

Chapter 54

Integrated Optimal Procedure of Internet Marketing

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ABSTRACT

The article focuses on how to integrate all the phases of Internet marketing process into a seamless pipeline. The current techniques used in three main phases: (1) customer targeting; (2) ads piece designing; and (3) marketing budget allocation, are described in detail to reveal the cohering inside of searching optimal marketing strategies.

INTRODUCTION

The internet marketing is a comprehensive process that requires the coordination and efficiency of all the marketing departments. The functionalities of the marketing departments include, but are not limited to, identification of consumers, production of ads pieces, and selection of ad strategies.

Internet medium offers a great advantage in data collection. Abundant data allows us to measure the effectiveness of marketing efforts, and further, to model the advertise response as a function of advertising efforts for optimal strategy. Thus, internet marketing is special from the traditional one in the sense that it is data driven; it is able to take advantage

of mathematical methods and information technology. In this article, we pinpoint at main phases of the internet advertising process – customer targeting, internet ads production, and optimal budget allocation in internet media and based on them to show the production process of internet marketing which employs data mining, statistic and mathematical modeling, and mathematical algorithms.

The article is organized as follow: (1) Introduction section describes the general perspective of the article; (2) Background section briefs the industrial and academic efforts by others that are related to my position on the topic; (3) Operation Procedure and the Quantitative Method for Each of the Sub-routines section describes in detail the mathematical

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models, theorems, and the methods to achieve the goals of internet marketing; (4) Future Research Direction section outlines the trend and remain issues of the topic in this article; and finally (5) is the Conclusion section.

BACKGROUND

Internet marketing technique consists of database marketing, information depository, statistical modeling, mathematical programming, and search and match techniques.

Database marketing started in 1990s. With the development of computer information science and internet, it is now a well developed technique that is used in all kind of marketing. (Jackson & Wang, 1994) The database marketing procedure starts with customer database, and then uses statistical method such as regression, clustering, tree, or neural networking to segment and profile customers according to their demographic, behavioral, and geographic attributes. As result, the targeted customers are identified. Since internet marketing is also data rich, customer targeting functionality of database marketing is adapted in the internet marketing procedure.

After the customers are segmented, next issue is how to communicate with them. On July 2, 2007 Yahoo launched its patent-pending tool, Yahoo! SmartAds (2007) to enhance its online advertising effectiveness. SmartAds takes advertisers' creative campaign elements, automatically converts the elements and offerings into highly customized and relevant display ads by delivering banner ads according to the web surfer's age, gender, location and online activities. Although the methodology behind SmartAds is not fully known by the public and the academic community, people believe that it uses behavioral, demographic and geographic segmentation capabilities for targeting (Story, 2007). SmartAds is currently in its pioneer stage where only Yahoo's travel portal is using it. On other hand, Google's AdSense is a

tool to display relevant ads on a webpage. With this tool, the content of a webpage is analyzed to determine a list of one or more topics associated with that webpage. An advertisement, submitted by advertisers, is considered to be relevant to that webpage if it is associated with keywords belonging to the list of one or more topics. One or more of these relevant advertisements may be provided for rendering in conjunction with the webpage or related web pages. The dominant industrial perspective is how to take advantage of searching technologies employed by Search Engines (Langville and Meyer (2006)).

In the academic community, there have been efforts devoted to studying internet marketing via mathematical programming, game theory, statistic predicting, and variational inequalities. In Chickering and Heckerman (2003), to maximize the click-through rate, given inventory-management constraints in the form of advertisement quotas, a system using predictive segments, in conjunction with a linear program to perform the constrained optimization, is developed. Kazienko and Adamski (2007) created the AdROSA system for automatic web ads personalization, which integrates web usage and content mining techniques to better target customers. Zhao and Nagurney (2006, 2008) used variational inequalities in conjunction with mathematical programming for the optimal allocation of marketing budget to variety of market places.

All the above efforts certainly have advanced internet marketing theory and practice. However, since each of them focuses on a specific issue, they failed to demonstrate the cohesive inside of all the aspects. Internet marketing is an integrated process that requires not only the efficiency of each of the phases but also the smoothness of the transition from one phase to another. Thus, this article is to connect all the pieces together for creating the seamless marketing pipeline.

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