Chapter 11
Measuring the Relationship Among Learning Enablers and IT Project Success

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ABSTRACT

Knowledge enablers exist at the organizational and project levels. There is, however, no meaningful means to measure organizational or project knowledge sharing. The need to understand the elements that enable this flow of knowledge is dramatically evidenced in information technology organizations in which insufficient knowledge sharing leads to intellectual capital loss, rework, skills deterioration, and repeated mistakes that increase project costs or failures. The goal of this chapter is to describe the relationships between knowledge sharing processes at the organizational—organizational learning enablers (OLEs)—and project levels—project learning enablers (PLEs)—with project success variables (PSVs).

BACKGROUND

IT Projects continue to fail for many of the same reasons that they did 30 years ago (Cerpa & Verner, 2009). These failures lead to economic consequences. For example, companies spent millions of dollars on failed ERP implementations (Wu, Ong, Hsu, 2008). In the United States, the cost of failed IT projects amounts to $63 billion (McCafferty, 2010). Citing Panorama Consulting, Jeng and Dunk (2013) reported that 59% of ERP implementations cost more than anticipated. One interviewee, in Reich (2007) opined that project knowledge issues cost 10% of the total amount of a $60 million IT project. A failed hospital IT implementation cost $13 million and wasted six years of effort (Gauld, 2007). Customers concluded that too many of their IT projects fail (Ballou, Belardo, & Pazer, 2010)

DOI: 10.4018/978-1-5225-5427-1.ch011

Outside of the IT industry there are also project failures due to inadequate use of existing knowledge. Fortune 500 companies lose billions of dollars every year because their employees do not share knowledge (Marouf & Khalil, 2015). The International Association of Engineering Insurers reported that greater than €570 million in losses occurred in 18 tunneling projects globally between 1994 and 2005 (Cárdenas, Al-Jibouri, Halman, van de Linde, Kaalberg, 2014). A significant number of the tunneling failures happened because available knowledge was not used (Cárdenas, et al. 2014). In developing countries, a lack of project knowledge management impeded the sustainability of "reproductive health development" initiatives which, if corrected, could potentially improve the skills and knowledge of health care professionals and the quality of services to the nation (Dumrak, Baroudi, Hadjinicolaou, 2017).

The scope of the problem is significant. The magnitude of IT expenditures, lost benefits during the period of delay (Banker and Kemerer, 1992), forgone value when projects fail or under deliver, and employee impact combined suggest a large problem. Small and large organizations have failed to "effectively mine lessons learned" from projects leading to lost opportunities (Larson & Gray, 2014, p. 522). In a very meaningful sense, "these dismal findings can be traced to poor organizational learning mechanisms in software organizations" (Desouza, Dinsøyr, & Awazu, 2005, p. 204). Project teams are not learning lessons from other teams and this contributes to higher project costs (Hanisch, Lindner, & Mueller, & Wald 2009). Vital knowledge from prior projects is lost and not passed on to subsequent project teams (Jugdev, 2012). In short, failure to share knowledge is a key reason that IT projects fail (Nemani, 2012).

Knowledge frequently does not flow among project teams (Ajmal & Koskinen, 2008; Newell, Bresnen, Edelman, Scarbrough, & Swan 2006; Owen, Burstein, & Mitchell, 2004; Petter & Randolph, 2009; von Zedtwitz, 2003). Organizational failures to extract and apply project lessons learned are widespread (Newell & Edelman, 2008). Knowledge is neither captured nor shared with future project teams (Handzic & Durmic, 2015). Since knowledge exists at both the organizational and project levels, barriers to knowledge flow can exist at the organizational or project level (Ajmal & Koskinen, 2008; Crossnan, Lane, & White, 1999; Keegan & Turner, 2001; Nonaka, von Krogh, & Voelpel, 2006). Meaningful means to measure organizational or project level knowledge enablers do not appear to exist.

When knowledge does not flow among project teams within an IT organization resources are wasted. New project teams 'reinvent the wheel' as opposed to learning from prior projects (Newell, et al., (2006). Some projects repeat errors for years because learning from previous projects did not occur (Ajmal & Koskinen, 2008). Furthermore, companies experience waste in the form of lost potential to build employee skills (von Zedtwitz, 2003). Project implementation or process change management is adversely affected when knowledge transfer is ineffective (Alkhuraiji, Liu, Oderanti, Annansingh, & Pan, 2014). Thus, when project teams do not share lessons learned, poor solutions are duplicated, mistakes repeated, and knowledge of good procedures lost, leading to rework and missed opportunities (Owen, et al., 2004; Petter & Randolph, 2009).

THE UNDERLYING PROBLEM

IT leaders often do not make it a priority to share lessons learned among project teams. Managers may not understand the value derived from sharing lessons among project teams. For example, a knowledge manager facing a challenge of convincing senior management on the value of KM exclaimed: "My bosses want to see how KM implementation improves the ROI [return on investment] of the company, and how am I going to convince them since it is hard to measure KM using dollars and cents?" (Choy,