BIBA: Big Data and Business Analytics

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Chair and Organizer

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Abstract— **The main objective of this special session is to extend our understanding of how firms create and capture business value with big data analytics across various sectors.**

Keywords- big data; business analytics; value; industry; empirical study.

I. INTRODUCTION

Recently, big data analytics (BDA) defined as a "holistic approach to manage, process and analyze 5 Vs (i.e., volume, variety, velocity, veracity and value) in order to create actionable insights for sustained value delivery, measuring performance and establishing competitive advantages" [1] has emerged as a hot research topic for both academics and practitioners. This interest is driven by the high operational and strategic potentials related to the adoption and use of BDA. It's no surprise that the emerging literature identifies BDA as the "next big thing in innovation" [2, p.64] or the next "management revolution" (p. 3) [3]. However, we know from prior information technology (IT) adoption and use that the widespread diffusion of any given IT innovation in the business community depends on the evolution of the perceived potentials and risks associated with the said innovation. Therefore, it is important to evaluate the key determinants of BDA adoption and use for business value creation and capturing across various industries. The focus of this special session is to extend our understanding of how firms create and capture business value with BDA.

II. PAPERS ACCEPTED IN THE SPECIAL SESSION

The papers in this special session further expand current knowledge of BDA-based value creation and realization across various industries. After the review process, five stand-alone articles were accepted in the session.

In the first paper, "How is big data shaping the provision of products and services in the automotive industry? A cross-case analysis of emerging operations models" by Gary Graham, Roy Meriton, Bethany Tew and Patrick Hennelly, the authors seek to explore how "Big Data" will inform the shape and configuration of future operations models and connected car services in the automotive sector. They use a secondary case study research design. The cases are used to explore the characteristics of the resources and processes used in three big data operations models based on a connected car framework. The findings advanced the framework and provided initial answers to our research questions. Across all case studies, we find that customer mobility, service experience, and infotainment are the predominant focus of the emerging big data-connected car model. This is in contrast to traditional operations models which were primarily focused on transforming materials into a product.

The second paper titled "Big data analytics and firm productivity", by Liang Guo, Mingtao Fu and Ruodan Lu, uses the theory of organizational information processing and resource-based view to hypothesize that big data analytics systems (BDAS) can help improve productivity and this contribution is influenced by the firm's BDAS capability. The proposed hypotheses are supported by a sample of 45 Chinese retailers over 2012-2014 using Data Envelopment Analysis and Malmquist Productivity Index. The study extends our understanding of the business value of IT by shedding light on the productivity benefit of big data investment.

In the third paper, "Sentiment analysis using KNIME: A systematic literature review of big data logistics" by Gary Graham, Royston Meriton and Patrick Hennelly, the authors argue that text analytics and sentiment analysis can help researchers to derive potentially valuable thematic and narrative insights from text-based content such as industry reviews, leading OM and OR journal articles and government reports. The classification system described here analyses the aggregated opinions of the performance of various public and private, manufacturing, medical, service and retail organizations in integrating big data into their logistics. It explains methods of data collection and the sentiment analysis process for classifying big data logistics literature using KNIME. Finally, it explores the potential of text mining to build more rigorous and unbiased models of operations management.

In the fourth paper, "Relative importance of key requirements of business analytics 3.0: An empirical study" by Fosso Wamba Samuel, the author provides the evaluation of the ten key requirements proposed by Thomas H.

Davenport that will help firm capitalize on business analytics 3.0. Drawing on data collected from 34 experts in the field through an online survey, the study assesses the relative importance of each requirement and proposes a set of new complementary requirements. Finally, implications for business analytics research, theory and practice are discussed.

In the fifth paper, "From zero sum game to positive sum game: Case studies on the business models of two Chinese mobile applications" by Liang Guo, Ruchi Sharma, Ruodan Lu, Lei Yin and Sebastien Tran, the authors argue that the present day mobile application's pick-and-shovel business is not thriving, as the vast majority of developers make very little revenue. In order to gain insights into mobile application business model, we conduct longitudinal case studies on two Chinese high profile health-fitness applications. The results of our study show both applications have experienced three significant business model innovations, from the initial freemium, hardware-application hybrid, and open source-based coopetition. We discuss the impact of these business models on value creation and appropriation. We thereby advocate that in the age of Web 3.0, embracing open source movement in an application's business model is smart move to turn competitors into collaborators and hence achieve a positive sum game. Our study contributes to the technology management literature by integrating the business model perspective with an analysis of open source. This also adds to the existing business ecosystem conceptualizations, which do not explicitly take competitors into account.

III.   CONCLUSION

The special session on "Big Data and Business Analytics" will provide a fascinating opportunity for discussions on various topics related to BDA-enabled business value creation and realization, which are relevant to academics, practitioners, industry executives and government decisions makers.

ACKNOWLEDGMENT

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