Chapter 86
Inhibitors of Physicians' Use of Mandatory Hospital Information Systems (HIS)

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ABSTRACT

Physicians' use of information systems continues to be a highly relevant area of information systems research. Although numerous studies have investigated the relationship between hospital physicians and hospital information systems (HIS), a comprehensive framework for assessing the factors which inhibit the use of HIS has yet to be developed. To advance these efforts, this exploratory research takes a qualitative approach to investigate HIS use inhibitors based on interviews with 48 informants and observations from over 40 hours of workplace shadowing in two German hospitals. The findings show that focusing solely on the user does not lead to successful system deployment in hospitals. Rather, the road to success needs to take a combined approach focusing on the user, the process and the system. If these three building blocks are well aligned, correspond with the organizational context and are supported by strong leadership, medical personnel are much more satisfied with the HIS, which results in more effective use.

1. INTRODUCTION

Information technology (IT) is used widely in hospitals in developed economies all over the world. Although it seems to be logical to employ hospital information systems (HIS) and it is "…no matter of if, but of when…" (Wiggins, Peterson, & Moss, 2015) they will be employed, anecdotal evidence and discussions with practitioners often give the impression that HIS are not performing up to expectations: Proof that these systems provide a sustainable and measurable positive impact on patients and the healthcare industry is still outstanding.

Numerous authors, such as Buntin, Burke, Hoaglin, and Blumenthal (2011) and Denis (2009), have discussed the expected positive benefits from HIS, including improvements in the quality of care, a decline in healthcare delivery costs, and the avoidance of unnecessary procedures. However, critical voices, such as Ash, Berg, and Coiera (2004) or Koppel (2016), also associate serious negative outcomes like unnecessary mortality and redundant expenditures with the use of HIS. Despite the lack of proof of benefits, hospitals in developed economies continue to invest large amounts of money in their IT systems. Actual figures are hard to get and vary depending on sources. According to a report by the European Commission, most European hospitals spent around 2.5 to 3% of their operating budget on IT services (Buddrus, 2013; European Commission, 2013). This investment is significant and not likely to decrease in the near future (IDC, 2015).

Considering the expected benefits of HIS and the investments into IT, one wonders why healthcare systems around the world have difficulties living up to expectations (Davino, 2011). This poses the question whether HIS is able to provide the promised benefits (Kellermann & Jones, 2013). The answer to this question is influenced by multiple factors and is thus highly complex. Inspired by personal experience and anecdotal evidence, this research aims to shed light on this question by assessing the role of the user. Medical personnel's acceptance of HIS has been identified as an important prerequisite for successful healthcare delivery (Tulu, Burkhard, & Horan, 2006; Walter & Lopez, 2008) and the anticipated benefits of a HIS will only materialize if users use the IT as designated (Engelbert & Graeml, 2015). As Abouzahra et al. put it: "…the benefits of HIS can only be reached if [the HIS] are used in practice." (Abouzahra, Guenter, & Tan, 2015, p.14).

Due to their central role in healthcare delivery, medical personnel is often considered a major obstacle to successful IS deployment in hospitals (Boonstra, Versluis, & Vos, 2014; Paré, Sicotte, & Jacques, 2006). As Lowenhaupt put it: "Physicians' adoption [of HIS] has long been considered 'the holy grail' of clinical information systems: critically important, but elusive…" (Lowenhaupt, 2004, p. 12). This leads to the guiding hypotheses of this study that physicians and HIS are not well matched. Buntin's 2011 literature review identifies initial quantitative support for this hypothesis.

This paper delves deeper into this hypothesis, addressing the research question: What are the key factors that inhibit physicians from having a positive attitude towards hospital information systems in a mandatory use setting?

HIS are mandatory use systems, especially when used to document patient-related information. In a mandatory-use setting, whether a user likes or dislikes the IS does not determine whether or not he or she will use the IS. However, research and practice show that there are different levels of system interaction "…ranging from use to effective use…" (Burton-Jones & Grange, 2012, p.632). It seems obvious that a positive attitude towards the system is a vital building block to "more effective use" of the HIS. This research aims to provide further insights into why physician users of HIS do not always like working with the system and, more specifically, why physicians tend to not always use the systems as designed by system engineers for the mandatory-use hospital setting.

Numerous papers and several literature reviews (Abouzahra et al., 2015; Boonstra & Broekhuis, 2010; Boonstra et al., 2014; Buntin et al., 2011) identify a large body of research into the enablers but mainly inhibitors of hospital medical personnel HIS usage. Unfortunately, Boonstra et al. (2014, p.16) concludes that "…the literature is diffuse, and articles seldom build on earlier ones to increase the theoretical knowledge…" In light of this observation, this exploratory research investigates the root cause of the problem: the interaction between users and systems in the context of clinical work. Although numerous studies have already been conducted on the issue, there is still no comprehensive understanding and

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