Exploring Big Data Opportunities for Online Customer Segmentation

Georgia Fotaki, Department of Information and Computing Sciences, Utrecht University, Utrecht, Netherlands

Marco Spruit, Department of Information and Computing Sciences, Utrecht University, Utrecht, Netherlands

Sjaak Brinkkemper, Department of Information and Computing Sciences, Utrecht University, Utrecht, Netherlands

Dion Meijer, GX Software, Nijmegen, Netherlands

ABSTRACT

In today’s competitive business environment, more and more organizations move or extent their business online. Thus, there is an increasing need for organizations to build concrete online marketing strategies in order to engage with their customers. One basic step towards achieving the objectives related to online marketing is the segmentation of online customers, based on the customer data gathered online. Since there is an onslaught of customer information collected from online sources, new techniques are required for managing and analyzing the huge amount of data, and this is where the concept of Big Data can play an essential role. This research sheds light on three fields: Online Marketing, Customer Segmentation, and Big Data Analytics. The three domains are integrated into the Online Customer Segmentation (OCS) framework, which attempts to show how online marketing objectives can be supported by techniques and tools applicable to extremely large datasets. For the creation of the OCS framework a set of main online marketing objectives is defined. Moreover, the differences among customer attributes gathered from offline and online channels are discussed and OCS categories are identified. Finally, the concept of Big Data is introduced and relevant techniques and tools suitable for analyzing customer segmentation categories and segmenting customers effectively are described. This work demonstrates the OCS framework by applying it on a hypothetical business scenario using an online customer data set.

Keywords: Big Data, Data Mining, Online Customer Segmentation, Online Marketing, Referral Segmentation

DOI: 10.4018/ijbir.2014070105
1. INTRODUCTION

In today’s fiercely competitive business environment, organizations struggle to improve customer experience, achieve customer retention, and grow their customer base. The increasing need to keep customers satisfied and treat them as individuals has triggered interest in customer engagement. Customer engagement is defined by Van Doorn et al. (2010) as “the behavioral manifestation from a customer towards a brand or a firm which goes beyond purchase behavior”. Furthermore, more attention is paid on building concrete online marketing strategies, due to the tremendous growth of internet technologies. In their effort to leapfrog the competition, many organizations have already started employing tools that facilitate online marketing strategies and customer engagement such as Web analytics tools, Social Media monitoring software, Web Content Management systems, Audience Targeting tools and Online Customer Engagement Management tools (Fotaki et al., 2012). However, objectives for online marketing are still, for many organizations, not well defined and not yet aligned with the business strategy (Chaffey et al., 2009).

A vital process for Online Marketing is Customer Segmentation, which constitutes the process of dividing customers into distinct and homogeneous groups. Customer segmentation is considered an effective method for managing different customers with different preferences, while developing diverse marketing strategies (Chen et al., 2007; Tsiptis & Chorianopoulos, 2009). Online customers can be segmented according to their characteristics that are tracked online with the use of specific techniques and algorithms. There are various types of segmentation based on certain customer attributes gathered from several sources. Customer segmentation types intend to support different business tasks or activities regarding marketing goals (Tsiptis & Chorianopoulos, 2009). In the meantime, the business world is facing the challenge of dealing effectively with the onslaught of customer data and information stemming from online sources. Hence, the use of “Big Data” tools and techniques that are able to handle and analyse a huge amount of data in real time has become inevitable. Big Data is a new term primarily used to describe the data sets that are so large and complex that they require advanced and unique storage, management, analysis and visualization technologies (Chen et al., 2012). Most of the existing software tools for Online Marketing and Customer Engagement, such as OCEM tools, can track and handle huge amounts of online customer data. Therefore, they could integrate and utilize big data approaches in order to facilitate and enhance OCS, as well as other functions they might perform providing a holistic customer view.

There is a plethora of research conducted for customer segmentation in traditional Customer Relationship Management systems that basically work with data gathered from offline channels. However, OCS in real time has not received much attention in research. Moreover, since the notion of big data is still in its infancy, there is not much research on the field yet. It is apparent that there is a need to explore the utilization of big data for segmentation of online customers. With an aim to explore the applicability of big data for OCS, this research investigates the three fields of Online Marketing, Customer Segmentation and Big Data Analytics, and explores their interrelationships. The three terms are combined into one framework that attempts to show how online marketing objectives can be supported by an effective OCS, which can be implemented by techniques and tools applicable to large datasets.

The paper is structured as follows: Section 2 details the research questions that we investigate in this research as well as the research methods that we have applied. Section 3 presents the literature study to provide the basis for this research. In Section 4 we present a case study to detail our findings; Section 5 elaborates the findings; Section 6 provides the evaluation of our research findings and finally, Section 7 details the conclusions and provides directions for future research.
16 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the product's webpage:

www.igi-global.com/article/exploring-big-data-opportunities-for-online-customer-segmentation/122452?camid=4v1


Recommend this product to your librarian:

www.igi-global.com/e-resources/library-recommendation/?id=2

Related Content

RMS: A New Linkage with Pervasive Computing
Vasdev Malhotra, Tilak Raj and Ashok Kumar (2010). Pervasive Computing for Business: Trends and Applications (pp. 52-60).

www.igi-global.com/chapter/rms-new-linkage-pervasive-computing/41096?camid=4v1a

Classifying Inputs and Outputs in Data Envelopment Analysis Based on TOPSIS Method and a Voting Model

A Six Sigma DMAIC Process for Supplier Performance Evaluation using AHP and Kano’s Model
[www.igi-global.com/article/a-six-sigma-dmaic-process-for-supplier-performance-evaluation-using-ahp-and-kanos-model/176926?camid=4v1a](www.igi-global.com/article/a-six-sigma-dmaic-process-for-supplier-performance-evaluation-using-ahp-and-kanos-model/176926?camid=4v1a)

Business Intelligence and Analytics Research: A Peek Inside the Black Box
Gregory S. Richards (2016). *International Journal of Business Intelligence Research* (pp. 1-10).
[www.igi-global.com/article/business-intelligence-and-analytics-research/161670?camid=4v1a](www.igi-global.com/article/business-intelligence-and-analytics-research/161670?camid=4v1a)