Intelligent Analytics: Integrating Business Intelligence and Web Analytics

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ABSTRACT
Organizations use web analytic tools and technologies to measure, collect, analyze, and report web usage data to help optimize websites. Traditionally, most of this data tends to be non-transactional and non-identifiable. In this regard, there has not been much integration with transactional data that is collected, stored, analyzed, and reported through Business Intelligence (BI). Emerging trends in web analytics provide organizations the ability to aggregate and analyze web analytics data with transactional data to provide valuable insights for building better customer relationship strategies. In this paper, the authors give an overview of web analytics tools, key players, new technology trends and capabilities to integrate web analytics with BI so organizations can leverage intelligent analytics for new marketing initiatives. While the benefits are significant, there are some challenges associated with the integration and a few possible solutions to address.

Keywords: Business Intelligence, Click Analytics, Competitive Advantage, Data Warehousing, Intelligent Analytics, Web Analytics, Web Logs

INTRODUCTION
To thrive in the competitive market place, it is important for organizations to devise strategies to stay ahead of the competition (Fleisher & Bensoussan, 2003). In order to do so, it is important that decisions made by businesses are sound and based on reliable and accurate data (Davenport, 2010). Business Intelligence (BI), a broad set of technology, applications and processes that help gather, store, access, and analyze data assist organizations make better business decisions (Gartner, 2009). Through quality decision making, the goal of BI is to help improve a company’s performance and promote its competitive advantage in the marketplace (Wixom & Watson, 2010).

In the past fifteen years, the emergence of Internet based technologies has expanded the way in which companies gather data and make business decisions. With every instance of consumer’s web use, companies gather tremendous amounts of consumer behavior data based on site visits, purchases, and user experience feedback. While applications that provide decision support are generally defined as analytics, (Davenport, 2006), the Web Analytics Association defines web analytics as “the measurement, collection, analysis and reporting of Internet data for the purposes of understanding and optimizing Web
usage” (www.waa.org). Organizations that gain competitive edge in the current market place successfully integrate online channel with all aspects of its business processes. While web analytics originally focused on measuring website traffic and optimizing web pages, current trends focus on using and analyzing the data for business and market research (Bhatnagar, 2009). Hamel (2009) provides a broader definition of web analytics as “extensive use of quantitative and qualitative data (primarily, but not limited to online data), statistical analysis, explanatory (e.g., multivariate testing) and predictive models (e.g., behavioral targeting), business process analysis and fact-based management to drive a continuous improvement of online activities; resulting in higher ROI.” (p. 2).

Web analytics, thus, is an emerging discipline that is changing rapidly as technologies and methodologies evolve to capture even more detailed, revealing data about how customers interact with a site’s web content (Halvorson, 2009). As we progress through this emerging transformation, it is important to understand the similarities and differences between web analytics and BI and see where the synergies lie between the two that an organization can capitalize on for competitive advantage.

Web analytics and traditional BI tend to differ slightly in their goals. Web analytics aims to measure non-transactional and non-personally identifiable activities, BI relies heavily on historical transactional data where customers are identified. Use of web logs as traditional means of gathering data for web analytics is changing with the introduction of page tagging that can help distinguish between automated, masked, and actual users that visit a site and gather data on page views. Tagging techniques can be done such that it will not break the user experience and hence the business data. To gain the competitive edge in the market place, organizations should explore ways to empower marketing and IT to integrate BI and web analytics to identify potential opportunities for growth. The market for web analytics has grown significantly over the past few years and B2B magazine reports that by 2014 it is expected to grow to US$953 million from US$252 million in 2004 (Nakano 2009; Chatham, Tempkin, & Backer, 2004). One aspect of this growing trend is connected and integrated analytics: Connected analytics means that a website’s content management system (CMS) and other applications are linked via page tags through third party solutions. Integrated analytics on the other hand focus on applications that include metric tools to automate communication between website and analytics software (Nakano, 2009). Using appropriate tools and strategies to integrate and mine both historic transaction data and current web usage data can provide actionable insights to organizations. The synergy between BI and Web Analytics should result in facilitating intelligent analytics that can give a leading edge to organizations proactive in doing so.

In this article, we first present an overview of web analytics including the methods, tools, and key players in the area. We follow that with a brief coverage of traditional BI and show were some of the gaps and opportunities lie for integration. Trends and capabilities for integration of web analytics and BI are then presented. We conclude with benefits and challenges of intelligent analytics.

WEB ANALYTICS: AN OVERVIEW

To do business effectively online, both, hybrid and pure digital organizations, need to continually refine and optimize their web-based marketing strategy, site navigation, and content. In order to optimize online strategies and remain competitive, organizations must be able to understand what aspects of the website are functioning well and what is below expectations. Web Analytics help organizations gather both offsite and onsite analytics data (Clifton, 2010a) and provide the tools to benchmark the effects. In this section, we first discuss how web analytics work, the current state of the art and key players. For a detailed discussion on web analytics please refer Kaushik (2007).
The Effect of Behavioral Factors on Stock Price Prediction using Generalized Regression and Backpropagation Neural Networks Models
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