This special issue contains extended versions of the best papers presented at the 12th International Conference on Business Process Management that took place in Eindhoven, Netherlands on September 7-11, 2014. Since its inception in 2003, the BPM conference series has grown substantially in topic scope and size. Given the increasing application of process technologies and frameworks into new and unconventional areas, in 2014, the conference organization took explicit steps to embrace this diversity.. The topic areas were human-centric BPM, management issues and empirical studies, management of process execution data, non-traditional BPM scenarios, process architecture and platforms, process flexibility and evolution, process modeling and theory, and process model management. The community responded positively, with many new authors coming to the conference. In this special issue we are delighted to present extended versions of five outstanding papers spanning a range of topics in the BPM area.

The paper *Process Mining, Decision and Regression Trees, Event-Log Manipulation, Event-Log Clustering* by Massimiliano de Leoni, Wil van der Aalst and Marcus Dees identifies the need for a generic approach that involves different process characteristics in a unified way to tackle process discovery. The authors study the correlation between different process perspectives (control flow, data flow, time, resources, cost, compliance etc.), and propose both an approach and a paradigmatic example in an insurance setting. The version of the paper presented at BPM2014, received the best paper award at the conference.

Claudio Di Ciccio, Fabrizio Maria Maggi, and Jan Mendling present their work on *Efficient Discovery of Target-Branched Declare Constraints*. This work tackles the notoriously difficult problem of making the results of process mining interpretable or at least readable. Mining declarative (or non-procedural) models provides a comprehensible overview of the process and avoids the over-detailed models that are often obtained by process discovery techniques. The paper extends the expressiveness of discovered declarative models and shows its efficient application to a specific class of target branched constraints.

*BPMN Miner: Automated Discovery of BPMN Process Models with Hierarchical Structure* by Raffaele Conforti, Marlon Dumas, Luciano Garcıa-Banuelos, and Marcello La Rosa extends process discovery beyond flat models by exploiting nesting, exception and repetition constructs. The resulting models are demonstrated to be more accurate and less complex than current techniques.

In their paper on *Diagnosing Behavioral Differences Between Business Process Models: An Approach Based on Event Structures*, Abel Armas-Cervantes, Paolo Baldan, Marlon Dumas, and LucianoGarcia-Banuelos address current challenges in dealing with process variants. The presented approach provides the capability to study behavioral differences between process models using asymmetric event structures, an advanced technique from concurrency theory. Their technique extracts commonalities and variabilities among process variants to provide higher-level knowledge about the processes under study.

The final paper by Richard Mrasek, Jutta Mülle; Klemens Böhm, Michael Becker, and Christian Allmann on *Property Specification, Process Verification, and Reporting – a Case Study with Vehicle-Commissioning Processes* is an industrial paper that takes a practical approach to achieving error-free processes. Their work is driven by the requirements within the automotive industry where vehicle testing is an intensive and rigorous process. This paper proposes a template-based approach for property specification of vehicle commissioning processes. The approach allows violations to be effectively detected and communicated back to users in a friendly way thereby improving user responsiveness to violations in a real production environment.

We would like to thank the reviewers for the special issue for their valuable work in ensuring the quality of the final papers, the editors of the Information Systems Journal for their kind support, and the technical team at the journal for their assistance in managing the review process.

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