Chapter IV
Interoperability in E-Government: Stages of Growth

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ABSTRACT

Improved interoperability between public organizations as well as between public and private organizations is of critical importance to make electronic government more successful. In this chapter, stages of e-government interoperability are identified and discussed. Four stages are presented: work process stage, knowledge sharing stage, value creation stage, and strategy alignment stage.

INTRODUCTION

The mobilization of electronic information across organizations has the potential of modernizing and transforming information exchanges. The current information exchange is, however, often inefficient and error-prone (Eckman et al., 2007). Exchanges of information and services are often fragmented and complex, dominated by technical as well as organizational problems.

High-ranking issues among the defining purposes of e-government are highly agile, citizen-centric, accountable, transparent, effective, and efficient government operations and services (Scholl and Klischewski, 2007). For reaching such goals, the integration of government information resources and processes, and thus the interoperation of independent information systems are essential. Yet, most integration and interoperation efforts meet serious challenges and limitations.

The purpose of this chapter is to present stages of development for e-government interoperability. By identifying development stages, scholars and practitioners have a framework within which they
can diagnose the current situation and plan for future improvements in interoperability.

**INTEROPERABILITY**

Interoperability is referring to a property of diverse systems and organizations enabling them to work together. When systems and organizations are able to inter-operate then information and services are provided and accepted between them. In a narrow sense, the term interoperability is often used to describe technical systems. In a broad sense, social, political, and organizational factors influencing systems and systems performance are also taken into account.

For example, new technologies are being introduced in hospitals and labs at an ever-increasing rate, and many of these innovations have the potential to interact synergistically if they can be integrated effectively. However, as pointed out by Eckman et al. (2007), the current health-care information exchange is inefficient and error-prone; it is largely paper-based in most countries, fragmented, and therefore overly complex, often relying on antiquated information technology.

At the same time, health care costs are rising dramatically. Errors in medical delivery are associated with an alarming number of preventable, often fatal adverse events. A promising strategy for reversing such a trend is to modernize and transform the health-care information exchange, that is, the mobilization of health-care information electronically across organizations within a region or community (Eckman et al., 2007).

However, in the case of hospitals, there are limitations to free flow of information. Information systems often handle sensitive information about individuals and other organizations. Collection and sharing of such information is affected by privacy concerns (Otjacques et al., 2007).

As electronic government refers to the delivery of government services (information, interaction and transaction) through the use of information technology, a distinction can be made between the front and back offices of public service delivery organizations. The interaction between citizens and civil servants occurs in the front office, while registration and other activities take place in the back office. Bekkers (2007) found that back-office co-operation is a serious bottleneck in e-government due to different interoperability problems.

One important action to improve information sharing is standardization in information systems. It is necessary to define the compatibility standards to be adopted among systems (Santos and Reinhard, 2007). Some organizations will have to change their technical and organizational processes and make accommodations in response to standardization initiatives (Gogan et al., 2007).

Interoperability of systems enables interoperability of organizations. Systems interoperability is concerned with the ability of two or more systems or components to exchange information and to use the information that has been exchanged. Organizational interoperability is concerned with the ability of two or more units to provide services to and accept services from other units, and to use the services so exchanged to enable them to operate effectively together (Legner and Lebreton, 2007).

**STAGE MODELS**

Stages of growth models have been used widely in both organizational research and management research. According to King and Teo (1997), these models describe a wide variety of phenomena – the organizational life cycle, product life cycle, biological growth, etc. These models assume that predictable patterns (conceptualized in terms of stages) exist in the growth of organizations, the sales levels of products, and the growth of living organisms. These stages are (1) sequential in nature, (2) occur as a hierarchical progression that is not easily reversed, and (3) evolve a broad range of organizational activities and structures.
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