THE IMPACT OF MARKETING EXPERIMENTS ON THE RELATIONSHIP BETWEEN SOFTWARE PRODUCERS AND THEIR RETAILERS

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Abstract: *This paper presents the results of a marketing experiment done on the Romanian software market. The main purpose of this research is to determine how the marketing campaigns of software manufacturers can influence the decisions of software retailers. Through this marketing experimental research an evaluation and an analysis of the impact that marketing policies of software companies have on the retailers from all over the country is made. Three different marketing campaigns were proposed to three groups of software vendors from the most important cities of the country. The total number of software retailers included in this experiment is of 45, and the marketing campaigns proposed by the authors in this experiment refer to the Microsoft brand. Promotion strategies such as: sales promotion by encouraging sales force and promotional pricing or even the policy of partner relationship management have a great impact on three aspects regarding software retailers: loyalty, purchase and resale intention and attitude towards a brand. The results of the experiment show a high interest for the strategy of promotional pricing. The representatives of the software vendors have a positive orientation towards sales promotion by encouraging sales force. Regarding the influences of the manipulations used in the experiment, the greatest impact on the loyalty of the software vendors it has the strategy of promotional pricing. Also the policy of sales promotion by encouraging sales force has the biggest impact on the purchase and sale intention of the software retailers. All three manipulations have also an impact on the attitude towards a brand of the vendors, but the differences are too small to determine which of the proposed stimuli has a greater impact on this aspect. The results of the experiment may help and could have a great influence on the future marketing decisions of manufacturers regarding the strategies and marketing policies used on the Romanian software market. Also, this paper represents a solid foundation for future marketing research that can involve all the stakeholders' categories from the Romanian software market.*

Keywords: *experimental research, software, stimuli, loyalty, marketing campaigns, software retailer.*

JEL classification: *M31.*

1. Introduction

The main results from carrying out a marketing experimental research are presented. Through this experiment we attempted to analyse and quantify the impact that different marketing stimuli could have over the loyalty, purchase intention and attitude toward a brand of the Romanian software retailers.

The paper aims at revealing if the software vendors from different parts of the country are influenced by marketing campaigns which involve marketing strategies

such as: promotional pricing, sales promotion or partner relationship management. This subject is approached mainly because of the changes that have occurred in the distribution channels of the international software manufacturers in Romania over the last years. In recent years, the reports of Revenue Architects (2012) show that with the increasing use of the Internet for eCommerce, many pundits have announced the death of the distribution channel for software. But now, more than ever, this channel serves an increasingly important role for the software industry, and, within just a few years, it will likely change more than any other channel in businesses globally.

It is very important now, more than ever, for marketers to better understand these changes and, most important, to understand their partners, the software retailers. Also in Romania, these changes have occurred and are affecting the distribution channels of international software manufactures.

Technology, software and IT industry in Romania has experienced significant growth in the last years. As Vuici (2012) presents, the total Romanian software and IT industry turnover exceeded EUR 9.2 billion in 2011.

2. Literature review

The ideal way of measuring the impact of marketing programs is caring out marketing experiments on territories or marketing segments homogeneous market segments. Today, many companies use different communication channels to send the desired message or their service offer to different groups to record the differences arising between them. (Kotler 2005: 110)

Information service and software marketing has similar but different aspects due to the so-called information economics. For example, to market a new software product, companies may provide customers with a test version having a three-month expiration date, a free version handling only a limited numbers of variables, or a guest account to use for a web-based system with limited functionalities. This study used a web-based system to evaluate the effects of system trial on consumers' beliefs and intentions regarding e-learning use. In particular, the following research questions guided the study: (1) Do the potential consumer groups with or without system trial experience have similar beliefs and use intentions regarding the software product? (2) Do the relationships between consumers' behavioral intentions to use an e-learning system and determinant factors differ for trial and non-trial groups? (Yao-kuei Lee, 2006: 222-244)

One of the largest experiments on the software product market was carried out in 1993, the year that, on the United States' market, agents of small software companies considered introducing a few independent variables in marketing campaigns, in order to test their impact upon the individual users' buying intent.

Therefor they introduced the following new elements in the marketing campaigns: author rights for software products were included in contracts, as well as author rights for books and media, very popular books among the young population were introduced in applications as interactive elements, educational television shows began presenting interactive computer games, the idea of nowadays artist in programming and web-design, etc. was promoted. This very high level experiment had the following effects: very good programmers succeeded to request higher tariffs for their services, the prices were maintained through increased production, programmers' agents obtained

a higher charge, the powerful expansion of using software products started to emerge. (Shea, 1983: 20)
Traditionally, marketers as agents of change attempt to find ways to influence consumers use or purchasing behavior. One of the employed methods is for consumers to experiment with the product on a limited basis and make evaluation before use or purchasing. For example, some of the common practices are: (1) giving out trial-size samples of consumer goods, (2) providing limited trial of durable goods, and (3) offering test-drive of the latest auto models. These practices are designed to make consumers aware of the new products and at the same time reduce the risk perceived by prospective buyers. (Yao-kuei Lee, 2006: 222-244)
The subjects were randomly chosen, not knowing the scenario they will take part in. The groups didn't communicate whatsoever and the scales used are the same as in the literature. (Youn, Kim, 2008:123-137, Quester, Lim, 2003: 22-38)
It must be noted that in a marketing experiment sources of internal or external validity can appear. (Aaker, Kumar, Day, 1998: 384)

3. Research methodology

From the need to have control over various conditions, marketing experiments are difficult to carry out. Various companies, including those in the software domain developed testing markets. These are certain towns or geographic areas in which marketing experiments are implemented. These testing markets are selected because they reflect competitive characteristics and consumer characteristics that are important for the companies. (Burrow, 2011: 148)
The marketing experiment allows the organiser to control over some experiment factors and comparisons between groups that are exposed to different inputs. (Hoyle, Harris, et. al., 2002: 421)
Experiment is a research method by which the variation of one or more independent variables is operated by the researcher, after which its effect on the dependent variable is measured. (Cătoiu, Bălan, 2002: 363)
The hypotheses from which this experiment started are as follows: the strategy of sales promotion has the highest influence on the purchase and resale intention of the software retailers, the strategy of promotional pricing has the biggest influence on the loyalty of the vendors and on the attitude towards a brand of the software retailers.
Microsoft is a relationship – motivated company. In the manner of the most loyal personnel, partners must work hard to demonstrate their loyalty, which is rewarded. (Dinsmore & O'Conner, 2005:73)
To confirm or infirm these assumptions, the authors have introduced three stimuli which refer to the Microsoft Certified Partner Program and marketing strategies of the company. The companies that took part at this experiment are all members of this program, but none of them has any Microsoft competences.

3.1. Defining the community, the unit of observation and sample characteristics

The researched community consists of 45 software retailers from the main important cities of Romania. The observation unit is represented by the company that sales software products and services on the local market, and the experiment includes only experimental units. For the experiment, the representatives (managers and so on) of the following retailers were interviewed: Unitech 3-Alba; Contact Infonet AG-

Argeș; Cybernet-Bacău; One IT, MultiNET-Baia Mare; Short Cut Computers 1, B2B Digital, Trendex Electronics, Zolitronic IT Solutions-Brașov; Short Cut Computers 2, Soft Expert, Multi Data Soft, Omni Tech, Convex Network, Everest Computers, Tech PC Data-Bucharest; Centrul de Calculatoare 3-Caransebeș; Centrul de Calculatoare 1-Caraș Severin, Intend Computer-Cluj Napoca; Intercris, MicroNet Systems, Silva Sistems, Top Sistems-Constanța; Centrul de Calculatoare 2-Covadar; Angelosoft Computers-Craiova; Unitech 6-Deva; Simms Computer Center-Galați; Unitech 5-Hunedoara; Avicena Computers, IQ Plus-Iași; Aibox Consult-Oradea; Unitech 2-Petroșani; Compware Systems-Râmnicu Vâlcea; Nolimits Technologies, Gerodar-Satu Mare; Unitech 1-Sebeș; Pro Info-Sfântu Gheorghe; Open Systems-Suceava; Unitech 4-Târgu Jiu; Digimax, Caro Comp-Târgu Mureș; Saratoga, M&M Medianet, Com Stas Computer-Timișoara.

3.2. Tools used for data collection and the accuracy of the scales

Collection of the data was made by using 4 questionnaires as follows:

- Questionnaire number 1 - before testing – all respondents answered - serves to highlight the structure of the sample and the homogeneity of testing units from each group. It contains questions regarding the trade of Microsoft software products, questions regarding the attitude of software retailers towards Microsoft brand, the loyalty of the retailers and also questions regarding the purchase and resale intention of these companies;
- Questionnaire number 2 - after testing for the first group (15 respondents) – partner relationship management strategy – the scenario used was: “Free access to Pinpoint Platform and to Silver Small Business Competences (Get the first Silver Small Business Competence by obtaining a minimum number of 150 unique visitors in the first month on the Pinpoint Platform through your new account that you can create free of charge in the next three months)”. The questionnaire contains topics such as the attitude towards Microsoft brand, purchase and resale intention but also questions regarding the option and view of the software retailers on the marketing campaign to which they were exposed and the other two campaigns;
- Questionnaire number 3 – after-testing for second group (15 respondents) – sales promotion by encouraging sales force strategy - scenario used was: “Participate, by purchasing minimum 150 Microsoft Windows 8 licences, to a 3-day training program in Bucharest, were your employees will be trained in the trading techniques of the new Microsoft product, the operating system Windows 8”. Contains the same batch of questions as questionnaire 2;
- Questionnaire number 4 – After-testing for third group (15 respondents) – promotional pricing strategy –scenario used was: “Get the first Silver Small Business Competence with a charge of only EUR. 300”. Contains the same batch of questions as questionnaire 2.

Accuracy of the scales used in the experiment (Likert with 5 levels) was rendered through the results of the Cronbach’s Alpha index test, the value of this test for each variable being greater than 0.60.

To highlight the stages and the process of the experiment, the following notations are used: (See Table 1)

Table 1: The notations used for the experimental research

X	The manipulated independent variable	X_1, X_2, X_3 - the independent variables used
Y_a	The dependent variable measured before the independent variable is manipulated, controlled or measured	Y1a, Y2a, Y3a - the dependent variables before exposure to experimental stimulus
Y_b	The dependent variable measured after the independent variable is manipulated, controlled or measured	Y1b, Y2b, Y3b - the dependent variables after exposure to experimental stimulus
R	The three random samples	R1, R2, R3 - random samples

The representatives of all three samples were asked to answer to the first questionnaire and after that, to the questionnaires that included the stimuli used in the experiment.

4. Research findings

Regarding the impact of the proposed stimuli on the purchase and resale intention of the software retailers, the promotion of sales has the most important influence by encouraging the sales force strategy. Next, the values recorded before and after exposure to stimuli for the means and standard deviations of the variable used to define purchase and resale intention of the retailers are presented (See Table 2):

Table 2: Means and standard deviations before-testing and after-testing for the variable "purchase and resale intention"

Observed groups	Before-testing		After-testing		No.
	Mean	Std.Dv.	Mean	Std.Dv	
Partner relationship management strategy	3,533	1,06	4,000	0,75	15
Promoting sales trough the stimulation of the work force	3,133	1,24	4,266	0,79	15
Promotional pricing policy	3,133	1,06	4,133	0,74	15

After the introduction of the manipulation, de dimension of the purchase and resale intention changed as follows: increased in the case of partner relationship management strategy, from a mean of 3.5333 to one of 4.000 (on a scale from 1 to 5), in case of promotion of sales by encouraging the sales force the variables' mean came from a value of 3.1333 to a value of 4.2666 and in the case of promotional pricing, the value of the variables' mean increased from 3.133 to 4.1333.
To see if the differences recorded for the values of the analysed variable for each group are significant, a T Paired test was applied and the results are shown in Tables 3 and 4:

Table 3: Paired Samples Statistics for the variable "purchase and resale intention"

Variable used to illustrate the purchase and resale intention of the software retailers		Mean	No.	Std. Deviation	Std. Error Mean
Pair1	Among providers, we grant greater importance to Microsoft distributers post-testing	4,1333	45	,75679	,11282
	Among providers, we grant greater importance to Microsoft distributers pre-testing	3,2667	45	1,11600	,16636

As can be seen bellow, from the test conducted, the probability, 0.00015 is less than the significance level of 0.05. So, the null hypothesis is rejected and the outcome is statistically significant. There are significant differences between the means and standard deviations before exposure to experimental stimuli and after exposure for this variable.
From the above data it can be seen that after exposure to stimuli, the mean for the analysed variable is higher for the group exposed to sales promotion policy (4.2666) compared to the values of the variable in case of the other two groups exposed (4000 and 4133).

Table 4: Paired samples Test for: "Among providers, we grant greater importance to Microsoft distributers"

Variable used to illustrate the purchase and resale intention of the software retailers		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Among providers, we grant greater importance to Microsoft distributers before-testing / Among providers, we grant greater importance to Microsoft distributers after-testing	,86667	1,40777	,20986	,4437	1,2896	4,13	44	,00015

To see if the differences between the three observed groups are significant, One Way ANOVA test is used (See table 5):

Table 5: One way ANOVA Test for: Among providers, we grant greater importance to Microsoft distributers

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	3,378	2	1,689	3,500	,039
Within Groups	20,267	42	,483		
Total	23,644	44			

The results of the ANOVA Test shows that the alternative hypotheses is accepted and that there are significant differences between the three observed groups after exposer to stimuli (Sig. = 0.039 < 0,05).
The research findings show that the impact of the promotion of sales strategy is higher than the impact of partner relationship management strategy or the impact of the promotional pricing strategy on the observation units.
Next, the results show how the promotional pricing strategy influences the dimension of software retailers' loyalty and in what measure this differs from the impact had by the other two stimuli over the observation units of the experiment.
As it can be seen in Table 6, after the exposer to stimuli, the dimensions of the retailers loyalty changed: for the group exposed to the promotional pricing strategy the mean of the analysed variable increased to 4.800, for the group exposed to the partner relationship management policy the value of the mean reached the value of 4.866 and for the group exposed to the promotion of sales, the value of the mean reached 4.8000. The most significant difference is recorded for the observed group exposed to the promotional pricing strategy.

Table 6: Means and standard deviations before-testing and after-testing for the variable "loyalty"

Observed groups	Before-testing		After-testing		No.
	Mean	Std.Dv.	Mean	Std.Dv.	
Partner relationship management strategy	4,800	0,41	4,866	0,35	15
Promoting sales trough the stimulation of the work force	4,533	0,51	4,800	0,41	15
Promotional pricing policy	4,466	0,51	4,800	0,41	15

To see if the differences recorded for the values of the analysed variable for each group are significant, a T Paired test was applied and the values obtained are shown in Table 7.
The results from the conducted test show that the probability, 0.017 is less than the significance level of 0.05. So, the null hypothesis is rejected and the outcome is statistically significant. There are significant differences between the means and

standard deviations before exposure to experimental stimuli and after exposure for this variable.

Table 7: Paired samples Test for: "We choose the brand Microsoft when we want to sell operating systems or office suites"

The tested variable		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	We choose the brand Microsoft when we want to sell operating systems or office suites before-testing/ We choose the Microsoft brand when we want to sell operating systems or office suites after-testing	22222	,59882	,08927	,0423	,40213	2,489	44	,017

To see if the differences between the three observed groups, after exposure to stimuli, are significant, One Way ANOVA test is used (See table 8):

Table 8: One way ANOVA test for: "We choose the brand Microsoft when we want to sell operating systems or office suites"

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3,244	2	1,622	4,522	,017
Within Groups	15,067	42	,359		
Total	18,311	44			

The results of the ANOVA Test show that the alternative hypotheses is accepted and that there are significant differences between the three observed groups after exposer to stimuli (Sig. = 0.017 < 0,05).

The research findings show that the impact of the promotional pricing strategy over the dimension of the retailers' loyalty is higher than the impact of partner relationship management strategy or the impact of the promotion of sales by encouraging the sales force strategy over the same dimension.

When it comes to the dimension of the attitude of the software retailers towards the Microsoft brand, the results of the analyse show that the differences, after the exposure to stimuli, between the three groups are not significant.

All three types of strategies have a positive influence over the attitude towards of a brand, but it can't be said which of the stimuli has a greater influence on the

dimension of this variable. Instead, the promotional pricing strategy has the greatest influence over the retailers' orientation to a brand.
The differences between the observed groups, after the stimuli were introduced, are not significant and the One way ANOVA test confirms this hypotheses. The results of the one way ANOVA test are shown below, in table number 9.

Table 9: One way ANOVA test for: We recommend our clients Microsoft products

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	,133	2	,067	,396	,675
Within Groups	7,067	42	,168		
Total	7.200	44			

Of the three proposed strategies, the one that the software retailers were most receptive was the one of promotional pricing (See Table 10). After the manipulations were introduced, it can been seen that the mean for the group exposed to the promotional pricing strategy has a higher value (4.200) then the values recorded for the means of group exposed to partner relationship management strategy (4.133) and of group exposed to promotion through sales (4.066).

Table 10: Means and standard deviations after-testing: "attitude towards the brand"

Observed groups	After-testing		No.
	Mean	Std.Dv.	
Partner relationship management strategy	4,133	0,35	15
Promoting sales trough the stimulation of the work force	4,066	0,96	15
Promotional pricing policy	4,200	0,67	15

The One way ANOVA test results confirm that the difference between the values obtain for the analysed groups after exposure to the stimuli are significant (Sig. = 0,026 < 0,05) and that the highest receptivity of the software vendors is recorded for the promotional pricing strategy (See Table 11).

Table 11: One way ANOVA test for: "attitude towards the brand"

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3,244	2	1,622	3,992	,026
Within Groups	17,067	42	,406		
Total	20,311	44			

After exposure to stimuli, all observation units were asked to give their opinion regarding the three marketing strategies proposed. 20 of the 45 representatives of the observation units have opted for promotional pricing strategy. Only 13 chosen the partner relationship management policy and 12 opted for sales promotion strategy.

5. Conclusions

After analysing the results we can conclude that the policy with the greatest influence of all 3 stimuli policies proposed (partner relationship management strategy; promoting sales trough the stimulation of the work force; promotional pricing policy), was the promotional pricing policy, followed by the promoting sales strategy. The last, with the weekest influence was the partner relationship management strategy.
Confirming the analised hypothesis, the impact of the promotional pricing is more powerfull regarding the retailers loyalty in comparison with the impact that partnership relation management and promoting sales had on the analised variable.
Loyalty in commercialising software products is a factor of great importance. This factor and the retailers attitude towards defferent national and international software brands are strongly influenced by the promotional prices.
Regarding which of the marketing campaigns proposed in the experiment is the software retailers' favorite one, the results show that vendors are more receptive to the campaign that envolves promotional pricing strategies.
The findings of this marketing experimental research represent a solid base for further research that can help the software products and services producers approach in a different and more constructive manner their relationship with their retailers.

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