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## Appraisal of driving forces in the reverse distribution channel in the Slovak Republic

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### Abstract

The opinions emphasizing the need of so called reverse distribution and reverse logistics appeared in academic literature on marketing already in the 1970s. They dealt with a systematic move of waste generated in the distribution channel for the purpose of its transformation to usable materials. Changes in the material flows in distribution channels therefore represent both a challenge and an opportunity for managers in association with a change in the concept of rational marketing management. The motivation of customers is of special importance in such an approach, as they need to be sufficiently motivated in order to understand their role of “producers”, and, accordingly, to behave actively, as customers are the driving force in reverse distribution channels. The implementation methods associated with the reverse distribution concept include the activities of retailers, or other members of the distribution channel, for instance the take-back of recyclable materials. Therefore, the perception and assessment of preparedness of ultimate customers for their tasks in the processes of such a distribution in the Slovak Republic (on the grounds of a research with the participation of a representative sample size of 1,820 respondents) are dealt with in the paper. Based on a secondary data analysis, the preparedness of retail institutions for the reverse distribution concept is assessed. The outcome of the paper is a confrontation of the perspectives of two (most significant) entities involved in the reverse distribution channel.

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## 1. Literature Review

The purpose of distribution is to ensure that products are available to customers at the right time, in the right amounts and at the right place under optimized costs [1, 2]. Reverse material flows need to become common activities in the distribution channel in order to implement a sustainable distribution strategy, thus transforming the distribution channels into so called distribution cycles, in which customers, or end users of the product, play the role of suppliers of the materials and components for processors and producers. Considerable reduction of (natural) resources and their transformation into waste can occur in the traditional distribution channel. Resources are used, value is added and waste is generated in every step of the distribution channel.

As far as the distribution cycle is concerned, the generated non-degradable waste is converted into raw materials, which can be processed in further manufacturing processes [3]. The value is created in every step and process [4] however natural resources remain almost unimpaired.

With respect to the fact that materials remain in the separate distribution cycles, they become resources for further manufacturing processes (instead of waste), and their value thus increases [5, 6, 7]. This approach results in financial benefits for customers as well as other distribution channel members due to the sound management of resources, consolidation and return in the distribution cycle. In a number of cases, however, the customers do not request a direct financial compensation (for instance for waste recycling) but prefer the savings associated with waste containers, charges for hazardous waste disposal, applying to electronics, light bulbs, medicines, toxic materials (e. g. motor oil, batteries), for which special care is required in order to ensure their safe recycling.

The take-back of materials (or products after the end of their life cycle) and facilitation of their flows in the distribution cycles can be a significant business opportunity, as “closing the loop” in the distribution cycle has several advantages [8]:

- it prevents the hazardous waste from contaminating the environment,
- it enables converting the waste and expenses related to its disposal into the sources of income,
- it is capable of ensuring the suppliers of materials who do not cause damage to natural resources and natural capital in the industry the organisation operates [9],
- from the perspective of building the human capital, the creation of new jobs is enabled [10, 11].

Waste generated in a certain industry is frequently suitable for use in another industry, which enhances sustainability through the cooperation between industries (without an apparent connection at first sight, e. g. clothing or textile industry and processing industry). The governments at different levels, as the creators of adequate legislation, are the initiators and bearers of responsibility in the processes of transformation into (sustainable) distribution cycles.

### Nomenclature

Sustainable distribution	Distribution respecting and following the principles of sustainability, enhancing the performance of organisations, conveying the value to customers, and participating in the building of environmental and human capital.
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## 2. Objective and Methods

The purpose of the article is to identify the preparedness of ultimate customers for their tasks in the reverse distribution processes in the Slovak Republic based on the conducted primary marketing research, and to confront it with the analysis of secondary data referring to the preparedness of retail organizations for the reverse distribution concept. The results presented in the paper are based on primary, representative, quantitative and qualitative research, while the main role in the qualitative research is played by motivating factors, which are available to ultimate customers, including the instruments currently applied in the processes associated with moving the products and services from their place of production at the place of their consumption (on motivation, see e. g. [12, 13]). The research was conducted from September to November 2015. The reliability of the results of the conducted research was at the level of 95 % with precision of 3 %, while the sample size represented 1,820 respondents. The sample

represented an adult population of Slovakia based on gender, age, education, nationality, regional representation and size of seat.

### 3. Results

The questionnaire used in the research contained a set of questions comprehensively covering the issue of practices used in marketing management from the perspective of ultimate customers (many of them can be included among so called deceptive practices – for more information on deceptive practices, see e. g. [14]). In order to achieve the objective of the paper, the part to which distribution, particularly the reverse distribution, was central was evaluated. The first question was intended as the filter question, as the interviewed were asked whether they had noticed the activities of retail institutions associated with the reverse distribution (for instance in the form of leaflets at a point of sale, marketing communication instruments or others [15]). The interviewed who marked that they had been familiar with the reverse distribution activities were further asked to specify particular retail organizations (the businesses they operate in, not their business names). The third question was associated with the motive which had resulted in their desirable active behaviour. The first filter question was also helpful in the last question, as it raised the question why the interviewed did not behave desirably, i.e. why they ignored the reverse distribution activities. The qualitative question, which was also the basis of the secondary data analysis, was an open question, asking the interviewed to specify particular retail institutions whose activities they associated with the reverse distribution activities.

Table 1 The positions of the interviewed on whether they had noticed the reverse distribution activities of retail institutions

The position on the reverse distribution activities	Percentage of the interviewed
Noticed the reverse distribution activities	37 %
Did not notice the reverse distribution activities	63 %

Source: Own research

Table 1 contains two positions which functioned as the filter intended to uncover whether the interviewed had noticed the activities of retail institutions associated with the reverse distribution (while an exemplary calculation of the reverse distribution activities was provided in brackets). The share of the interviewed who had noticed such activities (37 %) was used as the basis upon the analysis of the following question, dealing with the specification of occurrence (the business in which the given retail institutions operate).

Table 2 Reverse distribution activities in retailing, which were marked by the interviewed who had noticed such activities

The business of operation of the retail institution in which the reverse distribution activities were noticed by the interviewed	Percentage of the interviewed
Electronics retailer	37 %
Pharmacy	33 %
Mobile operator	25 %
Clothing retailer	5 %

Source: Own research

Table 2 presents the answers of the interviewed who had been familiar with the reverse distribution activities of retail institutions (i.e. 37 % of the interviewed in the first question represented 100 % in the second question). The business marked by the greatest number of the interviewed who had noticed the reverse distribution activities (37 %) was electronics retail selling (also including the disposal of waste batteries). An example of how the electronics retailers communicate such activities will be provided below in the secondary data analysis.

Pharmacies ranked second with 33 %. Like in the case of electronics, the issue of the take-back of medicines is also regulated by legislation. The obligations and procedures of the take-back and disposal of unused medicines are stipulated for pharmacies. The issue falls within the competence of several central government authorities (e. g. The Ministry of Health of the Slovak Republic or The Ministry of Environment of the Slovak Republic). In 2016, the

State Institute for Drug Control, which is the government authority concerned with human pharmacy, issued Guideline No. 105/2016, dealing with the disposal of unused medicines by individuals [19]. For the need of the article, term individuals will be simplified to ultimate customers, as these are an important entity in the processes of eliminating environmental pollution and health risks of people through the disposal of unused medicines as hazardous waste and their separation from non-hazardous waste (the environmental objective of the reverse distribution is primarily visible in this case). Based on the data provided by the State Institute for Drug Control average 100,000 kg of waste from unused medicines are yearly disposed of in incinerators, burdening the state budget with € 300,000. The excessive quantity of unused medicines is also costly for the ultimate customers – they first pay for the medicines (whether individually or through health insurance companies), and then for their disposal. Based on the data of the National Health Information Centre [20] 83.6 million packages of prescribed medicines and 37.3 million packages of over-the-counter medicines were given out in 2015. With regard to the aforementioned data, it is necessary to ensure the correct handling with medicines by the ultimate customers. Every package includes the information that unused medicines are to be returned to the pharmacy. It can be assumed on the basis of the aforementioned facts that the ultimate customers are sufficiently aware of this reverse distribution activity.

The third analysed question aimed at identifying the intrinsic motivation of almost 40 % of the interviewed who declared that they had noticed the reverse distribution activities. The motives of active behaviour, i.e. use of the reverse distribution activities, were divided into financial and non-financial motivating factors, as provided in Table 3.

Table 3 Financial and non-financial motivating factors leading to the use of the reverse distribution activities of retail institutions

Motivating factor	Percentage of the interviewed
Financial adjustment (reward, discount, rebate)	39 %
Environmental perspective	32 %
Disposing of unnecessary things	17 %
The feeling of satisfaction	12 %

Source: Own research

The obtained results provide a clear conclusion that the financial factor is the most significant from the viewpoint of motivation. The financial adjustments are used by retail institutions, see below, as well as states, respectively governments, especially in an effort to help car factories handle problems due to the effects of economic downturn (e. g. The Federal Republic of Germany, the Slovak Republic), and in an effort to support the purchase of new alternative fuel vehicles (e. g. The Czech Republic [21, 22]). The environmental perspective was marked by 32 % of the interviewed, ranking this non-financial factor second. Two further non-financial factors are interconnected however they were only marked by a small number of the interviewed.

The last quantitative question was aimed at identifying the cause of passive behaviour or inactivity in using the reverse distribution activities (i.e. it was focused on the remaining more than 60 % of the interviewed). All five options available to the interviewed were non-financial, while room was left for providing particular reasons of their approach.

Table 4 Non-financial factors leading to the nonuse of the reverse distribution activities of retail institutions

Non-financial factor	Percentage of the interviewed
I forget	37 %
I consider my contribution to be insignificant	18 %
Long distance from the organisation, disabling the active behaviour	18 %
Mistrust	17 %
Laziness	10 %

Source: Own research

Table 4 suggests that the nonuse of the reverse distribution activities is mostly due to the behaviour typical of individuals – forgetting. As this question included an open possibility of providing particular reasons of such a behaviour, the analysis of answers indicated that more than 75 % of the interviewed would have behaved differently had they not forgotten, for instance: “I know the batteries should be returned, I put them aside at home, but I always remember it once I am in the shop”. The aforementioned indicates that the greatest emphasis should be put on increasing the awareness in order to embed the need of active behaviour in the minds of ultimate customers (even though it is very difficult to determine who should initiate such efforts – organizations, state, educational institutions, etc.) [23]. The remaining four options were marked approximately equally and were also associated with the attributes typical of the behaviour of individuals.

In the secondary data analysis, focused on identifying the preparedness of retail institutions for the reverse distribution concept, retail institutions marked by the interviewed in the last qualitative question were selected.

Table 5 Particular reverse distribution activities of retail institutions marked by the interviewed in the research

Retail institutions (business of operation)	Specification of the reverse distribution activities
NAY (electronics retailer)	<p>The disposal of small quantities of electronic waste, with the external dimension of up to 25 cm, and lighting waste (bulbs, fluorescent lamps and small electrical household appliances such as toasters, hair dryers, kettles, shavers, smart phones, etc.). Customers can bring these anytime to the point of sale, where they will be accepted and their disposal in an ecological manner will be ensured.</p> <p>The disposal of other electronic waste delivered to the point of sale by customers (vacuum cleaners, refrigerators, TV sets, etc.) Based on the legislation these can be only accepted upon the purchase of a new appliance of the same kind.</p> <p>The disposal of other electronic waste and its transport from home. The removal is ensured upon delivery of a new appliance of the same kind within the service “Comfortable Transport Home” (paid service). Based on the legislation, these can be only accepted upon the purchase of a new appliance of the same kind. The customer does not have to carry their old appliances downstairs, a worker will do it for them within the service “Comfortable Transport Home”. The organisation will subsequently ensure their disposal in an ecological manner.</p>
Dr. Max (network of pharmacies)	<p>Dr. Max is constantly seeking new ways and procedures how to be helpful in the area of social responsibility. As they care about environment they have engaged in the environmental project in support of the waste management. In cooperation with the civil association organisation EKOrast, they help people separate waste properly by means of a mobile application Green Bin. The application offers navigation for different types of waste. Dr. Max has engaged in the support of collection of old unused medicines. By means of the GPS application Slovak citizens are offered the nearest Dr. Max pharmacy, where they can return the medicines. Proper recycling of medicines and environmental protection are ensured by the support of returning old medicines back to pharmacies.</p>
Orange Slovensko (mobile operator)	<p>“I want to get the best from my old mobile phone.” The customer is able to return their old mobile phones to the store, thus ensuring their recycling in an ecological manner and contributing 50 cents for each to families in need. 15 drawn customers win the Samsung Galaxy S7 Edge gold 32 GB every month.</p>
Intimissimi (network of clothing stores)	<p>“Intimissimi loves environment and is therefore environmentally friendly.” In cooperation with I:CO it gives a second chance to discarded textiles by creating material for further use after their recycling. The customer receives a voucher (with a value ranging from EUR 1 to 3) for every returned piece (no purchase necessary).</p>

Source: own processing based on the information provided on the websites of the organisations.

#### 4. Conclusion

The following conclusions were drawn from the comparison of primary and secondary research. Clearly, there is room for improving the awareness of ultimate customer on the market. The fact that quite a high number of customers would be willing to behave desirably, however they “forget”, appears positive. It is therefore a task of a number of entities involved in the modern marketing management (for-profit organisations, non-profit organisations, civil initiatives, educational institutions at several levels, state apparatus, etc.) to sufficiently communicate the purpose of the reverse distribution in order to clarify the role of the driving force for ultimate customers.

It can be concluded from the perspective of the analysed organisations, respectively their representatives selected especially with the view to the market shares that they respect the obligations prescribed by law; only one of the analysed organisations provided financial rebates to customers upon returning unnecessary products (clothes in this case) to the store. With regard to the fact that the modern marketing management system is currently comprehensive and interconnected, such entities will probably have to take certain responsibility in educating the ultimate customers on the basis of their position in the reverse distribution.

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## References

- [1] Daňo, F., Kíta, P. Distribučný manažment. 3. doplnené vydanie. Daniel Netri: Hronský Beňadik, 2009, 232 s.
- [2] Ceniga, P., Šukalová, V. Logistika v manažmente podniku. Žilina: EDIS, 2012, 288 s.
- [3] Fidlerová, H. Spätná logistika ako naplnenie konceptu udržateľného rozvoja a súčasť vízie z kolisky do kolisky. In: Vysoká škola jako facilitátor rozvoje spoločnosti a regionu, 2013, s. 95-98.
- [4] Papula, J., Papulová, Z., Papula, J. Konkurenčné stratégie: tradičné prístupy vs. nové pohľady a techniky. Bratislava: Wolters Kluwer, 2014, 174 s.
- [5] Klapalová, A. Product and Process Innovation frp Reverse Supply Chain and Network Management. In: Proceedings of the European Conference on Innovation and Entrepreneurship. Vol. 2015 (January), pp. 366-374.
- [6] Jurová, M., Juřica, P. Management of Reverse Logistics in Business Processes. In: Proceedings of the 26th International Business Information Management Association Conference – Innovation Management and Sustainable Economic Competitive Advantage: From Regional Development to Global Growth 2015. Vol. 2015 (November), pp. 2266-2271.
- [7] Škapa, R. Reverse Logistics: Relationship Between Planning, Strategy and Profitability. In: Congress Proceedings: Carpathian Logistics Congress 2012. Vol. 2012 (November), pp. 100-106.
- [8] Pajtinková Bartáková, G., Gubíniiová K.. Udržateľný marketingový manažment. Bratislava: IAM Press, 2012, 241 s.
- [9] Beniak, J., Křižan, P., Svátek, M. Modern and Ecological Materials for Fused Deposition Modeling of Rapid Prototyping Technology. In: ERIN 2015: Proceedings of Abstracts of the 9th International Conference for Young Researchers and PhD Students. Praha: CTU Publishing House, 2015, p. 24.
- [10] Stanek, D., Kútna Želonková, I. Tieňová ekonomika, hospodárska kriminalita a daňové úniky. In: Bratislavské právnické fórum 2015. Bratislava: Univerzita Komenského v Bratislave, 2015, s. 1340-1347.
- [11] Fröhlichová, I. Úloha ľudského kapitálu v podniku. In: Acta Facultatis Iuridicae Universitatis Comenianae, Vol. 25/2007. Bratislava: Univerzita Komenského v Bratislave, 2007, s. 75-87.
- [12] Hitka, M., Balážová, Ž. The Impact of Age, Education and Seniority on Motivation of Employees. In: Journal Business: Theory and Practice. Vol. 15, No. 1. Litva: Vilnius, 2015.
- [13] Stachová, K., Stacho, Z. Employee Allocation in Slovak Companies. In: Business: Theory and Practice, 2013, Vol. 14, No. 4, pp. 332-336. Litva: Vilnius, 2013.
- [14] Boush, D., Friestad, M., Wright, P. Deception in the Marketplace. The Psychology of Deceptive Persuasion and Consumer Self Protection. New York: Routledge, 2009, 264 p.
- [15] Hesková, M., Štarchoň, P. Marketingová komunikace a moderní trendy v marketingu. Praha: Oeconomica, 2009, 180 s.
- [16] Zákon č. 79/2015 Z. z. o odpadoch a o zmene a doplnení niektorých zákonov v znení neskorších predpisov.
- [17] Krošlák, D., Nevolná, Z., Olšovská, A. Podnikateľské právo. Bratislava: Wolters Kluwer, 2014, 290 s.
- [18] Škrinár, A., Nevolná, Z., Kvokačka, L. Fundamentals of Slovak Commercial Law. Plzeň: Vydavatelství a nakladatelství Aleš Čeněk, 2009, 143 p.
- [19] Štátny ústav pre kontrolu liečiv, Zneškodňovanie liekov nespotrebovaných fyzickými osobami. [http://www.sukl.sk/buxus/docs/Inspekcia/Odpady/MP\\_105-2016\\_\\_\\_Zneskodnovanie\\_liekov\\_nespotrebovanych\\_fyzickymi\\_osobami.pdf](http://www.sukl.sk/buxus/docs/Inspekcia/Odpady/MP_105-2016___Zneskodnovanie_liekov_nespotrebovanych_fyzickymi_osobami.pdf), 2016 (accessed 28. 12. 2016).
- [20] Národné centrum zdravotníckych informácií, Spotreba humánných liekov a zdravotníckych pomôcok v SR 2015. <http://www.nczisk.sk/Documents/publikacie/2015/sp1601.pdf>, 2016 (accessed 28. 12. 2016).
- [21] Klapalová, A., Škapa, R. Companies' Approach to Reverse Flows Management: The Case of the Czech Republic. In: Piotrowicz, W., Cuthbertson, R. Supply Chain Design and Management for Emerging Markets: Learning from Countries and Regions. Springer International Publishing, 2015, pp. 311-345.
- [22] Škapa, R., Klapalová, A. Reverse Logistics in Czech Companies: Increasing Interest in Performance Measurement. In: Management Research Review, 2012, Vol. 35, No. 8, pp. 676-692.
- [23] Solarová, P. Angažovanost spotrebiteľů v maloobchodě – získání námětů. In: Marketing Science & Inspirations, 2014, Vol. 9, No. 1, s. 16-25.