Chapter 33
Integrating Sustainability Into IT/IS Project Evaluation Methods

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ABSTRACT

Sustainability is one of the most important challenges of our time. How can we develop prosperity without compromising the lives of future generations? Information technology (IT) and information systems (IS) provide organizations with the ability to change and improve business processes to better support sustainable practices. IT/IS evaluation methods should therefore reflect this ability and include criteria for the assessment of sustainability aspects of IT/IS projects. However, IT/IS evaluation methods are still dominated by the economical perspective that resulted from the infamous IT productivity paradox. This chapter aims to broaden the perspective on IT/IS evaluation by exploring the integration of indicators that reflect the concepts of sustainability into IT/IS evaluation methods. The analysis will conclude that integrating sustainability considerations in IT/IS evaluation requires far more than a set of additional criteria to be considered.

INTRODUCTION

Concerns about the balance between economic growth, social wellbeing and the use of natural resources emerged as early as the 18th century (For example Von Carlowitz, 1713 and Malthus, 1798). However, it took until the second half of the 20th century before the concerns about sustainability and sustainable development became broadly recognized as a political, societal and managerial challenge (Dyllick and Hockerts, 2002). The 1972 book "The Limits to Growth" (Meadows et al., 1972) predicts that the exponential growth of world population and world economy will result in overshooting our planet's capacity of natural resources. Today, it is estimated that per year, our current society uses between 1.5 to 1.6 times earth's annual bio capacity (Toderoiu, 2010). Development towards a sustainable society therefore requires change (Silvius et al., 2012) and projects are important 'instruments of change' in realizing a more sustainable society (Marcelino-Sádaba et al., 2015). Given the functional ability of information

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technology (IT) and information systems (IS) to improve, change and reinvent business processes, IT/IS is also considered to be an important contributor to more sustainable business practices (Kazlauskas and Hasan, 2009).

However, this sustainability perspective, is not reflected in assessment and evaluation methods of IT/IS projects, as many methods tend to focus predominantly on an economic perspective. Fueled by the much quoted 'IT productivity paradox' (Brynjolfsson, 1993), researchers and practitioners have been challenged to proof that IT/IS brings economic value to the organization. And although many assessment or evaluation models have been developed that also include other methods and variables than Return on Investment (Renkema and Berghout, 1996), the debate on the contribution of IS still seems to be dominated by the economic perspective (Silvius, 2010).

This chapter explores the integration of indicators and principles that reflect the concepts of sustainability into evaluation methods for IT/IS projects. We will present a brief overview if IT/IS evaluation methods and an exploration of frameworks for sustainability reporting and evaluation. The chapter will then analyze how these two concepts, IT/IS evaluation and sustainability, fit, and make a number of observations on the similarities and differences of the concepts.

IT/IS EVALUATION

Through research and in practice, a substantial number of evaluation methods to assess the contribution of IS/IT to business performance were developed. After considering over 50 evaluation methods Renkema and Berghout (1996) grouped these methods into four categories: Financial methods, Multi-criteria methods, Ratio methods and Portfolio methods.

Financial Methods

The financial methods consider the valuation of an IT/IS investments as an economic issue for which it is irrelevant whether the investment is in IT or in any other resource. As long as the effects of the investment are understood, calculating the value of it is merely a financial technicality (Silvius, 2010). However, in reality capturing value is not quite that straightforward. Financial valuation methods all have assumptions and limitations. Table 1 provides an overview of these valuation methods.

The limitations of these financial methods, especially their limited ability to cope with risks and uncertainty, makes them inadequate for valuing projects that include a substantial amount of uncertain or unknown future revenues. And as use of IT/IS in organizations has shifted from automational to informational to transformational (Mooney et al., 1995), the adequacy of these methods to capture the value of IT/IS is debated. Silvius (2010) concludes that "*The changing role of IT needs to be reflected in the way IT investments and expenditures are evaluated.*". The traditional 'IT-economics' focus on cost savings should evolve to also include the informational and transformational impacts. These impacts, which are highly uncertain, unknown or contingent, are better captured in a multi-criteria method, as described in the following section.