Chapter 43
Application Portfolio Management in Hospitals:
Empirical Insights

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ABSTRACT

Application portfolio management concerns the management of all technology and applications, and is a complex task under pressure of increasing collaboration among hospitals. Various approaches to application portfolio management are described in existing literature, but are directed at commercial enterprises rather than health care organizations. Addressing this deficiency, this article presents the results of three case studies conducted at Dutch hospitals surveying current application portfolio management processes. Results show differences between the three hospitals. One hospital implemented a continuous application portfolio management process. The other hospitals perform ad-hoc IT management due to, among others, lacking support from management, decentralized IT governance structures and an increasing need for technical integration. This article can assist IT executives in making better informed decisions, while it provides a step towards a better understanding of the complex application portfolio management process in hospitals for academia.

INTRODUCTION

Large organizations, including hospitals, increasingly depend on information systems to conduct their day to day activities. As technology develops and organizations grow, the amount of information systems tends to increase (Cudanov, Jasko & Savoiu, 2010). Applications are bought, developed in-house or added to the information system landscape as a result of mergers and acquisitions, or under pressure of an emerging need for collaboration among hospitals. This expanse

of the application portfolio and increasing entropy leads to increasing interdependencies between applications and greater complexity when managing the information system landscape as a whole (Riempp & Gieffers-Ankel, 2007). Factors such as total cost of ownership and inflexibility increase, whereas the ability to adapt and integrate among existing systems or adopt new systems becomes a challenge.

Being able to adapt or integrate information systems is especially complex in the domain of health care. Domain specific examples of challenges that set this domain apart from others are maintaining referential integrity among systems (e.g. correct assignment of data to a certain patient), privacy and security (e.g. individual patient data should only be accessible to those who are authorized), and stability (e.g. critical hospital information systems must be continuously available) (Winter et al., 2011). The management of complex application landscapes in all its aspects, is referred to as application portfolio management (APM) (Rispens & Vogelezang, 2007). In APM, all applications and technology are regarded as one single portfolio and managed accordingly (Jeffery & Leliveld, 2004). While attention for APM has emerged from the last thirty years onward (McFarlan, 1981), clear guidelines or recommendations on how to perform this activity remain deficient. This scarcity became evident again when Simon, Fischbach and Schoder (2010) recently described one of the few systematic approaches to application portfolio management.

At present, most attention for APM originates from a business perspective (Jeffery & Leliveld, 2004; Weill & Ross, 2004; Maizlish & Handler, 2010), whereas most prior attention in the domain of health care information system research has been directed at the adoption, acceptance, implementation and effectiveness of individual information systems (Aarts & Koppel, 2009; Bradley et al., 2012). Accordingly, it remains unclear to what extent hospitals have implemented application portfolio management and what issues are en-

countered, as hospital case studies are scarce. Addressing this deficiency, this article presents the results of three case studies performed at two regional hospitals and one university hospital in the Netherlands. The purpose of this research is twofold: to assist IT executives in the domain of health care in making better informed decisions, and to contribute to the body of knowledge on application portfolio management in hospitals. This article answers the following research question and subsequent sub research questions: "What hampers the execution of application portfolio management in hospitals?"

1. What are the characteristics of a hospital application portfolio?
2. What is the current maturity state of application portfolio management practices in Dutch hospitals?

This article continues with a description of the research approach in section two. This section elaborates on the research approach used to gather the results that are presented later on in this article. Section three presents the theoretical background of this research and elaborates on the characteristics of a hospital application portfolio. Section four in turn presents the results of three case studies conducted at Dutch hospitals. In section five, current maturity profiles of application portfolio management processes are drawn, reflecting significant differences between the three hospitals. In section six, validity threats alongside the reliability of this research are addressed, followed by a conclusion in section seven.

Research Approach

In providing an answer to the research questions, a scoped literature review (Arksey & O'Malley, 2005) and case studies were carried out. Consequently, the remainder of this section first elaborates on the scoped literature review, followed by a description of the conducted case studies.

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