



Chapter I

Organizational Data Mining (ODM): An Introduction

Hamid R. Nemati

University of North Carolina at Greensboro, USA

Christopher D. Barko

University of North Carolina at Greensboro, USA

ABSTRACT

An increasing number of organizations are struggling to overcome “information paralysis” — there is so much data available that it is difficult to understand what is and is not relevant. In addition, managerial intuition and instinct are more prevalent than hard facts in driving organizational decisions. Organizational Data Mining (ODM) is defined as leveraging data mining tools and technologies to enhance the decision-making process by transforming data into valuable and actionable knowledge to gain a competitive advantage (Nemati & Barko, 2001). The fundamentals of ODM can be categorized into three fields: Artificial Intelligence (AI), Information Technology (IT), and Organizational Theory (OT), with OT being the core differentiator between ODM and data mining. We take a brief look at the current status of ODM research and how a sample of organizations is benefiting. Next we examine the evolution of ODM and conclude our chapter by contemplating its challenging yet opportunistic future.

SETTING THE STAGE

The competitiveness of the new global economy requires immediate decision capability. A recent study of more than 800 U.S. business decision-makers found that most respondents are making more decisions in the same amount of time but are missing opportunities because their decisions are not made quickly enough. In addition, these decision makers are not fully utilizing available resources and are often unable to gather sufficient information to make a fact-based decision (Wessel, 2002). The amount of data available today is doubling every five years, and corporate America is able to utilize less than 7 percent of the information it manages (Anonymous, 2001). Research from IBM also revealed that organizations use less than 1 percent of their data for analysis (Brown, 2002). As noted in the preface, this is the fundamental irony of the Information Age we live in — organizations possess enormous business information, yet have so little real business knowledge.

In the past, companies have struggled to make decisions because of the lack of data. But in the current environment, more and more organizations are struggling to overcome “information paralysis” — there is so much data available that it is difficult to determine what is relevant. Organizations today routinely collect and manage terabytes of data in their databases, thereby making information paralysis a key challenge in enterprise decision-making. Once the essential data elements are identified, the data must be reformatted, processed and analyzed to generate knowledge. The resulting knowledge is then delivered to the decision makers for collaboration, review and action. Once decided upon, the final decision must be communicated to the appropriate parties in a rapid, efficient and cost-effective manner.

ORGANIZATIONAL DATA MINING

The manner in which organizations execute this intricate decision-making process is critical to their well-being and industry competitiveness. Those organizations making swift, fact-based decisions by optimally leveraging their data resources will outperform those organizations that do not. A robust technology that facilitates this process of optimal decision-making is ODM, which is defined as leveraging data mining tools and technologies to enhance the decision-making process by transforming data into valuable and actionable knowledge to gain a competitive advantage (Nemati & Barko, 2001). ODM eliminates the guesswork that permeates so much of corporate decision-making. By adopting ODM, an organization’s managers and employees are able to act sooner rather than later, be proactive rather than reactive and know rather than guess.

ODM spans a wide array of technologies, including, but not limited to, e-business intelligence, data analysis, online analytical processing (OLAP), customer relationship management (CRM), electronic CRM (e-CRM), executive information systems (EIS), digital dashboards and information portals. ODM enables organizations to answer questions about the past (what has happened?), the present (what is happening?) and the future (what might happen?). Armed with this capability, organizations can generate valuable knowledge from their data, which in turn enhances enterprise decisions. This decision-enhancing technology enables many advantages in operations (faster product development, increased market share with quicker time to market, optimal supply chain

6 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/organizational-data-mining-odm/27904

Related Content

SLOD-BI: An Open Data Infrastructure for Enabling Social Business Intelligence

Rafael Berlanga, Lisette García-Moya, Victoria Nebot, María José Aramburu, Ismael Sanzand Dolores María Llidó (2015). *International Journal of Data Warehousing and Mining* (pp. 1-28).

www.irma-international.org/article/slod-bi/130664

Finding the Semantic Relationship Between Wikipedia Articles Based on a Useful Entry Relationship

Lin-Chih Chen (2017). *International Journal of Data Warehousing and Mining* (pp. 33-52).

www.irma-international.org/article/finding-the-semantic-relationship-between-wikipedia-articles-based-on-a-useful-entry-relationship/188489

A Conformity Measure Using Background Knowledge for Association Rules: Application to Text Mining

Hacène Cherfi, Amedeo Napolian and Yannick Toussaint (2009). *Post-Mining of Association Rules: Techniques for Effective Knowledge Extraction* (pp. 100-115).

www.irma-international.org/chapter/conformity-measure-using-background-knowledge/8439

An Enhanced Artificial Bee Colony Optimizer for Predictive Analysis of Heating Oil Prices using Least Squares Support Vector Machines

Zuriani Mustaffa, Yuhani Yusof and Siti Sakira Kamaruddin (2014). *Biologically-Inspired Techniques for Knowledge Discovery and Data Mining* (pp. 149-173).

www.irma-international.org/chapter/an-enhanced-artificial-bee-colony-optimizer-for-predictive-analysis-of-heating-oil-prices-using-least-squares-support-vector-machines/110458

Scalable Biclustering Algorithm Considers the Presence or Absence of Properties

Abdelilah Balamane (2021). *International Journal of Data Warehousing and Mining* (pp. 39-56).

www.irma-international.org/article/scalable-biclustering-algorithm-considers-the-presence-or-absence-of-properties/272017