BUSINESS PROCESS REDESIGN IN HEALTHCARE: TOWARDS AN EVIDENCE-BASED HOLISTIC APPROACH

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Abstract

The redesign of business processes has become the key challenge for many healthcare organizations. This paper argues that current main research streams fail to assist healthcare practitioners in facing this challenge. More specifically, the main research streams fail to support practitioners in developing process alternatives that drastically outperform the performance of current processes in terms of cost, time, quality and flexibility. Not surprisingly, highly intuitive methods have gained widespread use in practice. Although these intuitive methods may foster creativity, they are at high risk to lead to biased redesign choices, the negligence of interesting redesign options and redesign options that are not actionable. Hence, this paper concludes that there is still a high need for an evidence-based holistic approach that assists healthcare practitioners in redesigning their business processes in a more structured way.

Keywords: Business process redesign, healthcare, value chain analysis and optimization in patient logistics

1. Introduction

Healthcare institutions are increasingly facing pressure to improve their process performance in terms of cost, time, quality and flexibility. The redesign of business processes can contribute a lot to this objective. Especially, the redesign of interdepartmental and inter-organizational order-fulfillment processes has still a huge improvement potential. In the healthcare domain, these processes consist of steps from intake till aftercare that are performed for a patient care request. These steps include diagnostic tests and treatments as well as supporting steps that are performed for a patient care request, like analyzing a medical record and making an appointment for surgery. From a historical perspective, the scope of many process redesign initiatives has been limited to a single department. It is widely acknowledged that at least an interdepartmental focus is needed to achieve drastic process performance gains (e.g. Vos, Van Oostenbrugge, Limburg, Van Merode & Groothuis, 2009)

However, an initiative that aims at redesigning such a process is a difficult, twofold challenge (Reijers & Mansar, 2005). It is a technical challenge in the sense that the development of a process redesign that drastically improves the current design is difficult. Moreover, it is a socio-cultural challenge, resulting from the typically severe organizational effects on individuals involved. Therefore, it is not surprising that, in the absence of adequate methodological support, many business process redesign projects in healthcare do not deliver intended results or even fail entirely (e.g. Himmelstein, Wright & Woolhandler, 2010).

2. Motivation

In literature, broadly speaking, we can distinguish two main research streams related to the redesign of business processes in healthcare. These two streams are labeled the “operational research stream” and the “managerial-philosophy inspired stream”.

The operational research stream
The operational research stream strongly focuses on the technical challenge of a business process redesign initiative. Studies within this stream mainly use analytical methods and discrete event simulation to come up with recommendations for redesigning business processes. Three areas that are typically investigated are: patient scheduling and admissions, patient routing and flow schemes, and scheduling and availability of resources (Jun, Jacobson & Swisher, 1999). The focus of existing research studies is typically limited to only one of these areas,
excluding a simultaneous evaluation of other interesting and interrelated redesign options. Moreover, the scope of these papers is often limited to a single department (e.g. an intensive care unit) and studies reporting on successful implementations are almost absent (e.g. Jun et al., 1999; Cayirli & Veral, 2003).

These characteristics inherently mean a high risk of proposing redesign recommendations that perform far from optimal from the perspective of a patient who moves through a larger and complex system in reality. So, although the idealized models within this stream of research provide very valuable insights, a reapplication of one of the methods in real-life would not only be time-consuming and difficult due to the advanced methods that are used (e.g. Jun et al., 1999), but also imply a high risk of implementing a solution that is far from optimal.

The managerial-philosophy inspired stream

The other main stream of research is labeled the managerial-philosophy inspired stream. This stream of research is inspired by managerial philosophies like Total Quality Management, Business Process Reengineering, Lean Management and Six Sigma (Näslund, 2008). Although these management philosophies are quite different, they also have several characteristics in common (Näslund, 2008; Currie, 1999). Studies within this stream often adopt a more holistic view on healthcare processes than the operational research stream. They focus on business processes that cross several functional boundaries and aim at changing different elements of a process simultaneously (Young, 2005; Currie, 1999). Frequently, papers within this stream advertise with successful step-by-step approaches, suggesting a complete coverage of socio-cultural and technical challenges (Reijers, 2003).

However, a more thorough examination of these studies typically reveals that at best they only address several socio-cultural challenges (Näslund, 2008). Even in these cases, actionable definition statements of critical success factors like top management support are absent (e.g. Finney & Corbett, 2007). Technical guidance on how to get from the as-is to the to-be situation is typically not provided at all (Malone, Crowston, Lee, Pentland et al., 1999). Reports restrict themselves to giving descriptions of the as-is situation and the implementation results of redesigns. Consequently, the technical heart of a business process redesign initiative remains a black box within this stream of research.

In summary, both main research streams fail to support practitioners in facing the technical and socio-cultural challenges of a business process redesign initiative that aims at redesigning an interdepartmental or inter-organizational order-fulfillment process in the healthcare domain.

Hence, it is not surprising that more intuitive methods have gained widespread use in practice (Mansar, Reijers & Ounnar, 2009; Gunasekaran & Kobu, 2002; Kettinger, Guha & Teng, 1997). Often, these methods employ brainstorm and construction sessions where redesign options are discussed by practitioners in a highly iterative manner (e.g. Mansar et al., 2009; Reijers, 2003). Typically, the persons participating in these sessions must rely almost entirely on their own experience and intuition to come up with new redesign ideas. Although these methods may foster creativity, they are at high risk to lead to biased choices and the negligence of interesting redesign options (e.g. Mansar et al., 2009). From our own practical experience as (external) advisors in business process redesign projects, we have observed that these methods are also at risk to lead to redesign options that are not actionable. The term action-ability refers to the degree to which an idea allows a concrete action to be taken or concrete decision to be made (e.g. Grunert & Ellegaard, 1992). In the context of a business process redesign initiative, it refers to the degree to which the discussed redesign options allow concrete implementation actions to be taken. Often, the redesign sessions in practice end with highly abstract redesign options that do not allow concrete implementation actions to be taken. Taking also into account the risk of biased choices and the negligence of interesting redesign options, it is not surprising that many business process redesign initiatives in the healthcare domain do not deliver intended results or even fail entirely.

3. Conclusion

From the above, it can be concluded that there is a high-need for a holistic method that supports healthcare practitioners in developing process alternatives in a more structured way. In contrast to many methods of the operational research stream, this method should not have a single pre-defined solution concept in mind, but aim at changing multiple elements of the process simultaneously (e.g. control flow, resource, information and technology elements) and take into account the effects of redesign options on different process performance dimensions (e.g. cost, time, quality and flexibility). In addition, this method should still provide a broad playing field for creativity.

Recent attempts in our research group have been aimed at developing more holistic technical redesign guidance (e.g. Netjes, 2010; Mansar et al., 2009; Jansen-Vullers & Reijers, 2005). These methods make use of redesign heuristics that assist practitioners in developing process alternatives. Redesign heuristics can be seen as technical redesign rules that need to be adapted in skillful ways in response to prevailing conditions. Examples of these rules are
“Consider whether tasks can be executed in parallel” and “Let workers perform as many steps as possible for single orders”.

Although the first results of these methods look very promising, the developed methods are still in an experimental stage. They do not draw special attention to the socio-cultural challenges and are not customized for the healthcare domain. Moreover, it has not been tested whether these methods outperform the more intuitive methods that have gained widespread use in practice.

Hence, refinement, customization and evaluation by means of laboratory and field experiments are still needed to come up with an evidence-based holistic approach that enables a huge step forward in redesigning interdepartmental and inter-organizational order-fulfillment processes in the healthcare domain.

4. References


