

Flexibility in Process-aware Information Systems (ProFlex) Workshop Report

Barbara Weber
University of Innsbruck
A-6020 Innsbruck
Austria
barbara.weber@uibk.ac.at

Jan Mendling
WU Vienna
A-1090 Vienna
Austria
jan.mendling@wu-wien.ac.at

Manfred Reichert
University of Twente
NL-7500 AE Enschede
The Netherlands
m.u.reichert@utwente.nl

Abstract

The goal of the ProFlex workshop is to bring together practitioners and researchers from different communities who share an interest in flexibility of process-aware information systems and team support. This workshop report gives an overview of the presented papers that address various flexibility issues of process-aware information systems.

1. Introduction

The economic success of an enterprise more and more depends on its ability to flexibly and quickly react to changes, e.g., in its market, technology, or legal environment. For this reason companies are developing a growing interest in new concepts, systems, and solutions which help them to flexibly align their organization and their business processes to new requirements and to optimize interactions with customers and business partners. While there has been major progress in disciplines that are interested in structured and unstructured business processes, the agile enterprise is still a vision. Agility in this context refers to the ability of an enterprise to rapidly set up new business processes and projects in order to quickly adapt to changes in the environment and aligning its existing information systems to support them. In order to meet its business objectives, the agile enterprise continuously re-aligns its business processes as well as the interactions with its partners and customers to meet the current requirements.

The goal of the ProFlex workshop is to bring together practitioners and researchers from different communities such as business process management (BPM), software engineering, artificial intelligence, computer supported cooperative work (CSCW), and Groupware who share an interest in flexibility of process-aware information systems and team support. The workshop aims at discussing

the current state of ongoing research, sharing practical experiences, and demonstrating advanced research prototypes. Workshop topics include adaptive processes, agile management of business processes, case handling, configurable processes, dynamic composition of processes, emergent workflows, knowledge-intensive processes, process-aware groupware, process evolution, workflow escalation and compliance management, process mining and learning, workflow flexibility.

2. Overview of the Papers

The invited paper by Reijers discusses what the author calls the flexibility promise of workflow management systems. Since workflow systems capture coordination logic separated from applications, it has been argued that this design facilitates a flexible adaptation. In contrast to that, the practice of workflow usage shows that once a workflow definition is operational, it is hardly touched. Organizations benefit from reduced cycle time, better resource utilization, and other logistic parameters rather than from an assumed flexibility of workflow systems.

The paper by Minor, Koldehoff, Schmalen, and Bergmann presents ongoing work on an adaptive workflow management system for digital design projects. This work is motivated in particular by the difficulty to balance tight time to market requirements with the need to set up an error free production process which still allows flexible adaptation to meet customer needs. The authors propose to create a process instance from a default workflow definition and offer an adaptation in three ways: add or delete a task, split or bundle instances, and reschedule an instance. In this context, only deviations from the standard process are modelled. The context model allows to assign attribute-value-pairs to the process for efficient retrieval, risk management, and monitoring.

The paper by Wild, Wirtensohn, and Weber presents Dynamic Engines as an approach to flexible process-oriented application development by combining rule engine and

workflow technology. At the core of Dynamic Engines the so-called dynamic logic engine supports the execution of process logic and business rules. Several further engines provide calculation, data storage, and security services. In Dynamic Engines users define so-called bricks that capture process semantics and which are executed by the dynamic logic engine. Versioning of bricks permits a flexible adaption to process changes. As such, Dynamic Engines supports high- and low-level process logic as well as business rules.

The paper by Seel, Delfmann, and Rieke introduces a concept for the introduction of enterprise systems with controlling enabled configurative models. The need for efficient and effective customization of enterprise systems stems from major consulting costs both for adapting the system and the organization. In this context, configurable reference models are promising to streamline customization, e.g., based on model projections. The authors extend the reference model life cycle with a controlling phase and identify what extensions to the meta-model of model projections are needed to support controlling.

The paper by Freßmann discusses user requirements of fire service organizations and how adaptive workflow technologies can be tailored to support them. In fire service organizations incident commanders play a central role in dynamic decision making under time pressure and risk considerations. User requirements comprise information support, mobility of work, easy to use technology, consolidation of different information sources, search facilitation, and dynamic adaptation of best practices. On a technical level, the CAKE system meets these requirements by combining computer supported collaborative work (CSCW) speech dialogue and search technology and by offering adaptive workflows that can be reused using case based reasoning.

The paper by Rinderle, Kreher, Lauer, Dadam, and Reichert presents an approach to represent process changes in adaptive process management systems and a respective implementation in the ADEPT2 system. Changes to process templates and process instances have to be captured in a way which avoids inconsistencies between them. So called unbiased process instances (i.e., instances that have not been subject to changes) can be migrated by creating a copy of the old process template. So called biased process instances (i.e., instances that have been changed, e.g., because of exceptional situations) are migrated using a delta layer that represents the changes to the original template. These two migration concepts have been implemented in the ADEPT2 system as a proof-of-concept.

3. Conclusion and Future Research Topics

The different papers illustrate various flexibility needs of process-aware information systems. Flexibility issues arise

at the level of process definition or process model, at the level of process instances, and regarding the interrelation of both. Furthermore, adaptation blurs the tight association between both run-time and process instance as well as build-time and process model:

- The case based reasoning concepts used in the work of Freßmann show how workflow instances become a template for new instances as best practice recommendations.
- Model configuration such as discussed in Seel et al. takes a configurable model to build a design-time, company-specific model which is then utilized to instantiate individual cases of a process.
- The work of Rinderle et al. highlights how changes of an instance have impact on the template and vice versa.
- The works of Wild et al. and of Minor et al. raise the question whether a distinction between process template and process instance is necessary.

Following these arguments, it appears as if the relationships between run-time and build-time as well as between process model and process instance have to be rethought in order to provide the degree of process flexibility which is needed in practice. This conclusion is also supported by the paper of Reijers. The inflexibility that he identifies is caused by a strict association of build-time with process models and run-time with process instances. Future research should investigate the relationship between these two poles in more detail by leaving behind the classical separation of process design and process execution as introduced by the workflow reference model of the Workflow Management Coalition.