

Transformational Issues of Big Data and Analytics in Networked Business

Special Issue Editors

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Motivation and Overview

IBM projects that every day we generate 2.5 quintillion bytes of data (IBM 2013). In relative terms, this means *90 percent* of the data in the world has been *created in the last two years*. As the data piles up, managing and analyzing these information resources in the most optimal way become critical success factors in creating competitive advantage and strategic leverage.

We view big data and big data analytics as the mother lode of disruptive change in a networked business environment. Our analytic processes and procedures must change. Our organizations must adapt. Our government and judicial systems must weigh and balance restraints on, or encouragement of, big data collection, analysis, and resulting decision making. No matter the area of application—marketing, product customization, health care, education, free or controlled markets, individual or national security—big data collection and analytics loom as the “Great Disrupters.” The presence and potential impact of big data continues to explode, increasing the need for basic and applied research across disciplines. We believe that IS should take leadership in this emerging field of research in an early stage as networked organizations are already struggling to find directions and strategies on big data investments. To advocate and structure new venues of research, researchers in Information Systems have begun to explore interesting and challenging topics in big data and analytics (Chen et al. 2012; Shmueli and Koppius 2011).

We need to develop and enhance analytic methods appropriate for big data that challenge the current corporate infrastructure in terms of data volume, data variety, data change velocity and veracity. We need fundamental research on how big data and big data analytics are likely to impact management structures and processes, organizations, and society. From the firm perspective, key questions include optimal collection, management, integration, analysis and exploitation of big data. From the individual perspective, issues include privacy and ethical use as compared to benefits from personalization. From the government perspective, issues related to privacy, protection of individual rights, and national security all arise as big data collection and analytics expand.

What links the challenges together are the fundamental underlying questions on how IS techniques, processes, and controls can help address the various research issues. We organize the special issue not by perspectives, but by the following four key topic areas, each of which cuts across multiple perspectives, with the understanding that IS is at the heart of successfully addressing each issue:

- Area 1: Techniques, processes, and methods for collecting and analyzing big data
- Area 2: Impact of big data availability and analytics on IS and information governance
- Area 3: Privacy, rights, and security
- Area 4: New applications

Scope and Focus of the Special Issue

Topics of interest include, but are not limited to

- **Area 1: Techniques, processes, and methods for collecting and analyzing big data**
 - New techniques, processes and methods for the collection, management, storage, integration, and exploitation of big data in a networked business and ICT environment
 - New techniques, processes and methods for the development, deployment, and monitoring of analytical models in a networked business and ICT environment (e.g., analytic model development and representation, key analytic model requirements, model monitoring and back-testing, supporting ICT platforms, role of digital dashboards and OLAP)
 - New methodological paradigms for big data analytics (e.g., prediction versus causation, fit between machine learning/data mining/econometrics and the role of IS as an intersection discipline, measuring fundamental constructs of human behavior)
- **Area 2: Impact of big data availability and analytics on IS and information governance**
 - Normative setup of big data in a firm, vertical or horizontal data location strategies, impact on organizational design
 - Organizational, societal, and managerial impact of big data and analytics and its influence at the executive board level
 - Corporate governance for big data and analytics
 - Role of the CIO and need for a Chief Analytics Officer (CAO)
 - Out-sourcing versus in-sourcing of big data and analytics (ICT impact, economic and organizational aspects)
- **Area 3: Privacy, rights, and security**
 - Privacy and individual rights as compared to benefits from personalization
 - Governmental role in setting up privacy regulation, ensuring national security using big data and analytics
 - Ethical use of big data and analytics
 - Privacy preserving analytics
- **Area 4: New applications**
 - Using analytics for business process monitoring and improvement (process discovery, conformance and compliance checking, rule mining, delta analysis)
 - Open data, big data and analytics in the cloud, visual analytics, mobile analytics, real-time analytics, social network/media analytics, analytics in healthcare

Submitted papers can be either quantitative or qualitative and must contain new, unpublished, original, and fundamental work relating to *MIS Quarterly*'s mission with strong managerial, organizational, and societal relevance and implications. Purely theoretical papers, simple surveys, incremental contributions, and/or journalistic descriptions are highly discouraged. Similarly, purely algorithmic development without practical applications and/or solely benchmarking exercises using test bed data sets are not part of the intended focus. All submissions will be reviewed using rigorous scientific criteria whereby the novelty of the contribution will be crucial.

Review Process and Deadlines

Submission due date:	October 1, 2014
First round reviews due:	February 1, 2015
Research Workshop:	For authors who are invited to submit a revision – March 2015
Revisions due:	June 15, 2015
Second round decisions:	September 15, 2015
Revisions due:	November 30, 2015
Final editorial decision:	December 31, 2015

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