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How Business Intelligence Can Help You to Better Understand Your Customers

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ABSTRACT

Companies can incur heavy losses when customers do not return; therefore, they need to have a better understanding of their customers' behaviors in order to improve service and products. And nowadays, there are multiple resources of customers' data especially with web services, such as websites, chatbots, emails, social media, PoS, ERP, CRM, SCM, therefore, it becomes difficult to collect all this huge data altogether and analyze it manually This paper highlights the role of business intelligence in improving the relationship with the customers, and explores the techniques used to analyze customers' data in order to predict their demands and reach their satisfaction.

KEYWORDS

Business Performance Management, CRM, Customer Retention, Data Mining, Data Warehouse, ETL, OLAM, OLAP

INTRODUCTION

The market is growing rapidly and the data becomes huge and from multiple resources, which means that the demand for user-friendly analytics tools is growing too. From here, the need for business intelligence systems arises to help make sense of the organizational data. This paper should help identifying the role of BI in customer relationship management and how it becomes vital to use such intelligent tools in the crazily growing data age.

Business intelligence (BI) is the use of computing technologies (applications and software) to collect business data from multiple resources and analyze it then transform it into useful insights that help managers and owners to take the right actions in order to improve the business performance and meet the goals required to business success. The need for BI emerged in the latter part of the 20th century and it has become an integral aspect of the decision making processes.

Business Intelligence can help the company in understanding its customers in order to improve its relationship with them, such as faster conversion of potential into actual clients, reducing the number of outgoing customers and increase sales to existing customers, and that in its turn will increase sales and revenue (Habul & Pilav-Velic, 2010). This paper will discuss some of the techniques BI uses in improving the relationship with customers, but first, it will explain the concept of BI system and the role of each component.

Figure 1 shows a conceptual model of Business Intelligence in e-business, this mode defines e-business as implementation of any electronic transaction-related activities from enterprise external environment, including Customer Relationship Management (CRM), Enterprise Resource Planning (ERP), Supply Chain Management (SCM), Point of Sale (Pos), and so on. After the data is gathered from the web store and stored in a central database, business intelligence converts the data into

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information and knowledge that can be used for enterprise decision-making. Technologies used include extraction, transformation and load (ETL), data warehousing, data mining and data analysis. The results provide an overall view of e-business data flow patterns in visualized form such as dashboards, reports, graphs, alerts and so on. The technologies used in business intelligence are further described in the next section (Sheng Hooi, 2012).

ARCHITECTURE OF BI

Business Intelligence has four components: a data warehouse and its source data, business analytics – a collection of tools for manipulating, mining and analyzing data, business performance management (BPM) tools for monitoring and analyzing performance, and a user interface (Sheng Hooi, 2012).

Data Warehouse

A data warehouse is a centralized data repository that collects and manages data derived from operational systems (such as ERP, CRM, PoS, marketing and sales) and external data sources (such as Online Social Networks, Blogs, Videos, E-mails, Text Documents, Chat). ETL (extraction, transformation and loading) tools are used to perform the process of extracting data from multiple source systems, cleansing and transforming, then loading the data into the data warehouse in a standard and consistent format which is structured for query and analysis. A data warehouse is designed to help decision makers to take the right decisions by consolidating and analyzing data and creating reports at different levels.

Business Analytics

Business analytics also known as analytical processing is a broad category of applications and techniques for gathering, sorting and analyzing data to help enterprise users make better business and strategic decisions. For example, OLAP (online analytical processing) which helps to analyze the multi-dimensional data from various angles for using them in business reporting, trends analysis, sales forecasting and other planning purposes, Ad hoc reporting, which is the process of creating reports on the fly by business end-users (no need for technical skills), displaying information in a table or a chart that is the result of a question which has not already been codified in a production report. Data Mining is another set of analytical techniques that helps to get the patterns from large data sets and converting it into understandable form to be used by other BI components (Sheng, 2012). Online Analytical Mining (OLAM): is an architecture that integrates OLAP and data mining, it helps user to select a set of data and analyze it using data mining algorithms (Ritbumroong, 2015).

The first aspect of customer data analysis is "customer knowledge," implying awareness of key customer characteristics that are relevant to your organization's business processes most likely from customer profile. Examples of related data are demographic characteristics (basic personal information, including age, gender, income, marital state, religion, family size, occupation and education), geographic characteristics (such as where the individual lives, whether the individual is married), analytical characteristics such as purchasing patterns or credit worthiness, frequency of purchase, time of high purchase) and psychographic characteristics (such as interests, personality, attitude, culture) (Gillespie, n.d.).

Customer data segmentation is an important analytical process that helps marketers to segment market based on consumer personality traits, lifestyle, social class, location, and so on. Some of the benefits of segmentation are:

- Identify the most and least profitable customers
- Focus the marketing on the customers who will be most likely to buy company's products or services

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