

Chapter 5

Informational Data Mining: A Survey from 2000 to 2010

Feyza Gürbüz

University of Erciyes, Turkey

Fatma Gökçe Önen

University of Erciyes, Turkey

ABSTRACT

The previous decades have witnessed major change within the Information Systems (IS) environment with a corresponding emphasis on the importance of specifying timely and accurate information strategies. Currently, there is an increasing interest in data mining and information systems optimization. Therefore, it makes data mining for optimization of information systems a new and growing research community. This chapter surveys the application of data mining to optimization of information systems. These systems have different data sources and accordingly different objectives for knowledge discovery. After the preprocessing stage, data mining techniques can be applied on the suitable data for the objective of the information systems. These techniques are prediction, classification, association rule mining, statistics and visualization, clustering and outlier detection.

1. INTRODUCTION

During the past decades, the importance of using Information Systems (IS) in all sectors had a continuous increase. The main reason of this increase is the continuous growing data about the companies, corporations and their staffs depending

on developing production technologies, growing markets, and customer satisfaction day by day. There is a great tendency to having integration of the data coming from people and the Information Technologies (IT) in systems. Although there is no necessity for using computers and information technologies in measurement of information

DOI: 10.4018/978-1-4666-3946-1.ch005

systems, there is an increasing interest of using IT on people who are willing to study about IS. Since the prices are lower and the ease of use is higher, more people have begun to use IT at their works for storing data.

An information system is designed to collect, process, and store and distribute information (Watson, 2007). Trying to store and figure out what the functional information is in a database is not a new thing, only the process has changed and the usage of IT is more common recently. The IS process sometimes can be hard to handle due to amount and complexity of data. Using IT makes IS measurements easier, clearer and more understandable for conducting. However there are situations that using just IT cannot be useful enough in IS process. These situations are when there are too much data that must be considered. Widespread use of computers and networking technologies has created large electronic databases that store business transactions (Bose, & Mahapatra, 2001). Since there is too much complex data to consider and measure in information systems, using data mining techniques have become a strong necessity more than ever.

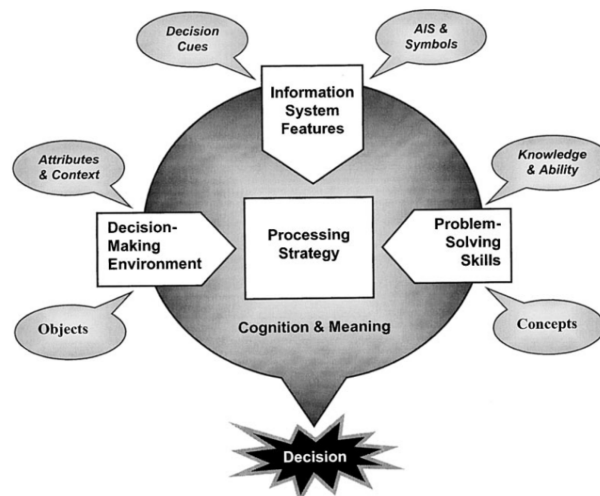
2. INFORMATION SYSTEMS OPTIMIZATION

Information systems ensure saved significant documents from the everyday observations in an organization. Thanks to IS, the management departments of organizations can reach the information they look for easily and on time. The more IS are used, the more reliable data can be reached. Information systems are increasingly important for measuring and improving quality (Bates et al., 1999).

Technology has created new information alternatives that may influence the way information systems users make decisions as O'Donnell and David (2000) mentioned as in Figure 1.

As Kogut and Zander (1992) mentioned, knowledge is very important for organizations, this knowledge helps to collect a technology, service, or product across locations, and it extends beyond individual knowledge, interest, and agendas. The reuse of knowledge collected is also vital for organizations for economic stability. Information systems allow knowledge to be stored, mediated, searched, and reused at lower cost (Krogh, 2009). The other economic benefits of

Figure 1. Decision-making framework for information systems (AIS: accounting information systems) (O'Donnell & David, 2000)



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/informational-data-mining/77960

Related Content

Preparedness of Small and Medium-Sized Enterprises to Use Information and Communication Technology as a Strategic Tool

Klara Antlova (2010). *Enterprise Information Systems for Business Integration in SMEs: Technological, Organizational, and Social Dimensions* (pp. 342-361).

www.irma-international.org/chapter/preparedness-small-medium-sized-enterprises/38207

Comparative Analysis of Contemporary Modeling Languages Based on BPM4KI Meta-Model for Sensitive Business Processes Representation

Mariam Ben Hassen, Mohamed Turkiand Faïez Gargouri (2018). *International Journal of Enterprise Information Systems* (pp. 41-78).

www.irma-international.org/article/comparative-analysis-of-contemporary-modeling-languages-based-on-bpm4ki-meta-model-for-sensitive-business-processes-representation/208145

A Novel Tool for Configurable Process Evolution and Service Derivation

Hanae Sbai, Loubna El Faquihand Mounia Fredj (2019). *International Journal of Enterprise Information Systems* (pp. 58-75).

www.irma-international.org/article/a-novel-tool-for-configurable-process-evolution-and-service-derivation/227002

Effects of Supply Chain Characteristics on E-Procurement Institutionalization in the Construction Sector: Evidence From Developing Countries

Quangdung Tran, Drew Steveand Rodney Anthony Stewart (2021). *International Journal of Enterprise Information Systems* (pp. 85-96).

www.irma-international.org/article/effects-of-supply-chain-characteristics-on-e-procurement-institutionalization-in-the-construction-sector/282019

Ownership Structure and Voluntary Disclosure of Intellectual Capital: Evidence from Malaysia

Kin Gan, Zakiah Salehand Massoud Abessi (2013). *Enterprise Development in SMEs and Entrepreneurial Firms: Dynamic Processes* (pp. 390-404).

www.irma-international.org/chapter/ownership-structure-voluntary-disclosure-intellectual/74479