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4-14-2014

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ABSTRACT

Non-profit organizations are embracing information systems (IS) as a way to gain valuable insight into the complex social problems that are central to the organization's mission. Outside of operational benefits, IS research has been relatively silent on the ways in which non-profits gain value from IS investments and usage. This research-in-progress paper lays the groundwork for exploratory research to develop alternative conceptions of IS business value, defined as organizational performance impacts of IS. Prior studies on IS business value have focused on for-profit business environments. By re-evaluating its underlying assumptions, we aim to expand the conceptualization of IS business value in IS literature. Through an in-depth case study, we aim to define IS business value terms that best fit the non-profit organizational context by examining the role of business intelligence in an American, Southeastern non-profit organization.

Keywords

Non-profits, IS Business Value, Business Intelligence, Data Analytics

INTRODUCTION

Information System (IS) business value is a central IS concept that has been studied in various research studies over the years. It is understood to be derived from improved organizational performance as a result of technology investments and usage (Melville, Kraemer, and Gurbaxani, 2004). The organizations that are examined in these studies are typically for-profit companies that have significant resource availability and encourage innovative, and sometimes risky, initiatives in order to maintain a competitive advantage. Alternatively, non-profit organizations (NPOs) focus on real-world social problems – defined as "phenomena that have a serious negative impact on sizable segments of society" (Weick, 1984). Examples include education inequality, financial instability, and limited access to health care and related services. These organizations are inherently different from the typical for-profit businesses that are a central focus of IS research (Zhang, Gutierrez, and Mathieson, 2010).

In contrast to for-profits, NPOs have an alternative organizational focus on social outcomes, rather than solely on financial outcomes. This creates difficulties when attempting to apply traditional business methods of assessing the value of information systems (IS) to an organization. In addition to the traditional business value that IS can add to NPOs, such as operational efficiencies in business processes, IS can also provide NPOs with strategic improvements in the way they address complex social problems. IS utilization is essential to understanding the nuances and complexities in the social problems affecting communities and the programs that are best suited to address those problems. As such, non-profit use of business intelligence (BI) is emerging as a way to highlight the value of non-profit technology investments and usage, and its resultant effect on non-profit organizational performance. BI provides non-profits with the ability to make well informed decisions using the results of analyzed data. Thus, the research question of interest is '*How does business intelligence impact non-profit organizational social goal performance?*'

In this research-in-progress paper, we examine the literature on IS business value and highlight the minimal application of it within the NPO business environment. We then discuss the use of BI within NPOs and highlight it as providing NPOs with an emergent aspect of IS business value. We conclude with our future research plans and a brief recap of salient points.

IS BUSINESS VALUE

Understanding the value of IS within organizations has been a constant struggle for businesses and academics alike (Melville et al., 2004). IS business value is derived from improved organizational performance as a result of technology investments and usage (Melville et al., 2004). Much of the literature on organizations has focused on the ways in which for-profit organizations operate and how investments in IS are linked to improved organizational performance. Many studies focused on how organizational capabilities are linked to an organization's competitive advantage in their marketplace (Cepeda and Vera, 2007; Teece, 2007, 2009; Teece, Pisano, and Shuen, 1997). Within IS literature, Bhatt and Grover (2005) examined the link between competitive advantage and a special set of capabilities, those linked closely with IT, within a sample of organizations from the manufacturing industry. Great strides have been made in understanding how these types of IT capabilities have a relationship with an organization's competitive advantage, such as how certain IT investments can be a "source of differential advantage" while other investments are not (Bhatt and Grover, 2005, p. 272). The differential advantage, or improved performance, is typically understood in financial terms of market performance, accounting performance, innovation, and operations measures (Melville et al., 2004; Schryen, 2013).

Over the years, IS researchers have urged for more research on IS business value (Barua, Brooks, Gillon, Hodgkinson, Kohli, Worthington, and Zukis, 2010; Melville et al., 2004; Schryen, 2013; Soh and Markus, 1995). Specifically, Schryen (2013) highlights the inconsistencies in prior research on IS business value, ranging from the conceptualization of the IS business value construct to the types of environmental factors that cause organizations to vary in the benefits gained from IS utilization. As such, there is much concern around the way organizational performance is understood and the link between IS business value and organizational performance (Melville et al., 2004; Schryen, 2013). Research on IS business value has shown that through targeted examinations of IS use, researchers can observe and report on the individual-level, business process-level, or the organizational-level (Melville et al., 2004; Schryen, 2013; Soh & Markus, 1995) improvements within an organization as a result of IS utilization. As progress has been made in the for-profit context, there is significantly less that is known about IS and its relationship to organizational performance in non-profit organizations.

Non-Profits and IS Business Value

Zhang et al. (2010) state that "academic research in [the non-profit] sector is considerably limited." NPOs constantly struggle to maintain a balance between the organization's social goals, which are specified objectives that address social problems in a community, and its financial bottom line (Zmud, Carte, and Te'eni, 2004). This duality can impact: decision-making around IS investments; the ways in which technology is used and valued; and the organization's culture as a whole. Whereas financial measures are associated with efficiency, productivity, and growth, social outcomes are not easily narrowed down to a numerical representation. Non-profits focus on "successful goal accomplishment" (Soh and Markus, 1995, p. 36) which are long-term outcomes (Duque-Zuluaga and Schneider, 2008). The organizational outcomes for non-profits are typically centered on goals that are "altruistic, qualitative, long term, intangible, people-oriented, and non-monetary" (Buckmaster, 1999, p. 187), which is better conceptualized as a "multi-dimensional construct" (Soh and Markus, 1995, p. 36) that encompasses both financial and social goal accomplishments (Duque-Zuluaga and Schneider, 2008). As researchers have called for additional inquiries on IS use and business value (Barua et al., 2010; Melville et al., 2004; Schryen, 2013; Soh and Markus, 1995), the non-profit business environment is ideal for theorizing on how IS business value can manifest in different ways.

Expanding IS Business Value

In their widely cited evaluation of IS Business value, Soh and Markus (1995, p. 36) noted the abundance of financially focused conceptualizations of organizational performance and, upon drawing from organizational effectiveness literature, encouraged a broader view of organizations as "rational, goal-seeking entities [where] successful goal accomplishment is the appropriate measure of performance." This goal-oriented view of an organization is better suited as the theoretical base for examinations of the impacts of non-profit IS investments and usage. Non-profit organizational goals typically center on impacting segments of society which have been negatively affected by complex and chronic social problems. By focusing on the effect that non-profit IS utilization has on society, we are able to better characterize the importance of IS investments and usage in the non-profit business environment.

It is necessary to clearly identify non-profit organizational goals and examine how NPOs strategically utilize IS to achieve these goals, IS researchers are able to identify other value-added effects in NPOs. There are examples of these emergent aspects of IS business value in the healthcare domain as IS has become a driving force for many advancements in improving the quality of healthcare. For example, Adaji, Schattner, and Jones (2008) examine how various technologies, such as email, database storage, and the Internet, have impacted diabetes care as managed between patients, their general practitioner, and other healthcare providers. To elucidate alternative aspects of IS business value, we can re-examine this study from an IS business value perspective. If one of the goals of the general practitioner's office is to improve patient self-management of

chronic illnesses, an IS investment in an Internet-enabled interactive glucose monitoring system would clearly impact that social goal. This improvement in patient self-managed care, as a subset of the general practitioner's organizational goals, could be termed 'patient care empowerment' and would be an example of a non-financial impact on organizational performance attributed to IS. The aforementioned illustrative example highlights the potential of identifying alternative conceptualizations of IS business value when examining the organizational actions of non-profits.

BUSINESS INTELLIGENCE AND NON-PROFITS

Business intelligence (BI) has emerged as a way for organizations to perform analysis and prediction to gain a deeper understanding of its respective business environment (Watson and Wixom, 2007). These insights can lead organizations to engage in strategic decisions that can support further attainment of organizational goals. BI is a broad term that encompasses a great deal of business-related computational and analytical systems and processes. In a review of IS trends and management issues, Luftman and Zadeh (2011) noted that business intelligence is a high-priority for many organizations across the globe. Watson and Wixom (2007) describe BI from a data perspective where it is "a process that includes two primary activities: getting data in and getting data out." More specifically, they apply the term BI when referring to data that is extracted from a system and is used to make organizational decisions. Alternatively, Negash (2004) focuses on BI from a systems perspective where specific business tools combine traditional system-related concepts, such as "data gathering, data storage, and knowledge management," with analytics to produce information critical for decision-makers. Though the term BI has been used in varying ways, a mainstay of its usage in IS literature focuses on its ability to take vast amounts of data from various sources and provide actionable information for managers.

We adopt a holistic view of BI which focuses on how organizations use innovative systems and analytic techniques to attain insight into complex internal or external issues and identify action steps to improve the state of affairs. BI is not simply procuring special technology; it entails utilizing technology to take action (Williams, Williams, and Consulting, 2003) towards improving the current state of affairs. Additionally, the benefits gained from BI are not instantly acquired. Many organizations invest in BI with the hopes of tangible benefits as a result of the initial investment sometime in the future (Negash, 2004). Further, these BI benefits can range from tangible impacts such as cost and time savings for related to data collection and analysis, to intangible impacts such as the "support for the accomplishment of strategic business objective" (Watson and Wixom, 2007, p. 97).

The Role of Business Intelligence in Non-profits

NPOs typically partner with other organizations to satisfy their BI needs as most resources are focused towards the core social mission of the NPO. Unlike the for-profit sector where strategic business advantages are mostly sought after through internal analyses, non-profits tend to collaborate with external organizations that have the technical capabilities and where mutual gains are to be had. Additionally, there is a lack of research on the role of BI in the non-profit business environment which focuses on social problems such as education inequality, chronic homelessness, or the negative impacts of poverty. These social problems continuously occur in society, require collaborative intervention by numerous actors, and are not easily resolved (Majchrzak, Markus, and Wareham, 2012). Making the connection between an organization's technological investments and usage with the non-profit's organizational performance is tenuous and difficult, and has also not been previously addressed in IS literature. However, BI proves to be particularly useful in this endeavor as its sole purpose is to improve decision-making and provide insight into areas important to the organization's performance.

FUTURE RESEARCH AND CONCLUSION

Our qualitative research examines the role of BI on non-profit organizational performance by employing the case study research method (Bhattacherjee, 2012). Data collection includes interviews with key actors and document collection; data analysis is inductive and descriptive in nature (Glesne, 2011; Yin, 2009). The selected case is a medium-sized American, Southeastern non-profit organization under a well-known charitable brand. This NPO focuses on education in K-12 and has an organizational goal to *improve the graduation rate* within the community. Through collaborating with an external academic institution in the community, the NPO has gained insight into education-related issues within the community. To facilitate these efforts, the academic institution developed an integrated data system which allows for these vast amounts of data to be collated and analyzed according to the needs of the NPO. This required data collection from 16 partner non-profit agencies (service providers) and 2 local government agencies (social services and school system). These non-profit agencies utilize BI to gain insight on the impact of the programs they support and to better understand the impact that their collective effort is having on their community. The results of the analyses ensure that the individuals receiving services are indeed the neediest in the community; provide insight into issues that may facilitate poor performance on education metrics; highlight programs that are effective at improving individual performance; and guide future strategic endeavors. More importantly, this case highlights the value of BI within the NPO business environment.

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