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Use of Data Mining For Marketing Purposes in Large and Middle-Sized Businesses in Slovakia

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Abstract

The goal of this paper is to examine the using of data mining techniques for marketing purposes in large and middle-sized companies in Slovakia. At the beginning of the paper, data mining and strategies of customer relationship management are described, followed by brief description of primary research, which included 100 companies. Research results showed that the main advantages of using data mining are tailor offerings to specific customer, determining customer needs, better customer relationship management, more effective marketing campaigns, whereas the biggest challenges are preparation of data, maintaining the database, security issues, high investments. Nevertheless, only small amounts of data can be evaluated using standard techniques and saturated markets and high competitive markets demand decision based exact statistical evaluations.

Key Words: Data Mining, Customer Care, Marketing, Slovak Companies

1. Introduction

Based on data mining techniques like segmentation, cross sell, up sell and association analysis, the focus is directed to putting information technologies and customer satisfaction together. There is an increasing awareness that strategic thinking and acting is necessary to stay successful in a competitive world, in particular in mature markets (Vercellis, 2009). Companies are being confronted with saturated markets, customers can choose from variety of products and services; they became very demanding and expect high value for their money (Bruggemann, Hedstrom & Josefsson, 2004). Data mining helps businesses use technology and human resources to gain insight into the behavior of customers and the value of those customers (Kudyba, 2004).

Customer relationship management builds mutually beneficial relationships with customers and to achieve this goal companies need to customize the value proposition in order to attract and retain targeted customers (Williams, 2006). Customer loyalty is fickle and companies face the challenge to detect customers who are highly valuable for the business but are likely to change to competition and with the right management CRM can become the strongest tool to ensure that customers become and remain loyal, it can help to manage relationships more effectively, with lower costs and at the same time can increase the viability of products and services (Anderson & Kerr, 2002). Quality CRM is grounded on high quality customer-related data and enabled by using information technology (Cios, 2007). Today, the companies focus on the goal of understanding each customer individually and using this, it becomes easier for them to improve business (Sojan, Raphy, & Thomas, 2014).

Companies collect data from a number of sources. Customer related information can be sales data (purchase history), financial data (payment history), marketing data (loyalty scheme, campaign response), etc. Fast growing of data amounts has exceeded human ability to evaluate it without suitable tools by far and it is not possible to evaluate all these data manually (Gupta, 2006).

Companies already know that data is extremely valuable and it needs to be understandable, valid, novel and useful to make companies more competitive and profitable. An important part of CRM is analyzing customer information to better address the objectives of a company and deliver the right message to the right customer (Buttle, 2009). It involves use of data mining models in order to understand and predict their behavior. Data mining refers to mining or extracting knowledge from large amounts of data. It converts data into knowledge (Han & Kamber, 2006). Data mining techniques are a result of a long process of research and product development. This evolution began when business data was first stored on computers, continued with improvements in data access, and more recently, generated technologies that allow users to navigate through their data in real time (Tissera, Athauda & Fernando, 2014). Data mining automates the process of finding predictive information in large databases. Questions that traditionally required extensive hands-on analysis can now be answered directly from the data quickly (Deshmukh & Akarte, 2014).

There are 3 basic models of data mining which can be used in CRM and prolong the lifecycle of a customer: Propensity models, Cluster models and Association and sequence models (Tsiptsis & Chorianopoulos, 2009).

The customer lifecycle provides a good framework for applying data mining to CRM. Marketers say there are three ways to increase a customer's value (Rygielski, Wang & Yen, 2002):

i. increase their use (or purchases) of products they already have;
ii. sell them more or higher-margin products;
iii. Keep the customers for a longer period of time.

With help of software solutions a simple customer lifecycle can be prolonged and bring more money to a company. Data mining solutions help an enterprise manage customer lifecycle in an organized way. It enables companies to be more efficient by acquiring new customers, identifying better cross sell and up sell possibilities, to manage customer retention or recover potentially valuable customer relationships (Witen & Eibe, 2005).

2. Research Methodology

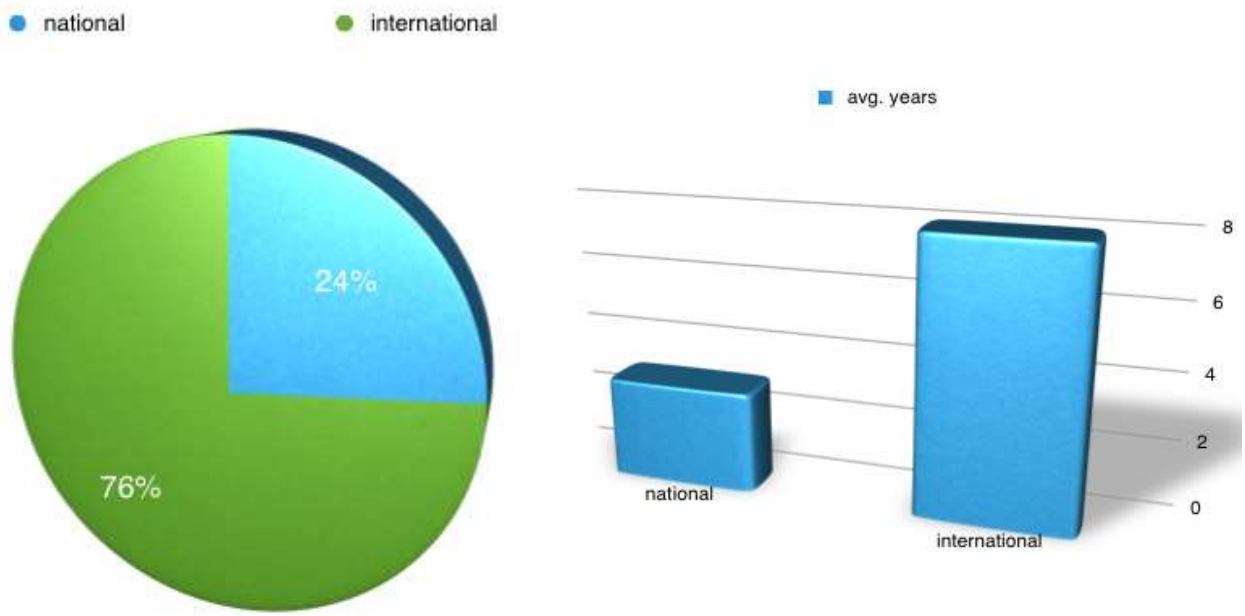
Data for this research was gathered from January to May 2014. The goal of the research was to gather information on using data mining techniques from 100 large and medium- sized companies operating in Slovakia. All the companies that were not using any king of data mining were eliminated from the research. The representatives of the companies were presented with 8 open-ended questions in order to get the information on what they use data mining for, what are the min challenges and advantages of using data mining and how long they have been using these techniques. The advantages of this research were high response rate due to few questions, issues could be examined

in detail and in depth because of the open-ended questions and respondents were not restricted to specific answers. A limitation of this study is that the numbers of questioned companies was relatively small and no special method was used for sampling. This limitation means that study findings need to be interpreted cautiously and the research results are not representative. Nevertheless, research result in form of descriptive statistics can be seen in the next section of this paper.

3. Research Results

In our research, 76 percent of companies were international and 24 percent operated only on Slovak market. The domestic companies have been using any kind of data mining or computer assistance for customer relationship management or any king of marketing analytics based on working with customer data for 3 years on average, whereas international companies have been using these tools for 8 years on average. These results can be seen in Figure 1.

Figure 1: Type of Company and Avg. Years of Using Data Mining



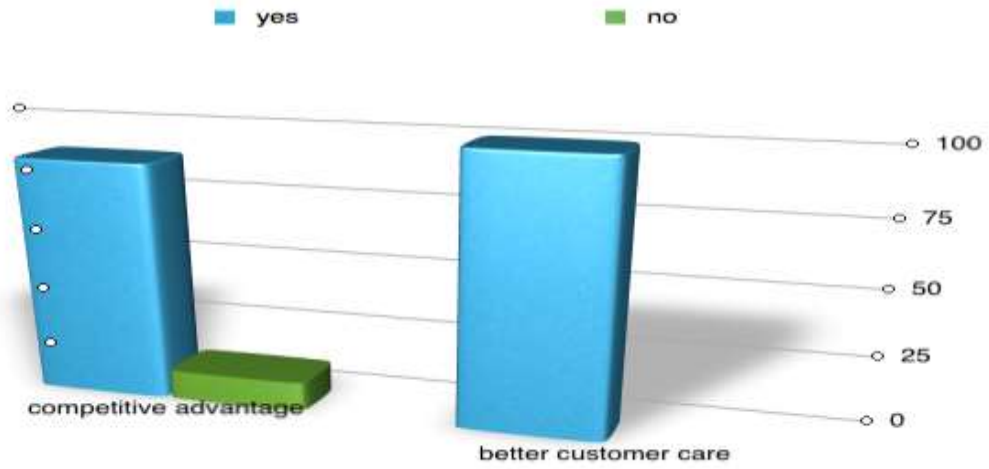
The main purpose of using data mining was customer care, customer analysis, market basket analysis, cross sell, prediction analysis, marketing campaigns and segmentation. The main challenges in using data mining, according to our research, were preparation of data, maintaining the database, security issues, high investments, qualified analysts, refreshing the models, time requirements for some analysis, privacy issues, difficulties in obtaining some kind of information, overhaul of data.

Based on the research results, the biggest advantages of using data mining, which can be seen in Figure 2, were tailor offerings to specific customer, determining customer needs, better customer relationship management, more effective marketing campaigns, money and time savings, better customer care, on-time information about changing customer requirements, reduced risk in campaigns, retaining the most valuable customers, effective customer segmentation.

Figure 2: Advantages of Using Data Mining

The last two issues we wanted to examine in our research were if data mining can be seen as a tool for creating competitive advantage and if the companies are able to serve their target segments better. More than 80 percent companies agreed that using computer analysis for CRM builds competitive advantage. All the companies we asked confirmed they could have a better customer relationship management with help of data mining techniques. The results can be seen in Figure 3 below.

Figure 3: Competitive Advantage and Better Customer Care with Data Mining



4. Discussion

Only small amounts of data can be evaluated using standard techniques or even manually. Saturated markets demand decision based more on exact evaluations rather than on marketers´ intuition or previous experience, simply because marketers can never extract the valuable knowledge from the vast amount of data. Data mining is an advanced data analysis involving data warehouses where big quantities of data are being stored and accumulated. Data mining techniques are made to uncover important data patterns contributing greatly to business strategies; it enables marketers to extract valuable information from enormous amount of data. It is a solution to a problem many companies face: an overabundance of data, little time and limited staff to transform simple data into meaningful information.

Data mining is used mainly for tailor offerings to customers, better customer relationship management, money and time savings, identifying new market opportunities, effective market segmentation. The main challenges for companies are that data mining requires application of different data mining techniques; data comes from multiple sources, in different patterns and codes. Analysts always need to understand these data before they are able to conduct any analysis. Marketers must be aware of that and be able to clearly decide what kind of information can be used for marketing purpose since law regulates using customer information. Also, getting the right data that can be used for an analysis can be costly and time consuming. As our research showed, data mining is widely used in large and medium- sized companies in Slovakia and they consider it to be an inevitable part of their business activities.

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