Information Systems Project Management Risk: Does it Matter for Firm Performance?

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ABSTRACT

Over the last three decades, much IS research has focused on information systems development (ISD) risk and its impacts on ISD success. While these studies have greatly advanced the understanding of the nomological network of ISD risk and success, the literature is still not sufficiently clear on the firm performance impacts of these concepts. Linking ISD risk and success to firm performance is important so as to better understand whether ISD projects can have broader firm-level implications, for example, in terms of providing firms with a competitive advantage. To address this research need, the present research note advances propositions regarding the linkage between ISD risk, success, and firm-level performance (conceptualized as competitive advantage). This linkage sheds light on the broader effects of ISD risk, and it helps ISD research overcome the isolation in which it is often conducted. Using the concept of residual risk (i.e., the risk present in the later stages of a project that remains after appropriate actions have been taken to mitigate initial risks in the early stages of a project), the authors propose that ISD risk impacts firm performance by reducing ISD success and that the value arising from ISD projects is higher when IT and business plans are synchronized (i.e., when they are in alignment).

Keywords: Competitive Advantage, Firm Performance, Information Systems Development, IS Success, IT Value, Residual Risk, Software Project

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INTRODUCTION

Despite more than three decades of research on information systems development (ISD) projects, their successful management continues to challenge IS professionals (Amrit & van Hillegersberg, 2013; Chua, Lim, Soh, & Sia, 2012; Hann, Roberts, & Slaughter, 2013; Langer, Slaughter, & Mukhopadhyay, 2014; McFarlan, 1981; Kirsch, Sambamurthy, Dong-Gil, & Purvis, 2002; Sambamurthy & Kirsch, 2000). ISD projects are often prone to failure; suggesting that information systems development is an inherently risky undertaking. Despite the widespread presence of risk in software projects and its implications for software project success and failure, the literature is not yet complete in its treatment of the risk construct and, in particular, of its broader nomological network. While many studies have shed light on information systems project management risk (e.g., Huff & Prybutok, 2008; Hsu, Hung, Chen, & Huang, 2013; Rivard & Dupré, 2009; Skulmoski & Hartman, 2010; Zhang & Xu, 2008), it remains unclear if and under what conditions such risk matters as a factor impacting firm performance. A theoretical exploration of these conditions appears critical in light of the importance of IS project management in today’s project management world, and it appears particularly critical given that information systems projects are likely to become “more and more important” (Langer et al., 2014; Rivard & Dupré, 2009, p. 27). Thus, Rivard and Dupré (2009) have called for more research in this important area.

As regards the risk construct, the majority of research on ISD risk examines the risk inherent in the earlier stages of a project, which include primarily project planning and requirements analysis (Nidumolu, 1995). For example, Sridhar, Nath, and Malik (2009) examined the impacts of user involvement and participation on the quality of ISD project planning. Amrit and van Hillegersberg (2013) investigated the effects of overambitious requirements, unclear requirements, and related risk factors on project performance. As another example, Wallace, Keil, and Rai (2004a) examined the impacts of planning and requirement risks as well as of related risk factors on ISD project performance. Likewise, Wallace, Keil, and Rai (2004b) investigated the effects of similar risk factors on product and process performance. Hence, research on project planning and requirements analysis (during the earlier stages of ISD projects) has a rich history in the IS literature.

However, problems occurring in project planning and requirements analysis can be corrected relatively easily and inexpensively due to the limited progress that is generally being made in these initial stages (Jiang, Klein, & Chen, 2006). The more problematic risk is the one present in the later stages of a project that remains after appropriate actions have been taken to mitigate the initial risks in project planning and requirements analysis. This type of risk is referred to as residual risk, which is present during systems design, coding, testing, and installation (Na, Simpson, Li, Singh, & Kim, 2007; Nidumolu, 1995). Residual risk is especially problematic and costly for organizations in that it can create problems in projects that are already well-advanced; generally, reversing a process that is already well-underway is a highly complex and costly endeavor (Beckers, Chiara, Flesch, Maly, Silva, & Stegemann, 2013).

Given the difficulties and costs associated with the risk present in the later stages of an ISD project, the concept of residual risk is particularly relevant to explorations of the broader nomological network of ISD risks (Na et al., 2007). Concerning the nomological net within which ISD risk is situated, much ISD research has studied software projects in isolation, without relating them to other research streams. In particular, the link between risk, ISD success, and information systems value remains underexplored (Sridhar et al., 2009). Hence, this research note utilizes the concept of residual risk to examine whether and how risk in ISD projects impacts firm performance, and under what conditions such impacts crystallize.
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