Chapter 7
Commercial and Open Source Business Intelligence Platforms for Big Data Warehousing

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ABSTRACT

A big data warehouse enables the analysis of large amounts of information that typically comes from the organization’s transactional systems (OLTP). However, today’s data warehouse systems do not have the capacity to handle the massive amount of data that is currently produced. Business intelligence (BI) is a collection of decision support technologies that enable executives, managers, and analysts to make better and faster decisions. Organizations must make good use of business intelligence platforms to quickly acquire desirable information from the huge volume of data to reduce the time and increase the efficiency of decision-making processes. In this chapter, the authors present a comparative analysis of commercial and open source BI tools capabilities, in order to aid organizations in the selection process of the most suitable BI platform. They also evaluated and compared six major open source BI platforms: Actuate, Jaspersoft, Jedox/Palo, Pentaho, SpagoBI, and Vanilla; and six major commercial BI platforms: IBM Cognos, Microsoft BI, MicroStrategy, Oracle BI, SAP BI, and SAS BI & Analytics.

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INTRODUCTION

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. Business Intelligence can be defined as a system that “combine data gathering, data storage, and knowledge management with analytical tools to present complex and competitive information to planners and decision makers” (Negash & Gray, 2003). It can also be described as the mechanism that “provides actionable information delivered at the right time, at the right location, and in the right form to assist decision makers” (Langseth & Vivotrat, 2003).

The concept of BI appeared around 1989 by Howard Dresner. Initially, this concept was associated with organizational management more than the technological area and referred to the set of models and methods that promoted decision making, using support systems sustained on data (Information Week, 2006; Lim et al., 2012).

The currently organizational contexts require rigorous planning, uniformity of procedures and optimization of the overall existing resources. These assumptions require access, in constant and regular basis, to up to date and relevant data and, enabling decision making in order to sustainability and growth of organizations.

BI platforms allow companies to measure and improve the metrics that matter most to their businesses, such as sales revenue, customer loyalty and retention, order status, units per transaction, operating productivity, monthly profit or loss, overhead costs, inventory size and so on (Marinheiro & Bernardino, 2015; King, 2009).

Consequently, the implementation of BI platforms for decision support in enterprises emerges as pressing needs, resulting from competitive dynamics experienced by business organizations. This requires enterprises to make efforts in order to put in the market products and services at competitive prices.

Business Intelligence points to a set of management methodologies, implemented through software tools, whose function is to provide profitability and leadership in decision-making and administration of organizations. Thus, at the highest level of management, decision-makers must have, in a given place and time, analytics tools which provide, as a group, important information and data. Organizations should combine tools and techniques, which go beyond simply data management. BI is an important contribution to the production and management of knowledge and, consequently, promotes the improvement of organizational performance.

As a result of the use of BI tools, all these data acquire structure and arrangements, providing essential and fundamental strategic information to decision-making. This is supported on the evidence generated by these platforms, such as tables, graphs, dashboards, KPIs (Key Performance Indicators), multidimensional OLAP (On-line Analytical Processing) and Data Mining, among others. By applying analytics throughout the decision life cycle, decision makers can answer operational requests quickly and confidently, predict and deduce trends, patterns or nonconformities in the respective business area. This will promote the establishment of strategic planning in organizations, as well as proper management of contractual relationships with different partners, resulting in effective business progress. Likewise, this evolution cannot ignore the dynamics of social networks as a source of information about behaviors and associations in markets and their agents. The conversion of such information into organizational knowledge, through the integration of collaborative technologies in BI turns out to be, in our opinion, essential to the sustainability of organizations.