

Introduction: Advances in e-business engineering and management

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Published online: 29 July 2016

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The term “e-business” was coined by IBM in 1990s, and defined as business activities and processes assisted by Information and Communication Technologies (ICT). In e-commerce sector, according to a recent study, “Total e-commerce retail sale for 2014 in the US are estimated at \$304.9 billion, marking a 15.4 % increase from 2013 sales. In the same time, total retail sales increased just 3.8 %. While e-commerce accounted for 6.5 % of total retail sales in 2014 (5.8 % in 2013), this number is on pace to increase at 14 % compound annual growth rate (CAGR) and will bring its share of the retail market to nearly 9 % by 2017. Not included in these calculations are the billions spent on travel booked online, including airfare, hotels, car rental and travel packages. According to comScore, US e-commerce travel sales were more than \$100 billion in 2012, marking a 9 % increase from the previous year” [18]. Especially in the new world of IoT, cloud computing and big data science, data, processes, and devices are all converging to reshape how day-to-day business is done.

E-business has rapidly evolved, is one of the most exciting and challenging research areas [11, 25, 26]. In such rapid development, new e-business engineering methods and techniques as well as e-business engineering management methods have been developed and applied [2, 5, 10, 13, 15–17, 23, 24].

To respond to the needs from both academic researchers and practitioners for communicating research results on

e-business engineering methods and techniques, conference series organized by the IFIP, IEEE and other major research institutions have been developed. These conferences have provided an international forum for researchers in academia and industry to present their most recent findings in e-business engineering.

This special issue of *Information Technology and Management* presents expanded versions of 7 papers from the above-mentioned conferences held recently, focusing on e-business engineering management. To prepare for this issue, all authors were asked to respond to at least two rounds of peer review. Each paper emphasizes the importance of e-business engineering from a unique perspective.

Business transactions between different enterprises are more and more executed by a flow of well-defined electronic business documents [22]. However, the structures of these documents may significantly differ depending on industries and regions/areas/countries in which the corresponding inter-organizational business processes are executed [3, 4, 19]. In the paper by Novakovic and Huemer, a novel approach is introduced to apply the contextual knowledge for (semi-) automatically generating semantically interoperable data building blocks, so-called Core Components, comprised by electronic business documents. These documents conform to the Core Components Technical Specification (CCTS) which is proposed by the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) [14].

With the development of global economic integration, technology standards have become increasingly important for business, industries, and e-business [21]. The paper entitled “Interaction between technology standardization and technology development: a coupling effect study” aims to extend the study about the interaction between technology standardization and technology development.

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Based on an analysis of the impact that technology standardization and technology development have on each other, this paper asserts that coupling effects exist between them [8].

The advancement of ICT in the past three decades is tremendous [20], and much of the advancement can be attributed to numerous new ICT ventures that invent and commercialize a variety of ICT. But new ICT venture growth has not been sufficiently addressed by researchers. In the paper entitled “The effect of business ties and government ties on new IT venture growth: an empirical examination in China”, the authors synthesized the literature on entrepreneurship, strategy, and management to develop a model linking business ties and government ties to new IT venture growth, while considering the effect of two contextual factors, firm size and legitimacy [12].

Innovation is very important to the survival and growth of any organization [1, 7]. Although many organizations have deployed social media tools to support business activities in the past years, research on using social media for supporting innovation process is very limited. In the paper entitled “A process-based framework of using social media to support innovation process”, the authors explore how various organizational factors can contribute to social media use for supporting innovation process [6].

In the paper entitled “Research on open innovation performance: a review”, the authors systematically analyzed key factors which affect the relationship between open innovation and innovation performance. The managerial implications and risks during the open innovation implementation were also discussed. In addition, several future research directions for open innovation were indicated [28].

In the paper entitled “The role, formation mechanism, and dynamic mechanism of action of technology standards in industrial systems”, the authors assert that industrial systems are a kind of complex system and that their evolution mechanism fits a dissipative structure. By applying complex system theory, this paper explores the role of technology standards in industrial systems from the perspective of order parameters [9].

Nowadays, many e-business firms, such as Alibaba and Amazon have successfully transformed technology innovation to business model innovation which instantly brought the competitive advantage to them. Business model innovation is the key to apply the technology innovation effectively and efficiently. Researchers have shed some lights on the business model innovation, including innovation theory and innovation path, and system perspectives were applied in majority of these researches. In the paper entitled “Business model innovation: an integrated approach based on elements and functions”, the

authors apply a new perspective to study the business model [27].

We hope that this special issue will serve our *Information Technology and Management* readers as an avenue to gain a new perspective on e-business engineering. We would specially like to thank the Editors-in-Chief, Professor Erik Rolland and Professor Raymond Patterson, for their encouragement and guidance throughout this endeavor. We are also deeply grateful to the many individual reviewers who worked with us so diligently. Without their time, effort, and support, this issue would never have come to be.

Acknowledgments This project was partially supported by the NSFC (National Natural Science Foundation of China) Grant 71132008.

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