

## CUSTOMER SATISFACTION AND DRIVERS AND EFFECTS OF REVERSE LOGISTICS MANAGEMENT

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### Abstract

Customer satisfaction represents one of the main drivers of reverse logistics management besides other financial and nonfinancial reasons of interest to engage in managing reverse flows. Customer satisfaction thus should be also one of the performance effects or outcomes of reverse logistics management. However, the link between a driver and an effect need not to be simple and straightforward due to the complexity of reality. The aim of the paper is to present results of the analysis of the rankings of reverse logistics management drivers and effects and correlations of customer satisfaction as the driver with different measures of effects of reverse logistics management. The findings from the empirical survey of 54 enterprises indicate that there is strong relationship between the level of perceived importance of this driver and perceived level of several prevalently market and effectiveness oriented effects on the contrary to efficiency oriented effects.

**Keywords:** Reverse logistics management, drivers, effects, customer satisfaction

### 1. INTRODUCTION

Customer satisfaction within the existing theory as the reason why enterprises deal with reverse logistics used to be introduced for the most part as just one among many other and more significant and important motives or drivers and the same can be pronounced about this indicator as the effect of reverse logistics management. More detailed knowledge of the position and existing linkages among and with other drivers and effects is - despite the relative dominance of the customer satisfaction in performance management issues - missing.

Thus the aim of this paper is to answer following research questions:

1. What is the position of individual drivers of reverse logistics management perceived by managers?
2. How are the effects of reverse logistics management associated with the customer satisfaction as the driver being expected as one of the most important drivers?

and to initiate discussion on the changes in the environment and changing management of reverse logistics.

### 2. THEORETICAL GROUNDING

Customer satisfaction is considered to be one of the most important - if not the most important - indicator of performance of any enterprise and the main component of future profitability [1] and sustainable success on marketplace [2]. Empirical findings prove that satisfaction leads to the loyalty and repurchase intention and behavior and to positive reputation and word of mouth [3], [4], [5], [6]. High customer satisfaction could have impact on financial results of business - on profit, stock market valuation, cash flow, Tobin's q or long-term revenues - although no direct established link between satisfaction and financial performance is detected and the path could be more or less direct [3], [7], [8], [9], [10]. This measure is related also to productivity issues where enterprises with highly satisfied customer devote fewer resources to handle returns, reworks, complaints etc. [11].

Customer satisfaction can serve as the driver for management as well as the goal or targeted result of management in any type of organization, on any type of market. It is an universal indicator of performance that stands behind and around other performance indicators. It can be understood as the product related, process

related and relationship quality related measure. Especially the last one introduced point of view is of high relevance in business to business market [12]. Especially in recent years the interest in and the need for reverse logistics management has rapidly growing tendency [13]. A part of research is dedicated also to driving forces, results and effects of this part of management [14]. Customer satisfaction in reverse logistics management is approached from several different angles, for instance as the quick and efficient response to needs of customer to handle the returns or liberal return policy [15], [16], [17], [18], [19], [20], [21].

Despite this fact, more recent knowledge of the importance of customer satisfaction in reverse logistics management is missing as well as investigation of relation between this measure (as the driver and/or effect of reverse logistics management) and other issues.

### 3. METHODS

To get answers to the research questions the empirical survey was employed. Standardized questionnaire includes questions which relate to the different areas of reverse logistics management with one asking for perceived driving forces (or reason or motives) to manage reverse flows and to deal with reverse logistics issues and one asking for the effects or outcomes of performed reverse logistics management. Both questions are semi-opened with the list of possible answers (13 drivers and 14 effects) and respondents were given the space to mention also some other answers not introduced in the lists, which are not part of analysis presented in this paper. Nine drivers are the same as the effects (although wording of effects was slightly different in some cases)

Both questions have the character of scale from 1 (“no perceived impact on management” with drivers and “I absolutely disagree” with effects) to 7 (“very high impact on management” with drivers and “I absolutely agree” with effects).

Respondents were contacted through various channels, mostly through the personal contact of the members of research team. All of them hold some managerial function in the enterprises. The level of knowledge and practice of reverse flows or reverse logistics management was one of the questions within the process of finding the relevant respondents. Finally 54 answers from the same number of enterprises entered the analysis. Descriptive statistics, more specifically Means and Standard Deviations of answers related to drivers and effects and Spearman Rank Correlation (due to the distribution of answers) calculated with the help of SPSS statistical software, were employed. The strength of associations were evaluated based on De Vaus recommendations [22].

### 4. RESULTS

33 (61.1%) of enterprises belong to manufacturing, the rest of 21 firms (38.9%) to service industries. 23 (42.6%) enterprises are small (below 50 employees), 17 (31.5%) to middle-sized (below 250 employees) and 14 (25.9%) to big enterprises (250 and more employees).

**Table 1** presents rankings of drivers and effects of reverse logistics management according the level of perceived impact and outcome of both variables. Customer satisfaction is the most important driver followed with another one that is closely linked to satisfaction, namely customer loyalty. Company image and differentiation from competitors hold the third and fourth positions and they are interconnected to each other as well as with the first two drivers. The fifth rank is occupied with the internal oriented driver - the possibility to get feedback concerning production processes and their quality. Also the following positioned driver - profitability (6<sup>th</sup>) - has an internal orientation. Mixed internal - external orientation may be attributed to the next driver (7<sup>th</sup>) - compliance with legislation. Two drivers - cost reduction and competitive reason (competitive press) - hold both the 8<sup>th</sup> rank. Another internally oriented driver - productivity increase - belongs to the less important ones together with reduction of impact on environment. Last two ranks are taken with the driver of being socially responsible through reverse logistics management and with the possibility to capture some

value. This driver was probably also not well understood by the respondents - only 41 of them answered this question, while all 54 dealt with all other drivers.

The results differ more or less with the perceived effects of reverse logistics management. The first and the second ranks swapped, i.e. it is the customer loyalty as being sustained and maybe even increased as the strongest effect of the effort with the growth of customer satisfaction on the second rank. What is the same is the position of four effects acting as drivers as well - company image improvement (3<sup>rd</sup>), differentiation (4<sup>th</sup>) profitability growth (6<sup>th</sup>) and productivity increase (9<sup>th</sup>). Three drivers rank higher in the role of effects - compliance with legislation (from 7<sup>th</sup> to 5<sup>th</sup> position); cost reduction (from 8<sup>th</sup> to 7<sup>th</sup>) and position of fulfilment of corporate social responsibility policy (from 11<sup>th</sup> to 8<sup>th</sup>).

**Table 1** Drivers and effects of reverse logistics management - descriptive statistics

Drivers of reverse logistics management	Mean	St. Dev.	ranking	Effects of reverse logistics management	Mean	St. Dev.	ranking
customer satisfaction	5.704	1.6782	1.	higher customer satisfaction	4.9259	1.72498	2.
cost reduction	4.222	2.2626	8.	cost reduction	3.7593	2.05523	7.
productivity increase	4.056	2.1405	9.	productivity increase	3.5556	1.70091	9.
sustaining and growth of customer loyalty	5.648	1.7926	2.	sustaining and growth of customer loyalty	5.0000	1.75907	1.
company image improvement	5.500	1.6682	3.	company image improvement	4.8519	1.78471	3.
differentiation from competitors	4.667	1.9715	4.	differentiation from competitors	4.2407	2.05523	4.
compliance with legislation	4.333	2.2149	7.	compliance with legislation	3.9630	2.09188	5.
fulfilment of corporate social responsibility policy	3.741	1.9540	11.	fulfilment of corporate social responsibility policy	3.6852	2.08158	8.
company profitability growth	4.4630	2.04398	6.	company profitability growth	3.8704	1.73799	6.
value recapturing	3,415	2,2469	12.	time reduction for reverse flows processing	3,5556	1,92958	9.
getting the feedback about production	4,6111	1,99449	5.	entry to new markets	3,2778	2,05046	11.
competitive reasons	4.222	2.0250	8.	decrease of stock level	3.0741	1.99860	12.
reduction of impact on environment	3.9630	2.28170	10.	product innovation	3.5185	1.95941	10.
				new products for new markets	3.0556	1.84715	13.

Surprisingly, customer satisfaction as the driver does not correlate perfectly with higher customer satisfaction as the effect - although the association may be described as substantial or strong ( $r_s = .602$ ,  $p < .01$ ) - see **Table 2**. It is the effect of customer loyalty ( $r_s = .686$ ,  $p < .01$ ), company image improvement ( $r_s = .629$ ,  $p < .01$ ) and the possibility to develop and produce new products and/or enter new markets ( $r_s = .606$ ,  $p < .01$ ) as the results of reverse logistics management and pursuing the customer satisfaction aim where the association is stronger. The last two effects ranked very low when evaluating their impact as the individual outputs of reverse logistics management by respondents. Nevertheless the more customer satisfaction acts as the driving force the more these effects are perceived.

Strong association is detected also with product innovation ( $r_s = .549, p < .01$ ), yet this result is linked to the above introduced effect of new products. The same conclusion can be made with the entry to new market as the effect ( $r_s = .494, p < .01$ ) Customer satisfaction as the driver for reverse logistics management is also substantially associated with the effect of differentiation from competitors ( $r_s = .502, p < .01$ ). Another three effects are associated substantially with customer satisfaction as the driver: fulfilment of corporate social responsibility policy ( $r_s = .485, p < .01$ ), time reduction for reverse flows processing ( $r_s = .474, p < .01$ ) and productivity increase ( $r_s = .421, p < .01$ ). The first one finding can be explained by the potential influence of the more general openness of management towards the external forces and of the understanding of mutual consequences, the explanation of the remaining two is based on quality management issues. Partial correlation coefficient of time reduction for reverse flows processing and productivity increase is not statistically significant and low ( $r_s = .169$ ).

Effect in the form of profitability growth is associated only moderately ( $r_s = .326, p < .005$ ). The correlation coefficient of the relation between customer satisfaction as the driver and compliance with legislation as the effect is small ( $r_s = .292, p < .005$ ), however statistically significant. Nearly no relation was found with two effects: cost reduction and decrease of stock level.

**Table 2** Spearman Rank Correlation coefficients of relation between customer satisfaction as the driver and effects of reverse logistics management

effects of reverse logistics management (independent variables)	customer satisfaction as a driver of reverse logistics management (dependent variable)
higher customer satisfaction	.602**
cost reduction (due to recycling, repeated use etc.)	.092
productivity increase	.421**
sustaining and growth of customer loyalty	.686**
company image improvement	.629**
differentiation from competitors	.502**
compliance with legislation	.292*
fulfilment of corporate social responsibility policy	.485**
company profitability growth	.326*
time reduction for reverse flows processing	.474**
entry to new markets	.494**
decrease of stock level	.065
product innovation	.549**
new products for new markets	.606**

\* Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed)

## 5. CONCLUSION

The results of the empirical survey confirm the importance of customer satisfaction as one of the crucial performance indicator for management also in the case of reverse logistics and expose rather surprising hierarchy of motives or reasons why enterprises engage in reverse logistics. On the contrary to the existing knowledge based on previous findings cost reduction or other financial as well as internal oriented forces are not among the most important drivers. Just the other way round, the most important drivers are considerably market focused. Despite one big limitation which is the size of sample, this finding may shift the current

knowledge about motivation to manage reverse flows, since existing published information are relatively old. Similar results with similar conclusions can be formulated in the case of effects.

The investigation of the relation between customer satisfaction as the only one driver of reverse logistics management and perceived various effects of managing the issues from this area points to the clear connection among the orientation or direction related factors. The more customer satisfaction (external) oriented management the more other externally oriented effects of effort.

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