

# Costs, Benefits, and Risks of E-Government Portals

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## INTRODUCTION

In recent years, a lot of research energy has been devoted to the planning and implementation process of electronic government (e-government) information systems and specifically the empirical derivation of success factors in e-government projects (e.g., Burn & Robins, 2003; Jaeger & Thompson, 2003; Becker et al., 2004; Mahrer & Brandtweiner, 2004; Scott et al., 2004

Gil-García & Pardo, 2005; Ni & Ho, 2005). However, with e-government initiatives slowly reaching higher stages of growth in many countries, research focus is shifting toward the assessment of what has already been achieved, and for public administrators the justification of substantial investments. To best reveal the key issues in investigating the economical success of e-government projects, this article draws on literature from information systems, investment valuation, organisation and public administration studies, as well as the authors' experience with the economic evaluations of information technology (IT) investments in the public sector. The focus of this article lies on the discussion of findings and lessons learned from the economic evaluation (also termed valuation) of a large e-government portal, encompassing 62 applications developed between 2001 and 2005 at a German municipality. The valuation of this e-government portal is based on a framework that defines a standardised procedure model in order to enable both ex ante and ex post valuation of IT investments throughout the whole project lifecycle. This procedure model operates on a framework that can easily be adapted to different IT investment projects such as enterprise resource planning (ERP), supply chain management (SCM) or portal projects in general. The additional support by appropriate methods and tools enables the user to build up valuation routine in order to emphasise the valuation process itself.

## BACKGROUND

The primary objective of public organisations consists in effectively serving the society in which they are embedded by representing public interests, implementing policy and meeting societal needs. Public organisations can generally only exist as long as the fulfilment of their mission and duties towards society is ensured, a precondition that clearly sets them apart from private organisations. In contrast, private organisations can typically only exist as long as overall firm profitability is secured. However, distinctions between public and private organisations increasingly tend to blur. We observe public organisations increasingly following the efficiency principles of the market economy and, on the other side, private organisations increasingly considering the societal impact of their actions. The public and private sectors have developed close reciprocal relationships, with policy-making being "negotiated within networks of public and private actors" (Demortain, 2004). Economic efficiency, once the domain of business managers, has emerged as a major trend in public administration. With budget restrictions becoming commonplace, government and local authorities are increasingly reliant on cost reduction and efficiency maximisation.

IT has been widely recognised as a powerful tool for modernisation in public administration. The implementation of e-government information systems is therefore often seen as an opportunity for governments to streamline business processes, reduce operating costs and improve customer service (Heeks, 1999; Bannister & Walsh, 2003; Scott et al., 2004). These and other considerations gave birth to numerous e-government initiatives in many countries. Since their initiation, e-government projects have significantly grown in complexity, scale and diversity, and are associated with substantial amounts of budget and allocated resources,

therefore urging the discussion of one central question: what is the economic value of e-government and how can it be evaluated in practice?

## **Characteristics of the Evaluation of IT Investments**

The economic evaluation of investment projects is the process of analysing investment profitability through the calculation of project-specific costs, benefits and risks. The result of an economic evaluation is positive and profitability attained whenever the total benefits outweigh the costs and risks associated with the investment. The economic evaluation of IT investments is, in general, a difficult task as IT investments challenge traditional valuation approaches. Typical problems related to the economic valuation are the difficulties in quantifying future benefits. According to Tam (1992), there are vast problems to identify the cash flow of IT investments. Hochstrasser (1994) states that the standard valuation methods can only be applied with restrictions to the domain of IT. Even though many benefits can easily be recognised, they are hard to be captured in numeric values. Instead, benefits are typically described by examples, for example, increased customer satisfaction, faster time to market, improved corporate identity and so forth, all of which can hardly ever be fully considered within a cost-benefit analysis.

Often, many organisations decide on investments more on a rule-of-thumb basis than on the basis of widely accepted economic decision models. In addition, the difficulties in quantifying the benefits of IT can lead to an asymmetric consideration of costs and benefits in economic valuations. Thus, economic calculations are rarely well balanced and create negative results, because costs outweigh the benefits due to their relatively unproblematic measurement (Renkema & Berghout, 1997; Borchers, 2004). This may typically be associated with the rejection of strategically important investments by organisations pursuing a more precautionary valuation and thus systematically underestimating the benefits of IT (Silvius, 2004).

Also, many organisations tend to overestimate those benefits that can be quantified, in order to justify the investments, with regard to their short-term goals—the achievement of a positive cash flow early in the investment process. Management, however, often does not

agree to the results, as there is only little credibility (Tallon et al., 2000).

In the past two decades, a lot of valuation methods have been proposed, many of which with a strict focus on cost or benefit estimation, thus complicating the balanced consideration of both quantitative and qualitative costs and benefits of IT investments (Renkema & Berghout, 1997). After reviewing the literature, it can be seen that these methods and procedures cannot be easily adapted for complex IT investment projects. The need to consider different types of systems, for example intranet, ERP systems or legacy systems, inter- and intra-organisational processes as well as the identification and measurement of the soft but nevertheless important subjective qualitative factors are complicating the detailed evaluation of benefits and costs.

Finally, there are no reliable universal frameworks or procedures which can guide the selection, adaptation and use of the appropriate valuation method according to the needs of a specific IT investment project, often resulting in an asymmetric consideration of benefits, costs and risks—altogether no reliable starting point to come to reasonable IT investment decisions.

These problem fields of IT investment evaluations are also common to the public sector. The long-term range of e-government initiatives, for example, explodes the efficacy of classic evaluation approaches. Furthermore, the accounting techniques in public organisations present a major challenge to economic evaluations as fiscal accounting often does not allow detailed insights into the cost and benefit structures of particular IT investments. Departmental fears of staff reduction in case the evaluation results reveal cost reduction potentials partially hinder an economic evaluation effort. Even though public organisations increasingly underlie the efficiency principles of the market economy, there is still lower pressure for justification of expenses in the public sector, with project spending in excess of planned costs often covered by state budget.

Economic evaluations are utilised as an instrument for budget justification and thus for improving IT departments' credibility, especially in the context of highly cost-intensive IT projects. However, the result of a comprehensive economic evaluation is typically multi-dimensional combining both quantitative and qualitative factors (rather than reflected in a single quantitative value) and it should be acknowledged

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