Chapter 40
Governing Medication Information:
Asset Specificity in the E–Health Context

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ABSTRACT

Health care applications are technically complex and the software and hardware markets for medical technologies are less mature than for many other fields. Although there should be an interplay between design and the usage of systems, this is often not the case in the health care sector. Currently, information is often bound to a location or institution due to fragmented information systems. Using the notion of asset specificity as a theoretical background, the authors conducted interviews in the Finnish primary health care system. The interviews were analyzed and examples of real life situations are provided to guide designers of information systems for the health care sector.

INTRODUCTION

Information systems in health care have been proven to have several benefits, such as the improved quality of care and the accessibility of information (Åkersson, Saveman & Nilsson, 2007), or improved financial outcomes (Menachemi, Burkhardt, Shew-chuk, Burke & Brooks, 2006) However, despite the possible advantages, the use of IT in health care lags behind other industries (Menon, Lee & Eldenburg, 2000) and there is evidence that information systems might even have negative effects on a health care organizations' performance (e.g. Hsieh, Kuperman, Jaggi, Hojnowski-Diaz, Fiskio, Williams, Bates & Gandhi, 2004; Nebeker, Hoffman, Weir, Bennett & Hurdle, 2005)

The reasons for the disadvantages are many, besides the technical challenges, the introduction of IT is considered to have major impact at a cultural and social level (Bashshur, Reardon & Shannon, 2001). Another challenge is the diversity of stakeholders that are involved in IT implementation projects and their different roles in a complex health care setting (Pouloudi, 1999). Furthermore, as Chiasson and Davidson (2004) state, health care applications are technically complex and the software and hardware markets for medical technologies are less mature than for many other fields. Although there should be an interplay between the design and usage of a system, this is far too often not the case in the health care sector. Large national and international software companies design the systems and health care units have little chance of getting their requirements through without investing extensive sums of money.

In Finland, electronic health records (EHR) are already widely in use in primary care organizations. However, there are several different information systems in different health care organizations (Mäkelä, 2006) and interplay between these EHR's is not possible. In order to efficiently and, foremost, safely treat the patients all the patient information should be available, regardless of the organization a patient at that point is being treated in.

One of the most crucial pieces of information about a patient in the health care system is his/her medication information. By medication information we refer in our paper to the generic and commercial name of the drug, the dosage and the use indication. For instance, in the U.S between 44,000 and 98,000 deaths are estimated to have occurred as a consequence of medical errors. A significant number of them are related to medication errors. (Anderson, Ramanujam, Hensel, Anderson & Sirio, 2006) A medication error can occur when the medication itself, the doses or the way it is taken are incorrect. Besides the actual errors, there are also cases when the medication has been given properly but it has caused,

for instance, an allergic reaction in the patient. To prevent the errors caused by the medication up-to-date information about a patient's current medication regimen is crucial.

The problems in managing medication information have been noticed by Finnish authorities and clinicians. To find out solutions, many projects have been started. This paper is part of one of those projects and the aim of the project is to model and explore how medication information is currently managed and what the main problems and bottlenecks are in managing it. The goal would be to have a system that facilitates the availability of the medication information so that it would be freely available to all stakeholders when needed. The purpose here is not to describe technical solutions (e.g. new information systems), rather it is to take a participatory socio-technical approach to analysing the problem. This, obviously, is an extremely complex task requiring that multiple organizations, professional groups and other stakeholders join in the process.

As the ultimate goal is to redesign the system, and create a borderless system that can manage medication information distribution without actually developing a new IS but, by integrating existing systems and changing the work practices we chose to use *asset specificity* as the theoretical standpoint for addressing the problem. In the first phase of the project we illustrate the ways in which the asset (medication information) is specific (bound) and through the analysis suggest solutions for "unbinding" medication information.

The article is organized as follows: first, the research context is presented. Then the theoretical background is explicated and some related research presented. After that, the framework for analysing the empirical data is presented. Then the research approach is described followed by the results of interviews conducted in the Finnish primary health care sector.

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