ICT Investment Evaluation Practices in Large Organizations

Chad Lin
Curtin University of Technology, Australia

Yu-An Huang
National Chi Nan University, Taiwan

INTRODUCTION

Business-to-business electronic commerce (B2BEC) represents the largest growth sector, that is, 80% of revenues—in e-commerce (Pires & Aisbett, 2003). IDC predicts that Australian B2BEC spending will grow at 70% annually and is likely to reach $166.25 billion by 2006 (Pearce, 2002). ICT investments in B2BEC are used to assist in the interorganization acquisition of goods into the value chain and to provide interfaces between customers, vendors, suppliers, and sellers (Barua, Konana, & Whinston, 2004). Although B2BEC provides organizations a wealth of new opportunities and ways of doing business, it is extremely difficult to evaluate and therefore, have yet to prove enduring sources of profit (Laudon & Laudon, 2004).

Research studies and practitioner surveys report contradictory findings on the effect of the ICT expenditures on organizational productivity (Thatcher & Pingry, 2004). In particular, measurement of the business value of ICT investment has been the subject of considerable debate among academics and practitioners (Brynjolfsson & Hitt, 2003; Sugumaran & Arogyaswamy, 2004). Although some ICT productivity studies have produced inconclusive and negative results (Zhu, 2004), other research indicated that spending in ICT is directly related to organizational performance (e.g., Hu & Quan, 2005). Some researchers (e.g., Brynjolfsson & Hitt, 2003; Zhu, 2004) suggested that the confusion over ICT productivity is due to, among other things, the lack or inappropriate use of ICT evaluation and benefits realization methodologies or processes.

Given the complexity of the decisions and the large expenditure involved, determining the impact of ICT investment evaluation and benefits realization has been and will continue to be an important research concern for both researchers and senior managers. Therefore, better understanding of the basis and practice of ICT investment evaluation in large Australian organizations is warranted. The objectives of this chapter are to undertake a study that attempts to: (1) investigate the current practices in managing ICT benefits and evaluation by large Australian organizations; and (2) determine the relationships between the levels of B2BEC support, B2BEC effectiveness, B2BEC resources, and the use of ICT investment evaluation and benefits realization methodologies or processes in large Australian organizations.

BACKGROUND

There appears to be no consistent evaluation and measurement of ICT investment by most organizations (Kim & Umanath, 2005; Lin, Lin, & Tsao, 2005a). Since the evaluation of these ICT investments is a complex tangle of financial, organizational, social, procedural and technical threads, many of which are currently either avoided or dealt with ineffectively (Torkzadeh & Dhillon, 2002). However, according to the 2003 SIM survey, measuring the value of ICT investment remains as one of the top five concerns for senior managers (Luftman & McLean, 2004).

Despite the fact that evaluation of ICT infrastructure in electronic commerce initiatives such as B2BEC has been shown to be critical to successful implementation, the major benefits organizations can gain from ICT investments are inherently qualitative and cannot be easily assessed beforehand and calculated in monetary terms (Lewis & Byrd, 2003). The problem becomes more evident as ICT is used to link the supply chain or to change the structure of industries, and costs and benefits have to be tracked across functional and organizational boundaries (McKay & Marshall, 2004).

This is because that the nature of electronic commerce technology makes it harder for organizations to allocate and assign costs and benefits to ICT projects, further blurring the lines of capital investment and return from ICT spending in the B2B channel (Kleist, 2003; Subramani, 2004; Tsao, Lin, & Lin, 2004). The less precisely bounded environment of B2B electronic commerce technology adds more complexity to the ICT measurement problem as this type of investment is physically distributed between suppliers and customers (Torkzadeh & Dhillon, 2002).

Moreover, many organizations have found that these ICT project costs and benefits can be difficult to estimate and control (Lin & Pervan, 2003; Love, Irani, Standing, Lin, & Burn, 2005). For instance, many organizations face a challenge of measuring and monitoring the performance of the specific contribution of inputs in generating outputs as well as its associated Internet channels (Kim & Umanath, 2005; Lin, Pervan, & McDermid, 2005b). Other less quantifiable items such as loyalty, trust, knowledge, relationships, value creation and customer satisfaction all makes the evaluation even more difficult (Straub, Rai, & Klein, 2004). Efforts to identify the relationships between the evaluation practices and the organizational constraints and benefits and to develop measures for B2B electronic commerce initiatives have been hindered by the lack of necessary conceptual bases (Torkzadeh & Dhillon, 2002).

For example, investigation by Sohal and Ng (1998) found that in large Australian organizations the potential of ICT has not been utilized to meet the competitive challenges due to inadequate and inappropriate appraisals/evaluation of the proposed ICT investment projects. Moreover, they reported that 45% of the responding organizations did not evaluate whether ICT systems were still consistent with business objectives and 59% did not determine whether expected benefits were being achieved. Some of the major problems associated with ICT investment evaluation are: (1) there is a lack of understanding of the impact of the proper ICT investments evaluation and benefits realization processes in most of the organizations (Ward & Daniel, 2006; Willcocks & Lester, 1997); (2) traditional financially oriented evaluation methods (e.g., ROI, NPV) can be problematic in measuring ICT investments and quantifying relevant benefits and costs (Bardhan, Bagchi, & Sougstad, 2004); (3) organizations often have neglected to devote appropriate evaluation time and effort to ICT as well as to deal with the extended investment time frame (Stamoulis, Kanellis, & Martakos, 2002); (4) working with new technology introduces higher levels of risk, which affects timing, costs and delivery deadlines (Peacock & Tanniru, 2005); and (5) it is very difficult to evaluate intangibles and make relationship between ICT and profitability explicit (Murphy & Simon, 2002).

Furthermore, ICT investment evaluations alone are insufficient in terms of ensuring that the benefits identified and expected by organizations are realized and delivered (Ward & Daniel, 2006). This is because ICT is just one enabler of process change (Grover, Teng, Segar, & Fiedler, 1998) and it only enables or creates a capability to derive benefits. The essence of benefits realization process is to organize and manage so that the potential benefits arising from the use of ICT can actually be realized (Ward & Elvin, 1999). Benefits may be considered as the effect of the changes, the difference between the current and proposed way that work is done. Indeed, good management of organizational change is important to ensure successful ICT investment evaluation and benefits realization processes (Dhillon, 2005). Finally, effective use of ICT benefits realization processes also allows organizations to constantly focus on the planned ICT benefits and by making sure that ICT investments remain aligned with business goals as well as to make strategic adjustments in resources in a changing environment.

RESEARCH HYPOTHESES AND METHODOLOGIES

As mentioned earlier, the current practices of the Australian organizations to manage and evaluate their ICT investments and their ability to realize the benefits from these investments in an increasingly competitive market are of interests to the researchers and senior executives. Therefore, there is a pressing need for undertaking a survey research to investigate the relationship between the B2BEC and the use of ICT investment evaluation and benefits realization methodologies or processes. The following four hypotheses are proposed:

H1: Organizations with higher levels of usage of ICT investment evaluation methodologies will lead to higher levels of usage of ICT benefits realization processes.