Exploring the Business Process Agility Issue: An Experience Report

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ABSTRACT

Business process agility has drawn the attention of numerous researchers. Whilst this research activity constitutes a useful contribution towards the attainment of business process agility, most of them focus on agility during execution phase. Therefore, although business process design is an equally important phase of the business process lifecycle the exploration of agility from the designer’s perspective has not been given the attention it deserves. In this paper, the authors discuss their point of view regarding business process agility, as it was shaped during a case study concerning medical processes. Through this study, they identified important requirements for the attainment of business process agility, which were subsequently combined into a holistic picture constituting a comprehensive suggestion for the practical realization of business process agility. The objective of this paper is to contribute to a deeper understanding of business process agility and ultimately to its practical realization through the proposed holistic solution.

Keywords: Agility Requirements, Business Management, Business Process Agility, Business Process Modeling, Healthcare

INTRODUCTION

Business process agility (or flexibility) has been a matter of interest for numerous researchers (Milanovic et al., 2011; Van der Aalst et al., 2009; Snowdon et al., 2007; Pesic et al., 2007; Daoudi & Nurcan, 2007; Reijers, 2006; ShuiGuang et al., 2004; Rinderle et al., 2004; Mangan & Sadiq, 2002; Millie & Balasubramanian, 1997). Agility in the context of business processes can be defined as the ability of an organization to effect changes in the process components (activities, roles, resources, information etc.) in a timely manner, usually in response to changes in business environment and stakeholders’ needs (Alexopoulou et al., 2008). The intense interest in business process agility stems from the fact that business process automation supported by the utilization of process-aware information systems (Dumas et al., 2005) has

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increased accuracy and efficiency in process execution on one hand, but it has also rendered business process modification a complex and time-consuming task. This is because well-structured business process models executed by Business Process Management Systems (BPMS) (Dumas et al., 2005) proved to be inflexible. Since modern enterprises operate in highly turbulent environments having to cope with a frenetic pace of change (van Oosterhout et al., 2006) and continuously sense opportunities for competitive action in their product-market spaces, it is business process agility, which underlies enterprises’ success in constantly enhancing and redefining their value creation in highly dynamic environments (Sambamurthy et al., 2003).

In an effort to realize business process agility, researchers propose various methods, techniques or approaches in general, focusing on business process automation. One paradigm for the creation of agile business processes is based on the definition of abstract or loose models (Lin & Orlowska, 2005; Herrmann et al., 2000) as opposed to strict, well-structured ones. Van der Aalst (1999), for example, proposes a general model from which several variations may be produced during execution through inheritance, which constitute specific models. ShuiGuang et al. (2004) suggest a modeling method according to which a business process model includes, apart from concrete parts of activity flows, some unspecified parts whose structure is formed during execution time, based on current conditions and by picking the appropriate activity from a ‘pool’ of activities. The same idea lies behind ‘flexibility pockets’ (Sadiq et al., 2001) that represent activities that are orchestrated into specific flows during execution time. Other researchers contribute in the solution of the business process agility issue through the formal definition of modification rules (Casati et al., 1996; Weske, 2001; Ellis et al., 1995). ADEPT_{flex} (Dadam & Reichert, 2009) is an endeavour based on this logic. It represents a set of operations, which enable the modification of business processes under execution, ensuring that structural correctness and consistency of the running instances is retained. Other approaches adopt formalisms based on the specification of constraints (Sadiq et al., 2005). Such an approach, for example, is proposed by Dourish et al. (1996), according to which instead of following a predetermined order of activities for the execution of a business process, actors are free to choose the activity they want to execute, provided that they do not violate specific constraints.

Whilst this research activity constitutes a useful contribution towards the attainment of business process agility, most of the proposed approaches focus on agility during execution phase, which concerns dynamic modifications of active business process instances. Therefore, although business process design is an equally important phase of the business process lifecycle (Weske, 2007), the exploration of agility in the design phase, associated with the ability of the process designer to easily and effectively describe business process modifications, has not been given adequate attention.

In this paper, we discuss our experience pursuing business process agility within the scope of a project regarding the agile automation of medical business processes in a Greek hospital. Based on this case study, we identified important requirements for the attainment of business process agility. Although no formal methodology was applied, these requirements arose while we were dealing with the business process agility issue in practice and as such they are of practical value. The identified requirements, which concern both business process design and execution, are combined into a holistic picture, constituting a comprehensive suggestion for the realization of business process agility. Therefore, we strongly believe that they can be useful to researchers and practitioners, as they can guide them in developing or choosing the appropriate modeling approach that can satisfy their requirements for business process agility. Overall, as business process agility is a polymorphous concept, the objective of this paper is to present our point of view on agile business process models and contribute to its deeper understanding and ultimately to
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