

Chapter 19

Business Intelligence 2.0: The eXtensible Markup Language as Strategic Enabler

Rubén A. Mendoza
Saint Joseph's University, USA

ABSTRACT

Business Intelligence 2.0 is an umbrella term used to refer to a collection of tools that help organizations extend their BI capabilities using Internet platforms. BI 2.0 tools can enable the automatic discovery of distributed software services and data stores, greatly increasing the range of market options for an organization. The development cycle for these tools is still in its early stage, and much work remains. However, some technologies and standards are already well understood in order to make a significant impact. This paper provides an overview of the eXtensible Markup Language (XML) and related technologies supporting the deployment of web services and service-oriented architectures (SOA). The author summarizes the critical importance of these technologies to the emergence of BI 2.0 tools. This paper also explores the current state of Internet-enabled BI activities and strategic considerations for firms considering BI 2.0 options.

INTRODUCTION

Business intelligence (BI) has been consistently identified as one of the top IT developments to affect organizations in the coming years (Luftman & McLean 2004; Luftman et al., 2005; Luftman & Kempaiah, 2007), but its roots are much deeper than the recent popular and industry attention would seem to indicate. The concept of extracting

competitive advantage from stores of data is not at all new, from the initial conceptualization of business intelligence as “the ability to apprehend the interrelationships of presented facts” (Luhn, 1958) to emerging Internet-friendly BI 2.0 applications. The earliest IT shops ran all manners of batch reports for business managers looking for a competitive edge, but access to computing cycles and data was expensive and slow. Moreover, only people with deep IT backgrounds were capable of manipulating data to produce the kind of printed

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reports business managers actually found useful. The explosion of Internet-based technologies, combined with developments in storage technologies, and their effects on storage, speed and cost, have finally brought together operations management practices and data analysis tools to form the basis of modern BI (Yermish et al., 2010).

Business intelligence is not a single application but an amalgam of infrastructure technologies, software applications, methodologies, and business practices that helps organizations gather, access, and analyze data to help them make better decisions (Wu et al., 2007; Wixom & Watson, 2010). Business intelligence tools range from relatively simple tools like Microsoft's Excel to sophisticated data warehousing and data mining activities. Early BI implementations consisted of printed reports produced by IT departments in response to specific requests from managers, who had to manually inspect the reports to obtain any insight into the resulting data. This process was slow, inefficient, and slowed the discovery of patterns in the data. BI tools have evolved from those static data-mining reports and the manual discovery of patterns in the resulting data to near-real-time, actionable information that can help managers quickly modify marketing and advertising campaigns, monitor point-of-sale and transaction volumes, and the effect of business process changes on a firm's key performance indicators (Walker, 2009).

For the coming decade, industry research predicts that 35% of the top 5,000 global companies will face significant outages in business intelligence due to the inability to deploy and integrate critical information, processes, and tools (Schlegel et al., 2008). However, inroads into the delivery of distributed software services will be made, as software-as-a-service applications will become a standard component of BI portfolios for 20% of organizations (Schlegel et al., 2008). Access to such sophisticated tools is no longer limited to organizations with deep financial resources and extensive technical expertise: consumer-level

access to near-real-time business intelligence is now routinely provided to customers by Google, Amazon, and Facebook, among many others, using customizable browser-based interfaces that incorporate plotting, automatic data segmentation and reporting, and events-and-trends notification utilities. Google's Analytics service allows users to measure website traffic and marketing effectiveness via automatic notifications of changes in data patterns, data segmentation, and a customizable browser-based API. Amazon's CloudFront is a data-asset management and delivery mechanism that uses web services to maximize content-delivery performance and manage storage of advertising content. Facebook Ads allows advertisers to quickly create targeted marketing campaigns and to download performance metrics instantly to track campaign effectiveness and modify advertising parameters accordingly. Still, with the increased access to data these tools provide, they still only answer a limited number of questions because the data made available to end users may still only be a limited subset of what they would like to know. Also, any pattern-discovery activity by the end user is limited to those in the range of activities predefined by the service providers, i.e., Google, Amazon, and Facebook. As useful as this information is, tools that provide greater access to more enterprise data for the end user are needed.

BI architectures generally include data warehousing stores, utilities to complete extract, transform, and load (ETL) functions to ensure the data in the warehouse is suitable to the needs of the organization, and analytical tools to help interpret the data (Sell et al., 2008). The traditional BI architecture (left side of Figure 1), however, requires that data stores be updated batch style, not in real time, which limits their usefulness to organizations wishing to monitor and react to rapidly-changing business conditions.

The collection of emerging tools and methodologies providing dynamic, near-real-time access to corporate data using Internet-based technologies is known as BI 2.0. BI 2.0 extends static data

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