

Business Intelligence Research

Guest Editors

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Background

Business intelligence (BI), a term coined in 1989, has gained much traction in the IT practitioner community and academia over the past two decades. According to Wikipedia, BI refers to the “skills, technologies, applications, and practices used to help a business acquire a better understanding of its commercial context” (http://en.wikipedia.org/wiki/Business_intelligence). Based on a survey of 1,400 CEOs, the Gartner Group projected BI revenue to reach \$3 billion in 2009 (Gartner 2006). According to an IBM Global CIO study, the collective voice of more than 2,500 chief information officers (CIOs) worldwide points to *business intelligence and analytics* as the top visionary plan for enhancing their enterprises’ competitiveness (IBM 2009). Through BI initiatives, businesses are gaining insights from the growing volumes of transaction, product, inventory, customer, competitor, and industry data generated by enterprise-wide applications such as enterprise resource planning (ERP), customer relationship management (CRM), supply-chain management (SCM), knowledge management, collaborative computing, and web analytics.

BI has been used as an umbrella term to describe concepts and methods to improve business decision making by using fact-based support systems. BI also includes the underlying architectures, tools, databases, applications, and methodologies (Raisinghani 2004). BI’s major objectives are to enable interactive and easy access to diverse data, enable manipulation and transformation of these data, and provide business managers and analysts the ability to conduct appropriate analyses and perform actions (Turban et al. 2008). BI is now widely adopted in the world of IT practice and has become popular in Information Systems curricula (Watson and Wixom 2007). Successful BI initiatives have been undertaken for major industries, including health care (Carte et al. 2005), airlines (Anderson-Lehman 2004), and telecommunications (Turban et al. 2008).

As a data-centric approach, BI heavily relies on advanced data collection, extraction, and analysis technologies (Watson and Wixom 2007; Turban et al. 2008). Data warehousing is the foundation of BI. The design of data marts and tools for extraction, transformation, and load (ETL) are essential for converting and integrating enterprise-specific data. Database query, online analytical processing (OLAP), and advanced reporting tools are often adopted next to explore important data characteristics. Business performance management (BPM) using scorecards and dashboards can be used to analyze and visualize various employee performance metrics. In addition to these well-established business analytics functions, advanced knowledge discovery using data and text mining can be adopted for association rule mining, database segmentation and clustering, anomaly detection, and predictive modeling in information systems, human resources, accounting, finance, and marketing applications.

In the past five years, web intelligence, web analytics, web 2.0, and user-generated contents have begun to usher in a new and exciting era of Business Intelligence 2.0 (BI 2.0) research. An immense amount of company, industry, product, and customer information can be gathered from the web, organized and visualized through knowledge mapping, web portal, and multilingual retrieval techniques (Chung et al. 2005; Marshall et al. 2004). By analyzing customer clickstream data logs, web analytics tools such as Google Analytics provide a trail of the user’s online activities and reveal the user’s browsing and purchasing patterns. Web site design, product placement optimization, customer transactions analysis, and product recommendations can be easily accomplished through web analytics. More recently, Web 2.0 has created an abundance of user-generated contents from online social media such as forums, online groups, web blogs, social networking sites, social multimedia sites (for photos and videos), and even virtual worlds. In addition to capturing entertainment-related contents and socio-political sentiments expressed in these media, Web 2.0 applications can efficiently gather a large volume of timely feedback and opinions from a diverse customer population for many different businesses (i.e., crowd-sourcing). Many believe social media analytics presents a unique opportunity for business researchers to treat the market as a “conversation” between businesses and customers instead of the traditional

business-to-customer “marketing.” Advanced information extraction, topic identification, opinion mining, and time-series analysis techniques can be applied to traditional business information and new BI 2.0 contents for various accounting, finance, and marketing applications, such as enterprise risk assessment and management, credit rating and analysis, corporate event analysis, stock and portfolio performance prediction, viral marketing analysis, etc.

Given these tremendous developments, information systems research based on design science can contribute significantly to BI. By designing and evaluating IT artifacts within the organizational and managerial context, much can be learned about BI technologies, practices, and challenges. IT artifacts are broadly defined as constructs, models, methods, and instantiations created to enable the analysis, design, development, and implementation of successful information systems within organizations (Hevner et al. 2004; March and Storey 2008). BI, with its data, systems, and analytics nature, would benefit greatly from advanced design science research, which has already been successfully applied (Abbasi and Chen 2008; Chung et al. 2005; Marshall, et al. 2004; Watson and Wixom 2007). In addition to a design science approach, rigorous and relevant BI-related research using management science (modeling, optimization), information economics, and organizational and behavioral methodologies (case studies, surveys) is also welcome.

Call for Submissions

This special issue of *MIS Quarterly* invites unpublished, original research relating to business intelligence. It specifically seeks research that creates and evaluates innovative BI-related IT artifacts that advance BI implementation. Submissions must relate to *MIS Quarterly*'s mission with strong managerial, organizational, and societal relevance and implications. The following types of submissions are discouraged:

- Purely theoretical papers: Submissions that are entirely theoretical in nature are discouraged. However, theories that are carefully developed and applied to business intelligence research and applications are strongly encouraged.
- Argumentation essays: Submissions consisting primarily of essays of qualitative argumentation or secondary analysis are discouraged. A scientific approach and validation are needed for any submission.
- Incremental research in well-established areas: Submissions that build on old and well-known models or methods without substantial improvement are discouraged.
- Research targeting specific algorithms or techniques: Submissions that focus only on comparison of algorithms or techniques using standard test-beds are discouraged. However, research that reports on the development of novel algorithms or techniques for real-world business intelligence applications is welcome.

Scope and Topics

BI 2.0 research is particularly welcome. Topics include, but are not limited to

- Design, implementation, and assessment of innovative data warehousing, ETL, and OLAP in BI
- Visual analytics, advanced interfaces, and human-computer interactions research for BI
- Advanced text, data, and web mining research for emerging BI applications
- Innovative knowledge discovery and knowledge management research for BI applications
- Business process and workflow management research for BI
- Web intelligence, web analytics, and web 2.0 research for BI
- Social media analytics, opinion mining, and sentiment analysis for BI

Review Process and Deadlines

Submissions to the special issue should be carefully written and be readable by a broader IT professional audience, not just specialists performing research in a narrow area. The Guest Editors will screen submissions to ensure appropriate scope and relevance. Papers that do not pass this initial screening will be returned to the authors. The review process will require reviewers to adhere to a 3-month review cycle and authors to adhere to a 3-month revision cycle. A maximum of three revisions will be invited for each paper. Papers that miss the required revision cycle or that are not deemed acceptable after two revisions will be removed from consideration. Submissions will enter a third round of reviews only if the revisions to be undertaken after the second round of reviews are relatively straightforward.

- Submissions due: October 15, 2010
- Initial screening: October 2010
- First round decisions: February 2011
- First round revisions due: May 31, 2011
- Second round decisions: September 2011
- Second round revisions due: December 15, 2011

All submissions must adhere to the formatting guidelines for *MIS Quarterly*. Submissions are made electronically to <http://mc.manuscriptcentral.com/misq>.

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