Special section of BPMDS'2013: coping with complexity in business processes

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The BPMDS series has produced 11 workshops from 1998 to 2010. Nine of these workshops were held in conjunction with CAiSE conferences. From 2011, BPMDS has become a 2-day working conference attached to Conference on Advanced Information Systems Engineering (CAiSE). The topics addressed by the BPMDS series are focused on IT support for business processes. This is one of the keystones of information systems theory. The goals, format, and history of BPMDS can be found on the Web site <http://www.bpmds.org/>.

1 Scope

This special section follows the 14th edition of the Business Process Modeling, Development, and Support (BPMDS) series, organized in conjunction with CAiSE'13, which was held in Valencia, Spain, June 2013. BPMDS'2013 received 54 submissions from 24 countries, and 20 papers were selected and published in Springer LNBIP 147 volume.

Today, business processes have to cope with increasing complexity in several areas. Business processes are increasingly becoming cross- and inter-organizational. External processes and services have to be integrated into processes. In addition, data are becoming more and more important for business processes. Recent advances such as data science and big data provide huge amounts of information to be processed in business processes. Finally, business processes

are executed in complex environments, which may consist of cloud services and resources and may introduce flexibility requirements.

This special section is targeted at both researchers and practitioners in the information systems community with a focus on “Coping with Complexity in Business Processes”. The three papers in this special section reflect this focus. They are extensively revised and extended versions of research papers that were initially presented at the BPMDS'2013 working conference and passed a blind review.

2 Selected papers for this special section

The first paper by P. Soffer and N. Outmazgin, “A Process Mining-Based Analysis of Business Process Workarounds”, studies specific forms of incompliant behavior, where employees intentionally decide to deviate from the required procedures although they are aware of them. Workarounds are generally considered as a negative phenomenon, assuming that the standard process has been designed and optimized to achieve desired business performance. However, since these are intentional actions of employees, the authors indicate that workarounds can be motivated when the defined business processes are rigid and not designed to accommodate situations that might arise, requiring an appropriate response. Workarounds might also be performed when the process design or its support system does not satisfy all the stakeholder needs and expectations. Detecting and understanding the workarounds can thus guide organizations in redesigning and improving their processes and support systems. Existing process mining techniques for compliance checking and diagnosis of incompliant behavior do not detect intentional incompliance. The work presented by Soffer and Outmazgin builds on a list of generic types of workarounds

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found in practice and explores whether and how they can be detected by process mining techniques. The detected workaround data are analyzed for identifying correlations between the frequency of specific workaround types and properties of the processes and of specific activities. The analysis results promote the understanding of workaround situations and sources.

The second paper by C. Haisjackl, I. Barba, S. Zugal, P. Soffer, I. Hadar, M. Reichert, J. Pinggera, and B. Weber, “Understanding Declare Models: Strategies, Pitfalls, Empirical Results”, addresses the problems in understanding and maintaining declarative process models which often impede their adoption despite their capacity to enable flexibility. Authors investigated the sense making of declarative process models specified in Declare in two studies: an exploratory study focusing on the comprehension of Declare models and a follow-up study designed to confirm and extend the findings of the exploratory study. The results indicate that (i) two main strategies for reading Declare models exist: either considering the execution order of the activities in the process model or orienting by the layout of the process model; (ii) single constraints can be handled well by most subjects, while combinations of constraints pose significant challenges. The study of the authors revealed that the aspects that are similar in both imperative and declarative process modeling languages at a graphical level, while having different semantics, cause considerable troubles. This research helps guide the future development of tools for supporting system analysts and gives advice on the design of declarative process modeling notations.

The third paper by M. Lohrmann and M. Reichert, “Effective Application of Process Improvement Patterns to Business Processes”, presents an approach toward the a priori assessment of process improvement patterns considering real-world constraints such as the role of senior stakeholders or the cost of adapting available IT systems. Authors argue that to ensure practical relevance, the actual business value of process improvement patterns needs to be demonstrated to practitioners, thus enabling reasonable implementation decisions. They attract the attention on the fact that there exists a gap regarding the a priori assessment of PIPs considering a particular application scenario, which may range from an organization’s strategy and goals to its existing business process and information systems landscape. The presented approach outlines process improvement potentials that arise from the IT infrastructure available. The application of the approach to a real-world business process led to the identification of five potential process improvement measures that bundle and refine individual process improvement patterns for the given application scenario. Matching the expected gains against implementation and operating efforts, the organization was enabled to take well-informed implementation decisions.

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