Chapter 17
Evaluating E-Government Initiatives:
An Approach Based upon the Appropriation of Tangible and Intangible Benefits

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ABSTRACT
Over the last decade, governments around the world have made substantial investments in e-government initiatives with the aim of improving the efficiency and effectiveness of public services. While some of these initiatives are aimed at improving tax collection and reducing running costs, the main benefits that they provide are intangibles such as greater taxpayer satisfaction and increased transparency in government decisions. This chapter presents a method to analyse e-government initiatives. The method takes into consideration that these initiatives are frequently comprised of several projects that are divided into a number of subprojects. Moreover, it evaluates e-government initiatives through a balanced view of the tangible and intangible benefits they provide. All of this is made clear with the support of a real-world inspired example.

INTRODUCTION
In many countries the interest of civil servants in information and communication technology (ICT) goes back to the very beginning of the commercial electronic computer era in the 1950’s. For example, in the United States the first electronic computer to be commercially available, the UNIVAC I, was bought by the US Census Bureau, which used it to predict the results of elections and analyse economic time series. The next six UNIVAC sever built were also bought by US government agencies,
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such as the Air Force, the Army Map Service, the Atomic Energy Commission and the Navy (Campbell-Kelly, Aspray, Ensmenger, & Yost, 2013). Government has also been an early adopter of ICT in Canada, the United Kingdom, Germany, Brazil and many other countries (Frauenfelder, 2013; Raum, 2008; Vardalas, 2001).

Nevertheless, the role that ICT has played in both the private and public sectors has changed quite considerably over the course of time. From a machine that is able to perform calculations at high speed, computers have been used as an aid to capture, store and transform information efficiently, and as an enabler of process automation. Also, they have been used to build support tools for data analysis and better decision making.

As a result, in many markets ICT has become an important element in business strategy. Moreover, nowadays the very existence of numerous companies depends on ICT, especially those that thrive on the virtual world, such as search-engine service providers, e-book editing and publishing companies, digital marketing agencies and on-line distance learning institutions (Barnes & Hunt, 2013).

In the public sector ICT has allowed for the construction of numerous computerized systems with the view of improving the efficiency, effectiveness, transparency and accountability of public services. Moreover, such systems facilitate the interaction between citizens and government, government and businesses, government and civil servants, government and its agencies, and also among the different branches of government at municipal, state and federal levels. In the literature these computerized systems are usually referred to as e-government, or e-gov for short (Almarabeh & AbuAli, 2010; Wahid, 2012).

All of this has instigated the development of a large number of concepts, techniques and methods to support the analysis of ICT investments (Peffers & Santos, 2013). Despite government being one of the biggest investors in ICT in developed and developing nations, the vast majority of the methods proposed so far are aimed at the private sector (Kundra, 2010; Wilkin, Campbell, & Moore, 2013).

Because the private and public sectors differ substantially in their goals, culture and management structure, it would be naive to simply apply methods developed to analyse investment in one sector to the other (Campbell, McDonald, & Sethibe, 2010; Rosacker & Rosacker, 2010).

This chapter presents a method to better analyse e-gov initiatives. The method is based upon the ideas of Thomas L. Saaty (2013) on the evaluation of intangibles and Mark Denne and Jane Cleland-Huang (2013) on the incremental funding of ICT projects. The method addresses many relevant questions concerning the investment in e-gov initiatives that have been neglected by others (see the RELATED WORK section in this respect). As a consequence, it provides civil servants with a tool that allows them to make better investment decisions.

The remainder of this chapter is organized as follows. The RELATED WORK section reviews meaningful contributions to the improvement of e-gov evaluation methods and identifies their shortcomings. The BACKGROUND section presents a review of the principal concepts, methods and techniques used in the subsequent sections. The EXAMPLE section introduces the method with the help of a reasonably complex example. The METHOD section describes the method presented in this chapter in more formal terms. The CONCLUSION section presents the conclusion of this chapter.

RELATED WORK

Over the course of time many valuable proposals to augment the coverage, effectiveness and precision of e-gov evaluation methods have been presented. For example, Raus et al. (Raus, Liu, & Kipp, 2010) have devised a value assessment framework that can be used to access business-