

# Chapter 39

## A Strategic Approach to e-Health Interoperability Using e-Government Frameworks

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### ABSTRACT

*E-government projects have a breadth of impact that extends far beyond their respective context. However, current e-Government methodologies and models used are only tailored to specific requirements. Despite the use of interoperability in e-government, there has been a paucity of literature on adapting e-government frameworks in the healthcare context and in e-health in particular. Aiming to fill this gap, this chapter justifies why interoperability frameworks currently used in e-government may be useful in e-health. Therefore, this study attempts to address the issues faced by surveying the models consisting of effective practices in e-Government IT integration management, as well as IT support. The overall aim of this chapter is to conduct a critical analysis of well-established e-Government models and frameworks. Understanding e-Government integration project management will ultimately help in the development of an effective practice model, which will improve e-Government implementation.*

### INTRODUCTION

This chapter is concerned with the adaptation of e-government interoperability frameworks in the context of e-health. Most governments around the globe released their e-government strategies dur-

ing the last decade. Their own framework policies, covering security, and confidentiality as well as delivery channels supported these e-government strategies. The European Union has set up different initiatives in the area of e-government within the limits of its powers in the domain of Public Administration (Alabau, 2004). One of such poli-

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cies was the interoperability policy (CEC, 2002; OECD, 2003).

However, despite the use of interoperability in e-government, there has been a paucity of literature on adapting e-government frameworks in the healthcare context and in e-health in particular. Aiming to fill this gap, this chapter justifies why interoperability frameworks currently used in e-government may be useful in e-health.

The chapter is organised as follows: after a thorough discussion on interoperability frameworks and their application in e-government, the healthcare context is presented and the usefulness of these frameworks in e-health is explained. The chapter concludes by presenting future research avenues.

## **INTEROPERABILITY FRAMEWORKS**

Interoperability is “the ability to exchange information and mutually to use the information which has been exchanged” (CEC, 1991). An interoperability framework aims at referencing the basic technical specifications that all agencies relevant to the e-government strategy implementation should adopt. This interoperability framework should enable, at least, the interoperability between IS from different agencies in order to provide services to citizens and businesses in an integrated way.

A Government Interoperability Framework (GIF) is one way to achieve e-Government interoperability. A GIF is a set of standards and guidelines that a government uses to specify the preferred way that its agencies, citizens and partners interact with each other. As noted by Guijarro (2007), a GIF includes: “the basic technical specifications that all agencies relevant to the e-Government strategy implementation should adopt.” A GIF normally includes:

- Context
- Implementation and compliance regimes
- Technical content
- Process documentation.

Principles indicate the priorities of government in terms of ICT development. These principles guide the development of the GIF and become the criteria for choosing standards. Many of the GIFs recognized seven similar key principles as described below:

- Interoperability
- Market support
- Security
- Scalability
- Reusability
- Openness
- Privacy

According to Guijarro (2009) interoperability frameworks in Europe have shown up “as a key tool for interoperability in the deployment of e-Government services”, both at national as well as European level. They are initially focused on technical interoperability, but recently inclusion of semantic in the interoperability frameworks started.

The main issue of an interoperability framework is the integration of a wide variety of legacy software applications. This has always created a costly and time-consuming IT challenge and has led the Business Integration to focus on the concepts of Service Oriented Architecture (SOA) (Channabasavaiah, Holley, & Tuggle, 2004) as well as Event Driven Architecture (Sadler, Crabtree, Cotignola, & Michel, 2004). These two models enable process level integration allowing the automatic communication among sub-components of heterogeneous systems, rather than a simple data transfer between different systems.

Governments are adopting solutions based on SOAs to solve their business integration problems according to e-government plans, new technologies and market developments. Governments Agencies that want to operate in real time and realise the zero-latency must adopt event-driven architecture, message-oriented middleware and publish-subscribe communication (Baldoni, Con-

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