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MARKETING DYNAMIC SIMULATION MODELLING IN HIGH TECH LABORATORIES

Marina C. Terzi[1, a], Damianos P. Sakas[2,b], Dimitrios Vlachos[3,c]

[1]Department of Mediterranean Studies, University of the Aegean, Ethnikis Antistaseos 17, Korinthos, 20100, Greece

[2] Department of Computer and Technology Science, University of Peloponnese, Praxitelous 89-91, Piraeus, 18532, Greece

[3]Department of Computer and Technology Science, University of Peloponnese, End of Karaiskaki Street, Tripoli, Greece

[a]mariterz@gmail.com, [b]d.sakas@uop.gr, [c]d.vlachos@uop.gr

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Abstract. The paper considers the role of Integrated Marketing Communication in enhancing the brand awareness of high-tech laboratories. By acknowledging the great interaction of public and private laboratories with high-tech companies, the study is aimed at developing a simulation model to be incorporated in the marketing strategy of laboratories. The comprehensive dynamic simulation model that was developed highlights the emphasis that should be placed when B2B marketing activities are the matter of concern. Marketing Dynamic Simulation Modelling is based on the principles of Integrated Marketing. It has been tested in both private and public laboratories, concluding that marketing in the private sector receives more attention than in the public sector. The proposed model incorporates all the components for successfully marketing laboratories by taking their budget restrictions into consideration.

Introduction

Marketing high tech products involves a higher percentage of risk than traditional products due to the involvement of technological features that often impend the customers' understanding of the products and, by extension, decrease their willingness to use them [1]. It is the reduction of the risk associated with the development of technologically advanced products that allows the core customer received value process to respond effectively through purchases.

Much research has been conducted regarding the offering of high tech products but from the consumers' perspective in a B2C context [2, 3]. The present paper focuses on the stakeholders' approach, particularly industrial trading partners (B2B), and the interaction of public and private laboratories with high-tech companies regarding marketing techniques through dynamic simulation modelling. Since the trading partners in the B2B context are part of the supply chain, it is assumed that the level of uncertainty and risk regarding high-tech products is reduced as the level of experience is enhanced.

Literature Review

The literature review reveals that there are similarities between B2C and B2B approaches [4, 5]. Based on Kitchen and De Pelsmacker's book (2004) [6], Integrated Marketing Communications (IMC) is classified under seven (7) categories:

Advertising (Adv.)

The success of Adv., whether it includes traditional media (TV, radio, newspapers) or new forms of media (product placement) [6] is affected by the level of customer response [7]. In a B2B context, Adv. is shaped by the exchange processes of businesses, which implies a direct ratio between advertising and sales [8].

Sales Promotion (SP)

In a B2B context, SP includes those communications activities that are able to provide motivations to business customers. When low levels of revenue performance are the point of concern, SP can be the alternative for stimulating immediate sales - whether price-based or not [9].

Direct Marketing (DM)

As a form of advertising, DM is addressed to targeted markets aiming at building strong relationships among trading partners in a micro-environmental level. In a B2B context, the niche-orientated marketing of DM may create successful response rates from companies with relevant market areas, as long as direct marketing meets or exceeds their expectations in fulfilling their needs [10].

Marketing Public Relations (PR)

Ensuring business publicity and reputation, PR activity is diffused through the development of trustful relationships among the interested parties. Kitchen (1996) [11] acknowledges the contribution of PR as a complementary tool where other promotional mix components are confined by economic factors, the low effectiveness of distribution channels and other impediments.

Sponsorship (SPON)

An effective way to deliver value to both sponsors and market trading partners is accomplished through SPON, a way to support an event financially, or not. The findings of Johnston's (2010) research [12] suggest that SPON inclusion in the promotional mix is likely to be an effective long term solution , by routing some public relation resources towards this direction.

E-communications (E-Com)

The advancement of technology has forced the traditional marketing tools to move towards the development of new media. Since most businesses operate in online marketplaces, e-marketing is the new development that contributes to the enhancement of brand awareness and the establishment of strong relationships among trading partners [13].

Relationship Marketing (RM)

Keeping the customers' retention rate high proves to be a more effective approach than acquiring new customers [14]. B2B RM guarantees the adding value interaction among the industrial trading partners which aims at creating customer bonding and loyalty, which in turn will positively affect the profitability of a company.

Research Problematic & Methodology

The present paper focuses on the visual representation of the allocation of resources in a B2B environment for marketing purposes. The marketing dynamic simulation model is developed, incorporating all necessary components of the promotional mix, aiming at achieving the highest possible levels of publicity and brand awareness. Given that resources are limited by the budget of companies, when a category of the promotional mix is fulfilled the remaining resources are transferred to other marketing techniques.

The model has been tested in a B2B context between private and public laboratories regarding their techniques for the marketing of high-tech products to companies involved with technologically advanced productions. It is assumed that the private sector invests the budget set by the management team in all marketing techniques since their main activity is profit-oriented, which is to produce and put products on the market. On the contrary, the public sector is financially supported by the state and their main activity, as a not for profit organization, is the production of knowledge and advancement of research. Little concern is placed on the sales process of high-tech products in the B2B context as it is not the main purpose of their existence.

Support to this assumption is found in Reed et al.'s (2004) [15] paper which demonstrates that B2B marketing orientation receives little attention from the public sector due to the B2C focus, and in Arpaci's (2010) [16] paper in which several impediments in the technological innovation process of the public sector are highlighted.

The model was run both in the public and private sector in an attempt to demonstrate its effectiveness so that the management team will be able to identify the areas each sector is lacking in and invest the available resources more efficiently.

Marketing Dynamic Simulation Model

The Model is developed under the seven (7) categories of the Integrated Marketing Communications as suggested in Kitchen and De Pelsmacker book (2004) [6]. The model is characterized by stocks that include the seven (7) components of the promotional mix in the B2B context as well as their sub-categories (that is to say the tools that the management team have at their disposal for marketing purposes). For instance, the Category of Advertising includes two sub-categories: Trade Press and Directory Advertising. In the model, flows indicate the direction of resources towards stocks. The percentage of the budget that is allocated in Advertising is directed with the use of flows to the two sub-categories.

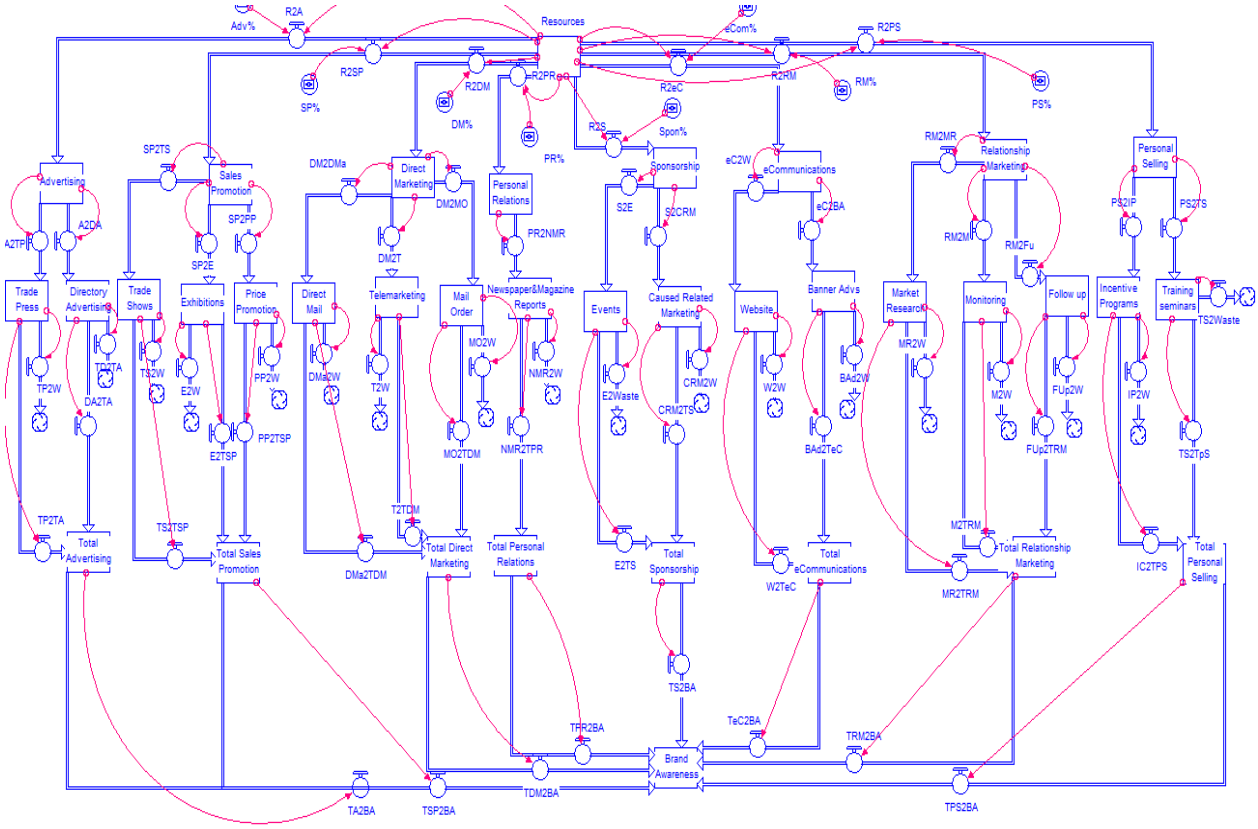

Figure 1: Marketing Dynamic Simulation Model

A new category, Personal Selling, is also introduced in the model since it is an area that receives much attention in the B2B context [17]. The dynamic simulation model revolves around the "Brand Awareness" tank which demands resources from several promotional tools so as to be fulfilled.

Attention needs to be placed on the percentage of the budget that is wasted on activities that do not make proper use of the tools. It is the remaining percentage that is allocated to the Total Stocks (ex. Total Advertising) and indicates the actual resources that influence the Brand Awareness of high-tech laboratories. The more the Brand Awareness Stock is full, the better the possibilities of success for the marketing of high-tech laboratories; therefore, the better the possibilities of establishing successful co-operations with high-tech companies.

Conclusions

The marketing dynamic simulation model can successfully record all techniques that need to be followed by laboratories if the marketing of high-tech products is the pivotal aim. The procedures described in the model incorporate an integrated marketing mix based on the bibliography. However, it is at the managers' disposal to insert or exclude marketing techniques according to the availability of resources. Excluding marketing tools does not guarantee the ultimate success of the model.

Especially in the public sector, marketing managers need to place special attention on the marketing techniques that exist in the B2B context so as to achieve higher levels of brand awareness. The present study further demonstrates the private sector's laboratories recognition of the importance of incorporating all marketing techniques in their marketing strategy. Therefore, their brand awareness enables them to achieve higher levels of profitability due to their co-operations with high-tech companies. The proposed model is a starting point for the public sector's brand awareness research on how to achieve higher levels of brand awareness.

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