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Chapter 10

A Review of Research Issues in Evaluation of Information Systems

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INTRODUCTION

Information technology (IT) and information systems (IS) have become an organizational necessity in order to support routine data processing operations, initiatives for competitive advantage, business transformation exercises in products, organizational structures, work-roles, and patterns of relationships between organizations. IS are critical components of business, taking part in increasingly complex organizational changes, redefining whole markets and industries, as well as the strategies of the firms that compete within them (e.g., increasing focus on the use of the Internet). As information becomes embedded in organizations, in their products and services and in their relationships with partners and customers, IS cannot be separated from human intellect, culture, philosophy and social organizational structures.

The cost of IT has plummeted dramatically since the 1960s, while its potentials have increased, generating enormous investment and increasing the pace of IT adoption by organizations. According to the Gartner Group, in 1998 the average IS budget was 4.17% of the organizational revenue. This trend is expected to continue, as most organizations have passed 'unharmed' the Millennium landmark and attempt to conquer the arena of *eBusiness* (KPMG Consulting, 2000).

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Organizational resources are expected to be invested in anticipation of the highest future gains. The initial enthusiasm for IT, during the 1970s and 1980s, has been overtaken by a sense of pragmatism in the 1990s. Senior management seeks solid justification of the business value of IT, IS departments have been questioned concerning their contribution to business success, and system developers and business users have been forced to become much more familiar with both IT's potential and constraints.

It has been realized that successful IT outcomes do not occur by default; they are highly uncertain and in order to achieve organizational success, IS has to be managed effectively and be considered broadly. This issue is very important, particularly today, where IT outcomes refer to an 'ecosystem' of networked partners. The additional difficulties in identifying and measuring potential benefits and costs, deriving from current organizational practices, forced many organizations to establish management control mechanisms. Among these mechanisms are the thorough appraisal of potential IT investments and the evaluation of their deliverables.

The role that evaluation plays as an organizational process varies. It is strongly related to other management and decision making processes. The management expectation from IS evaluation is about establishing by quantitative and/or qualitative means the worth of IT to the organization (Farbey et al., 1993; Willcocks, 1994) and IT's contribution to the organizational growth. This can be achieved by effective IS evaluation which ranks alternatives (Clemons, 1991) and forms a central part of a complex and incremental planning, decision-making and control (diagnosis) process (Blackler and Brown, 1985; Hawgood and Land, 1988). Evaluation is then a crucial feedback function (Angell and Smithson, 1991; Baker, 1995), which helps the organization learn (Earl, 1989; Hirschheim and Smithson, 1987; Farbey et al., 1993; Walsham, 1993) and thereby reduces the uncertainty of decisions. This feedback helps trace and understand the underlying factors leading to the success or otherwise of an IT investment. In many cases (Farbey et al., 1995; Gregory and Jackson, 1992; Powell, 1992a) evaluation is a mechanism for gaining commitment and, in highly politically influenced environments, for legitimization and in some other occasions is a mechanism for exploration and discovery (Serafeimidis, 1997).

This chapter discusses the role of evaluation in the management of IS investments and its gradually increasing importance as part of the IS governance. It reviews extensively the related literature (published during the last decade) across conceptual and operational dimensions. The following section outlines a framework for discussion which provides a structure for the review. Then the authors examine the traditional formal/rational evaluation ap-