

## Chapter 5.4

# Preparing Healthcare Organizations for New IT Systems Adoption: A Readiness Framework

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### **ABSTRACT**

Information systems exist for hospitals but even the most advanced systems concentrate on relatively simple coordination, resource allocation and documentation aspects of healthcare operations. At the same time the need to improve health care performance by means of more sophisticated IT systems is widely felt. In practice, however, the adoption of new IT is usually a difficult and a very slow process. To analyse the underlying reasons, we identified a set of key bottlenecks in the IT adoption process by interviewing large groups of healthcare actors. We conclude that health care organizations should be better prepared in order to facilitate easier IT systems' adoption. To do so, a readiness framework is considered to be helpful, the contours of which are sketched in this article. It is also discussed how, based on

clarified clinical pathways, workflow management can assist in framing optimization of resource utilisation, clinical decision-making, staff training and quality improvement in healthcare delivery. [Article copies are available for purchase from InfoSci-on-Demand.com]

### **INTRODUCTION**

Recent drive to automate hospital information has focused on the formal implementation of electronic health records. These systems are largely relational databases that focus on transaction-based intra-enterprise applications. Yet only a limited number become fully functional, scalable, distributed systems with interoperability. Based on these observations, it is widely felt that more sophisticated information systems are needed to support health care performance based on the

concept of clinical pathway optimisation. The adoption however of such integrated distributed information systems takes place at a very slow rate (Aarts 2005; Stoop 2005). Underlying reasons given in popular literature relate to the misunderstanding of healthcare business processes.

Healthcare processes are very complex and dynamic due to the involvement of clinical and administrative tasks, large data volumes, large numbers of patients and personnel with different tasks requiring specific knowledge. Healthcare is a business where many changes occur (i.e. (new) treatments, drugs, equipment, protocols, and legislation). These changes have their influence on the instantiated processes that need adjustment (Anyanwu et al; 2003).

Observation of the dynamic character of healthcare system and the implementation of IS at Erasmus MC (medical centre) led towards the following research question.

*Which internal factors of IS implementation affect healthcare organizations' readiness for new systems?*

The following sub-questions assisted in finding answers to the central research question.

- What are the consequences of IS implementation in health care?
- What is the impact of IS implementation on organization?
- What initial choices need to be made before an IS implementation decision in a healthcare organization?

The article is structured as follows. The next section describes the potential workflow management (WfM) and how WfM affects healthcare IS. That will be followed by a brief description of actor network theory (ANT) before a sketch on key bottlenecks related to the introduction of new IT as found in the scientific literature and selected by using criteria taken from change management.

The design and results of the empirical research will integrate the content into a coherent view that is used to sketch a readiness framework for new IT adoption in complex healthcare environment. Finally, we discuss the high potential of WfM to provide optimised healthcare, provided that the healthcare organisation at stake has been sufficiently prepared for adopting of WfM systems. We finalize this article by presenting our conclusions.

## **What is Workflow Management?**

In the last couple of years notion was growing about whether data processing in complex organizations should not only be based on integrated data management, but also on integrated process management. Organization processes usually define the order and time of data creation and alteration. Workflow management (WfM), also referred to as structured process management, is an important ingredient for data processing and data management in many cases. Automated support is needed to effectively and efficiently execute process management in complex environments and situations. WfM, from a general perspective, can be seen as administrative logistics. Like physical logistics where the right goods are delivered at the right place and time, WfM takes care of delivering the right information at the right time and by the right person (Grefen, 2001).

Workflow is an abstraction of a business process. Normally a workflow comprises a number of logical steps, known as tasks. These tasks consist of dependencies among tasks, routing rules and participants. A task can require human involvement, or it might be executed automatically by IS applications (Cardoso et Al, 2004). Some well established definitions of WfM in literature are given below.

The ultimate goal of workflow management is to make sure that the right persons execute the proper activities at the right time (Orlikowski, 2000). Although it is possible to do workflow

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