

## PERSONALIZATION OF ADVERTISEMENT AS A MARKETING INNOVATION

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**Abstract:** *The Internet has significantly changed the way market entities communicate with each other. Innovative forms of communication have been introduced in a number of fields, esp. advertising. New solutions based on big data and recommendation technology make it possible to personalize Internet advertising in an automated manner. Companies can now achieve two contradictory goals: adaptation of the ad content and its form to the unique profile of each customer and at the same time operating within mass markets. The aim of the paper is to describe the characteristics of Internet advertising and to present an in-depth insight into personalized ads. The Real Time Bidding mechanism is also characterized as a tool for automated advertisement personalization.*

**Keywords:** *personalization, marketing innovation, real-time-bidding, advertising, networking*

**JEL Classification:** *M31, M37*

### 1. INTRODUCTION

Internet—a virtual network spanning over the whole world—has changed the ways of communication. Obviously it affects the communication of all players: businesses, consumers, public entities, non-governmental organizations, and others. The innovative way of communication via the Internet is expressed in many ways, including in the new possibilities offered by web (online) advertising. One of the most important opportunities is the ability to personalize advertising messages in an automated manner, allowing to achieve two previously contradictory goals: fine selection of content and forms of communication to the audience and maintaining the massive scale of the auditorium. Such an approach helps to classify the personalized advertisement as a marketing innovation, defined as the implementation of a new marketing method involving significant changes in product design and packaging, product placement, product promotion, and pricing [11, p. 49].

The aim of the paper is to define characteristics of Internet advertising, determine the nature and forms of Internet ad personalization, and present Real-Time-Bidding as an instrument of personalization.

### 2. INTERNET ADVERTISING—THE NATURE AND FEATURES

Internet advertising has already been repeatedly defined in the literature, generally as a kind of contract between the Internet users and advertisers [7, p. 295-315]. Broader definition, formulated by Schlosser et al. [12, p. 34-54], indicates Internet advertising as any form of a commercial content available online which was designed by businesses to inform potential customers about the product/s. Another view was presented by Ha [4, p. 31-48] who defined Internet advertising as “deliberate messages placed on third-party websites including search engines and directories available through Internet access”. These definitions, however, poorly reflect the personalized nature of the Internet as a medium. Hence, it seems the most appropriate definition indicates that Internet advertising is a web-based process by which advertisers communicate, interact with and persuade online users in order to position

a brand, which allows a company to promote both consumer awareness and preference [6].

Internet advertising has three main characteristics distinguishing it significantly from traditional forms of advertising [compare: 10, p. 15-36; 6; 5, p. 499-526]:

- Internet advertising compresses the set of purposes,
- Internet advertising is interactive,
- Internet advertising enables personalized communications.

In traditional advertising, generally some specific goals and potential effects can be identified, such as the brand awareness increase, the change of attitudes towards the product, etc. Using the Internet, all the borders become blurred and unclear. This applies to both instruments by which a company communicates with its surroundings, as well as the overall composition of marketing instruments. Online banner advertising can be used to build brand recognition, but at the same time it can attract traffic to a e-store website.

Internet advertising is interactive in nature, which essentially distinguishes it from traditional advertising. Ph. Kotler’s statement “advertising is only a monologue, not a dialogue with the audience” [9, p. 563] refers to the traditional advertising but not to online one. In the latter case it is possible to obtain feedback messages, sent by the recipient of the advertising message intentionally - in order to define their requirements regarding the product. The interactivity of Internet advertising is also evident through the acquisition of information provided by the audience unintentionally; starting from a precise analysis of the effectiveness of the impact of Internet advertising on a recipient action (e.g., number of clicks on the banner) to obtain data from the analysis of the Internet users behavior in the network. Interactivity also helps to increase suggestibility impact, not only through the use of text, sound, image and video but also through games which make the recipient significantly more involved.

The most significant change arising from the interactivity of Internet advertising is the ability to conduct a

personalized communication on much higher level than in case of traditional advertisement.

### 3. THE ESSENCE OF PERSONALIZATION IN ADVERTISING ACTIVITIES

Personalization can be defined “as making products which are tailor-made to each individual request” [2]. More broadly personalization can be understood as a process of delivering to each customer the right product, in the right place, and at the right time [8]. The advent of new communication technologies has changed fundamentally the possibilities in this area. The large breakthrough concerns the way how enormous volumes of data concerning customers are gathered and analyzed. The variety of data that can be processed is very vast. This is the reason why new term describing this phenomenon was coined; that is, Big Data. The main source of data is nowadays the Internet. In particular these data can be gathered from clickstream data, search engines, transaction history, and social networking websites.

It must be highlighted that unique type of data that are used in customers profiling could be acquired from social networking websites. This data (also called unstructured data) comes from the following areas: popularity of given member on social networking website, events he/she participated in, other members he/she likes or dislikes, and activity on the blogosphere. Analysis of these data allows for gathering much more precise and nuanced insight of customers than when their profiles are based on demographic data only.

New technologies also have changed the role of customers in the process of offer personalization. Huge amount of data (Big Data) and possibilities of analyzing it allow for personalizing the offer without customers involvement. In such a case, customers do not have to define their needs or communicate them to the offer provider. One can assume that personalization can be done without active and conscious participation of customers. The only activity that is required to be performed by customers is usage of the Internet on the daily basis. That means: visiting favorite websites, making contacts with friends on social networking websites and blogosphere, purchasing goods online, etc. Each of those activities is a source of data for creating profiles of customers.

Personalization can also be observed in advertising. It is assumed that analysis of customers' Internet behavior is the basis for ad personalization. Ad personalization is defined as a process of delivering a unique advertising message to the right person, at the right time, and in the right context [1]. Unfortunately in the literature there is a lack of in-depth analysis of ad personalization. In particular, the areas in which advertisement should and could be adapted to specific needs of each customer are not defined. Trying to fill this gap there can be assumed that adaptation could be done within two areas: firstly the form, and secondly the content of advertising message.

Vast variety of the Internet advertisement forms makes it possible to adapt it to the profile of a specific customer (recipient of the advertising message)<sup>1</sup>. Personalization in

this area should be based on data that provides information about form of advertisement that is the most persuasive for a certain advertising addressee. As a consequence a given product could be advertised in different forms according to different profiles of customers. On the other hand content of advertisement communicates the greatest benefits of the product for customer. Personalization in this area should be understood as the process of pointing out different product benefits for each customer.

There can be said that the condition of effective advertisement personalization is having such a customer profile that allows for tailoring not only form but also a content of ad according to customer's specific needs. This sort of "deep" personalization should be provided for every customer. In order to achieve this goal, an automatic tool of ads personalization should be provided. One of the most promising in this field is the Real-Time Bidding System (RTB system) introduced in 2009 in the USA and adopted in the other countries in subsequent years. RTB is based on recommender system.

### 4. AUTOMATION APPROACH TO AD PERSONALIZATION

There are two main approaches to recommendations: collaborative filtering and content-based filtering [3]. Collaborative Filtering is the process of filtering or recommending items to a specific user using opinions issued by other users who are somehow similar to that user. It is based on the old rule: “we like the same items that are also liked by people similar to us”. Item can be anything for which users are able to provide a rating and hereby express their interest in it. Ratings (user's interests in items) can be collected through the explicit and implicit means:

- Explicit means: a user is directly asked to provide a rating on a particular item
- Implicit means: a rating is inferred from user's activities.

Content-Based Filtering is the process of filtering or recommending items based upon an assumption that a user will like items which are similar to those she liked in the past. The method uses descriptions of the items (also called item representation) and a profile of the user's interests. Item representation can consist of three types of data: structured, unstructured, and semi-structured. User interests are collected in the same way as in Collaborative Filtering: through explicit and implicit means.

A particular style of content-based filtering is implemented by case-based recommendations. They consist of two main characteristics: 1) items are represented as structured data only, and 2) due to representing items as structured data only, recommendations can be based on much more sophisticated approaches to similarity assessment than in a content-based filtering systems which must deal with unstructured data.

Case-based recommendations have their roots in case-based reasoning systems which rely on a database of past problems (cases) and solutions used to solve them. New case is solved by finding the past one similar to it and then

<sup>1</sup> One can distinguished different forms of on-line advertising namely: Billboard, Billboard FX, Double Billboard, Expand, Expand-corner, Floor-

ad, Fly-footer, Halfpage, Interstitial, Push-billboard, Rectangle, Screening, Scroller, Skyscraper, Time banner, Toplayer, Wideboard, form more detailed information visit: <http://www.idmnet.pl/formy-reklamy> [access: 03.12.2013]

adapting its solution to the current situation. In the case-based recommendations, items are represented as cases and recommendations on new items are created by finding cases (items) similar to them using very accurate similarity metrics based on structured properties of cases (items) and domain knowledge on these properties, defined, for example, as ontology.

Real-Time Bidding (RTB)—auctions in real time— is a model of a fully automated buying and selling single advertising space on web sites, based on a system of electronic auctions taking place while a page is transmitted from the server to the user's browser.

In the RTB model the user entering the page initiates in the background an auction for advertising space located on it. If the page has more than one advertising space, there is a separate, independent auction for each of them. Advertising space is delivered to those advertisers who offered the highest bid. The entire process takes place in real time while transferring web pages from the server to the user's browser and it takes less than 100 milliseconds. The point is to be transparent to users and not slow down displaying the page on their computers. The process is repeated for each view of the page; that is, every time when the browser sends a request to the server for a particular page, the advertising space located on it is put on the new, independent auction.

The RTB model completely changes the way advertising campaigns are carried out. In the traditional model, the advertiser purchases advertising inventory on a website in

batches being multiples of 1000 ad impressions (ad displays), paying a flat rate for each batch with a possible discount if buying a larger number of batches. In this model, the audience targeting is based on the page content—a website focusing on topics related to small children will display ads targeting at young parents, similar as it happens in magazines, newspapers, television, or radio. In the RTB model, every ad impression is dedicated for a specific person who requested a page. To select the ad—its content and form—the recommender systems are used. Because the Internet is a mass medium, it is reasonable to conclude that the RTB model delivers a mechanism for mass personalization of advertising activities with unprecedented precision.

## 5. CONCLUSIONS

Personalized advertising is a real breakthrough in marketing activity. There are three reasons for emphasizing the innovative nature of the personalized advertisement. Firstly, internet advertisement message can be tailored to each customer unique profile (regular advertisement is recognized as mass communication tool). It results in improving the effectiveness of promotion strategy. Secondly, personalized advertising is based on constant psychographic segmentation that could be done without customers involvement. Thirdly, matching the advertisement content and form requires the creation of algorithms based on collaborative filtering and content-based filtering, which meet the requirements of both marketing and process innovation [11, p. 49].

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