Message from the DDPB 2010 Workshop Co-chairs

Enterprises face the challenge of rapidly adapting to dynamic business environments. Evolving markets, policies, regulations, technologies, and business models are some of the many vectors of change along which enterprise systems must constantly align. The capability of rapidly adapting systems and processes to an ever-changing environment to leverage existing resources has become a crucial factor of an organization’s agility.

The traditional approach to business process management is only partially appropriate to this new context, and calls for the advent of new, dynamic business processes. This new approach attempts to address specific issues related to flexibility and adaptation: design of easily adaptable processes, dynamic handling of unexpected situations, and optimality of adaptations.

Central to the field of dynamic business processes is the notion of requirement. Indeed, all the vectors of change mentioned above act indirectly upon a business process by modifying the results or the functionalities expected from this process. Moreover, not all modifications of a process are equally desirable, and all must retain initial “correctness” criteria. These functionalities, along with broader business policies or narrower constraints of technical nature, make dynamic business process particularly suited to a declarative approach to their modeling and design.

In declarative business processes, the results, rather than the tasks, are described by means of a language. The actual way in which these results should be obtained is not specified.

The new job is no longer to design and express a sequence of steps that the process should follow, but rather to describe as precisely as possible the results or the functionalities that are expected from it. It represents a further step toward an increased interoperability between processes by focusing on requirements rather than implementation.

The declarative approach to dynamic business processes raises a number of challenges: extracting declarative specifications from domain experts, expressing these declarative specifications in an appropriate language or formalism, as well as designing, monitoring, checking compliance or dynamically adapting business processes according to a set of requirements.

Dynamic and declarative business processes have proved their use in a wide number of domains, and are expected to impact existing and future technology choices, business practices and standardization efforts. Addressing the manifold open issues related to dynamic and declarative business processes requires both to develop new concepts and to build on existing research in related domains; for example, techniques derived from formal methods or artificial intelligence can be adapted or extended. Moreover, practitioners drawn to the field complement these results with a wealth of potential applications in the industry. This conjunction of factors makes dynamic and declarative business processes a stimulating and fertile research field.

Aiming to establish an international research forum, which will bring together practitioners and researchers in the domain of declarative and dynamic business processes, in 2008 we launched a specialized series workshops – Declarative and Dynamic Business Processes (DDBP).

The workshop was co-located with the EDOC conference. Given the very positive experience of the first workshop edition, a special issue in the International Journal on Business Process...
Integration and Management was organized in 2008 followed by a special collection in the Journal of Research and Practice in Information Technology which was organized in 2009. Encouraged with a high-number of submissions to both special issues and recognizing the growing community in the DDBP area, we decided to organize the third edition of the workshop – DDBP 2010.

The DDBP 2010 workshop was organized with the main goal to enable participants to exchange opinions, advance ideas, and discuss preliminary results on current topics related to dynamic and declarative business processes. A particular interest is taken in bridging theoretical research and practical issues. It welcomed contributions stating open problems, case studies, tool presentations, or any other work assessing the practical significance of dynamic and declarative business processes by means of concrete examples and situations. Moreover, work in progress, position papers stating broad avenues of research, and work on formal foundations of dynamic and declarative business processes were also sought after.

To provide a broad coverage of the important research topics of the DDBP area, we especially called for papers, which covered the following topics:

- Dynamic/declarative business process modeling
- Implementation issues for dynamic/declarative processes
- Tools for dynamic/declarative processes
- Real-world use cases of dynamic/declarative business processes
- Business rules and policies
- Rule driven business process engines
- Business and technical requirements for dynamic/declarative processes
- Dynamic/declarative model specification
- Mathematical foundations of dynamic/declarative business processes
- Formal models of dynamic/declarative business processes
- Monitoring of dynamic/declarative business processes
- Validation and model checking of dynamic/declarative business processes
- Software engineering methods, languages, and standards for dynamic and declarative business processes;
- Service-oriented architectures and dynamic/declarative business processes
- Interoperability for dynamic/declarative business processes
- Semantic Web and ontologies and declarative and dynamic business processes
- Collaboration and declarative/dynamic business processes

The final program provided coverage of the targeted topics. Similar to the previous workshop edition, a special issue in a leading international journal is planned.

DDBP 2010 featured four peer reviewed papers. Each submitted paper was reviewed by at least three members of the international program committee of EDOC or DDBP. Based on the peer-reviews, the papers with the highest review scores were selected for presentation and publication in this EDOC 2010 workshop proceedings volume.

The paper “ESProNa: Constraint-Based Declarative Business Process Modeling” by Michael Igler, Paulo Moura, Michael Zeising, and Stefan Jablonski focused on the workshop topics declarative business modeling and implementation issues, and provides a tool for real-world use case scenarios.
It introduces a multi perspective constraint based declarative language for the specification of business processes. It combines different logical views, including functional, behavioral, organizational, data, and operational perspective, of the same workflow in a unified framework. This approaches becomes helpful in modeling complex process models such as health care processes and allows to separate concerns in a simple and intuitive way. A visualization of the languages is demonstrated together with an implementation in Prolog. The implementation includes a planner component which can be used to search for possible execution paths that fulfill all specified constraints on the logical views.

The paper entitled “Automatic generation of optimal business processes from business rules” by Bas Steen, Luis Ferreira Pires and Maria-Eugenia Iacob tackles the problem of generation of optimal business processes from rules expressed in semi-structured English. The paper follows a transformational approach that consists of four different transformations.

While the initial transformations are to create a business process representation from business rules represented in the semi-structured English the final transformations an optimization of the obtained business processes based on different criteria is performed. To support their solution, the authors developed a tooling support and evaluated their approach on a case study.

The paper “An Overview of Models for Business Process Analysis – Beyond Performance Measurement with KPIs” by Tim Pidun and Carsten Felden presents a comparative study of different models for business process analysis. Many existing business process analysis approaches only deal with numeric indicators to quantify success or failure referred to as Key Performance Indicators (KPIs). Other approaches suggest verbal descriptions as indicators of success or use question and assess processes to evaluate the structural effectiveness.

The presented study aims at presenting a coherent framework that allows stakeholders to select the right model for business process analysis. The result is a classification of these models that includes indirect process performance aspects such as complexity, maturity or dependencies.

The paper “Formalization of Functional Aspects in Business Software Globalization” by Andrej Danko tackles an interesting and current topic, namely the adaptation of business processes to local requirements and regulations. In line with the workshop’s scope, it follows a formal approach to the problem by representing a business process in matricial notation, where the presence or absence of each process unit is defined for each possible localization. This notation presents the advantage that metrics on the degree of localization of a business process can be defined and computed on that matrix, providing grounds for the mathematical definition of “local”, “regional” and “global” business functions. Case in point, the paper shows how this framework can be applied atop BPMN business processes and enhance them with an increased degree of dynamicity.

We are very thankful to many people who played an important role in various stages of the workshop organization. We also appreciate very much the help of the program committee members who contributed their expertise and provided valuable comments in the peer-review process and final compilation of the workshop program. We want to thank Maria-Eugenia Iacob for her dedicated work on the organization of all EDOC 2010 workshops.

The breadth of topics covered, as well as the technical depth of the papers accepted at the workshop, allow us to envision a bright future for the field of dynamic and declarative business processes. It is particularly telling that most of the papers presented approaches in the context of real-world use cases and describe actual tools concretizing the ideas presented. As workshop chairs,
we are particularly glad of this fact, as this was one of the motivations for the creation of the DDBP workshop series in the first place.

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