

Applied Aspects of Automated Pricing in B2C Marketing

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Abstract

Technological developments over the past two decades have had a strong impact on the marketing elements. New opportunities for marketing creativity have been revealed that go beyond the traditionally best covered areas: product development and advertising. The application of innovations in pricing decisions and in the technology of their implementation in marketing is an important step towards the successful sale of products on B2C markets. Balancing investment in innovations according to the components of the marketing mix is a necessity in the new conditions of competition and market dynamics. Automated pricing has great potential for use on B2C online and offline markets. Its implementation is aimed at absorbing the yield potential based on "the price that the consumer is willing to pay" under certain circumstances and under the influence of specific factors. The linking of automated pricing with the costs and risks accompanying the marketing of products and services is also of interest. The paper deals with the significant applied aspects of automated pricing in B2C marketing and presents the views of companies on their applicability and concrete benefits for businesses and consumers.

Key words: marketing, automated pricing, flexible pricing.

JEL classification: M31.

1. Introduction

Price as a component of the Marketing Mix is traditionally defined as a factor that will ensure generation of sales and profit. And if in the previous decades the focus was mainly placed on price setting methods and adjusting price to market conditions, the focus today is being shifted to flexible pricing with elements of automation and use of Big Data (Baker, Kiewell & Winkler, 2014). Big Data can be used purposefully in automated pricing models to obtain adequate price differentiation or personalization.

Researchers in the field of price management emphasize the importance of price and the technology of pricing in revenue management under high-tech conditions. (Bayoumi, Saleh, Atiya & Aziz, 2013). Special attention is paid to automated pricing, taking into account multiple factors influencing the price. Automated pricing models are currently being developed, with the idea to serve the marketing of products and services.

2. Preconditions for automated pricing

The development of Internet technologies and the development of a wide range of applications for marketing purposes have helped replace traditional marketing tools with innovative tools designed or adapted for online markets. Enhanced on-line turnover, increased competition and bid transparency encourage more and more companies to invest in e-channels. While initial investment was primarily focused on developing new products and channels for their distribution, part of the investment at this stage is focused on improving the pricing process and linking it to the real environment.

Three factors stand out that will drive the transformation from marketing decision support systems to marketing decision automation systems: enhanced productivity in the marketing function, better decision-making and the demands for mass customization of marketing activities (Bucklin, 1998).

Some researchers argue that automation of activities can enable businesses to improve performance, by reducing errors and improving quality and speed (Mc Kinsey, 2017).

The specificity of the on-line market, such as the difference in the psychographic and economic

characteristics of consumers interested in buying the company products, enables companies to take advantage of the price the consumer is prepared to pay. However, specific circumstances such as time, location, etc. may also come into play.

Since the emergence of on-line markets, companies have been able to gather loads of information about their customers, part of which could be successfully applied for pricing purposes in order to set the “exact price” corresponding to the historical purchases data and customer claims or consumer willingness to pay the price. At present, there is a great deal of criticism going on, that this information is not fully exploited for marketing purposes.

The dynamics of on-line markets suggests price development. There are several reasons for that. Firstly, the offers of individual bidders are made visible to prospective buyers allowing for direct price comparisons. Secondly, most of the products are mass produced which means that the price will be the main factor of competitiveness especially when it is identified with the total consumer spending. Thirdly, the combination of product life cycle and the life cycle of its on-line offering implies price movements. Fourthly, users have access to available price comparisons on particular mass products. All of the above reasons have a bearing on the price dynamics using automated pricing.

The cost aspect in automated pricing is also important. Production and distribution costs are able to influence environmental conditions and the particular customer. Therefore, variables such as order volume, frequency, structure, etc., which are related to production costs and/or distribution cost per unit of product are covered by the automated pricing models.

Consumers evaluate positively the efforts of companies to set ‘the right price’ for them. They do not think they have to pay more for the product to cover for specific costs and risks incurred by the company on behalf of other clients. This can be seen for example in the area of insurance, banking, etc. Price sensitivity of end users will continue to be a powerful drive in implementing dynamic pricing models which reflect the real product state, the environment and the price the customer is willing to pay. According to leading companies dynamic pricing is a means to attract new and keep existing customers. (IBM Commerce, 2016). Another important aspect of B2C pricing is the study of consumer willingness to pay (Breidert, Hahsler, & Reutterer, 2006) and how to use this variable for the purposes of automated pricing.

There are certain conditions and prerequisites for price dynamics to be applied to the off-line market. Thus for example, with perishable goods, a fixed price is not justifiable (product appearance and taste are changing over time). In the opinion of other authors “under the common fixed-price scheme, if the price is set too low, potential revenue will be lost; but if the price is set too high, demand will be low and perishable products may be wasted when they expire” (Cho, Fan & Zhou, 2008). It is therefore logical to look for automated pricing in traditional retail outlets. Binding the price with quality, quantity, delivery price, time inflation (especially in high inflation countries) etc., can be effectively used with off-line markets too. Dynamics of off-line pricing will contribute to maintaining consumer interest and generating consumer loyalty to the store in question.

Companies that specialize in providing solutions for automating the retail pricing process believe that their use by grocery retailers will help optimize the price, taking into account market pressures, competition based on aggressive price and promotion activities and helps them increase revenue and profit (Blue Yonder).

3. Automated pricing models

Thanks to price setting models, regular updates and disclosure, companies using high technology in marketing have a proven record of successful operations. Authors engaged in the topic of automated pricing models have put forward arguments that help reduce the likelihood of conflicts. (Spanoudakis & Moraitis, 2009). Various models can be used (Table 1 and Table 2), however, the selection of a specific model should be based on the following: price targets,

cross over and transfer effects,	competitive models, previous automation results, etc.
Automated pricing models	Specifics of application
Single variable models/influencing variable	This model is based on the selection of a specific variable influencing the price. Such model was first developed by the Coca Cola company and it involved continual update of the Coca Cola price in view of the temperature in the POS area. An example of such a model is the dynamics of the price in terms of reported inflation rates, product delivery price, etc.
Multiple variable models/influencing variables	Over the last decade, models with multiple variables have been gaining momentum. These cover factors which lead to an increase in price alongside factors that trigger price reduction. A model of this type is offered for bed-nights pricing where “each multiplier will adjust the price up or down around the reference price based on certain influencing variables (for example, hotel occupancy, time before arrival, etc.)”(Bayoumi, Saleh, Atiya, Aziz, Atiya, 2013) The use of such models in practice may help achieve the highest average cost for the entire sales volume of a given product or service.
Single-product models	Automated pricing based on a single-product model takes into account the specificity of the product and the environment influencing it. The model does not cover the current state and price dynamics and conditions of selling other products.
Multi-product models	Here, price variations of other products within the product category are taken into account, together with the prices of products with high cross-sell effect on the product for which pricing is made and the relationship between the price of a product and the prices of products for which it is a driver for sales. There is also sufficient research interest in automated pricing in a mix of products (bundle discounts), offered by on-line vendors.
Models administered by the company	The majority of automated models are administered by the company. This can be put down to company’s sensitivity to leakage of price information. The future, however, bodes well for integrated pricing models where the end-user price will be linked to the information exchanged between various parties in the distribution channel system.
Models based on user involvement	Ensures involvement of users in the automated pricing process.

Table 1. Automated pricing models in B2C marketing and specifics of their application

Source: Table is drafted by the author. It shows results from theoretical research and business practices.

Study of existing automated pricing practices shows that different temporal information is used to feed the pricing variables (Table 2). Research companies point out that some of the activities subject to the largest degree of automation are performing physical activities, data processing and data collection (Mc Kinsey, 2017).

Automated pricing models	Specifics of application
Models with current variable(s) readings	The information fed to the automated pricing model is real-time. Typically, this information encompasses the purchase parameters entered by the consumer and/or variables characteristic of the environment. Variables such as stocks, inventory structure by model, colour, size, etc., can also be used.
Models with previous variable(s) readings	Usually, these models include data representing purchase history, claims and risks taken by the company relevant to a particular client (company-specific risks). Such types of automated pricing models are often used in the area of finance. Some authors share the opinion that “consumer’s past purchases of a particular product often exert a strong positive influence on his current demand” (Nakamura & Steinsson, 2011)
Models with future variable(s) readings	Estimated value models find application in specific business areas, subject to world market prices, stock indices, etc. Thus for example, use of potential predictors of demand is possible in event marketing (Ferreira, Lee & Simchi-Levi, 2014).
Mixed models of automated pricing	These are virtually the most complex models which simultaneously take into account the actual state and information about the past or the future which directly or indirectly affects the price. Using this type of models ensures flexible pricing that could be beneficial to both companies and their customers.

Table 2. Automated pricing models in B2C marketing according to information/data being fed to them

Source: Table is drafted by the author. It shows results from theoretical research and business practices.

Another aspect of automated pricing is the market where it would be applied. Certain models are developed specifically for on-line and off-line markets. Over the past few years, the relationship between pricing and price similarities on both markets (on and off-line markets) has been intimately studied. (Cavallo, 2016).

4. Companies and automated pricing

To determine the attitude of Bulgarian companies to the possibilities of using automated pricing, a qualitative survey was conducted through in-depth interviews. In May, 2017, ten (10) interviews were conducted with company managers who have been realizing sales on B2C market for the last three years. The survey encompassed different types of businesses – production and sale of clothing, tourism services, packaged food, consulting services, insurance, transport and education services, garden furniture and equipment, sportswear and take-away services. The results of key issues are presented in Table 3.

Key variables	Outcomes of unstructured interviews
Managers attitudes to automated pricing	Most managers share the view that following the dynamics of modern markets, price should be in concord with the more significant variables. All agree that this process of pricing with multiple variables will be more effective if it is automated. It is also believed that price dynamics is a necessary prerequisite for the on-line market.
Knowledge of practices/software solutions regarding automated pricing	Managers participating in the survey say that they are aware of certain software solutions offered by well-known companies specializing in digital technologies as well as of solutions specifically designed for a particular product or channel. Companies that are currently covered by the survey do not use automated pricing models.
Potential problems arising from automated pricing	Although the companies surveyed do not use automated pricing models, their managers share some concerns about their use such as conflicts with customers, intended price discrimination and too much pressure from consumers to lower prices.
Attitudes towards user involvement in pricing strategies	Managers interviewed have a margin of discretion regarding automated pricing which involves users, but do not exclude it as a practice that will dominate the future.
Benefits of automated pricing	One of the potential benefits of automated pricing is the ability to calculate the price risk for each client and to prevent the sale of a product or service at a loss. Among other benefits seen by respondents is cost cutting in pricing and disclosure and improving the rate of pricing and preventing losses and lost profit. Some of the benefits for users is the likelihood of “lower consumer spending” and “sharing the profit of a particular sale with the customer”.
Intention to use it in the future	The majority of managers does not intend to fully automate their pricing but are willing to introduce it partially for some of their products on selected distribution channels. Surprisingly, despite their intention to use automated pricing models, managers also insist on having human control over the going price of a product.

Table 3. Automated pricing models in B2C marketing according to information fed to them

Source: The table was drafted by the author and presents the results of topic-based research.

The results of the conducted survey are upbeat and can be used to promote automated pricing. Interviewed managers share the view that automated pricing will be more in line with the changes to other elements of the marketing mix and influencing variables from the macro and micro environment. The rate of pricing and elimination of the subjective factor in price formation are to be found in respondents' responses in support of the use of automated pricing.

5. Conclusion

The automation of marketing processes and tools will continue to develop. By communicating their positive effects companies will be able to attract investment in more innovative processes which are to substitute traditional marketing processes and tools. Redistribution of sales on the on-line and off-line markets will lead to a change in B2C marketing. “Price” will be among the most affected components of the marketing mix as currently its automation is lagging behind in terms of distribution and communication. Automated data collection, processing and data

transfer, despite the limited use of their potential, will drive investments and encourage companies to use more efficiently information gathered for the purposes of making marketing decisions in real time. User involvement in the pricing process is gaining in popularity, reflecting the overall trend towards increasing the role of consumers in the marketing process.

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