

Chapter 14

Creating Competitive Advantage by Using Data Mining Technique as an Innovative Method for Decision Making Process in Business

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ABSTRACT

Competitive advantage is at the heart of a firm's performance in today's challenging and rapidly changing environment. One of the central bases for achieving competitive advantage is the organizational capability to create new knowledge and transfer it across various levels of the organization. Traditional methods of data analysis, based mainly on human dealing directly with the data, simply do not scale to handle with large data sets. This explosive growth in data and databases has generated an urgent need for new techniques and tools that can intelligently and automatically transform the processed data into useful information and knowledge. Consequently, data mining has become a research area with increasing importance. Organizations of all sizes have started to develop and deploy data mining technologies to leverage data resources to enhance their decision making capabilities. Business information received from data analysis and data mining is a critical success factor for companies wishing to maximize competitive advantage. In this study, the importance of gaining knowledge for organizations in today's competitive environment are discussed and data mining method in decision making process is analyzed as an innovative technique for organizations.

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INTRODUCTION

The decade of the 1990s has brought a growing data glut problem to the world of science, business and government. Our capabilities for collecting and storing of all kinds have far outpaced our abilities to analyze, summarize and extract “knowledge” from this data. Traditional methods of data analysis, based mainly on the human dealing directly with the data, simply do not scale to handling voluminous data sets (Fayyad, 1996). This explosive growth in data and databases has generated an urgent need for new techniques and tools that can intelligently and automatically transform the processed data into useful information and knowledge. Consequently, data mining has become a research area with increasing importance. (Chen et al., 1996)

The intensely competitive global marketplace compels enterprise decision makers to seek out competitive advantages by eliminating inefficiencies, optimizing internal operations and maximizing relationships with all organizational stakeholders (employees, customers, partners and shareholders). To assist in this endeavor, organizations of all sizes are developing and deploying data mining technologies to leverage data resources to enhance their decision making capabilities (Nemati & Barko, 2003).

Data mining is the process of discovering meaningful new correlations, patterns and trends by sifting through large amounts of data stored in repositories and by using pattern recognition technologies as well as statistical and mathematical techniques (Berry & Linoff, 1997).

KNOWLEDGE MANAGEMENT AND COMPETITIVE ADVANTAGE

Creating and sustaining competitive advantage is the aim of every firm. Especially in today’s competitive environment, organizations should not only survive but also gain competitive advan-

tage against their rivals and earn above average incomes in order to be successful.

Competitive advantage is at the heart of a firm’s performance in competitive markets. It grows fundamentally out of a value a firm is able to create for its buyers that exceeds the firm’s cost of creating it (Porter, 1985). In order to be able to survive, grow and be profitable, any profit-seeking organization must seek a competitive advantage (Snyman & Kruger, 2004). According to the resource-based view of the firm, organizational resources and capabilities that are simultaneously rare, valuable, non-substitutable and imperfectly imitable form the basis for a firm’s sustainable competitive advantage (Barney, 1991). Because of this reason, the organization that wants to build competitive advantages has to create and leverage its capabilities. One of the central bases for achieving competitive advantage is the organizational capability to create new knowledge and transfer it across various levels and parts of the organization. Because knowledge is central to strategy formulation and implementation, knowledge management has become a key strategic task facing managers for achieving success in today’s complex and dynamic environments (Muthusamy & Palanisamy, 2004). The shifting winds of change in today’s business environment, where the market place is increasingly competitive and the rate of innovation is rising, have made enterprises realize that knowledge is their key asset. It is pointed out that the most valuable assets of the 21st century enterprise are its knowledge and knowledge workers (Snyman & Kruger, 2004).

It is argued that knowledge is displacing natural resources, capital and labor as the basic economic resource in the “new economy”. Commentators on contemporary themes of strategic management stress that a firm’s competitive advantage flows from its unique knowledge and how it manages knowledge. Some researchers even state that the only sustainable competitive advantage in the future will be effective and efficient organizational knowledge managing (Carlsson, 2003). For this

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