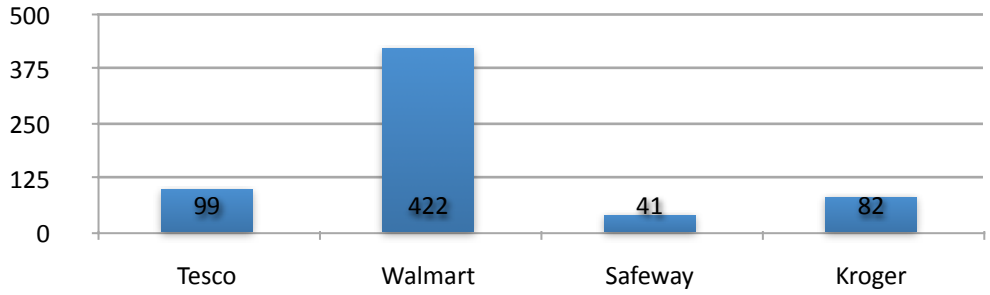
•**Advanced analytics** – WebSphere Commerce applications and Coremetrics programs serving analysis of behaviours on the Internet let the customers have access to statistics, and this provides the possibility to determine the effectiveness of marketing activities, call-center work and cross-selling initiatives, and as a result, easy management of them and increase in customer satisfaction;
•**Cloud computing** – Coremetrics Lifecycle is the application available in the cloud, that allows for tracking of levels of customer involvement on the webpage, thanks to which we can develop marketing programs and offered products better as well as the sale can be increased;
•**Multichannel commerce** – Coremetrics Intelligent Offer and WebSphere Commerce make it possible to track tendencies in sale online and allow for implementation of advanced system of recommendation. On the other hand, Streling Configure, Price and Quote develops all business processes on the side of the seller.
•**Business in social networks** – Coremetrics Social Analytics and WebSphere Commerce let companies measure the influence of their activity in social media on commercial results and selection of most effective activities;
•**Planning and realisation of supply chain** – WebSphere Commerce and Sterling Order Management allow the companies to optimise resources acquisition and management, and thus it increases the rate of effecting orders at lower costs.
Through launching a new offer on market, IBM wants to provide its customers with automation of access to information, for the purpose of acceleration of operations performed by marketing, sale, customer service, and purchase or supply chain management departments.

4.Tesco as an entity on the IT market in Poland and in the world

Tesco PLC was founded in 1919. The Tesco name first appeared in 1924. The first Tesco store opened in 1929 in Burnt Oak. The company is a British multinational grocery and general merchandise retailer headquartered in Cheshunt, Hertfordshire in England. It is the second-largest retailer in the world measured by profits (after Wal-Mart)[15] and third-largest retailer in the world measured by revenues (after Walmart and Carrefour) (graph 1).

[15] M. Potter : *Tesco to outpace growth at global rivals – study.* Reuters. [access of: 25.02.2011]

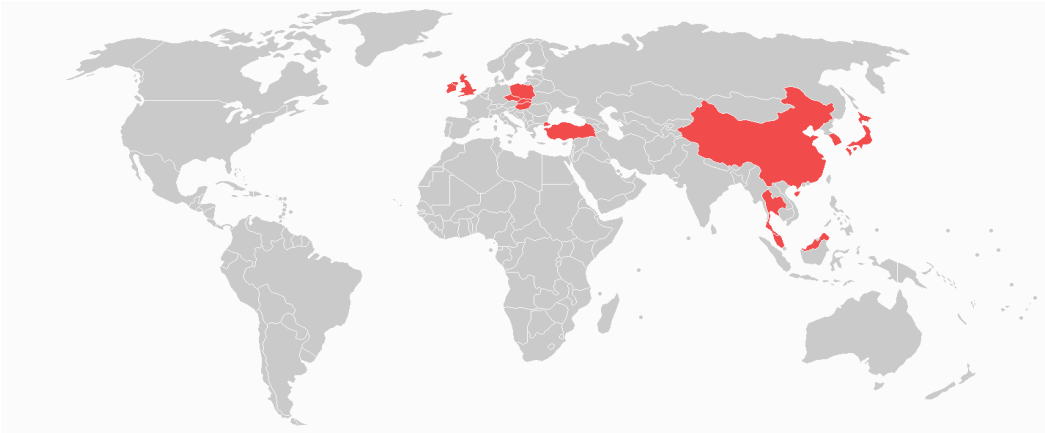
Graph 1. Sales comparison in 2011 (in $M)



Source: IHL Group, SOPHIA 2011, www.tesco.com [access of: 12.11.2012]

It has stores in 12 countries across Asia, Europe and North America and is the grocery market leader in the UK (where it has a market share of around 30%), Malaysia, the Republic of Ireland and Thailand (table 4, graph 2). Tesco entered the Polish market in 1995. It currently operates from 412 stores.

Graph 2. Spatial scope of Tesco PLC influence



Source: *Tesco stores worldwide*, www.tesco.com [access of: 22.01.2014]

Tab. 4 The store numbers and floor area figures in 2012.

Country	Entered	Stores	Area (m² (sq ft))	Mean store area (m² (sq ft))	+ / - Stores 2011/12
China	2004	124	893,913 (9,622,000)	7,209 (77,476)	▲19
Czech Republic	1996	322	538,559 (5,797,000)	1,673 (18,003)	▲61
Hungary	1994	213	678,285 (7,301,000)	3,202 (34,439)	▲7
Republic of Ireland	1997	137	319,586 (3,440,000)	2,333 (25,109)	▲7
Japan	2003	121	36,790 (396,000)	304 (3,273)	▼19
Malaysia	2002	45	350,988 (3,778,000)	7,800 (83,956)	▲7

Country	Entered	Stores	Area (m² (sq ft))	Mean store area (m² (sq ft))	+ / - Stores 2011/12
Poland	1995	412	827,394 (8,906,000)	2,008 (21,617)	▲41
Slovakia	1996	120	336,959 (3,627,000)	2,808 (30,225)	▲23
South Korea	1999	458	1,166,026 (12,551,000)	2,546 (27,404)	▲59
Thailand	1998	1,092	1,192,039 (12,831,000)	1,092 (11,750)	▲310
Turkey	2003	148	337,052 (3,628,000)	2,277 (24,514)	▲27
United Kingdom	1919	2,975	3,585,314 (38,592,000)	1,205 (12,972)	▲260
United States	2007	185	173,279 (1,870,000)	937 (10,108)	▲21
Total (not including UK)		**3,376**	**6,851,321 (73,747,000)**	**Mean: 2,029 (21,844)**	▲563
Total (including UK)		**6,351**	**10,436,635 (112,339,000)**	**Mean: 1,643 (17,688)**	▲823

Source: 2011/12 Preliminary Results analyst pack, http://www.tescoplc.com/files/pdf/results/2012/prelim/prelims_2011-12_analystpack.pdf [access of: 23.01.2014]

Grocery retailer – Tesco, since the early 1990s, has increasingly diversified into areas such as the retailing of books, clothing, electronics, furniture, petrol and software, financial services, telecoms and internet services, DVD rental, and music downloads.[16] Its operations include supermarket, convenience, and gasoline retailing (Tesco Express), small urban stores (Tesco Metro), superstores (Tesco Extra), and financial services (Tesco Personal Finance), Tesco.com is Britain's leading Internet delivery service (table 5). Tesco Poland offers the value, healthy living and own branded line of products as well as regional produce, petrol, personal finance services and on-line photo processing. In August 2008 Tesco opened the first Extra store in Poland located in Czestochowa. Currently there are five Tesco Extra stores in Poland.

[16] *Tesco: Our History*. Tesco PLC. www.tescocorporate.com. [access of: 27.03.2007]

Tab. 5 Tesco's UK and Poland store portfolio in 2012/13

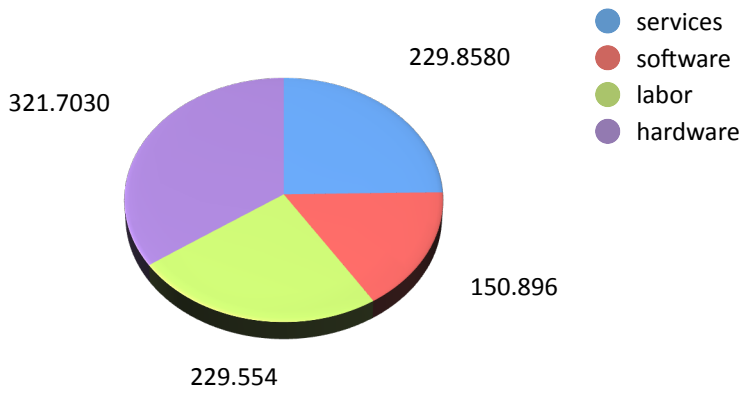
Format	Number	Total area (m²)	Total area (sq ft)	Mean area (m²)	Mean area (sq ft)	Percentage of space	+ / - Stores 2012/13	Number in Poland
Tesco Extra	238	1,584,090	17,051,000	6,656	71,643	42.74%	▲8	5
Tesco Superstores	481	1,305,566	14,053,000	2,714	29,216	35.23%	▲10	441
Tesco Metro	192	199,277	2,145,000	1,037	11,172	5.38%	▲2	
Tesco Express	1,547	333,336	3,588,000	215	2,319	8.99%	▲120	
One Stop	639	92,067	991,000	141	1,551	2.48%	▲26	
Tesco Homeplus	12	48,588	523,000	4,049	43,583	1.31%	▼1	
Dobbies	32	143,071	1,540,000	4,471	48,125	3.87%	▲1	
Total	**3,141**	**3,705,995**	**39,891,000**	**1,180**	**12,700**	**100%**	▲166	446

Source: www.tescocorporate.com. [access of: 27.01.2014]

The 1990s saw Tesco reposition itself, from its perception as a downmarket "pile 'em high, sell 'em cheap" retailer, to one which appeals across a wide social group, from its Tesco Value to its Tesco Finest ranges. This was successful, and saw the chain grow from 500 stores in the mid-1990s to 2,500 stores fifteen years later and 3,141 in 2012/13 in UK and 3.376 in the world.

A core part of the Tesco expansion strategy has been its **innovative use of technology**. It was one of the first to build self-service tills and use cameras to reduce queues. This strategy corresponds with determined tendencies of company diversification: banking, telecommunication and e-commerce. Tesco company spent on IT market the total of $ 932 011thousand in 2011 (graph 3).

Graph 3. Total IT spend in Tesco, in 2011 ($ Thousands)



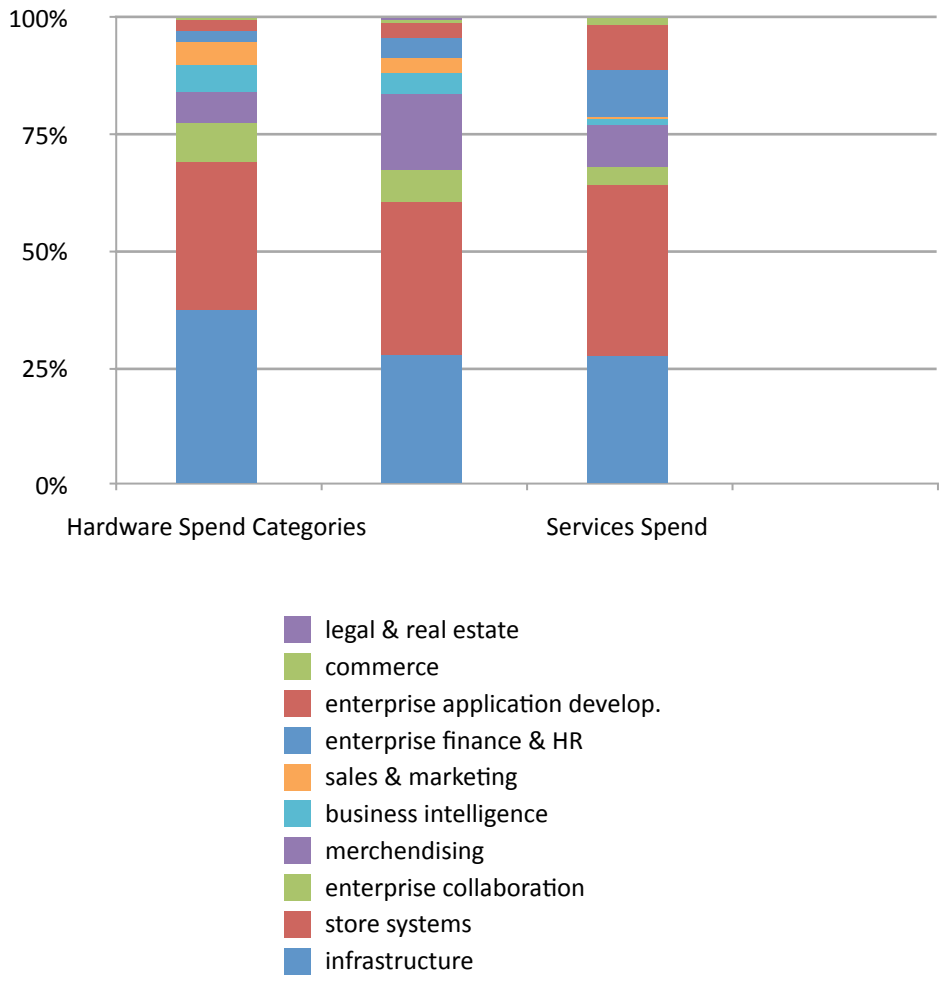
Source: own case study on the grounds of IHL WorldView, www.tesco.com [access of 4.12.2013]

Tesco Company as a customer in IT business solutions market indicates the following as the key determinants of selection of application supplier[17]:

- Reliability and system stability.
- System compatibility with other tools functioning in the company.
- Individualisation of application that should be adjusted to management of large-selling area buildings functioning in specific conditions.
- System algorithms should be open with the possibility to be modified.
- Systems ought to be intuitive and available in service for employees having determined qualifications.
- Competitiveness of the price of application price.
- Offer complexity.

With reference to this, the largest expenditures in the basket of goods were incurred on infrastructure and store systems in all three categories of purchase: hardware, software and services (graph 4).

Graph 4. IT spend in Tesco, in categories: hardware, software, services, in 2011



Source: own case study on the grounds of IHL WorldView, www.tesco.com [access of: 4.05.2013]

[17] Comparison prepared on the grounds of analysis of managers' responses published in „Computerworld TOP200" magazine between 2007 and 2013 and on webpages of CIO Informing the UK's business technology leaders, UK.

Within the next two years, the Tesco managers declare the purchase of the following IT solutions[18]:

- Supply Chain Management Software
- Warehouse Management
- Analytics
- Financials
- HR/benefits
- Merchandise Allocation
- Network Infrastructure

Among the key suppliers of IT solutions, the following are indicated[19]:

- Aldata Solutions Inc.
- Business Objects (SAP)
- Galleria Retail Technology Solutions Ltd.
- IBM
- Inovis
- Manhattan Associates
- Microsoft
- Oracle
- RedPrairie
- Retalix

Such an activity in IT market is caused by planned ventures. Tesco is developing its own **private cloud** run in UK data centres to aid its expansion into overseas markets. Tesco IT director for infrastructure and operations said that the company is attempting to simplify its global infrastructure in order to support the delivery of its range of retail, online and banking services. Tesco is currently undergoing a project to **consolidate its data centre** operations in the UK, as well as growing its business and increasing the services it is offering overseas. Tesco.com and retail, from an IT perspective are completely different systems - two different data centres, two different management structures, two different networks, which need consolidation. By centring its data centre operations in the UK, Tesco has already been able to support its e-commerce business in a number of other countries. This means that Tesco.com services in Czech Republic, Hungary, Turkey, China, Thailand and Malaysia are supported from its UK data centres.

Microsoft will provide its Windows, Office, SharePoint, Exchange, Lync, System Centre, BizTalk and SQL Server technologies across the 14 countries that Tesco operates in, as well as to the rapidly growing Tesco **banking, online and telecommunications businesses**.

Poland was the first market in Central Europe to see the launch of Clubcard. Tesco has also launched online shopping, including a grocery offer in Poland. In July 2012 Tesco Poland activated **E-shopping Tesco** service that allows for ordering shopping online. The service operates in 20 markets in Poland (state of middle of September 2013), in such cities as: Bielsko-Biala, Bydgoszcz, Czestochowa, Gdynia, Gliwice, Kielce, Krakow, Lublin, Lodz, Opole, Poznan, Ruda Slaska, Szczecin, Warszawa and Wroclaw. Customers

[18] Comparison prepared on the grounds of analysis of managers' responses published in „Computerworld TOP200" magazine between 2007 and 2013, on webpages of CIO Informing the UK's business technology leaders, UK, and also on IHL WorldView, www.tesco.com [access of 4.05.2013]

[19] As before

of Tesco E-shopping, while using the service in a traditional way (computer, laptop) or in mobile version (smartphones), can select, online, what they want to buy from the list of over 16 thousand products that at the same time are available in selected hypermarkets. The products are selected manually from among the goods available in selected market. Payment can be made on-line or by debit card at receipt. In the shop offer there are such products as fresh and dried food, drinks, and products for babies, household chemistry, cosmetics and accessories, animal food and accessories, books, computer games, toys for children, products for home and office, car accessories and seasonal products. Customers who make use of Tesco E-shopping may use Clubcards to collect loyalty points on their accounts. Every participant in the program receives 1 point for every PLN 2.00 spent in any Tesco shop or while ordering goods on Tesco E-shopping webpage.

Supermarket chain Tesco is set to offer in-store **Wi-Fi** to customers. The move was a response to changing customer habits. Shoppers were already checking rivals' prices in store on their mobile devices. The supermarket also began trialling an app for smartphones running Google Android in its Romford branch that helps users navigate their way round the store.

Within implemented strategy of innovativeness Tesco is trialling augmented reality technology online and in a selection of its stores, allowing shoppers to see **3D** images of products before they buy them. Augmented reality is the overlay of digital information onto a view of the real world. The Tesco service, which uses technology from British firm **Kishino,** allows users to hold an image from the Tesco Direct catalogue or a product key in front of large webcams, located throughout the supermarket's aisles, to generate a life-size 3D image of the product. The technology makes it appears as if the customer is holding the product in their hand, and allows them to move and rotate the product to see it from all angles. The 3D image is accompanied by information such as specifications, ensuring shoppers can learn more about the products without stores needing to have bulky items, such as TVs, on display. Initially the in-store service will only be available in eight stores, including Cheshunt, New Malden, Hatfield and Milton Keynes. However, online shoppers can also use the service by downloading an augmented reality plug-in from the Tesco website.

Tesco has been testing a new **virtual way of shopping**, using the QR code. Tesco's experiment allowed South Korean customers to shop at Tesco's Home Plus supermarket, without the need for them to enter any store at all. The alternative shopping experience lets commuters on South Korean underground train use their smartphone to grab a range of everyday groceries. A wall in an underground station was decorated with a range of images, all showing food, drink and other daily essentials. All "shoppers" had to do was scan a QR code of a desired products and it is added to virtual shopping basket, ready for home delivery.

As it can be seen from the data, a spectacular increase in sale in adequate strategic units of Tesco business is one of the effects of efficient strategy of technological innovativeness. Tesco reported a 14% growth in its online business only over Christmas in 2013 and 36% in 2007 year. In 2010 Tesco.com and Tesco Direct generated in total a 30% increase in sale of Tesco Group (table 6).

Tab. 6 Increase in sale by Tesco Strategic Business Units between 2006 and 2011 in %

	2006	2007	2008	2009	2010	2011
Tesco.com grocery shopping service	12,5	28,7	49	11	14	30
Tesco Direct non-foods online services			20	29		
Tesco Group	-	12,7	11	3,1	8,2	-0,4

Source: own case study on the grounds of information included in CIO Informing the UK's business technology leaders, UK, 2006-2013, www.cio.uk [access of 23.01.2014]

Conclusion

Interest in business solutions rather than in separate products as it was years ago is observed in IT market developed for the trade sector. Such needs are already manifested by majority of customers in Poland and in the world. It is predicted that interest in applications supporting processing of large amount of information, tools that allow for creating dynamic reports, applications that enable team work and functioning in field, high-tech tools of management of relationship with customers and also software acquiring the potential of social networks shall grow. Being independent of individual hardware platform is emphasised. Flexibility and possibility to reconfigure and redefine solutions according to changeability of conditions of the environment are expected.

Probably, changeability of the environment results in the fact that it is hard to talk about stability of relationships between the entities of IT sector and the trade segment. Configuration of entities of the group of leaders in IT sector is quite dynamic. However, the size of completed orders and their dynamics show unchanging, large interest of these customers in IT products and solutions. Slowdown of the dynamics is the expression of optimisation of possessed solutions, better exploitation of possessed resources, and also focussing on return from investments already made in IT, that are particularly important activities in the period of economic crisis. However the entities of IT sector try to excel one another in solutions of the so-called smart trade.

Appropriately to situation, the entities of the trade sector with its leading representative Tesco, implement strategies of innovativeness and innovative application of technology, according to the principle of effective knowledge management through application of appropriate IT tools. It is manifested in virtualisation of the purchasing process, from making WI-FI accessible in shops, through e-purchase, to display of products in 3D technology and application of QR-code in virtual way of shopping. Such activities bring calculable results, observed in significant growth in sale in virtualised units of business. However, it seems that such a tendency has a prospective character and can become a subject of further analyses by the authors.

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Redefining products as a positioning strategy: A case of the partnership for health

Magdalena Krzyżanowska
Kozminski University, Warsaw, Poland

Jolanta Tkaczyk
Kozminski University, Warsaw, Poland

Abstract

The need to address societal issues within market activities pressures organisations to incorporate the social environment as an operational variable. This article questions whether Porter's proposal to redefine products and markets within the context of the Shared Value Creation concept can establish a basis for developing a positioning strategy for market entities. The authors focus on a single case study of *Partnership for Health,* a coalition of the Danone, Biedronka, and Lubella companies and the Institute of Mother and Child in Warsaw, which developed a product to prevent undernourishment in young (early school grades) children. The paper's objective is to evaluate whether the redefinition of the product implemented by *Partnership for Health* can be considered as a basis for a positioning strategy for Biedronka (a retailer). The quantitative research on consumers' perceptions of retailers serves as the basis of the analysis conducted by the authors. The case of *Partnership for Health* does qualify as a shared value strategy or, more precisely, as a case for redefining products; however, the research shows it still only has a potential criterion for positioning that is unrecognised by the shoppers.

Key words: shared value creation, positioning, redefining products, retailing, Partnership for Health

Introduction and objectives

The search for stable sources of growth for fast moving consumer goods (FMCG) retail sales in Europe is currently in the limelight for managers involved in this sector. It is a result of the strong influence exercised by economic factors that predominantly worsened the conditions for operations within the last five years. The key, important occurrences in this field include: the growing unemployment and the price level rise, accompanied by the lack of wage increases, which resulted in the reduction of households' available income in numerous market segments. This recession mood aroused concerns about survival in such difficult market conditions and a search for new and long-lasting methods of increasing performance.

The research findings show that the potential for retailing growth lies in the existence of still-unsatisfied customer needs, as well as in the emergence of new ones, related mainly to lifestyle changes but also resulting from demographic, cultural and technological changes (McKinsey&Co 2013, Roland Berger 2011). Customers' expectations of retailers are increasing, the consequence of their interest in health issues, concerns about life conditions and quality improvement, as well as increasing their life expectancy. Buyers increasingly reckon they will be able to satisfy their needs comfortably, avoiding a waste of time or energy. The products they buy are expected to meet criteria connected with sustainable growth, among others.

The current consumer behaviour changes in the retailing context, identified by Roland Berger and Europanel (2011)20, are grouped in so-called trends, under which as many as 50 types of unsatisfied needs have been spotted, including not only needs already known for some time – Smart Convenience or Green Responsibility – but also new ones, such as Stealth Health, 100% Transparency and Back to Origins, for example.

Against the preceding background, we can observe the increasingly acute need to address societal issues within market activities. Consequently, organisations are pressured to incorporate the social environment as an operational variable. This way of operating is described and perceived as the foundation of corporate development via the concept of shared value (CSV) developed by M. Porter and M. Kramer. CSV consists in the reformulation of a competitive strategy and business model in a way that allows a company to create new value by improving its environment's condition. Derived from the general idea of corporate social responsibility (CSR), CSV is a more precise consideration of how enterprises can efficiently secure their growth in a long-term perspective. The main condition for using this source of value will be distinguished by customers who are choosing offers of companies operating according to the shared value concept; however, its implementation seems to be currently in the initial stage.

From a global perspective, the involvement in the development of CSV initiatives differs widely. One finds many corporations already being successful in exploiting this source of value, such as Nestle, Novartis, Dow Chemicals, Mars, Intel, GE, Vodafone (Pfitzer et al., 2014), but the Polish market it is still in its infancy. The initial stage of development in the case of the described phenomenon poses a question: what is its real potential in creating value for enterprises in the market? More precisely, this article questions whether the proposal to redefine products and markets within the context of CSV can establish a basis for a positioning strategy for market entities. An attempt at preliminary recognition of this issue has been made by this paper's authors regarding the Partnership for Health21 initiative, consisting in the launch of a product preventing undernourishment in young (early school grades) children and conducted with the involvement of Biedronka, the leading retailer in the Polish market. The motivation for undertaking this research results from the significant disproportionate recognition of issues regarding acceptance of the widely understood CSV concept in the developed countries22 and the stage of knowledge in this field observed in Eastern European countries. There is a lack of studies referring directly to CSV as the criterion for retailers' positioning in the Polish market. The only one identified by the authors is the study conducted by Wójcik (2013) regarding related issues, i.e., how and in which forms do corporate social responsibility (CSR) initiatives influence consumer perceptions of the value of, and intention to buy, responsibly manufactured yogurt.

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[20] Conducted for the Coca-Cola Retailing Research Council. Details of the research: More than 100 trends were studied and panel data from 160,000 households were analysed. 6,500 consumers were interviewed in eight countries (Croatia, France, Germany, Poland, Spain, Sweden, The Netherlands and UK), covering 60% of the European population. Consumer focus groups were in the UK, Poland and Germany. More than 300 innovative concepts from 20 countries were reviewed. 30 expert interviews were conducted with retailers and manufacturers, including with executives from companies such as Tesco, Albert Heijn, Carrefour, Edeka, Delhaize, Migros, Kraft Foods, Mars, Procter & Gamble and Nestle.

[21] *Partnership for Health* is a coalition of the Danone, Biedronka, and Lubella companies and the Institute of Mother and Child in Warsaw.

[22] See the review of such studies in P. Wójcik (2013).

This paper's objective is to evaluate whether the redefinition of the product implemented by Partnership for Health can be considered as a basis for a positioning strategy by Biedronka (a retailer). The quantitative research into consumers' perceptions of retailers serves as the basis of the analysis conducted by the authors.

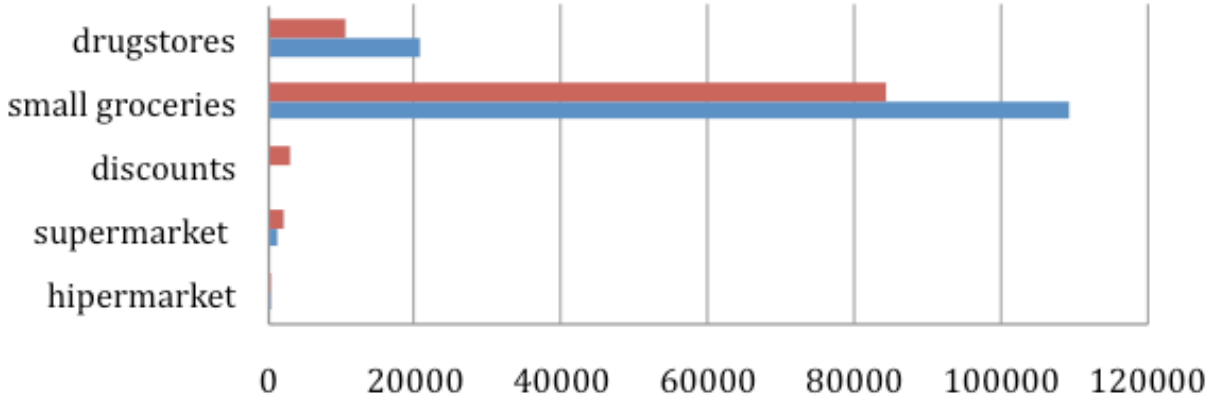
The paper consists of four elements. The first, the research context, presents the situation of the retail trade in the Polish market, with special consideration given to the position of discount stores, including Biedronka. This serves the purpose of indicating that consolidation processes taking place in the retail sector will force the market participants to seek new sources of value to comply with the customers' expectations. Next, the concept of shared value (CSV) is characterised as the response to the contemporary, socio-economic challenges, using the example of an initiative meeting its criteria, i.e., Partnership for Health. All of the above serve as the basis for introducing detailed objectives and the research method in the next part. The results of the quantitative research and the conclusions drawn from them comprise the penultimate element. The final part includes remarks on the limitations of the conducted research and suggestions regarding desirable directions of further studies on this issue.

Research context

Retailing in Poland

Despite the consolidation processes lasting many years, the Polish fast moving consumer goods (FMCG) retail trade is fragmented. The estimate of the number of entities in this sector is around 100,000 if points of sale (POS) offering grocery, household chemistry and cosmetics are taken into account. The market players can be divided in two segments: small format stores (up to 300 sq. m – including large, medium-sized and small grocery stores, chemist stores, stores offering both chemistry and cosmetics, and specialist grocery stores) and large format stores (above 300 sq. m – including supermarkets, hypermarkets and discount stores) (Gfk Polonia & POHID 2012). Since the mid-1990s, the number of small format stores offering grocery products, chemistry and cosmetics has been shrinking, while the number of large format stores has been growing, although not in all categories, as the growth of hypermarket chains has definitely slowed since 2010. Meanwhile, we can observe the expansion of supermarkets and discount chains. Such stores are increasingly opened outside by big conglomerates in medium-sized and small towns (populations below 10,000), i.e., in areas formerly perceived as the main target for small format stores (Charts 1,2,3,4).

Chart 1 Types of stores in Poland in 1996 and 2012

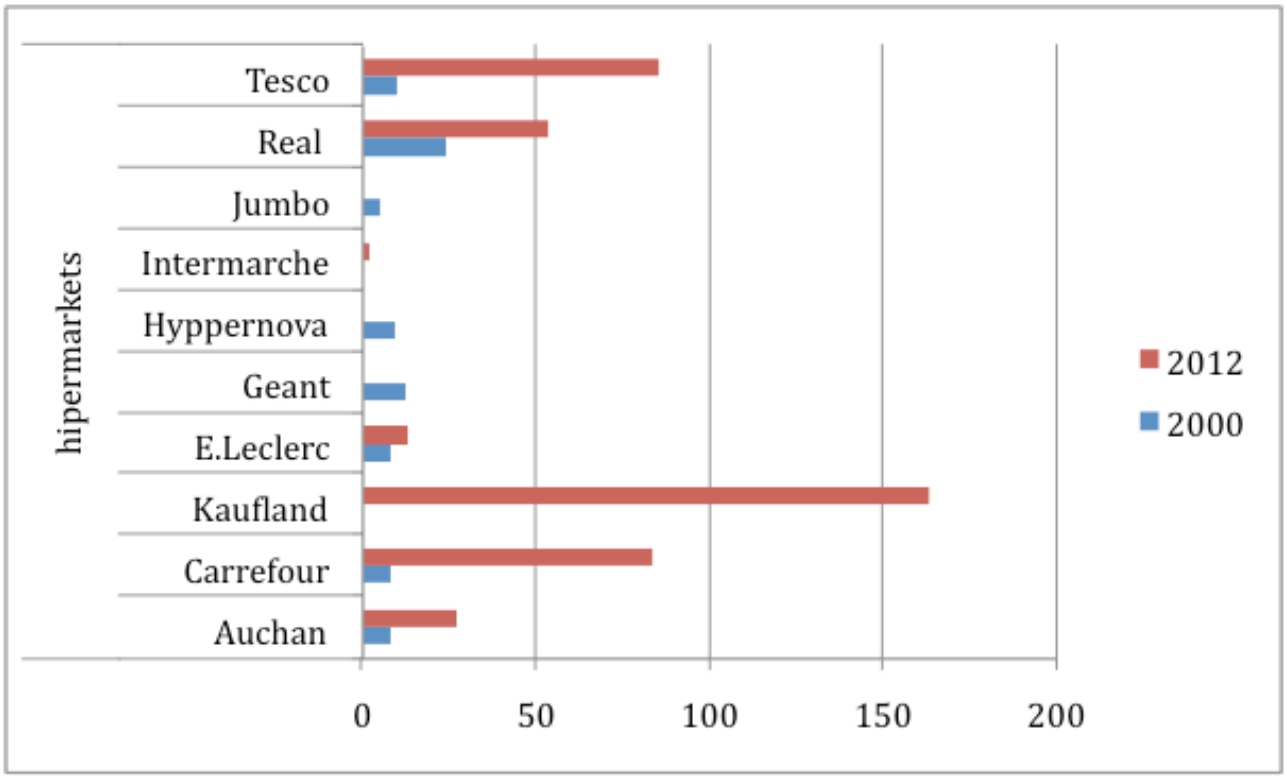


	hipermarket	supermarket	discounts	small groceries	drugstores
2012	434	1998	2920	84150	10400
1996	30	1300	0	109000	20500

Source: Gfk Polonia & POHID 2012

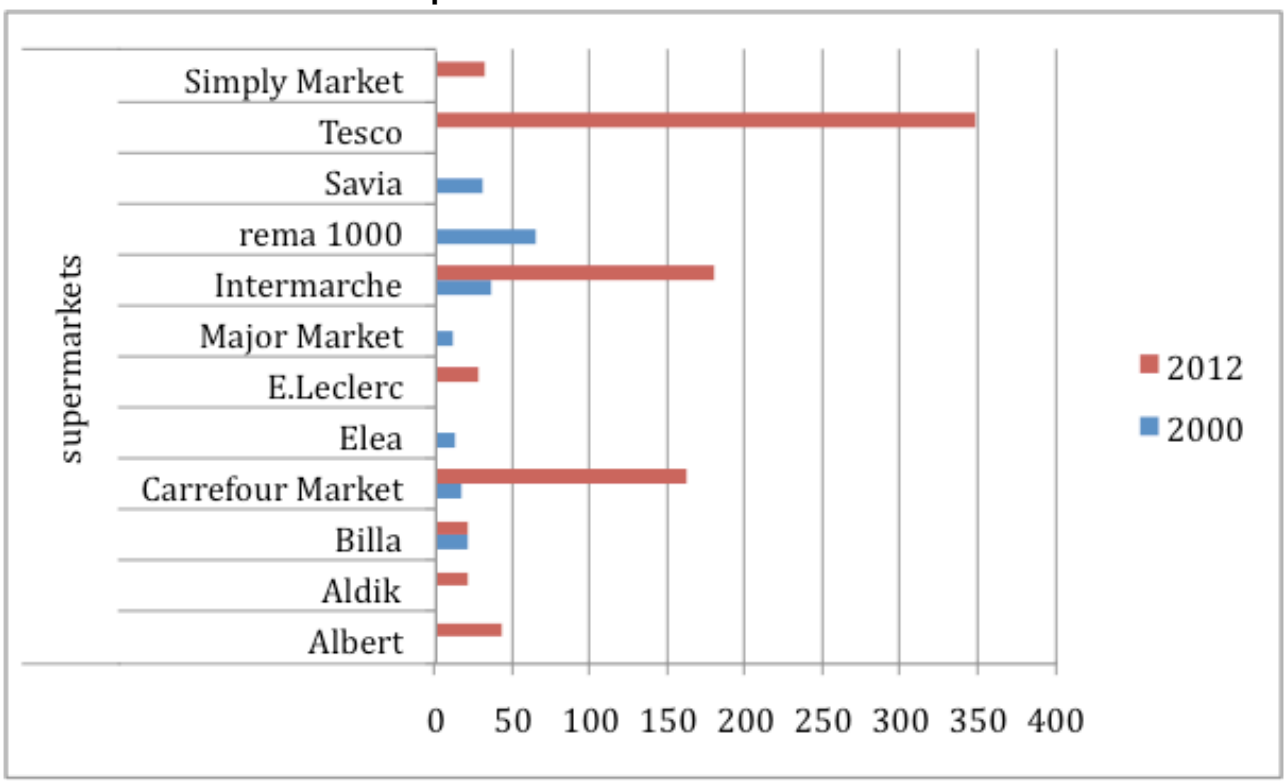
The changes of a qualitative nature are accompanied by the emergence of leading players in the market who build their position through opening the largest number of stores as well as through takeovers of stores belonging to chains otherwise withdrawing from the Polish market. The fragmentation of retail sales is directly connected to Poland's demographical situation: 38% of its population live in rural areas, which results in the existence of numerous, but small, points of sale. Furthermore, Poles' purchasing patterns favour maintenance of such stores – because of 'current shopping' and 'acute need' customers who visit shops a few times a week, which makes the convenient location an important factor in choice. Products purchased in such stores are mainly fresh groceries: bread, dairy products, meat and deli meats, fruit and vegetables (Gfk Polonia & POHID 2012).

Chart 2 Hipermarkets in Poland in 2000 and 2012



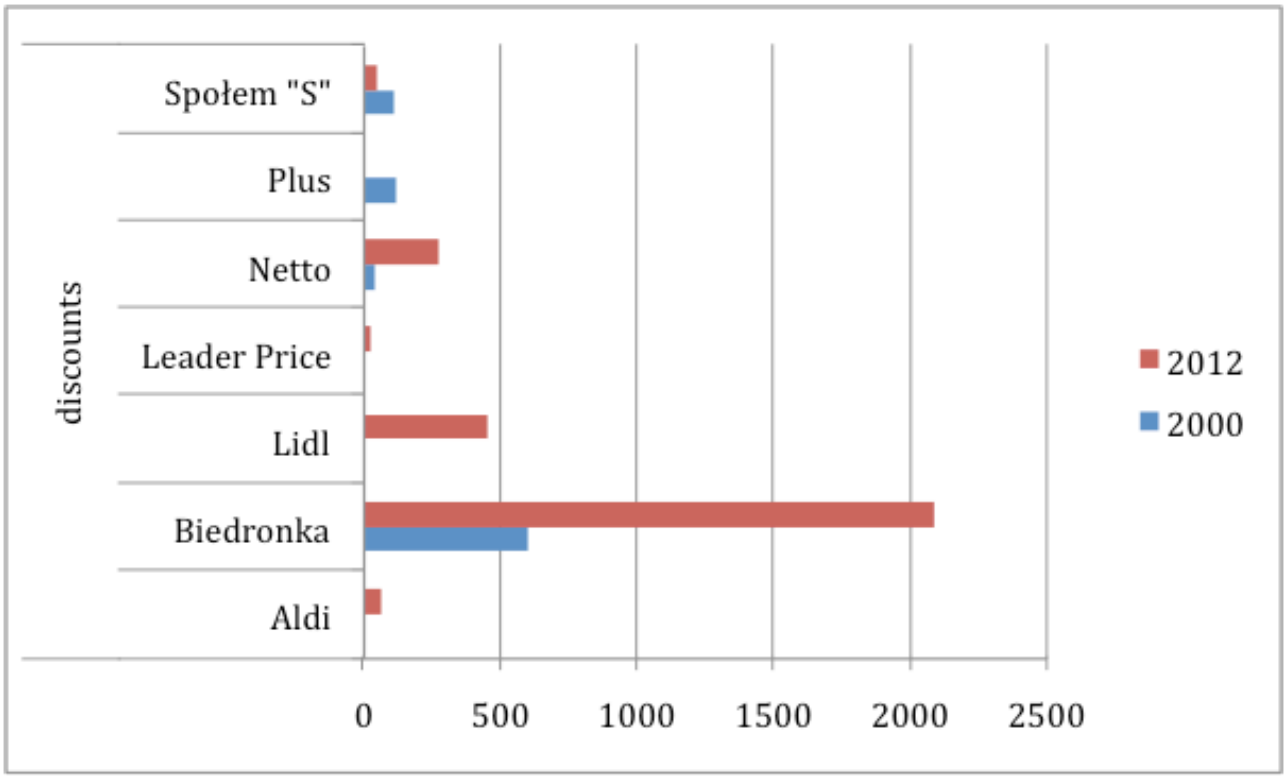
Source: Gfk Polonia & POHID 2012

Chart 3 Supermarkets in Poland in 2000 and 2012



Source: Gfk Polonia & POHID 2012

Chart 4 Discounts in Poland in 2000 and 2012



Source: Gfk Polonia & POHID 2012

The growing importance of discount stores in the Polish market can be interpreted as the result of their physical accessibility to buyers, as well as their attractive offers, which are limited in terms of the range of goods but are distinctive in terms of lower price levels. Such stores increasingly play the role of points of sale for both small, current shopping and big, so-called weekend, shopping. In the small format store segment, the consolidation processes are also visible, being often stimulated by wholesalers (e.g., Eurocash and Makro Cash and Carry); about 25 per cent of POS belong to organisations associating the small retailers, most often franchise chains (Gfk Polonia & POHID 2012).

Despite the strong pressure of economic factors, the FMCG trade keeps growing in Poland. It is possible primarily, thanks to basic grocery sales. The growth is also related to the increasing importance of private labels, which attract large groups of mainly price-sensitive customers. In reaction to the buyers' growing confidence, retailers are expanding their private label ranges both low-priced and premium-positioned products. The market leader in 2013 was Jeronimo Martins Polska SA that operates the Biedronka chain, with 15% retail value share (Emerging Markets Direct 2013). There are also two other leading players in the Polish market, Tesco Polska Sp z o.o. and Carrefour Polska Sp z o.o. The strong position of the leading marketers is based on their extensive store networks, the range of products tailored to customers' needs and the high level of marketing activity targeted at winning new buyers (Euromonitor International 2013).

In view of the above circumstances, the authors of this paper are convinced the retailers need to search for new sources of value creation. The idea of shared value creation seems very appealing in this context.

The concept of shared value

The Concept of Shared Value (CSV) is rooted in the Corporate Social Responsibility (CSR) idea that is nearly 20 years old (Garriga and Mele 2004); however, it bears the hallmarks of a certain innovation. CSR as the original concept is more general than CSV, because it means "a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis" (Commission of the European Communities 2001). The essence of CSV, then, is to take on responsibility with reference to the societal sphere and the natural environment, first of all in the name of a moral duty.

Other researchers describe it as "the organisation's commitment to minimising or eliminating any harmful effects and maximising the long-run beneficial impact on society" (Mohr et al. 2001). It has been proven in practice, however, that that duty can mean the emergence of conflicts between business and societal goals that, consequently, expose both spheres to the effects of undesirable consequences, i.e., first of all excessive costs (Orlitzky et al. 2003). The positive effect that is featured in the analysis of CSR's importance is its contribution to the development of a company's good image and the increase in its product differentiation (McWilliams and Siegel, 2011).

Like CSR, CSV refers to achieving financial benefits as a result of creating societal benefits, but there is a significant difference between these two concepts. CSR is defined as creating societal benefit regardless of costs, i.e., it consists of distributing value that has been previously created, while CSV means development of new market opportunities and creation of new value (Kramer 2011). According to this concept, the shared value arises as a result of the increase in the enterprise's ability to compete and to improve concurrently the quality of life in local communities existing in the company's neighbourhood (Porter and Kramer 2011). The concept is based on the assumption that the economic and societal growth can be described with the use of category of value, interpreted as the relation of benefits to costs, which in business operations is measured by productivity, while in the social sphere it is expressed, for example, by the decrease of undernourishment, poverty, unemployment or pollution. CSV is understood as the concurrent development of business and societal value and should not be identified only with companies sharing common values with their stakeholders or, even more, with charitable activities. Instead, it needs to be closely related to a way to form a competitive strategy, whose key element is the search for new market opportunities in the field of needs, both individual (the predominant approach to business, so far) and social. The concept's implementation is carried out by means of three major activities (Porter and Kramer 2011): (1) reconceiving products and markets, which consists of identifying and solving problems of local communities through products taking social needs (for example, in the field of health and nutrition) into consideration; (2) redefining productivity in the value chain through the introduction of organisational and technological solutions that allow the reduction of unfavourable environmental and societal influences; (3) building supportive industry clusters at the company locations by undertaking initiatives that support entities engaged in the value chain or that have that potential. *Sine qua non* conditions for the CSV implementation are as follows: in-depth recognition of social needs, identification of available factors of companies' productivity increase, and cooperation between business entities and non-profit organisations.

The Partnership for Health

Biedronka participates in the Partnership for Health (*Partnerstwo dla Zdrowia*) coalition together with two food manufacturers – Danone (dairy products) and Lubella (cereal products) and the scientific partner – the Institute for Mother and Child (IMiD). It was established in 2006 through the initiative of Danone and IMiD to prevent undernourishment in young (early school grades) children and to promote principles of proper nutrition. The first stage of cooperation between the Partnership participants was to perform research into Poles' dietary habits and develop a product that was both economically available and suitable for children's nutritional needs. The research findings showed that 57 per cent of children aged 6-10 in Poland eat semolina served with milk at least three times a week; it is commonly believed that such a meal has a favourable impact on health. This is why the first product designed by the coalition was the *Milky Start* (*Mleczny Start*), semolina with milk, enriched with minerals and vitamins. The product ingredients are consistent with the 12 principles of proper nutrition recommended by the Institute, and one portion satisfies up to 25 per cent of the daily requirement for selected nutrients. The product has an instant formula, which makes it easily accessible, because there are no problems with storage and preparation. The product complies with local habits regarding nutrition and is available for customers with low incomes – one portion costs PLN 0.69 (c.a.15 p.). It is sold exclusively in the Biedronka chain, including all its stores, with no substantial marketing support. Since the launch of the *Milky Start* brand, 50 million portions have been sold, of which nearly one third were to low income families (Danone 2014).

The *Milky Start* product is a particular example of an initiative that consists of reformulating a product: it was developed to solve a social problem of undernourishment through the supply of a valuable, although very cheap, product. The unique nature of this undertaking lies in the fact that profits from the product sales are reinvested in its development[23] and similar initiatives, which means they don't bring direct financial benefits to commercial partners. However there is some question as to whether the redefinition of the product as implemented by *Partnership for Health* can be considered as a basis for Biedronka's positioning strategy.

Research approach and methodology

In order to answer the main research question formulated above, the research was designed on the basis of the Computer Assisted Web Interview (CAWI) method. The major purpose of the research was to identify how customers perceive the Biedronka brand versus other grocery retailers' brands. Additional purposes included:

- Researching the customers' attitude towards the Milky Start project
- Researching the customers' attitude towards products with a social mission.
-

The following research hypotheses were formulated:

H1: Biedronka brand is perceived worse than its principal competitor – Lidl
H2: acceptance of products with a social mission depends on gender and having children.

Two more detailed hypotheses were introduced for the latter hypothesis (H2):

[23] The *Cereal Sandwich* (*Zbożowa Kanapka*) was the second product launched (Danone 2014).

H2.1: acceptance of products with a social mission is greater by women than by men.
H2.2: acceptance of products with a social mission is greater in the case of people with small children (aged up to 13 years).

The sample was selected in a convenient way. The questionnaire was prepared with the use of webankieta.pl service and then the automatically generated link was sent to 173 students of Kozminski University. Complete answers were received from 98 participants. The research was conducted in October 2013. The questionnaire consisted of 28 questions grouped in four main parts.

The first part comprised five closed-ended questions with nominal scales and was about consumer behaviour connected with purchasing grocery products by the respondents.

The second part was related to researching the customers' perception of selected retailers' brands. It was conducted with the use of a projective technique chosen due to the main purpose of the research, i.e., determining perceptions of the retailers' brands. Projective techniques may be classified as a structured-indirect way to investigate the whys of a situation (Webb 1992). They are used to uncover feelings, beliefs, attitudes and motivation that many consumers find difficult to articulate (Webb 1992). One of projective techniques is a word association test. In this technique, the subjects are asked to read a list of words and then indicate the first word that comes to mind. The answers provide the researcher with a variety of consumer vocabularies associated with brands or products (Green 1984).

In this case the word association test included seven brands of modern grocery retailers: Biedronka, Lidl, Żabka, Carrefour, Netto, Aldi, Tesco. They were selected according to the criterion of being Biedronka's direct or substitutive competitors. The above group comprised three discount stores, three hypermarkets and one convenience store.

A seven-point semantic differential scale was applied to four brands: Biedronka, Żabka, Tesco and Lidl. The following pairs of antonyms were examined: cheap/expensive, dishonest/honest, boring/interesting, conservative/flexible, arrogant/friendly, offering low-quality product/offering high-quality products.

The third part of the questionnaire regarded the customers' attitude towards the *Milky Start* product and their general attitude towards products with a social mission. This was researched with the use of the authors' scale comprising eight statements reflecting particular components of attitudes according to the ABC model.

The respondents' knowledge was examined through the following statements:

(1) I know the Milky Start product with a social mission.
(2) There should be more products with a social mission.
(3) Products with a social mission should be more intensively promoted.

The emotional attitude was examined through the following statements:

(1) Corporate social responsibility is nothing but only image-oriented actions undertaken by companies.
(2) Products with a social mission, such as Milky Start, are a good idea.
(3) I don't believe in the good intentions of companies manufacturing products with a social

mission.

Respondents were also asked how much they liked the Milky Start product. Their willingness to act was examined through the following statements:

(1) I am more willing to shop in stores whose offer includes products with a social mission.
(2) I am willing to buy products with a social mission.
The accordance with the above statements was researched with the use of the 5-point Likert scale.

The fourth part of questionnaire was designed to collect data on the respondents.

Findings and conclusions

Women represented 60 percent of the respondents, while men accounted for 40 percent. The average age was 30 years, and the median age was 26 years.

The respondents most often shop a few times a week, mainly on their own (Chart 5).

Women are the principal decision makers in the case of grocery shopping. Men more seldom declared shopping on their own, but they indicated more often than women that nobody in the household was responsible for shopping, it is done by whoever has time at the moment (Chart 6).

Chart 5 Frequency of grocery shopping

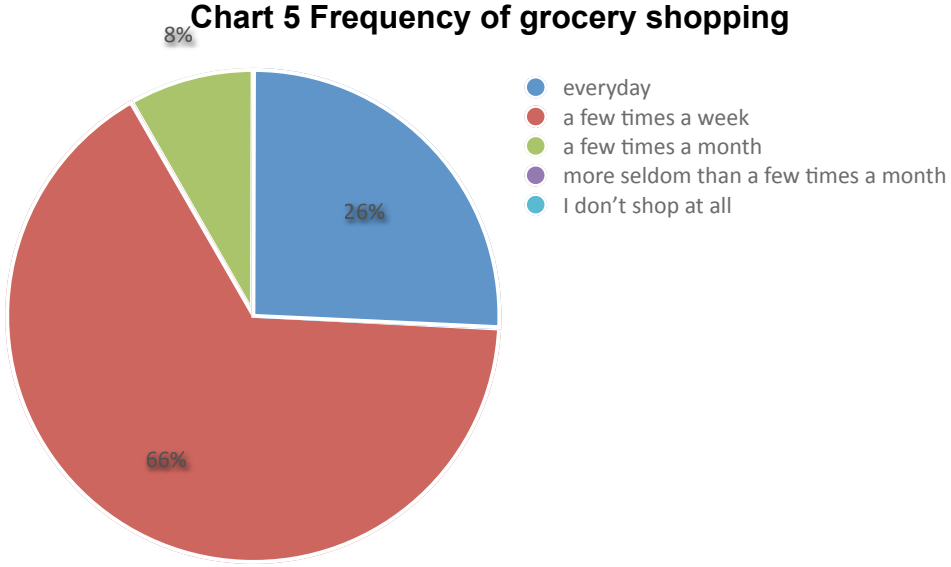
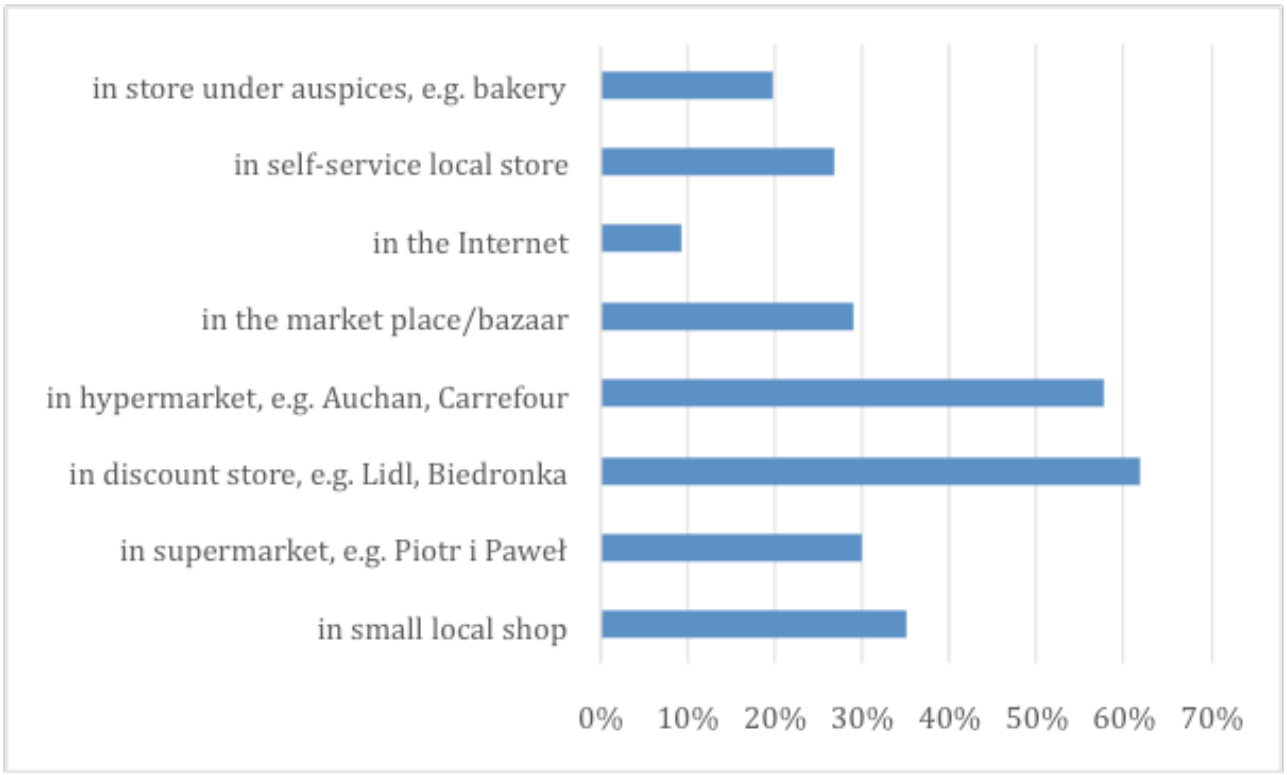


Chart 6 Person responsible for grocery shopping in the household

Respondents do their grocery shopping mainly in discount stores and hypermarkets but also in small local shops and supermarkets (Chart 7).

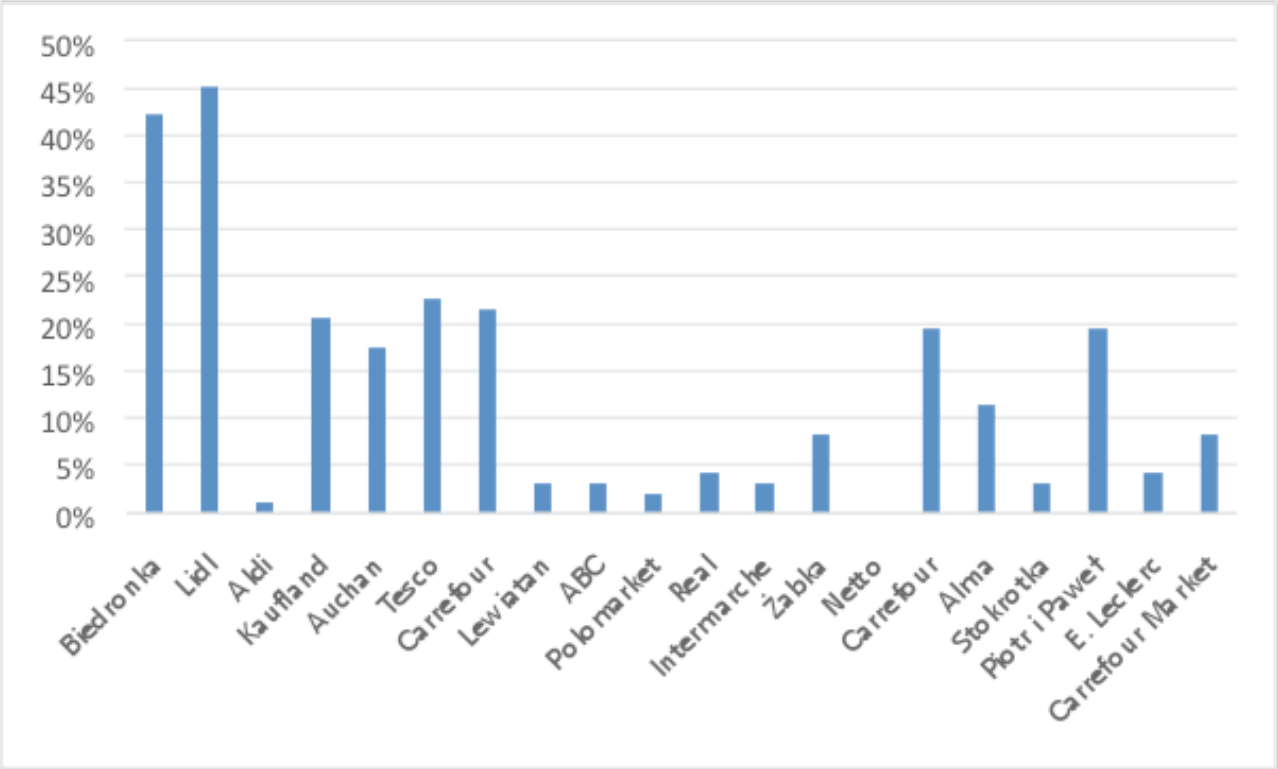
Chart 7 Location of the most frequent grocery shopping



The results do not total 100 percent, because respondents could choose more than one answer.

Respondents are most willing to do grocery shopping in Lidl and Biedronka. Their gender has no impact on the choice of shopping location (Chart 8).

Chart 8 Preferred location of grocery shopping (retailer's brand)



The results do not total 100 percent, because the respondents could choose three answers.

According to the respondents, the most important factors determining the choice of shopping location are close proximity to home, high quality of goods, opening hours and product prices.

The respondents' spontaneous associations with Biedronka and Lidl brands are presented in Table 1.

Table 1 Most frequent spontaneous associations with Biedronka and Lidl brands

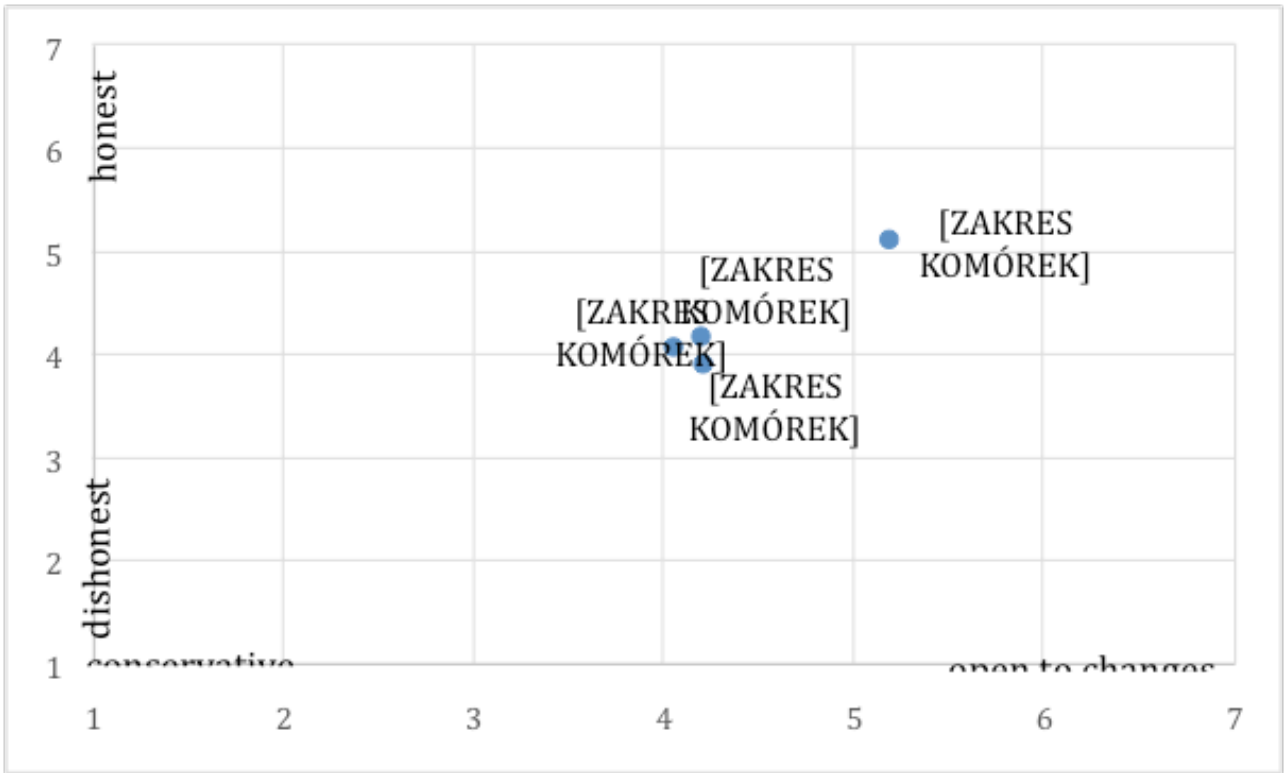
Biedronka	Number of indications	Lidl	Number of indications
Cheap	35	Germany, German products	18
Low prices	2	Cheap	15
Low prices everyday	3	Quality	7
Low quality	4	Pascal and Okrasa	9
Nearby	3	Interesting, interesting products	4

The associations with the Biedronka brand are unambiguous - it is associated with cheap shopping, and the respondents also quote the advertising slogan, “Low prices everyday”. The recurrent unfavourable connotation is ‘low quality’. Among single negative associations, the respondents mentioned ‘untidiness’, ‘no credit cards accepted’, and ‘too little space’.

The Lidl brand has, first, connotations with the country of its origin – Germany. In Poland, German products are perceived as high quality goods, and the respondents made those associations. In addition, they associate the Lidl brand with low prices, a changeable range of products and two celebrity cooks who participated in the last advertising campaign – Pascal Brodnicki and Karol Okrasa. Among several dozens of associations, there was only one negative – ‘dirty’.
In the above comparison, the Biedronka brand comes off much less favourably than the Lidl brand.

The brand perception map was constructed for Biedronka, Lidl, Żabka and Tesco using the semantic differential scale. It is based on two dimensions: perceived honesty or dishonesty and perceived conservativeness or openness to changes. The perception map is presented in Chart 9.

Chart 9 Perception map of selected grocery retail brands



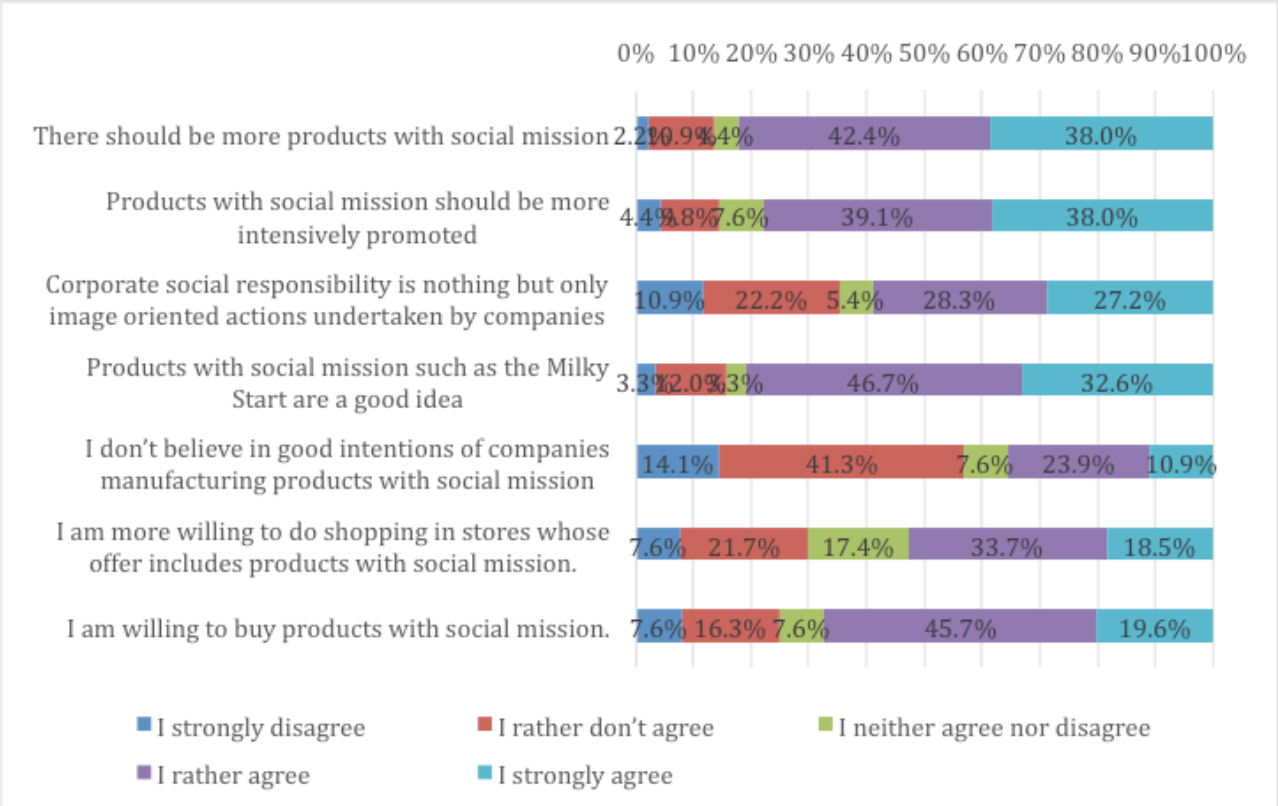
Taking the analysed variables into account, the Biedronka brand is perceived as the brand ‘of the middle’. It doesn’t differ too much in the customers’ perceptions from Żabka or Tesco. The difference is, however, definite between the above-mentioned group and Lidl, which is perceived unambiguously as the most honest and open to changes brand. Therefore, the Lidl brand is also viewed more favourably than the Biedronka brand in this case.

The respondents were also expected to declare what they know about the Milky Start project. Thirty-four (34) percent indicated that they are familiar with the Milky Start product, while 68 percent denied such knowledge. Among the respondents who knew the Milky Start with a social mission before, 64 percent declared that they liked rather or liked very much an idea of such a product. The respondents who didn't know it before were presented a short description, after which they were able to assess the idea of the product. In this case 67 percent decided that they liked it.

Chart 10 presents the attitudes toward products with a social mission among respondents knowing and not knowing the Milky Start before.

A definite majority of respondents declared there should be more products with a social mission, and they should be more intensively promoted. The respondents also consider products with a social mission to be a good idea. Fifity-eight percent believe in the good intentions of companies offering such goods; however, more than one half state that companies do it mainly in order to improve their image. Comparing the answers given by people familiar with Milky Start before with the answers of those unfamiliar with the product leads to some interesting conclusions, as these answers differ significantly from each other. The respondents who did not know about Milky Star before liked the idea of products with a social mission more, but they were more critical about corporate social responsibility (CSR), admitting more willingly that CSR was nothing but image-oriented actions. Such people were also more eager to declare they would buy products with a social mission and would choose stores offering such products.

Chart 10. Attitudes toward products with a social mission



No significant differences were found when comparing the answers given by men and women, except for two statements aimed at evaluating the respondents' emotional attitude.

In the case of the statement, “Corporate social responsibility is nothing but only image oriented actions undertaken by companies”, 48 percent of female respondents but only 22 percent of male respondents disagreed with it. Similarly, 60 percent of women and 46 percent of men disagreed with the statement, “I don’t believe in good intentions of companies manufacturing products with a social mission”. To sum up briefly, women assess CSR activities undertaken by companies more favourably; however, their assessment has no impact on their willingness to buy products with a social mission. This willingness is similar in the case of female and male respondents. There are no significant differences in answers given by people having or not having small children.

In conclusion, the H1 hypothesis stating that the Biedronka brand is perceived worse that its main competitor, Lidl, was verified positively on the basis of the conducted research. Meanwhile, H2 hypothesis couldn’t be accepted due to the lack of confirmation in the case of two more detailed hypotheses (H2.1 and H2.2.). Positive verification was achieved only in part regarding the respondents’ emotional attitude. Still, as the overall attitude includes not only emotional, but also cognitive and conative components, there was no ground for accepting this hypothesis.

The research findings indicate that, according to the respondents’ perceptions, products with a social mission could comprise a basis for a positioning strategy for Biedronka, but for now, many customers do not even know that Biedronka offers such products in cooperation with its partners. The lack of a promotional campaign aimed at educating buyers rebounded on the project awareness. It can be even stated that its potential wasn’t exploited from a marketing viewpoint.

Limitations and further research

The major limitation of the conducted research is, first, the sampling procedure. The convenient method used for sampling does not allow any generalisation of results beyond the population of respondents. The method was determined by the time and cost limitations. The students of Kozminski University, who usually pay for their education, represent a specific group that is guided in their purchasing decisions by non-price criteria. In talks with Biedronka representatives, the study authors determined that, although the respondents are not a main target for the brand, Biedronka would like very much to attract the segment of higher income customers. Therefore, the research findings showing that Biedronka was the shopping location most often chosen by Kozminski University students were received very favourably.

Apart from expanding the respondents’ group, an interesting research issue for the future is to examine the influence of psychographic features related with lifestyle and personality on the acceptance of products with a social mission. The research conducted by the authors of this paper can be treated as the initial testing of the device, i.e., the scale of acceptance for such products.

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Variation in Forecasting Effectiveness for Food Products

John L. Stanton
Saint Joseph's University, USA

James Wiley
Temple University, USA

Introduction

There is no doubt that since time immemorial businesses had to forecast. No matter what type of business, the businessman and women needed some idea of how much they expected to sell in the future. There is also little doubt that as businesses have become more sophisticated forecasting became more complicated and important.

In the past, sales forecasting only meant predicting a number to help supply planning figure out what to make. The focus of demand planning now has shifted to planning the "high stakes": selling more, making more money, and beating the competition. (Storch 2009) In many cases the forecasts were using USDA demand estimates for the entire country. While this may be useful for the commodities industry it provides virtually value to food retailers or food manufacturers. For example Huang (1989) uses commodity from the USDA Food Consumption, Prices and Expenditures, data base.

Today's forecasting has become a collaborative process and not a test of statistical algorithms. In today's environment where manufacturers must forecast retailer orders, allow time to make it and retailers must forecast consumer demand and allow time to process an order collaborative planning between manufacturer and retailer has become essential. Collaborative planning is much more integrated into a series of steps which involve but only cooperation but coordination. A highly regarded approach is called collaborative planning, forecasting and replenishment. Supply chain collaboration has been strongly advocated by consultants and academics alike since the mid 1990's under the banner of concepts such as Vendor Managed Inventory (VMI), Collaborative Forecasting Planning and Replenishment (CPFR), and Continuous Replenishment (CR)*. It is widely accepted that creating a seamless, synchronized supply chain leads to increased responsiveness and lower inventory costs. (Holweg, undated))

The CPFR model, which is described in a variety of different sources, rely on the sales forecast. (Seifert, 2003) The statistics provide a solid foundation to work with, but the real value comes from over-laying knowledge that systems cannot possibly know. Mann and Adebanjo, (1997) found in their study that 48 per cent of food companies had indicated that they were poor at forecasting. The members of the group agreed with the findings from this report and further stressed the importance of this issue within the industry, describing forecasting as a key and critical process. In discussing how much effort the group should put into tackling this issue, the major gains from effective forecasting were put forward. These were: - increased product availability to the consumer; - lower inventory levels along the supply chain; - more effective use of current capital assets; - clearer identification of future capital needs; and - true customer/supplier partnerships.(Mann and Adebanjo, 1997). More specifically a report by ADEXA calculated the advantages to collaboration and better demand forecasting and using their collaboration model including: Increase in sales by 10%

Reduction in total system costs by 10%
Increased stock availability (96%)
Reduction in inventory level by 40%
Reduction in cycle time by 30%

The ability to forecast consumer demand accurately is of great importance to companies in the consumer market. The food industry, in particular, views consumer availability as the cornerstone of their business. However, many companies concede that their forecasting process does not perform as well as they would wish. (Adebanjo, 2000). Better demand forecasting can bring major cost savings. TheGS1 Upstream integration Model helps manufacturers and their suppliers improve forecasting and inventory management, by sharing information and improving visibility of demand, demand changes and inventory. (GS1, 2011)

In the current environment of coloration the shared forecast is a primary document to drive the business activity of both the supplier and the manufacture. This is especially true for the CGP companies and their retailers.

However in today's high-tech business environment planning and forecasting have become even more essential. The good news is that the same high-tech that has made business more sophisticated has also given rise to a variety of technology that makes forecasting more effective. . An integral piece of the effectiveness of all the models rests with the ability to forecast effectively.

However forecasts in today's high-tech environment have become a sophisticated as the supply chain technology itself. In many cases forecasts are now not just for the, but is done for a specific SKU for a specific retailer, and in many cases for a specific store. These types of forecasts would have been virtually possible before the advent of scanners and virtual data.

Since there can be so many units the forecast both in terms of SKUs and number of stores there is a great effort to automate the forecasting process. However with the vast amount of data collected and the number of items to be forecasted, forecasters may place convenience over accuracy they may use the same methods the forecast very similar products. However the array of forecasting methods makes it possible to use different methods for different SKUs.

This is obviously not the first report on a comparison of forecasting methods. However it is the first research study to use actual store data from a large food retailer for sales of a major branded food manufacturer. While other studies have looked at commodity forecasts, none appear to use operational food company data to compare methods. For example Kastens (1996) examined the alternative models in "Model selection and forecasting ability of theory-constrained food demand systems."

OBJECTIVE

The objective of this study is to demonstrate that for two different products made up of a number of SKUs the variation that can occur in the ability to forecast within the same product category and same basic product type. The objective to further demonstrate that different forecasting techniques are more appropriate than others in the same basic

product category, and that single method forecasting approaches are just not as accurate as a multi-method approach. Addition ally the best fit model will be identified.

Time-series

Time series models are the only models used in this analysis. While the authors are aware that there is a substantial literature in causal modeling for forecasting these are often used on a special basis (new product, high value products) and are less used in automated forecasting modeling. Time series models focus upon the historical pattern of the demand (sales) itself. The forecast is a projection of the past into the future. Although the pattern of past demand may be changing, the assumption is that the change is orderly. Time-series analysis is concerned with trend and the rate at which the demand is changing, but also considers cyclical and seasonal variations.

Models considered

The following time series models were used in this analysis. Each of the specific products used was forecasted using each of the models shown below

•Best Fit ARIMA •Cubic Smoothing Spline •Double Exponential Smoothing • Long term Seasonal Random Trend (LTSRT) •Random Walk with Drift •Seasonal Random Trend (SRT)	•Seasonal Random Walk (SRW) •Simple Auto Regression •Simple Exponential Smoothing •Simple Linear Regression •Simple Polynomial Regression •Triple Exponential Smoothing

These methods are described in detail in Makridakis and Wheelwright (1998).

METHODOLOGY

Hold out sample

Performing a hold out sample is one important application of model fitting. With this technique, the period of fit ends at a time point before the end of the data series, and the remainder of the data are held out as a non-overlapping period of evaluation. With respect to the period of fit, the hold-out sample is a period in the future, used to compare the forecasting accuracy of models fit to past data. In order to be able to calculate the accuracy of the forecasted results EURISKO divided the number of weeks into n periods:

- The observed period = Total Number of weeks – n weeks
- The Forecasted period = n weeks which are the last n weeks

For example if Item X had x weeks of regular sales movement, week x to week z, data is used as the observed period and week y to week z is used as the forecasted period.
The observed period is treated as historical data, thus input to the forecasting engine, and then the output resulting from the engine is compared with the x weeks' data.

The authors extracted 13 weeks, week 17 to week 29 year 2011, from history data to serve as a Hold out sample. The data used in the analysis was from week 14 2009 to week 16 2011

Product category

The data for this study was provided by a national chain retail store for the purpose of investigating forecasting accuracy. An explicit attempt is made to disguise the retail store. The data for this project consisted of sales data from a regional supermarket chain. The data consisted of items the test supermarket classified into the peanut butter and jelly category. Also within this category were specialty jams and jellies, specialty spreads, marshmallow crème and honey.

This category has several unique variables which add complexity to forecasting future movement. Peanut butter has a high household penetration, though represented by only a few of the best selling SKUs. Peanut Butter is also very seasonal supported by the big holidays: Christmas and Easter. Easter represents a challenge as the timing of sales data changes as the Easter holiday falls at a different time each year. Peanut Butter and Jelly also has strong seasonal fluctuations for back to school, both in August and January. In addition to these variables, price and promotion play a major role in movement. In this instance, the retailer was unable to provide promotional pricing which added a difficult challenge for the forecasting.

Perhaps the most unique issue with the data was that there was a recall of a major brand of peanut butter in the middle of the time series. This recall left the shelves vacant for this brand line which increased movement of the other brand lines.

The manufacturer data was also provided for several products within this category. The hope was to correlate forecasting of manufacture data as well as forecasting the movement on the retail level and gain insights into different points in the supply chain. Unfortunately, for this report, this data was not analyzed.

Sample

In this study 167 different items were used: 106 peanut butter items and 61 jelly items. The data was 4 week data from week 14 of 2009 to week 16 of 2011. A holdout sample used data from week 17 of 2011 to week 21 of 2011. The scheme is shown in Figure 1

Figure 1 - Sample break down by category

Category Name	Number of Items
JAMS JELLIES PRESERV	106
PEANUT BUTTER	61
Total	167

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Forecasting process

In order to complete the forecast processes, our forecast engine goes through the steps below:

- Data Cleansing and Classification
- Data Decomposition and calculation of forecast indices:
  - General Trend
  - Seasonality
  - Price Elasticity
  - Promotions effect
- Best Statistical Model Selection
- Forecast

In order to identify the “best fit” model for each item, the software executed the following steps:

- Data Cleansing is the process of ensuring that a set of data is correct and accurate. It detects and corrects or rejects corrupted or incomplete records of data. Cleansing that data first prevents spending time questioning it and losing confidence in the process which can lead to second-guessing the demand plan.
- Data Decomposition and Calculation of Forecast Indices divides the historical time series into its components for evaluation. Components present can include trends, seasonality, and cyclical patterns, and randomness. Price Elasticity is another index that can be used but was not included in this test because prices were not provided in the data set.

Forecast followed the industry-accepted standard for the calculation of accuracy of the demand forecast. The measurement was based on:
MAPE* = SUM(abs(Actual(i) – Forecast(i))) / Sum(Actual(i))
**(MAPE= Mean Absolute Percent Error)*

Trend and Seasonality

It should be pointed out that in all of the tested time series models both trend and seasonality were calculated and removed from the data . For the purposes of forecasting both the trend and seasonality is added back in forecasted value. The General trend analysis is a review of sales-related measurements during a specified period of time. The period may be short term, midterm or long term. Sales trends may go up, go down or remain unchanged.

Many time series exhibit cyclic variation known as seasonality, periodic variation, or periodic fluctuations. This variation can be either regular or semi regular.

It is a characteristic of a time series in which the data experiences regular and predictable changes which recur every calendar year. Any predictable change or pattern in a time series that recurs or repeats over a one-year period can be said to be seasonal.

Note that seasonal effects are different from cyclical effects, as seasonal cycles are contained within one calendar year, while cyclical effects (such as boosted sales due to low unemployment rates) can span time periods shorter or longer than one calendar year.

RESULTS

Figure 2 shows the difference in seasonality class. While the products tend to be variations of three or four different products, there is significant variation across all the products. As can be seen in figure 3 shown below, a little over half of all the items achieve a forecast accuracy of less than 10% . One can also see that approximately 10% of all the forecasts had a forecast accuracy of between 20 and 50%. The overall forecast accuracy is based on the most accurate model amongst all the models tested above.

Figure 2 - Seasonality

Seasonality Class	Percentage of Total %
Strong Seasonality	30.54 %
Normal Seasonality	26.35 %
Weak Seasonality	41.32 %
Very Weak Seasonality	1.80 %
No Seasonality	0 %
Total	100.00%

Figure 3 - Overall accuracy across all products

Total No of Forecast Items	167	100%
No of Items Having Error % Less than 10 %	86	51.50 %
No of Items Having Error % between 10 and 20	63	37.72 %
No of Items Having Error % between 20 and 30	12	7.19 %
No of Items Having Error % between 30 and 50	6	3.59 %
No of Items Having Error % > 50	0	0 %

On average one can see that jams and jellies provided slightly more forecast accuracy then peanut butter as can be seen in Figure 4.

Figure 4 - Forecast Accuracy of Subclass

Category Name	Total QTY Observed	Total QTY Forecast	Error %	Accuracy %
(SS)-PEANUT BUTTER(0000000042))))	13,289.00	12,288.00	**7.50**	**92.50**
(SS)-JAMS JELLIES PRESERV(0000000041))))	3,084.00	2,905.00	**5.80**	**94.20**

Figure 5 below shows a sample of the items that made up the summary figures in Figure 3

Figure 5 - Item Sample[24]

Item Id	Item Name	Total Observed	Total Forecast	Error %	Accuracy %
00000980089500	XXX SPREAD 13 OZ	1176	988	15.99	84.01
00000980089525	XXX SPREAD 26.5 OZ	311	345	10.93	89.07
00003377610030	YYY SMOOTH PB 16Z	191	195	2.09	97.91
00003377610035	YYY CHKY PB 16 OZ	131	155	18.32	81.68
00003377610040	YYY CRMY PB 26 OZ	179	212	18.44	81.56
00003400040012	ZZZ CREAMY PNUTBTR	358	294	17.88	82.12
00003732300201	APPLE BUTTER	123	139	13.01	86.99

Which method produced the most accurate results?

The purpose of this study was to demonstrate that in order to forecast with maximum amount of accuracy the same forecasting model may not be appropriate for each of the products that are being forecast. That a system that uses anyone model the forecast all the products online may be suboptimal. Figure 6 below shows the relative frequency that each of the forecasting models tested in this study produced the highest level of accuracy. The actual best fit for each of the product groups is available in an on-line file for inspection. A sample of the raw data is shown in Figure 7. Note that the actual table is composed of 167 items and all 167 were used in the Figure 5, while Figure 7 shows exactly what was analyzed.

Figure 6 - Summary of model accuracy

Statistical Model	Percentage of Total %
Holt-Winters Additive Smoothing	31.74 %
Best Fit ARIMA	15.57 %
Seasonal Random Walk (SRW)	24.55 %
Seasonal Random Trend (SRT)	4.19 %
Simple Auto Regression	10.78 %
Long Term Seasonal Random Trend	3.59 %
Random Walk with Drift	4.19 %
Double Exponential Smoothing	3.59 %
Simple Exponential Smoothing	0.60 %
Simple Exponential Smoothing	1.20 %
Total	100.00%

[24] Note that actual brand names are removed.

Figure 7 - Sample of item analysis summarized in Figure 5

Figure 6	Sample of item analysis summarized in Figure 5	Seasonality Class	Trend	Is Elastic
XXX SPREAD 13 OZ	Double Exponential Smoothing	Weak Seasonality	0.30383	YES
YYY CREAMY RD FAT 18 OZ	Seasonal Random Walk (SRW)	Normal Seasonality	0.24452	YES
UUU CREAMY PNT BTR 16.3Z	Seasonal Random Walk (SRW)	Strong Seasonality	0.24016	YES
XXX SPREAD 26.5 OZ	Holt-Winters Additive Smoothing	Weak Seasonality	0.21265	NO
YYY PB SPREAD 18 OZ	Seasonal Random Walk (SRW)	Weak Seasonality	0.15183	YES
YYY CREAMY 28 OZ	Best Fit ARIMA	Weak Seasonality	0.13359	YES

It is interesting to note the wide variety of forecasting methods that produced the most accurate results for specific products. Surprisingly there was a mix of more sophisticated models such as ARIMA and Holt-Winters as well as various alternatives of a random walk model.

MANAGEMENT IMPLICATIONS

The most important result of this research is that a company that is forecasting a large number of items may not be able to just use a single model for all the forecasts. Each separate may require the development of a unique model for that specific item, even though the items may be quite similar. It appears that even within a specific brand of peanut butter there are various degrees of both trend and seasonality. In an effort to harmonize all the management efforts across product categories to reduce costs, finding common forecasting techniques may not be the most effective or efficient place to integrate.

LIMITATIONS

The most obvious limitation in this analysis is the failure to separately include trade promotion activities. It is generally accepted that forecasts are most inaccurate during times of major promotions. There is a significant amount of research being done to determine the effects of the various types of promotions on sales which can be built into the forecasting models.

However one positive side of this limitation is that in many cases trade promotions tend to follow a well described pattern. For example Campbell Soup has more promotions in the winter than they do in the summer and they consistently do so.

Another limitation would have been to have multiple years of data as well as more than two product classes; however these limitations were imposed by the company providing the data.

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