Chapter 11
A Conceptual Model for Aligning IT Valuation Methods

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ABSTRACT

The relationship between IT and value is complex and often disputed. Researchers and practitioners have created numerous models and valuation methods to capture this value. Although payoffs from IT investment are a function of strategic alignment, most of these models do not address the alignment of business and IT as a factor that influences or creates value. This paper explores the role of business and IT alignment in the valuation methods of IT assets and investments. It focuses on the impacts resulting from the use of IT assets, considering the function and nature of the impacts. It also explores the alignment of IT valuation and business strategy. The paper is concluded with the construction of a comprehensive selection model that provides guidance for aligning the IT valuation method with the specific characteristics, impacts and organizational context of an IT asset or investment.

INTRODUCTION

The relation between information technology (IT) and value is a complex and often disputed one (Stewart et al., 2007; Silvius, 2008a). Measuring IT benefits and value is frequently reported as one of the most important issues for senior IT management (Brancheau & Wetherbe, 1987; Niederman, Brancheau, & Wetherbe, 1991; Whitling et al., 1996). Researchers and practitioners have created numerous models and valuation methods to capture this value (Renkema & Berghout, 1996; Frisk, 2007). And although some researchers suggest (Henderson & Venkatraman, 1993; Woolfe, 1993) that payoffs from IT investment are a function of strategic alignment, most of these models do not address the alignment of business and IT as a factor that influences or creates value. One could also argue that the goal of any viable business strategy should be to create value and that, since the alignment of IT and business is aimed at enabling business strategy, the goal of alignment is to create value (Poels, 2006).

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The logical relation between alignment and value is, however, not reflected in the vast amount of research into the value of IT in organizations (Tallon & Kraemer, 1999; Silvius, 2008a). Numerous models and methodologies have been developed to capture this value. Without claiming to be complete, Renkema and Berghout (1996) list over 50 methods, and many more have been added since then. Nijland (2004) however concluded that more advanced methods are hardly used. Managers only use methods they intuitively understand. So where science is developing more sophisticated instruments, is practice turning its back to it. What is missing that causes this mismatch?

This paper aims to add to the understanding of valuation methods by providing a comprehensive selection model for aligning the IT valuation method with the specific characteristics, impacts and organizational context of an IT asset or investment.. Hereto we will analyze the relevance of the organizational context of IT assets for the value they generate and explore different perspectives on the function and nature of the impacts resulting from the use of IT assets. We will then provide a categorized overview of valuation method and discuss the applicability of these methods in practice. We will conclude the paper with the construction of the selection model for aligning the IT valuation method with the specific characteristics, impacts and organizational context of an IT asset or investment.

THE IT PRODUCTIVITY PARADOX

The relationship between IT investments and value in terms of enhanced organizational performance has been well studied in the last decades. The empirical studies in this field produced mixed results (Soh & Markus, 1995). Several studies showed that the relationship between IT investments and organizational performance could not be proven (Loveman, 1988; Kauffman & Weill, 1989; Salmela, 1997). This result became known as the 'IT productivity paradox' (Brynjolfsson, 1993). Probably the best known statement about this paradox was done by Robert Solow when he stated: 'You can see the computer age everywhere but in the productivity statistics' (Watherbe et al., 2007). Notorious as this 'IT productivity paradox' may be, it does not turn up in all studies about IT returns. Table 1 provides an overview of selected firm-level studies.

The studies listed in Table 1 present what is called the 'variance approach' to IT value in organizations (Soh & Markus, 1995). This approach focuses on the 'what' question. *What is the relationship between IT investments and organizational performance?* The advantage of this approach is that it reveals statistically 'proven' effects of IT. These effects are of particular relevance for the development of economic policy. The disadvantage of the approach is that the effects are valid in general, but might not appear for a particular investment in a particular company. Stefanou (2001) notes that organizational change is required if any benefits are to be realized. Barua and Mukhopadhyay (2000) noted that IT value research ignored the synergistic effects of IT with other organizational factors and Brynjolfsson and Hitt (2000) suggested that research into the relationships between IT and other organizational factors and the resulting effects on performance is needed in order to advance our understanding of the value of IT. Table 2 therefore shows another overview of firm-level studies. These studies analyzed the returns of IT investments in combination with organizational and process changes.

The results of the studies in Table 2 show that the return on IT is influenced by the organizational transition that accompanies it. The same IT investment therefore can have a positive return in organization A and a negative or neutral return in organization B, depending on *when, how and why* IT is used in an organization (Soh & Markus, 1995). This approach to the value of IT, not focusing on value as a function of IT investments, but