The Adoption of IS/IT Evaluation Methodologies in Australian Public Sector Organizations

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INTRODUCTION

Information systems/information technology (IS/IT) represents substantial financial investment for many organizations (Lin, Huang, & Tseng, 2007; Standing, Guilfoyle, Lin, & Love, 2006). However, IS/IT managers have found it increasingly difficult to justify rising IS/IT expenditures (Lin & Pervan, 2003; Serafeimidis, & Smithson, 2003) and are often under immense pressure to find a way to measure the contribution of their organizations' IS/IT investments to business performance, as well as to find reliable ways to ensure that the business benefits from IS/IT investments are actually realized (Luftman, Kempaiah, & Nash, 2006). This problem has become more complex as the nature of IS/IT investments and the benefits they can deliver have changed rapidly (Murphy & Simon, 2002). Furthermore, evaluation of these IS/IT investments is an extremely complicated process, and it is often avoided or dealt with ineffectively, especially in the public sector (Cilek, Fanko, Koch, Mild, & Taudes, 2004). Given the complexity of the decisions and the large expenditure involved, a better understanding of the basis and practice of IS/IT investment and evaluation in the public sector organizations is essential. The difficulties of evaluation and benefits realization processes are often the determining factors in the application of any formal methodology, and must be addressed if the processes are to be understood (Counihan, Finnegan, & Sammon, 2002; Love, Irani, Standing, Lin, & Burn, 2005).

BACKGROUND

The IS/IT investment evaluation and benefits realization process is a complex but critical function in both private and public organizations. The need to justify expenditure, to assess the effectiveness of a project, and to ensure that expected benefits are eventually delivered are crucial elements in the IS/IT investment evaluation and benefits realization process. The main purpose of IS/IT evaluation is an important factor in determining how the process should be carried out. However, the IS/IT investment evaluation and benefits realization process itself is an extremely complicated and difficult process, and is not often carried out by both private and public organizations.

IS/IT Investment Evaluation and Benefits Realization

The evaluation of the business value of IS/IT investment has been the subject of considerable debate by many academics and practitioners, and the term "productivity paradox" arises from studies that reveal static productivity and rising IS/IT expenditure (Grover, Teng, Segar, & Fiedler, 1998; Tallon, Kraemer, & Gurbaxani, 2000). Despite large investments in IS/IT over many years, it has been difficult to determine where the IS/IT benefits have actually occurred, if indeed there have been any. Some studies have suggested that IS/IT investment produces negligible benefits (e.g., Strassmann (1997)), while others report a positive relationship between organizational performance and IS/IT spending (e.g., Hu & Quan (2005)). The inability of many organizations to assimilate and apply IT both inter- and intra-organizationally is resulting in missed opportunities and a lack of business value (van Grembergen & van Bruggen, 1998).

The difficulties associated with determining the benefits and costs of IT are deemed to be the major constraint to investment justification. Some of the problems associated with IS/IT investment evaluation (Counihan et al., 2002; Lin et al., 2007; Willcocks & Lester, 1997) are:

1. Organizations often fail to identify relevant risks, costs, and benefits;
2. traditional financially oriented evaluation methods (e.g., ROI, NPV) can be problematic in measuring IS/IT investments and quantifying relevant benefits and costs;
3. working with new technology introduces higher levels of risk, which affects timing, costs, and delivery deadlines;

4.   organizations have failed to devote appropriate evaluation time and effort to IS/IT, and to deal with the extended investment timeframe; and

5.   it is very difficult to evaluate intangibles and make relationship between IS/IT and profitability explicit.

To understand the IS/IT investment evaluation and benefits realization processes, it is important to consider the historical and methodological connection between IS/IT investment evaluation methodologies and IS/IT benefits realization methodologies. IS/IT investment evaluation methodologies have been in use at least since Melone and Wharton (1984, in Farbey, Land, & Targett, 1992), while discussion and adoption of IS/IT benefits realization methodologies appear later in the literature (e.g., Dhillon, 2005; Ward, Taylor, & Bond, 1996). IS/IT investment evaluation methodologies are typically concerned with making investment decisions about IS/IT investments. In other words, the domain of concern is more about selecting the investment or investments that at the outset seem to offer the greatest returns or benefits for the outlay. Early examples of the methodologies emphasize the adoption of accounting indicators such as payback period, ROI, and IRR, whereas later methodologies link the decision-making process more strategically (Lin, Lin, & Tsao, 2005). Some of the formal IS/IT investment evaluation methodologies published in the literature are:

•   Return on Management (ROM) (Strassmann, 1990);
•   Options theory (Dos Santos, 1994); and
•   Kobler Unit framework (Hochstrasser, 1994).

However, IS/IT investment evaluation methodologies alone are insufficient in terms of ensuring that the benefits identified and expected by organizations are realized and delivered (Dhillon, 2005). This is because IS/IT is just one enabler of process change (Grover et al., 1998), and it only enables or creates a capability to derive benefits. IS/IT benefits realization methodologies also need to be adopted by organizations to extend investment evaluation further into the investment lifecycle by ensuring expected benefits are realized once a decision to invest has been taken (Changchit, Joshi, & Lederer, 1998). This involves planning how and when benefits will be realized, and deciding who will be responsible for achieving benefits as well as actually overseeing the realization of benefits (Ward et al., 1996). Some of these formal methodologies published in the literature are:

•   Cranfield Process Model of Benefits Management (Ward et al., 1996);
•   Active Benefit Realization (ABR) (Remenyi, Sherwood-Smith, & White, 1997); and
•   Model of Benefits Identification (Changchit et al., 1998).

AN INTEGRATED APPROACH

There are several reasons why the value of IS/IT cannot be determined by a single measure or methodology. When IS/IT operations are measured as a profit center or as a cost center, significant differences arise and each must show numbers tied to management control (Lin et al., 2007). Senior executives are no longer satisfied to evaluate their IS/IT investments in terms of business performance, but also need to find out where value has arisen in many segments of the organization (Tallon et al., 2000). Therefore, there is a need to integrate IS/IT investment evaluation and benefits realiza-

Figure 1. IS/IT evaluation and benefit realization diagram (adapted from Burch & Grudnitski, 1986; Lin & Pervan, 2003; Willcocks & Lester, 1997)
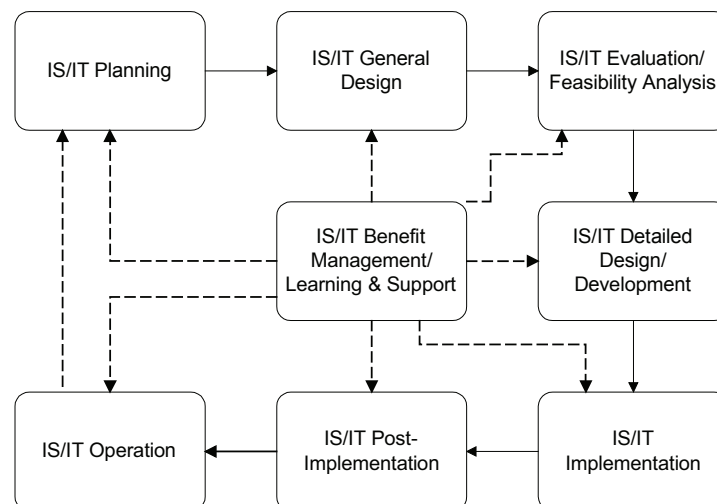
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