

Chapter 13

Critical Success Factors for E-Government Infrastructure Implementation

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ABSTRACT

Effective digital government infrastructures are needed to support the policy and strategy of governments. ICT Infrastructures provide generic functionalities that are shared and used by large numbers of users. Typically, many stakeholders are involved in the implementation of the infrastructure and the infrastructure is shaped by the interactions among stakeholders. The management of the development of such infrastructures is complicated. Multiple competing agendas and needs have to be reconciled. One approach for managing and guiding its development is based on critical success factors (CSFs). CSFs are those areas that need to be given attention and are perceived to be most important to the success of the infrastructure development. The aim of the research described in this chapter is to identify CSFs for guiding shared infrastructure implementation. This research is conducted by identifying CSFs for Surfnet - which is a public organization providing a digital infrastructure for researchers, teachers and students. This infrastructure enables them to collaborate with each other. The framework of Borman and Janssen (2012) was used which classified CSF in outcome, process and operating environment characteristic categories. The CSFs suggest a need to have a well-developed infrastructure implementation strategy. It is argued that taking a CSF-based approach is suitable for guiding complex projects, but they should be revisited regularly as they might change over time.

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INTRODUCTION

To inspire and support e-government developments, governments from all over the world create national digital government infrastructures (or e-government infrastructure) to provide generic functionalities that can be used by different public agencies to develop electronic services (M. Janssen, Chun, & Gil-Garcia, 2009). Infrastructures provide the base foundation for IT capabilities and are shared throughout the organizations (Weill, Broadbent, & Butler, 1996). Infrastructures serve as the foundation for building new services on top of it, in this way enabling the fast and easy development of new services. Infrastructures are typically not the primary source of an organization's competitive advantage, rather they are necessary conditions and provides a facilitating capability to create value. Generic functionalities such as identification and authentication mechanisms, centralized registries, secure exchange facilities and portals have been set up (Klievink & Janssen, 2009). These generic functionalities (or services) can be used by a large number of users (M. Janssen et al., 2009) and provide generic support to often multiple different activities. The facilities that make up these infrastructures function as a kind of building blocks that can be reused by other public organizations. The concept of infrastructures is based on the idea that basic services are developed that can be shared and used by many organizations (ibid). Hence organizations do not have to develop nor maintain the services themselves. They are provided over the web and others parties are in charge of running and operating the infrastructure. Shared infrastructures are considered to hold considerable benefits for businesses and governments enabling information sharing, reducing costs of already existing interactions and enabling new ones (Hanseth & Lyytinen, 2010).

The development of an infrastructure is not easy as it is a result of the technology used, the needs of and interactions among different stakeholders. Infrastructures are used by a large

number of users and its services are shared among members. Shared services can be defined as "the concentration of dispersed service provisioning activities in a single organizational entity" (Marijn Janssen, Joha, & Zuurmond, 2009, p. 16). Infrastructures are not static, but dynamic and evolve due to advances in technology as well as changes in the social system. Hanseth et al. (1996) name infrastructures 'information infrastructures' in order to emphasize the holistic, socio-technical and evolutionary nature. They put the combined social and technical complexity at the center of an empirical scrutiny.

An infrastructure offers only value to its users after a certain critical mass of users has been reached (M. Janssen et al., 2009). In such infrastructure the installed base is of particular importance (Hanseth, Ciborra, & Braa, 2001). An infrastructure is never developed from scratch, but is built on top of an existing base of technical and non-technical elements. The installed base refers to the institutionalized technical, organizational, legal and other elements that determines the further development of the information infrastructure (Hanseth et al., 2001). The installed base represents "sunk costs," that is, huge investments (in terms of investments, development, training, education and habits) are made only be earned back over a pre-longed period of time. These sunk costs make it attractive to continue current practices and not replacing them with entirely new and more up-to-date solutions. The evolution of infrastructures is path-dependent due to the installed base, which can be viewed as the "living legacy" (Hanseth, Monteiro, & Hatling, 1996).

The technical complexity and the decentralized control which involves many stakeholders having their own requirements makes the development of a public infrastructure difficult. Some stakeholders might have less resources than others, might have less ICT-expertise and might have legacy systems which results in a heterogeneous landscape of stakeholders. Individual organizations make their local design decisions, which

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