AN IMPACT OF REVERSE LOGISTICS ACTIVITIES ON MARKETING COMMUNICATION

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Abstract

MILICHOVSKÝ FRANTIŠEK. 2017. An Impact of Reverse Logistics Activities on Marketing Communication. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis,* 65(2): 669–678.

The topic of reverse logistics has become very actual due the requirements of highly competitive market. This importance is made by significance of condition for environment-friendly production and purchasing around the world. Individual activities, which are included in reverse logistics, support entrepreneurs in their competitiveness to other companies and to own customers. The objective of the paper is to find relationship between marketing communication tool and activities of reverse logistics on behaviour of final customers in Czech Republic. A theoretical background from the area of reverse logistics supports this approach with data from primary research collected by the author. A data from primary research was used. The entire primary research focused on the evaluation of customers' perception in the area of reverse logistics in the Czech Republic by a questionnaire survey. Sample population was created by 1266 consumers' respondents, which were chosen in random way. There were returned questionnaires from 332 respondents. Questionnaire itself was distributed by only platform, during June 2016. The research itself was aimed at a random chosen group of people in the Czech Republic. Findings of the research shows connection of individual activities of reverse logistics and individual communication tools, which are well-accepted on customer side. The result of the research can be used for the companies that operate in the Czech or Central European market.

Keywords: reverse logistics, marketing communication campaigns, marketing communication tools

INTRODUCTION

Through-out high competitiveness at market of production sources and other problems imposed by a slow economic growth, there is necessary to search greater effectiveness and better performance of each company (Hornungová, 2015). It is important to have all strategic activities more interactive to increase their own comprehensiveness (Neil *et al.*, 2007).

Present times raise pressure on re-using old products and packages from purchasing new products, which are put into recycling and reusing process. Recycling and reusing have become key logistics activities in a complex supply-chain, which companies must focus on (Altuntas, Tuna, 2013). A main problem of these activities is low knowledge of activities in reverse logistics such set of tools, especially at final customers' side.

Customers' awareness with products from reused materials help to increase corporate competitiveness. This situation supports application of internal lean philosophy. Many customers choose suitable products, which have additional services such re-change wrong purchased products, resale or taking-back of packaging (Cardoso *et al.* 2015; Ambrozová *et al.*, 2016).

The main aim of the paper is to find relationship between marketing communication tool and activities of reverse logistics on behaviour of final customers in Czech Republic. This topic is very important for current industry, because of many companies must look for another sources for own production.

Theoretical Background

Logistics activities in corporate reverse flows

Logistics itself has become more significant in present day because there is necessary to link three corporate fields together. These fields are marketing activities, production management and corporate financing, where logistics provides required flows – such material and product, information and financial. All logistics flows help to allocate every sources, which are important for effective processes (Pernica, 2005).

Logistics has become process by which is distributed product from producer to final customer. From point of view of used material, this process started within raw material. That could be called as typical logistics chain (or supply chain) Main problem in logistics chains is, what to do with waste in production process, used packaging of new products and old products (Govindan *et al.* 2015).

According to Ferrer and Whybark (2000) there is necessary to use garbage as the way of gaining material sources instead of their stocking or burning (impact on nature environment). Waste problems could be solved by reverse logistics (RL) which requires adequate skills, capabilities, market awareness, and staff with experiences (Giuntini, Gaudette 2003). Reverse logistics (RL) has become important part of marketing activities from logistic point of view. It is usually located in the end of whole marketing loop where is after-sale phase defined.

It is difficult to describe RL, because all included activities are applied in specific situation (according to individual circumstances). RL is usually defined as process of moving products from place of typical usage to recapturing product/material value or any other possible disposal (Genchev 2009; Daugherty *et al.* 2005).

There is difficult to define exact list of RL activities. Abdulah and Yaakub (2014) mention main groups of activities which are considered in RL. These groups are: (1) product returns, (2) disposition, (3) green manufacturing, (4) recycle, (5) refurbishing, (6) landfill, (7) salvage, (8) remanufacturing. Similar groups of RL activities are described by Nikolaidis (2013). However, he defines only seven groups in different way: (1) landfilling, (2) recycling, (3) cannibalization, (4) remanufacturing, (5) refurbishing, (6) repairing, (7) direct reuse or resale. Appropriate connection of logistics and marketing should be crucial for company.

Final consumers begin to look forward products with correct production such bio-production or green labelling (Tomek, Vávrová 2011). According to requirements of green supply-chain management, Hervani *et al.* (2005) define as the most significant RL activities (1) reuse, (2) remanufacturing, (3) recycling. Green corporate activities (e.g. production, marketing) are very important from point of view of sustainability (Hornungová, Klímková, 2013). Green marketing as part of RL is focused on bio-products, low operational costs and products of biodegradable waste (Holanda, Francisco 2013).

By using information of technology development in marketing campaigns, sellers want to increase own income (especially for electronic products). These products have high influence of innovation cycle (Lebreton, Tuma 2006; Hsueh, 2011). Customers still require new products to replace old ones, and they are more interesting in alternative of landfilling. Almost all products need more natural re-sources and energy to make new ones. Electronic devices have become distinguished because of the low life cycle and non-friendly wastes (Gan, *et al.* 2015; Klapalová, Škapa, Krčál, 2012).

RL itself has become part of sustainable industrial marketing because of the necessity of destroying of packaging and the rest of used materials. Main problem could be how these materials would be collected from the customers to applying RL activities. Therefore, there are compare both economic and ecological aspects of possible processing (El Korchi, Miller 2011; Lee, Lam 2012).

RL activities and their realization need knowledge management and adequate experiences in all phases (Wadhwa, Madaan, 2006, 2004; Mihi Ramirez, Girdauskiene, 2013).

Relationship between reverse logistic and marketing communication

All corporate activities are included in value chain, which help to create value for end users. This ability represents fundamental of long-life and profit generating (Koller, Goedhart, Wessels, 2010). It is important to look at company from innovative point of view because of the maximizing values for both sides of company and customer. This concept is included in value chain, which divides corporate activities into two groups – primary activities and support activities. Primary activities are put directly into value-creation process, and they include physical production, sale, distribution to customer, and after-sale services (Mráček, Mucha, 2015).

Purpose of reverse logistics activities is backward flow of products, components and used material. All connection to RL in whole production chain (see Fig. 1). There are three possible "reverse flows" in supply chain:

1. from product producer to material producer – purchased material is damaged, produced components and products are not suitable to quality standards and it is possible to reuse it as raw material;

2. from seller to producer – product is unsellable, reclaim of damaged products;

3. from customer's side to seller – damaged, counter-value in purchasing new product.

All of these situations are obligatory according to law. European Commission (2016) describes correct approaches how companies must communicate with all customers (in both of B2C and B2B markets).
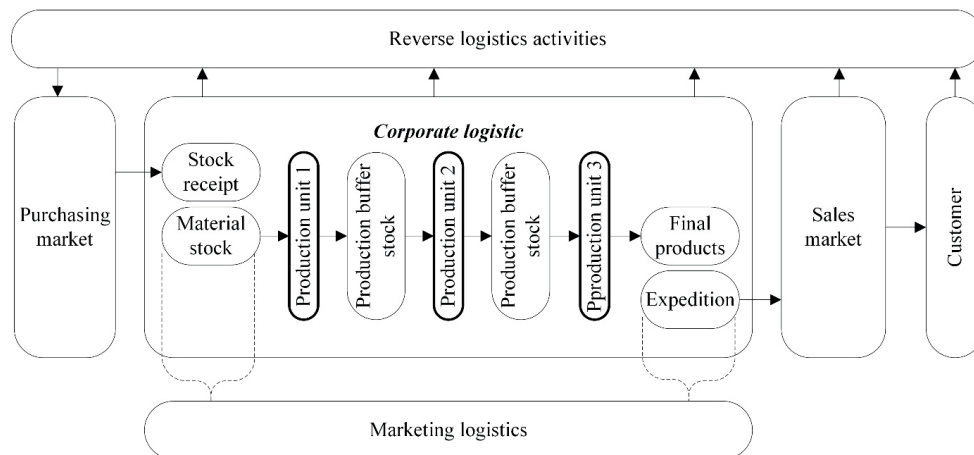
1: *Connection reverse logistics to marketing (improved according to Tomek, Vávrová, 2011, p. 290, Klapalová, Škapa, Krčál, 2012)*

Traders could buy back products from consumers (in all locations of supply chain). In that cases commercial practices of possible buyback are directly connected with the promotion, sale or supply of a product to consumers. The reverse situation make cases where is find out a connection to establishing relationship between the sale of a product by a consumer to a trader and the promotion, sale or supply of a individual product to the consumer (European Commission, 2016). This reverse business activities must be effective on the way of building own competitiveness (Hornungová, 2014; Zich, 2010).

Marketing activities are realised during whole process in each company – from market research through purchasing, production to after-sale services. During this production chain there is important to communicate each non-standard situation with appropriate stakeholders (Siu, 2002). In production chain whole marketing area could be consider as marketing logistics process. Marketing logistics activities help to assure mainly physical flows on customer direction. Distribution of information between all subjects play one of the crucial role (Tomek Vávrová, 2011).

According to requirement of Economic Commission mentioned above there is important to apply adequate marketing communication tools on the way from seller to customer/ consumer.

Marketing communication tools

Traditional media tools in marketing communication are represented by using media for a consideration which are based on marketing communication mix which include five principal groups (Kotler, Keller, 2012): advertising, sales promotion, public relation, direct marketing, personal selling.

Due to the development of the internet in last twenty years is possible to add interactive marketing, events or Word-of-mouth marketing which include traditional ways of promotion with more using e-tools. For example, Word-of-mouth is old tool, but because of the large expanse of internet and electronic communication (like social networks, messengers, emails) ways it becomes mostly new appliance (Wu, Wang, 2011).

New technology and techniques enable improve new ways how companies could introduce and present own brand or products. For new media there are four factors which have impact on the results of communication (Winer, 2009):
- The existence of new technologies in the workplace;
- Creating experiences by marketers to their customers to differentiate corporate products and services in comparing with competitors;
- Focusing on behavioural targeting on personalized announcement that is based people's doing on the Web;
- Huge differences between individual groups according demography.

These changes prepare ground for unconventional media (slacking traditional media as TV, radio, printed media, outdoor advertising etc.) and also increase relevance of market competition. Internet gives to marketers interactive media that induce all aspects of marketing and becomes almost the most important business method (Mallin, Finkle, 2007).

Using alternative ways of marketing communication, experiential marketing is part of corporate marketing strategy. Smilansky (2009) defined experiential marketing as „a process of identifying, satisfying customer needs and aspirations, profitably, by engaging them through two-way communications that bring brand personalities to life and add value to the target audience". The author added that experiential marketing is an integrated methodology and its marketing campaign is built around one big idea involving two-way communication between the target audience and the brand, therefore creates its core, a live brand experience (Smilansky, 2009).

Schmitt (1999) and Alkilani, Ling, Abzakh (2013) propose the concept of strategic experiential

modules that aims to help the marketers to create alternative types of customer experiences. The experiential modules managed by the experiential marketing include: sensory experiences (sense); affective experiences (feel); creative cognitive experiences (think); physical experiences, behaviours and lifestyles (act) and social-identity experiences that result from relating to a reference group or culture (relate). Schmitt (1999) and Smilansky (2009) add that the purpose of experiential marketing is to create holistically integrated experiences that possess, at the same time, sense, feel, think, act and relate qualities. Lee, Hsiao, Yang (2011) mention that experiential marketing can be related to the customer satisfaction.

As way of building competitiveness, companies must focus on long-time period from marketing perspective. Complex manufacturing process need to be innovated in various ways – improving or changing technology of production, changing used material and others. They need to do production strategy in cooperation marketing strategy (O'Leary-Kelly, Flores 2002; Pollard, Šimberová, 2012). Present trend for consumer products is Eco-friendly categorization, what means, that the products are dissoluble in nature by common ways. Perception of marketing campaigns includes many differences, especially from demographic point of view. The reason for this difference could come out mainly from demographic variables (Toppinen *et al.* 2013): (1) female consumers are more interested in both expressive and functional aspects than males; (2) people with higher income pay more attention to functionalities, ease of use, and quality); (3) people with higher education put less significance to symbolic aspects in purchasing. One of the most important perspectives is gender on which many marketing campaigns focus on (Costa *et al.* 2001; Rahmani, Lavasani 2012; He, Wong 2011; Ambrozová, Pokorný, 2012). All demographic factors impact corporate marketing activities, mainly in connection with launching new products, for which have become defined basic market segments with possible high income.

Methodology

The main objective of the paper is to identify relationship of the marketing communication campaigns and individual activities of RL in Czech market. Main hypothesis is that there is closed relations in their connection.

In own questionnaire survey there were questions on which individual respondents had to answer from perspectives: impact of marketing communication and activities of reverse logistics. Main aim of the paper is to find relationship between marketing communication tool and activities of reverse logistics on behaviour of final customers in Czech Republic.

Sample population was created by 1266 consumers' respondents, which were chosen in random way. There were returned questionnaires from 332 respondents (return was 26.22 %). From the sample of respondents there were 40.70 % males and 58.14 % females (1.16 % didn't mention sex). Questionnaire itself was distributed by only platform, during June 2016.

Presented paper is based on primary research by questionnaire survey, conducted in 2016, focused on activities of reverse logistics in connection within realization marketing campaigns. To process the results of the questionnaire survey there were used both of descriptive statistics and correspond analysis. The data were processed by using the statistical program IBM SPSS Statistics 24. The conclusions provide characteristics of the limitations of our research and its potential further direction. For purpose of the article by correspond analysis method the data were processed. In the fact this method focuses on the multidimensional observations.

Correspond analysis describes relation between both two nominal variables in pivot table and individual categories. In pivot table there is category combination which should become significant or not. If any categories are similar or associated, there are located in graph near themselves. Correspond analysis itself is focused on association rate, usually by chi-square measure. There are nominal variables as input into correspond analysis, and kind of premise, that there is no ordering between variables (McGarigal, Cushman, Stratfgord, 2000; Beh, 2010, 2008).

Correspond analysis processes dimensional homogenous data which consist only positive values or zeros. Chi-square range has become coefficient which excludes zeros, and help to define relations between rows and columns.

Calculation of correspondence analysis includes three steps (Řezanková, 2010):

1. pivot table transformation into table with support of Pearson chi-square;
2. individual value decompositions are applied into defined table, then there are calculated new values and new vectors;
3. new matrix operations serve as input to graph design.

Basis for two dimensional pivot tables is data matrix $n \times 2$, in which categorical variable A get r values (a_1, a_2, … a_r) and categorical variable B get s values (b_1, b_2, … b_s). Due realized observation there is created table by two dimensional separations of both variables. In the table is used n_{ij} frequency, which represents intersect of both variables This n_{ij} provides number of observations, where are both a_i and b_j. Except n_{ij} there are used marginal frequency n_{i+}, where row observation with a_i value are observed (similar approach is for n_{i+} in column).

In that table are applied relative frequencies (Beh, 2010; Kudlats, Money, Hair, 2014):

$$\sum_{i=1}^{r}\sum_{j=1}^{s}p_{ij} = \sum_{i=1}^{r}p_{i+} = \sum_{j=1}^{s}p_{+j} = 1 \qquad (1)$$

Set structure is described by contingent relative frequency $p_{j/i}$ in two possible ways:

1. from point of variable B view, if variable A reaches value a_i;

$$p_{i/j} = \frac{n_{ij}}{n_{i+}} = \frac{p_{ij}}{p_{i+}} \qquad (2)$$

2. from point of variable B view, if variable A reaches value a_j;

$$p_{i/j} = \frac{n_{ij}}{n_{+j}} = \frac{p_{ij}}{p_{+j}} \qquad (3)$$

Any changes in these values transform variable dependence, which is usually measured by Pearson chi-square test (Beh, 2008):

$$\chi^2 = \sum_{i=1}^{r}\sum_{j=1}^{s} \frac{\left(n_{ij} - \frac{n_{i+}\times n_{+j}}{n}\right)^2}{\frac{n_{i+}\times n_{+j}}{n}} = n\times \sum_{i=1}^{r}\sum_{j=1}^{s} \frac{\left(p_{ij} - p_{i+}\times p_{+j}\right)^2}{p_{i+}\times p_{+j}} \qquad (4)$$

After estimating the theoretical frequencies there is designed chi-square statistics. This statistic has chi-square distribution and number of degrees of freedom $(r-1)(s-1)$. On this basis, it is decided if exist dependency between variables in the population, and by using correspondence analysis is also possible to determine the structure of dependence.

RESULTS

At first step there was analysed frequencies of individual variables ways of purchasing new product in connection with marketing communication tools (see Tab. I). Even though the results of the research show that customers are impacted mainly by sales communication which includes elements of (1) return of bought product and (2) repair of bought

product. That elements are most accepted by final customers because of their preferences in connected services within purchased products.

From point of view of marketing communication tools there are the most used: (1) advertising in media, because of their highest impact on customers' decision-making process, (2) direct contact within customers, and (3) sales promotion.

In RL activities there is observed importance for: (1) return of purchased / old product; (2) change of purchased product); (3) repair of purchased product; (4) return of packaging.

For these activities customers want to have possibility to arrange next use. However, these RL activities must be communicated in realized campaigns (through-out website, printed and audio-visual ads etc.).

For purpose of statistical processing there is helpful to do correlation matrix where are showed individual correlation values of the chosen indicators.

From these values, listed in the Tab. II, it is possible to say that correlations exist between all variables. Evaluation of correspondence analysis is reached by Chi-square test, which has significance at acceptable level (sig. = 0.019). Therefore, results of correspondence analysis are significant for its application on observed raw data.

Load indicators (Mass) in Tab. II indicate load line which represents the percentage of information across the table in appropriate category. That loads are obtained as the ratios of the row and column marginal frequencies (n_{i+}, n_{+j}) in whole table of individual categories (n). The highest proportion of row variable line can be found at the second category, which is sales promotion (0.343). From point of view of column, there is the highest proportion by variable line, which is return of bought product (0.400).

Score in dimension describes individual variables score in two main dimensions. These dimensions don't represent any specific area, because they are reduced to from multi-dimension space. All data

I: *Pivot table of marketing communication tools and purchasing new products. Source: own work*

		Purchasing new products					
		Return of a bought product	Change of a bought product	Return of a old product	Repair of a bought product	Reverse taking of packaging	Total
Marketing communication tools	Advertising in media	12	27	6	9	7	61
	Outdoor advertising	5	9	5	3	5	27
	Direct contact within customers	28	23	18	5	11	85
	Promotional material	5	7	6	5	5	29
	Internet advertising	5	5	5	16	9	40
	Sales promotion	40	4	5	34	8	87
Total		95	75	45	72	45	

Source: own work

II: *Correlation matrix of marketing communication tools and purchasing new products.*

		1	2	3	4	5	6	7	8	9	10	11
Advertising in media	Pearson Correlation	1										
	Sig. (2-tailed)											
Outdoor advertising	Pearson Correlation	,391**	1									
	Sig. (2-tailed)	,000										
Direct contact	Pearson Correlation	,053	,324**	1								
	Sig. (2-tailed)	,627	,003									
Promotion advertising	Pearson Correlation	,371**	,493**	,308**	1							
	Sig. (2-tailed)	,000	,000	,004								
Internet advertising	Pearson Correlation	,383**	,393**	,081	,226*	1						
	Sig. (2-tailed)	,000	,000	,463	,036							
Sales promotion	Pearson Correlation	–,042	,069	,262*	,002	,006	1					
	Sig. (2-tailed)	,704	,531	,015	,985	,957						
Return of a purchased product	Pearson Correlation	,116	,045	,001	,000	–,004	,132	1				
	Sig. (2-tailed)	,300	,690	,996	,999	,971	,240					
Change of a purchased product	Pearson Correlation	,132	,041	–,009	,082	,099	,119	,762**	1			
	Sig. (2-tailed)	,236	,712	,937	,467	,378	,289	,000				
Return of a old product	Pearson Correlation	–,029	,109	,121	,125	,174	–,024	,292**	,382**	1		
	Sig. (2-tailed)	,798	,335	,283	,267	,120	,831	,008	,000			
Repair of a purchased product	Pearson Correlation	,283**	,125	,025	,123	,213	–,001	,434**	,455**	,233*	1	
	Sig. (2-tailed)	,009	,258	,823	,264	,052	,995	,000	,000	,036		
Reverse taking of packaging	Pearson Correlation	,031	,187	,133	,065	,210	–,143	–,100	–,063	,292**	,111	1
	Sig. (2-tailed)	,787	,101	,250	,571	,065	,214	,384	,585	,010	,333	

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed)
Source: own work

in rows and columns have been usually in multi-dimension space, which are reduced into two. Providing information of raw data has not been modified after multi-dimension space reduction of these variables. Inertia indicator represents the share comprehensive information on the profile (on the relevant point). This characteristic is independent of the number of dimensions. Corresponding map includes a graphical representation of both row and column categories according to their dimension scores (Hebák *et al.*, 2007; D'Esposito, Stefano, Ragozini, 2014).

Results of correspondence analysis are included in graphs, which illustrate relations between individual categories and variables. Fig. 1 shows row and column points of two dimensional solution. By using symmetrical normalization simplifies examining the relationships between individual categories of the variables. In graph there are brightly observed four different groups of individual categories.

In figure 1 there are brightly observed three different groups of individual categories. Final consumers react on individual communication style within different activities of RL. For activities (1) reverse-taking of packaging and (2) return of old products there are obvious necessity of direct contact between seller and final customer throughout direct marketing activities, in which customers accept or reject possible benefits. Offer of return of bought product is feasible for customers mainly during sales promotions. Last group includes changing

III: *Symmetrical normalization of individual variables. Source: own work*

| | | Mass | Score in dimension | | Inertia | Contribution | | | | |
| | | | | | | of point to inertia of dimension | | of dimension to inertia of point | | |
			1	2		1	2	1	2	Total
Row points Marketing communication tools	**Advertising in media**	,229	-,520	-,623	,085	,110	,183	,410	,509	,919
	Outdoor advertising	,029	-1,949	-,883	,083	,192	,046	,741	,131	,873
	Direct contact within customers	,314	-,460	,897	,163	,118	,519	,229	,752	,982
	Promotional materials	,000	-	-	-	-	-	-	-	-
	Internet advertising	,086	-,172	-1,195	,099	,005	,251	,014	,598	,613
	Sales promotion	,343	,973	-,034	,186	,576	,001	,984	,001	,985
	Total	1,000			,617	1,000	1,000			
Column points Purchasing new products	**Return of bought product**	,400	,622	,304	,121	,274	,076	,723	,149	,872
	Change of bought product	,257	-1,099	-,430	,204	,551	,098	,858	,113	,971
	Return of old product	,057	-,815	1,843	,125	,067	,399	,172	,757	,929
	Repair of bought product	,257	,404	-,657	,105	,074	,228	,226	,515	,740
	Reverse taking of packaging	,029	-,815	1,843	,062	,034	,200	,172	,757	,929
	Total	1,000			,617	1,000	1,000			

Source: own work

of bought product, presented in both of outdoor advertising and advertising in media. Marketing campaigns in internet offer various combinations of RL activities, and vice-versa offering of product repairs are made in internet marketing campaigns and other communication ways.
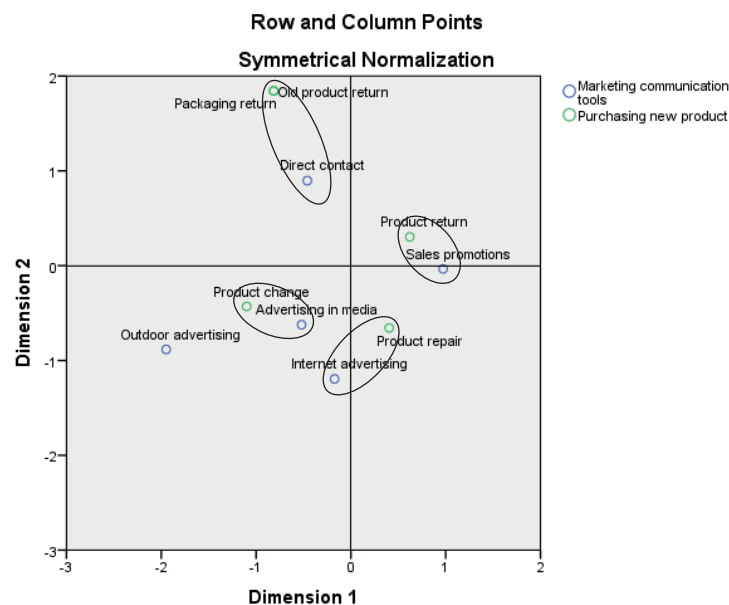
2: *Symmetrical correspond map of row and column points. Source: own work*

CONCLUSION

Marketing communication has become a key field which company must to realize on the way to reach final customer. A main corporate aim in communication is to make customers such partners and advocates. These customer's groups bring to company the highest added value, because they are the most sought out for other competitive companies. At present time, there is increasing trend of customers' behaviour, which are looking for possibility of reusing products or packages and provide recommendation to other customers (Ferrer, Whybark 2000).

According to observed results there is obvious, that individual activities of reverse logistics are used in different marketing communication tools. As the most used communication tool there is possible to mark sales promotion in combination with return of a bought product. The second most used combination is advertising in media and change of bought product. Corporate management monitors realised marketing ideas and evaluates them according to financial possibilities, current trends and own defined goals. By adequate realisation of marketing campaigns all companies could influence final customers' knowledge and strengthen market position (Koudelková, 2014).

Corporate offering of products to final customer must consist an adequate products' warranty, which is in connection with repairs of purchased products. According to customers' requirements on warranty of products, there is possible to meet three situation for warranty application for repairing process (Chu, Chintagunta, 2011; Najmi *et al.*, 2014):

basic warranty as inseparable part of purchased product;

extended warranty in which the seller and manufacturer offered for an additional charge and that type of warranty can be purchased separately depending upon the time period;

repairing after warranty.

Also, warranty for product repairing has become one of the most required RL activities from a point of view of customers (connected within repair of bought products). Therefore, companies must prepare good campaigns companies to gain new customers and satisfied all their needs, which lead to loyal "business partner". All RL activities must be offer in right way to influence a final customer. All marketing messages must be created throughout correct marketing communication tool.

The contribution provides an insight into perception of reverse logistics, which influence a decision-making process of customers during their purchasing process in the Czech Republic.

REFERENCES

ABDULLAH, N. H. N. and YAAKUB, S. 2014. Reverse Logistics: Pressure for Adoption and the Impact on Firm's Performance. *International Journal of Business and Society*, 15(1): 151–170.

ALKILANI, K., LING, K. C. and ABZAKH, A. A. 2013. The Impact of Experiential Marketing and Customer Satisfaction on Customer Commitment in the World of Social Networks. *Asian Social Science*, 9(1): 262–270.

ALTUNTAS, C. and TUNA, O. 2013. Greening Logistics Centers: The Evolution of Industrial Buying Criteria Towards Green. *The Asian Journal of Shipping and Logistics*, 29(1): 59–80.

AMBROZOVÁ, E., KOLEŇÁK, J., ULLRICH, D. and POKORNÝ, V. 2016. *Kognitivní management*. Brno: Key Publishing.

AMBROZOVÁ, E. and POKORNÝ, V. 2012. Ke změnám v myšlení lidí v lidských systémech z hlediska management. *Scientia & Societas*, 8(3): 139–152.

BEH, E. J. 2010. Elliptical confidence regions for simple correspondence analysis. *Journal of Statistical Planning and Inference*, 140(9): 2582–2588.

BEH, E. J. 2008. Correspondence analysis of aggregate data: The 2x2 table. *Journal of Statistical Planning and Inference*, 138(10): 2941–2952.

CARDOSO, S. R., BARBOSA-PÓVOA, A.P., RELVAS, S. and NOVAIS, A. Q. 2015. Resilience Metrics in the Assessment of Complex Supply-Chains Performance Operating under Demand Uncertainty. *Omega*, 56: 53–73.

CHU, J. and CHINTAGUNTA, P. K. 2011. An Empirical Test of Warranty Theories in the U.S. Computer Server and Automobile Markets. *Journal of Marketing*, 75: 75–92.

COSTA, P. J., TERRACCIANO, A. and MCCRAE, R. R. 2001. Gender Differences Personality Traits Across Cultures: Robust and Surprising Findings. *Journal of Personality and Social Psychology*, 81(2): 322–331.

DAUGHERTY, P. J., RICHEY, R. G., GENCHEV, S. E. and CHEN, H. 2005. Reverse logistics: Superior Performance Through Focused Commitments to Information Technology. *Transportation Research Pert E*, 41: 77–92.

D'ESPOSITO, M. R., DE STEFANO, D. and RAGOZINI, G. 2014. On the use of Multiple Correspondence Analysis to visually explore affiliation networks. *Social Networks*, 38: 28–40.

EL KORCHI, A. and MILLER, D. 2011. Designing a Sustainable Reverse Logistics Channel: The 18 Generic Structures Framework. *Journal of Cleaner Production*, 19(6–7), 588–597.

EUROPEAN COMMISSION. 2016. *Guidance on the Implementation / Application of Directive 2005/29/EC on Unfair Commercial Practices*. Brussels.

FERRER, G. and WHYBARK, C. D. 2000. From Garbage to Goods: Successful Remanufacturing Systems and Skills. *Business Horizons*, 43(6): 55–64.

GAN, S. S., PUJAWAN, I. N., SUPARNO, WIDODO, B. 2015. Pricing Decision Model for New and Remanufactured Short-life Cycle Products with Time-dependent Demand. *Operation Research Perspectives*, 2: 1–12.

GENCHEV, S. E. 2009. Reverse Logistics Program Design: A Company Study. *Business Horizons*, 52(3): 139–148.

GIUNTINI, R. and GAUDETTE, K. 2003. Remanufacturing: The Next Great Opportunity for Boosting US Productivity. *Business Horizons*, 46(6): 41–48.

GOVINDAN, K., SOLEIMAN, H. and KANNAN, D. 2015. Reverse Logistics and Closed-Loop Supply Chain: A Comprehensive Review to Explore the Future. *European Journal of Operational Research*, 240(3): 603–626.

HE, W.-J. and WONG, W.-C. 2011. Gender Differences in Creative Thinking Revisited: Findings from Analysis of Variability. *Personality and Individual Differences*, 51(7): 807–811.

HEBÁK, P., HUSTOPECKÝ, J., PECÁKOVÁ, I., PRŮŠA, M., ŘEZANKOVÁ, H., SVOBODOVÁ, A. and VLACH, P. 2007. *Vícerozměrné statistické metody*. 2nd edition. Praha: Informatorium.

HERVANI, A. A., HELMS, M. M. and SARKIS, J. 2005. Performance Measurement for Green Supply Chain Management. *Benchmarking: An International Journal*, 12(4): 330–353.

HOLANDA, L. C. M. and FRANCISCO, A. C. 2013. Consumer's Perception of the Products Made with Recycled Components: Case Study from the Course of Administration of the Faculty of Campina Grande – FAC. *Espacios*, 34(10): 1–9.

HORNUNGOVÁ, J. 2015. Methodology for Selection of Economic Performance Factors in the Area of Information and Communication Activities. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 63(2): 533–537.

HORNUNGOVÁ, J. 2014. Development of Concepts and Models of Performance Evaluation from the 19th Century to the Present. *DANUBE: Law and Economics Review*, 5(2), 143–154.

HORNUNGOVÁ, J. and KLÍMKOVÁ, M. 2013. The Relationship of Environmental and Economic Performance. *Scientia & Societas*, 9(4): 207–217.

HSUEH, CH.-F. 2011. An Inventory Control Model with Consideration of Remanufacturing and Product Life Cycle. *International Journal of Production Economics*, 133(2): 645–652.

KLAPALOVÁ, A., ŠKAPA, R. and KRČÁL, M. 2012. *Specifika řízení zpětných toků*. Brno: Masarykova univerzita.

KOLLER, T., GOEDHART, M. and WESSELS, D. 2010. *Valuation: Measuring and managing the value of companies*. New Jersey: John Wiley & Sons.

KOTLER, P. and KELLER, K. L. 2012. *Marketing Management*. 14th edition. New Jersey: Pearson Education.

KOUDELKOVÁ, P. 2014. Znalosti v oblasti managementu inovací a jejich dopady na tvorbu inovací. *Scientia & Societas*, 10(3): 117–126.

KUDLATS, J., MONEY, A. and HAIR, J. F. 2014. Correspondence analysis: A promising technique to interpret quali-tative data in family business research. *Journal of Family Business Strategy*, 5(1), 30–40.

LEBRETON, B. and TUMA, A. 2006. A Quantitative Approach to Assessing the Profitability of Car and Truck Tire Remanufacturing. *International Journal of Production Economics*, 104(2): 639–652.

LEE, M. S., HSIAO, H. D. and YANG, M. F. 2011. The study of the relationships among experiential marketing, service quality, customer satisfaction and customer loyalty. *The International Journal of Organizational Innovation*, 3(2), 353–379.

LEE, C. K. M. and LAM, J. S. L. 2012. Managing Reverse Logistics to Enhance Sustainability of Industrial Marketing. *Industrial Marketing Management*, 41(4): 589–598.

MALLIN, M. L. and FINKLE, A. 2007. Social entrepreneurship and direct marketing. *Direct Marketing: An International Journal*, 1(2): 68–77.

McGARIGAL, K., CUSHMAN, S. and STRATFGORD, S. 2000. *Multivariate statistics for wildlife and ecology research*. New York: Springer.

MIHI RAMIREZ, A. and GIRDAUSKIENE, L. 2013. Creation of knowledge and reverse logistics: Empirical analysis from perspective of the reverse based view theory. *Engineering Economics*, 24(5): 478–487.

MRÁČEK, P., MUCHA, M. 2015. The usa of knowledge management in market communication of small and medium-sized companies. *Procedia: Social and Behavioral Sciences*, 175: 185–192. Doi: 10.1016/j.sbspro.2015.01.1190

NAJMI, A., HAQ, M. A., MAJEED, S. and KHAN, N. R. 2014. Effects of product's warranty on customers' preferences: empirical findings on reverse logistics models. *LogForum*, 10(3): 305–317.

NEIL, S., MCKEE. D. and ROSE, G. 2007. Developing the organization´s sense making capability: Precursor to an adaptive strategic marketing response. *Industrial Marketing Management*, 36(6): 731–744.

NIKOLAIDIS, Y. 2013. *Quality management in Reverse Logistics: A Broad Look on Quality Issues and Their Interaction with Closed-Loop Supply Chain*. London: Springer.

O'LEARY-KELLY, S. W. and FLORES, B. E. 2002. The integration of manufacturing and marketing/ sales decisions: Impact on organizational performance. *Journal of Operational Management*, 20: 221–240.

PERNICA, P. 2005. *Logistika: Supply Chain Management*. Praha: Radix.

POLLARD, D. and ŠIMBEROVÁ, I. 2012. Marketing in high-technology firms. *In: 7th International scientific conference business and management 2012*. 465–471.

RAHMANI, S. and LAVASANI, M. G. 2012. Gender Differences in Five Factor Model of Personality and Sensation Seeking. *Procedia - Social and Behavioral Sciences*, 46: 2906–2911.

ŘEZANKOVÁ, H. 2010. *Analýza dat z dotazníkových šetření*. 2nd edition. Praha: Professional Publishing.

SCHMITT, B. 1999. *Experiential Marketing: How to Get Customers to Sense, Feel, Think, Act, Relate to Your Company and Brands*. New York: The Free Press.

SIU, W. 2002. Marketing activities and performance: A comparison of the Internet-based and traditional small firms in Taiwan. *Industrial Marketing Management*, 31(2): 177–188.

SMILANSKY, S. 2009. *Experiential marketing: A practical guide to interactive brand experiences*. London: Kogan Page.

TOMEK, G. and VÁVROVÁ, V. 2011. *Marketing: Od myšlenky k realizaci*. 3rd edition. Praha: Professional Publishing.

TOPPINEN, A., TOIVONEN, R., VALKEAPÄÄ, A. and RÄMÖ, A.-K. 2013. Consumer Perceptions of Environmental and Social Sustainability of Wood Products in the Finnish Market. *Scandinavian Journal of Forest Research*, 28(8): 775–783.

WADHWA, S. and MADAAN, J. 2004. *Role of Quality Management Self-Assessment Model to Promote Reverse Logistics Operations*. Bangkok: International Conventions on Quality Control Circles.

WADHWA, S. and MADAAN, J. 2006. Intelligent agent technology for reverse logistics. *Information Control Problems in Manufacturing*, 12(1): 215–220.

WINER, R. S. 2009. New communications approaches in marketing: Issues and research directions. *Journal of Interactive Marketing*, 23(2): 108–117.

WU, P. C. S. and WANG, Y.-C. 2011. The influences of electronic word-of-mouth message appeal and message source credibility on brand attitude. *Asia Pacific Journal of Marketing and Logistics*, 23(4): 448–472.

ZICH, R. 2010. Koncepce úspěchuschopnosti a její pojetí strategie. *E a M: Ekonomie a Management*, 10(1): 60–74.

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