Literature Review

Making the most of information technology & systems usage: A literature review, framework and future research agenda

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ABSTRACT

This detailed literature review has considered a relatively large quantity (152 total) of scholarly empirical publications, conference proceedings, books and popular market reports published over the last 15 years, i.e., from January 2000 to December 2014, in the field of human continuous usage behavior and in the context of information technology/systems. Based on the search results, the literature was synthesized, segregated into four major domains according to the purpose, nature and usage of the information technology/systems. The authors believe that this segregation within the information technology & systems continuous usage literature provides greater scalability, flexibility and space for future research. Moreover, this proposed segregation allows for future research to include more 'systems' in each category depending on the usage, relevance and nature of the 'systems' that will evolve over the period of time. Scalability will provide more insights and ideas that will help future research investigate and propose domain-specific conceptual or business models that will help facilitate an understanding of information technology/systems continuous usage according to the nature of the 'system.' Conclusions and recommendations are drawn and priorities are proposed for continuing research.

Contents

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1. Introduction

Extensive research (e.g., Norris, Pauli, & Bray, 2007; Shank, 2013) has sought to explore the ways in which society and human beings have been affected by information technology/systems (IT/S) and how the IT/S revolution has changed the way we conduct our lives as well as our behavior. IT/S are human-related systems; humans use IT/S to fulfill their personal goals and desires; and they design, develop and operate IT/S to control and manage organizations' information databases. Organizations have invested in a plethora of IT/S, and the benefits that can be gained from these systems depend on their usage. Consequently, the adoption and the usage of IT/S continue to be an important consideration for organizations. As explained by Bhattacherjee (2001a), acceptance (or pre-adoption) generally refers to an individual's decision to use IT/S for the first time; continuous usage (or post-adoption) refers to the individual's decision to embrace the IT/S well beyond its first use and continuously exploit and extend the functionality built into IT/S.

Available evidence (e.g., Jasperson, Carter, & Zmud, 2005; Venkatesh, Brown, Maruping, & Bala, 2008) supports these arguments and strongly suggests that most IT/S are underutilized; users, including consumer and employees, apply a narrow band of IT/S features; users rarely initiate extensions of the available IT/S features; and organizations underutilize the functional potentials of the majority of the currently developed and deployed IT/S. Consequently, understanding post-adoption human behavior intention has emerged as an important issue in IT/S research (e.g., Saeed & Abdinnour-Helm, 2011). Investments and innovations in IT/S illustrate this phenomenon. According to the 'Information Technology (IT) Spending Forecast' published by Gartner (2014), worldwide dollar-valued IT spending will grow 3.2% in 2014, reaching USD 3.8 trillion. The existing research has demonstrated that it costs approximately six times as much to recruit a new subscriber as it does to maintain an old one in paid membership contexts (Spiller, Vlasic, & Yetton, 2007). For example, in the case of Internet service providers (ISPs), an extra 1% retention can add as much as 5% to the bottom line of the business (Vatanasombut, Igbaria, Stylianou, & Rodgers, 2008). Furthermore, many e-commerce companies, particularly online retailers, have begun to realize that because their competitors are just a click away, retaining the company's customer base in addition to attracting new customers are critical for sustaining a revenue base, profitability and a market share (Bhattacherjee, 2001a). Researchers have been intrigued by these arguments, and the IT/S continuous usage intention has evolved as a key dependent variable in marketing and IS research (e.g., Limayem, Hirt, & Cheung, 2007) and many studies have empirically examined its determinants (e.g., Lu & Yang, 2014).

The use of IT/S across diverse fields and the reliance on IT/S for high-end, routine operations and common use is growing. Practitioners, researchers, and government alike have begun to pay attention to long-term or continuous IT/S usage, which is a topic that is often neglected (Verhagen, Feldberg, van den Hooff, Meents, & Merikivi, 2012). Nevertheless, ensuring the usage of information technology and communication resources in an organization is only one aspect of IT/S success, it is clearly one of the most important.

Against this background, this study seeks to contribute to the understanding of IT/S and strengthen 'information technology & systems continuous usage (IT/SCU)' as a field of study. To achieve this objective, this study has undertaken a detailed literature review by reviewing a relatively large quantity of studies to understand the continuous usage phenomenon and to help promote a higher utilization of IT/S across several organizations. In addition, this literature review aims to contribute to a better practical and theoretical understanding of the consequences that drive human behavioral intention towards embracing and using information technology and systems. Similarly, the authors understand that this study will significantly contribute to the IT/SCU literature by exploring and analyzing the current state of knowledge, including where excess research exists and where new research is needed; and providing a solid theoretical foundation for the proposed field of study (Levy & Ellis, 2006).

Another significant contribution of this literature review is the proposed classification framework consisting of four broader domains: Continuous Usage of Mobile Information Systems, Continuous Usage of Electronic Business Information Systems, Continuous Usage of Social Information Systems, and Continuous Usage of Electronic Learning Information Systems.

The focus of our review covers articles published over the last 15 years, i.e., from January 2000 to December 2014 (inclusive), in the leading academic journals and conference proceedings that examine IT/SCU. In addition, popular market reports, ideas, and relevant books that are commercially available have been included.

Within the context of this review, we use the broader term "information technology/systems" to refer to a set of systems, technologies, processes, business applications, and software. Similarly, a broader term "human" is used to denote the unit of analysis or a participant, which includes users, netizens, members, students, faculty members, consumers, customers, employees, workers, managers/executives, and so forth. Although with a different landscape as discussed in the succeeding sections, the terms 're-view' and 'literature review' are used interchangeably in this study.

The paper proceeds as follows. The succeeding sections provide a brief explanation of information systems, their historical background (Section 2) and a brief overview of previous literature reviews written in this direction (Sections 3). The research methodology and theoretical framework are presented in Section 4. The classification framework is presented and illustrated in Section 5. The results of the study are presented and discussed in Section 6 along with a synopsis of theoretical and practical implications. The study concludes with a discussion of future research possibilities.

2. Evolution of information systems – Definition and historical perspective

'Computers have been considered as one of the most important inventions in the 20th century and the future technology trends exclusively emphasize enhancement in human–computer interaction' (Wang & Nelson, 2014, p.82).

Given the myriad of definitions and dimensions used to describe information systems, the first challenge in conducting a detailed review of the prodigious range of information technologies and systems is arriving at an understanding of an IS and what is not considered an IS. Research has paid less attention to understanding the difference between an IS and the rest of the technology-based initiatives that cannot be considered an IS for