

Chapter 25

Decision–Making With Big Data Using Open Source Business Intelligence Systems

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ABSTRACT

The importance of supporting decision making for improving business performance is a crucial, yet challenging task in enterprise management. The amount of data in our world has been exploding and Big Data represents a fundamental shift in business decision-making. Analyzing such so-called Big Data is becoming a keystone of competition and the success of organizations depends on fast and well-founded decisions taken by relevant people in their specific area of responsibility. Business Intelligence (BI) is a collection of decision support technologies for enterprises aimed at enabling knowledge workers such as executives, managers, and analysts to make better and faster decisions. We review the concept of BI as an open innovation strategy and address the importance of BI in revolutionizing knowledge towards economics and business sustainability. Using Big Data with Open Source Business Intelligence Systems will generate the biggest opportunities to increase competitiveness and differentiation in organizations. In this chapter, we describe and analyze four popular open source BI systems - Jaspersoft, Jedox, Pentaho and Actuate/BIRT.

INTRODUCTION

New advances of Information and Communication Technologies (ICT) continue to rapidly transform how business is done and change the role of information systems in business and our daily life. The amount of data in our world has been exploding. Enterprises are flooded with ever-growing data of all types, easily amassing terabytes, even petabytes, of data. Analyzing such so-called Big Data is becoming a keystone of competition, new waves of productivity growth, and innovation. With the emergence

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of new data collection technologies and analytical tools, Big Data offer an unprecedented opportunity to discover insights in new and emerging types of data, to make businesses more agile, and to answer questions that were previously considered beyond reach. Increasing competition, demand for profits, contracting economy, and savvy customers all require companies and organizations to make the best possible decisions. With the fast advancement of both business techniques and technologies in recent years, knowledge has become an important and strategic asset that determines the success or failure of an organization (Wit & Meyer, 2003). Studies show that a competitive advantage in the business environment depends on the accessibility to adequate and reliable information in shortest time possible and the high selectivity in the creation and use of information. An effective instrument to create, aggregate and share knowledge in an organization has therefore become a key target of management.

The need to implement decision support systems in organizations is an unavoidable reality (Arsham, 2015). Currently, the majority of organizations have Information Technology (IT) systems, designed to record and store massive amounts of data resulting from the operational activity (Kimberling, 2006). This data set has to be transformed in information and all that information will lead to knowledge useful for the organizations.

In addition, in a competitive environment, traditional decision-making approaches no longer meet the requirements of organizations for decision-making; organizations must make good use of electronic information system tools such as Business Intelligence (BI) systems to quickly acquire desirable information from huge volume of data to reduce the time and increase the efficiency of decision-making procedure. Different researchers have different definitions for business intelligence system, for example (Turban et al., 2008) defined the business intelligence system as “an umbrella term that encompasses tools, architectures, databases, data warehouses, performance management, methodologies, and so forth, all of which are integrated into a unified software suite”.

Business Intelligence is one of the few forms of sustainable competitive advantage left (Burstein & Holsapple, 2008). For example, any two well-funded competitors in a market have near real access to capital, technology, market research, customer data, and distribution. People and the quality of the decisions that they make are the primary competitive differentiators in the Information Age (Lin et al., 2009). The implementation of BI components is the key to sustaining long-term competitive advantage.

Several studies have shown how IT investments impact enterprise performance (Popović et al., 2010). In order to capture real benefits of BI investments, as an IT investment, these studies revealed that organizations have to make a great effort (Chamoni & Gluchowski, 2004). In the earlier steps of BI system implementation, the selection of the most convenient system is very important. Organizations implementing a BI solution need also to consider several factors such as: the scope of functionalities that each software provide; how each system fit within the organization's data model; and how expensive is the total cost of ownership (total cost of acquiring and implementing a BI solution).

In this work we describe the top key systems to implement open source BI in organizations: Jaspersoft, Jedox, Pentaho and Actuate/BIRT. In particular organizations which would like to enter into the new market and operate on a global scale. Thus, open source BI systems can trigger immense possibilities of accelerating knowledge acquisition, intensifying entrepreneurship development and improving business skills, therefore, leading to business sustainability. In this context open source BI can be seen as another form of open innovation, which can be used by business communities, especially among SMEs.

The rest of the chapter is organized as follows. First, we describe the problem of growing data volumes that organizations have to deal with. Second, we introduce the concept of BI and address the importance of BI in revolutionizing knowledge to enhance organization's response in making better and more efficient

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