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Cross- And Up-selling Techniques In E-Commerce Activities

Bernard F. Kubiak, PhD, Full Professor
University of Gdańsk, Department of Information Systems; High School of Tourism and Hospitality in Gdańsk

Author's Personal/Organizational Website: www.wzr.ug.edu.pl

Email: ekobk@univ.gda.pl

Dr Bernard F. Kubiak is Full Professor of Information Systems and Information Technologies at The Department of Information Systems (Faculty of Management) at the Gdańsk University. His researches and didactics focuses on informatization strategy of organization, systems analysis, knowledge and information management, ecommerce, organizational performance and electronic business strategies. He has published books and articles in many national and foreign journals and publishing houses. He has gained extensive experience as system analyst and as application specialist in formulating and realization of informatization strategy in organizations

Paweł Weichbroth, Msc,
Gdańsk University of Technology, Management Department

Author's Personal/Organizational Website: www.zie.pg.gda.pl/~pwi

Email: pwi@zie.pg.gda.pl

Msc Paweł Weichbroth is an Assistant at The Department of Management at the Gdansk University of Technology. His researches and didactics focus on expert systems, data mining and information systems. He has published eight articles in national journals and publishing houses so far. He has been Microsoft Certified Trainer for three years and holds Microsoft Certified Engineer (Security and Messaging) certificates since 2006. In spare time, he plays tennis and volleyball and reads history books.

Abstract

In the article the Cross- and Up-selling marketing techniques were presented in the spectrum of e-commerce. Their aim is to raise both the value of a single sales transaction and confidence as well as to lower the risk of taking the customers by the competitors. In the article iterative client service model was presented, indicating particular roles of the Cross- and Up-selling techniques in the processes of automation and integration marketing activities.

In the context of customer relationship management those are of great importance as they give reasons for conducting effective advertisement, promotion and loyal campaigns. The work is finished by summary in which authors pay attention to economic advantages resulting from using presented techniques.

Keywords: cross-selling, up-selling, market basket analysis, customer service, CRM

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1. Introduction

On the dynamic market, in which economy is highly dependant on informatics and telecommunications technologies, the quality of information and the processing speed are the main factors of gaining competitive advantage. The basis of the effective operational activities are derived from implementing rational strategy resulting from comprehensive obtaining, distribution and usage of information. Nowadays, apart from traditional distribution and sale channels, Internet is broadly used.

For more then a decade the dynamic development of e-commerce is being noticed all over the world, especially in the developing countries [9]. The main factor of e-commerce development is the technology in its broadest sense, which concerns running a business, altogether with the technology platform [6]. Competitive prices and easy access to technology cause that in comparison to developed countries those with lower revenue are able to provide e-commerce successfully. In April 2000 the member countries of OECD¹ endorsed two definitions of e-commerce transactions. The first one is of a broader meaning which defines [9] sale by means of "Internet, extranet, electronic data interchange (EDI) or other online systems" as electronic transactions. The narrow meaning focuses only on Internet and is called internet transactions.

In Poland e-commerce sector has been developing very dynamically. According to the report of Gemius [3] company, 11 billion PLN was spent on electronic purchases in Poland. In comparison to the previous year it constitutes increase by 36,4%.

Web Intelligence (WI) is the new active subject of study in the scope of artificial intelligence (AI) and information technology (IT). WI technologies imply a lot of revolutionary changes in the field of scientific research and Internet development. In particular there is a great potential for WI for e-commerce and its intelligence to become the main branches of WI. For B2C (business to customer) e-commerce, the private customers activity is a vital revolution. It focuses on discovering significant knowledge about the behaviour of customer purchases and implementing portal's intelligence. The intelligent portal B2C is the multifunctional gate providing various information and services within one internet service. Basic requirement for the B2C success factor is to fulfil personalised recommendations for the commodities. Because individual customers' needs have the tendency to increase, the personalised recommendations for customers become a very important issue for businesses and their customers. For the customer the personalised portal constitutes the real store suitable for the needs of anyone who can save the client's time and at the same time can give the impression of unfulfilled needs. On the other hand, the intelligent portal can attract the potential customers' needs and adapt its marketing strategies which enhance the chances of cross-selling and improve the competitiveness of website. There are a lot of research aiming to find behavioural patterns of users and realise the personalised recommendations within B2C portal.

¹ Organization for Economic Cooperation and Development (www.oecd.org).

During the last decade there were a lot of systems tested. Existing techniques include nearest neighbour algorithm, Bayes analysis, clustering techniques and many more. In general those techniques can be divided into two categories [4]: *user-based* technique, based on relationship between users (nearest neighbour algorithm, clustering) and *model-based* technique based on item relations such as association rules, probabilities a posteriori models. In the work [8] the results of Internet portal usage analysis were presented, in the form of association rules. Moreover, the proposed algorithm can be successfully used in market basket analysis.

2. The Cross- and Up-selling techniques

Cross-selling and Up-selling are well known methods, used in marketing, aiming to raise the value of a single sale transaction, increasing the confidence and reducing the risk of taking over the customer by the competitors. Cross-selling concerns selling those items which are connected or can be integrated with the commodity being sold. In presumption, Up-selling is the technique offering the customers better products and services.

2.1 The Cross-selling technique

Cross-selling is often cited as a source of competitive advantage to an existing business and as a source of synergies that justify an acquisition. This is a strategy of providing existing customers the opportunity to purchase additional items offered by the seller. Often, cross-selling involves offering the customer items that compliment the original purchase in some manner. The idea behind cross-selling is to capture a larger share of the consumer market by meeting more of the needs and wants of each individual customer. It is often used in retail sales of e-commerce such as *amazon.com* or *merlin.pl*. During the shopping of a book in a given scope, there would be visible information which other books concerning the one or similar scope were bought altogether with the selected item (fig. 1).

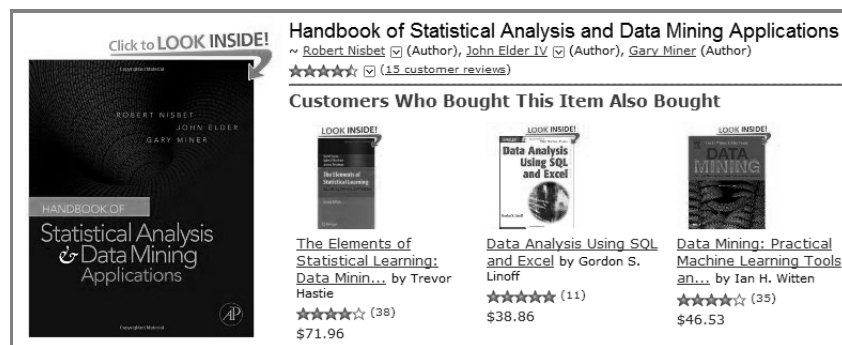


Figure 1: An example of cross-selling method (source: amazon.com)

2.2 Up-selling technique

Stephan Schiffman in [10] defines Up-selling "is what happens when you take the initiative to ask someone who already has purchased something you offer to purchase more of it - or more of something else". Up-selling means moving "up" to a more expensive version of what they're already considering purchasing, for example the 32 inch TV set instead of 24 TV set (fig. 2). The method is used after choosing the selected item by the user but before actual purchase. On the other hand, in practice such method can mean the promotion of a type: "Buy this TV set, get the film free" or advising another competitive model with the assumption of better technical performance. There are a lot of reasons for such sales promotion, but the most obvious seems to be the one of a unit profit.



Figure 2: An example of Up-selling (source: own presentation)

Upselling also takes place when there is a decision to expand a business relationship with you or your company over the long term. The process is still being improved and in the customer relation management it should not be confined only to the sale of more products.

3. Market basket analysis

The issue of market basket analysis was discussed by the authors in previously published research [13, 14] in the context of knowledge representation as association rules [14] and their visualisation [13]. The definition of market basket analysis states that it is the process aiming to identify goods [14] which are bought altogether, when and in what quantity. It should be noted that given definition results in the situation of association rules not reflecting obtained results integrally. Firstly, this is because [12], the association rule gives information in a form of "if - than". The rule consists of *antecedent* (A) „if” and *consequent* (B) „than” written in a form of $R(A \rightarrow B)$. Taking into consideration the online store *amazon.com* (fig. 1). Below the example of a two-element association rule was shown, in the following form:

R (Handbook of Statistical Analysis and Data Mining Applications →

The Elements of Statistical Learning: Data Mining, Inference, and Prediction)

Verbal interpretation of above rule gives information only about goods which were purchased altogether, without clarification of quantity and time of purchase. Secondly, association rule which is of probabilistic attributes [12] is countable in a form of two measures - *support* and *confidence* ratio reflecting the rule's degree of uncertainty. The support ratio states [11], how often the A and B products occurred together in a basket in relation to all transactions and confidence ratio defines [12] conditional probability [11] of inputting the B product to the basket provided that the A product was already there. The efficiency of marketing campaigns, performed basing on the association rules depends on the level of confidence ratio. Taking into account the way of confidence counting one should be very careful in giving evaluation. When the consequent occurs frequently enough, the confidence will be high, regardless the relationship and logical interpretation of the relationship (for example eggs and milk) [2].

From the described marketing techniques point of view, the market basket analysis results are necessary for Cross-selling method but at the same time they seem to be of little significance for the Up-selling one. Among others, one method of using Up-selling in e-commerce is to define substitution relationships between products and services. Practically, that means the system proposing to the customer a better alternative for the currently selected item.

4. Customer service model

4.1. The idea of mix- marketing

The proposed idea of mix- marketing by Neil Bordena [1] in 1964, described by 12 elements, was set in order in 1969 by E. Jerome McCarthy and is now known as *4-P mix- marketing* classification. It consists of four main elements which are as following: *product*, *price*, *place*, and *promotion*. There are a lot of companies which concentrate on processes and their management as it is thought that well organised process can stimulate the improvement of

offer's quality for both present and potential customers. According to Kotler [1], the paradigm „4P” should be replaced with „4C” which means *customer value, cost, convenience and communication*. Aforementioned change of the traditional set of seller (manufacturer) mix-marketing elements can be successfully changed into *client mix-marketing*. The classical criteria of customer segments were also devaluated, as the rule of individual approach to the customer was accepted as the priority. It serves better understanding of customers needs and preferences. Changes in the way of customer perception entailed changes in the selling methods. Apart from those mentioned above, the issue of humanisation changed traditional persuasion- oppressive selling methods for creating and maintaining long lasting relationships with customers and managing them.

4.2 The model proposal

Transaction as a specified model in a scope of customer service can be considered in three stages [1]:

1. pre-transactional,
2. transactional,
3. post-transactional.

Basing on mentioned above, including first and second stage, the model of customer service in e-commerce was proposed. The model consists of three stages (fig. 3):

1. The market basket analysis answers the questions: *what, how many, how much, to whom* it was sold.
2. Customer interaction concerns the whole spectrum of marketing activities by means of traditional (*telephone, mail*) and electronic communication (*e-mail, www*) channels.
3. Transaction concerns all processes connected with selling goods and services and feedback for the seller in the form of: *what, how many, how much, to whom* it was sold.

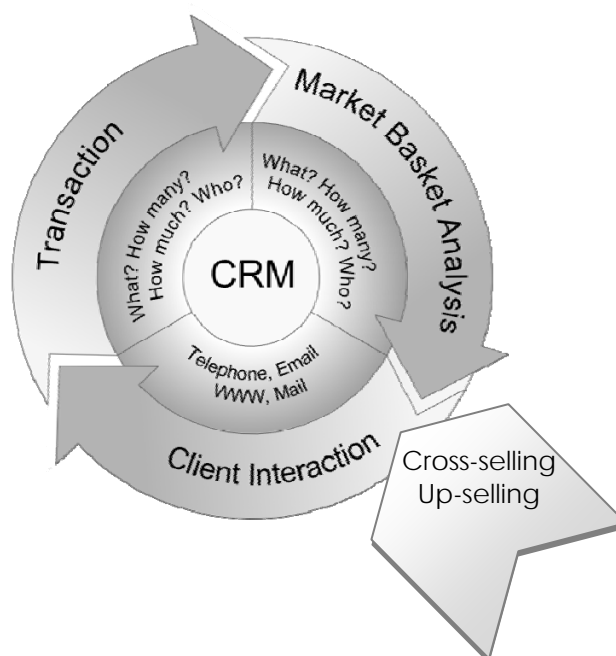


Figure 3: The client service model in a e-commerce activity

Market basket analysis concentrates on detecting “frequent” goods and services combinations in sales transactions. Input data means finished and completed transactions containing information about an item, quantity and price of goods, as well as the information

about the customer. Taking into account some of the online shops, the user, apart from obligatory records such as a *username* and a *password*, *e-mail address* and *fix abode*, is obliged to provide demographical data such as *gender*, *date of birth* or even *interests* (less frequent). Basing on such data the analysis results would be used in the process of customer interaction both in a narrow range and more generally in relation management. The trade offer would be developed on its basis.

Both presented techniques Cross-selling and Up-selling serve both, interactions with current and potential customer. The gap source in customer service [1], similarly to the Parasuraman's model, are the *ignorance* or *failure in understanding customers needs and priorities*. The nature of electronic and traditional communication channels fully enables for using the results from market basket analysis, minimising the differences between the customer and seller.

The last stage in the proposed model is the finalization of transaction, which assumes fulfilling the customer's needs. Finalised transactions, recorded and stored in database, supply the process of market basket analysis. Not only those are the basis for promotional *campaign evaluation*, but also they can serve to *parameterize* (support, confidence) another market basket analysis. Obtained results, compared with the previous ones, can be the source of *untrue knowledge (noise)*, *outliers* or the issue of *seasoning* in the annual cross-section.

5. Conclusions and future research

Traditional marketing campaign launching can be very expensive, involving a number of resources. That is why the choice of potential customer group is of vital importance. Customer management being the company's assets require analysis and measurements, which in effect results in treated them to their value [7]. Business users, in turn, need suitable amount of time to identify the most important aspects of expected information [5]. Presented in the article, *Cross-* and *Up-selling* methods may be the source of time and money saving, both in case of planned promotional campaigns as well as in customer service. There are a number of circumstances objectively confirming above.

First of them concerns the basic aim of the market basket analysis, which is discovery of unknown relationship between goods and services. Such knowledge, written in a form of association rules serves using Cross-selling technique in e-commerce. The results of market basket analysis can be verified on the testing group before actual launching of promotional campaign.

Secondly, customer interaction should be matched to their needs as much as possible. Time and resources saving are the results of customer's potential needs awareness. Personalisation of offers, add-on sale or another good(service) proposal are the main sources of increasing the single transaction value and maintaining long-lasting customer relation.

The subject of study presented in the article will be further developed by the authors, finally to the form of the expert system. Functionality of elaborated system will not be confined only to the market basket analysis but it will serve as well clustering and customer pattern recognition.

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