Editorial

Marcelo Fantinato*

School of Arts, Sciences and Humanities,
University of São Paulo,
Rua Arlindo Béttio, 1000 – 03828-000,
São Paulo, SP, Brazil
E-mail: m.fantinato@usp.br
*Corresponding author

Maria Beatriz Felgar de Toledo

Institute of Computing,
State University of Campinas,
Av. Albert Einstein, 1251 – 13083-970,
Campinas, SP, Brazil
E-mail: beatriz@ic.unicamp.br

Itana Maria de Souza Gimenes

Informatics Department,
State University of Maringá,
Av. Colombo, 5.790 – 87020-900,
Maringá, PR, Brazil
E-mail: itana@din.uem.br

Lucinéia Heloisa Thom and Cirano Iochpe

Institute of Informatics,
Federal University of Rio Grande do Sul,
P.O. Box 15064 – 91501-970,
Porto Alegre, RS, Brazil
E-mail: lucineia@inf.ufrgs.br
E-mail: ciochpe@inf.ufrgs.br

Biographical notes: Marcelo Fantinato is an Assistant Professor in the School of Arts, Sciences and Humanities, University of São Paulo (USP), Brazil. He received his Doctor in Computer Science in 2007 and Master of Engineering in 2002 at the University of Campinas (Unicamp), Brazil. He has worked in the software industry as a Software Testing Specialist at the CPqD Foundation in Campinas, Brazil in 2001 to 2006 and as a Specialist in research and development at Motorola in Jaguarina, Brazil in 2006 to 2008. His main research interests are business process management, service-oriented computing, electronic contracts, software product line and software testing.

Maria Beatriz Felgar de Toledo is an Associate Professor in the Institute of Computing, State University of Campinas (Unicamp), Brazil. She received her MSc in Computer Science from Unicamp and PhD from Lancaster University, UK in 1992. She is a member of the SOCOLNET and has organised Brazilian workshops on BPM. Her main research interests are advanced transaction models, business process management systems, knowledge base systems for clinical research and cultural heritage.

Itana Maria de Souza Gimenes is a Professor of Software Engineering at State University of Maringá, Paraná, Brazil. She is a Post-doctoral Researcher at the School of Computer Science, University of Waterloo, Canada in 2005. She received her PhD in Computer Science at the University of York, Department of Computer Science, UK in 1992. She is the President of the Brazilian Computer Society Committee of Software Engineering in 2007 to 2008 and 1998 to 1999 (CEES-SBC). She has lead several research projects, including international cooperation with the European Community. Her current research interests include software architecture, software PL, component-based development, workflow management systems and BPM.

Lucinéia Heloisa Thom is a Scientist at the Institute of Informatics at the Federal University of Rio Grande do Sul (UFRGS), Brazil. She was a visiting Scientist at the University of Ulm in 2007 to 2009. She received her Bachelors in Computer Science from the University of Santa Cruz do Sul, Brazil in 1999 and Masters in Computer Science from UFRGS in 2002. She received her PhD in Computer Science from UFRGS in 2006. She developed part of her thesis research at the University of Stuttgart in 2004 to 2005. Her research interests are in the area of workflow systems with a special focus on meta models, business process modelling, workflow patterns and IT support for healthcare information systems.

Cirano Iochpe works since 1990 as an Associate Professor at the Informatics Institute of the Federal University of Rio Grande do Sul (UFRGS), Brazil. He received his PhD in Computer Science from the University of Karlsruhe, Germany in 1989 and MSc in Computer Science from UFRGS in 1984. He has coordinated several research projects in the area of information systems, especially in the context of business process management and geographical information systems. He has also leaded the ProWAP project whose main goal is to increase reuse of business functions in process modelling.

1   Aims and scope

The current complexity inherent in the corporate world demands a great dynamism from the IT infrastructure in order to provide technical solutions for conducting business. Business process management (BPM), including its service-oriented foundation, has been providing important technological support to improve organisation competitiveness. In order to increase dynamism and competitiveness, BPM can benefit from reuse approaches and techniques at several stages of business process life cycle.

The Second International Workshop on Reuse in Business Process Management (rBPM 2011) was dedicated to explore any type of reuse in the BPM domain. Therefore, it was a forum to discuss systematic reuse applied to BPM at its various levels:

1   the basic service-oriented foundation level: including issues such as service development, description, publication, discovery and selection

2   the service composition level: encompassing service negotiation and service aggregation

3   the management and monitoring upper level: including business process modelling, execution, monitoring, and contract establishment and enactment

4   the quality of service and semantics orthogonal level.

Moreover, the impact of reuse on business- and service-oriented engineering as well as how it can help in the design of more high-quality process models were very important topics discussed in the workshop.

Different existing reuse approaches and techniques can be extended to be applied to this fairly new domain, including: software product line or software product families; variability descriptors; design patterns such as feature modelling; aspect-orientation; and component-based development. In addition, completely new approaches and techniques should be proposed. Their use must also be discussed, preferably under experimentation as well as results analysis.

The rBPM 2011 workshop was held together with the Ninth International Conference on Business Process Management (BPM 2011) in Clermont-Ferrand, France. Following the results of its first edition, in its second edition the workshop could be considered as having achieved great results: technical papers of very good quality have been submitted, bringing together researchers of high quality during the workshop day. Moreover, a keynote given by Professor Dr. Jan Mendling from the Vienna University of Economics and Business in Austria was an important contribution for all the workshop attendees to improve their knowledge regarding 'three challenges to process model reuse'.

2   Selected papers

This special issue brings a selection of the best papers presented at the workshop as well as an invited paper as a survey of the research work performed in this area. Four of the published papers in the workshop proceedings were selected to be revised and extended to be published here in the *IJBPIM* journal. Moreover, this issue also brings a regular paper not related to the rBPM 2011 workshop theme.

The paper by Diogo R. Ferreira and Lucinéia H. Thom, entitled 'A semantic approach to the discovery of workflow activity patterns in event logs' is related to the context of workflow activity patterns which represent a set of recurrent behaviours that can be found in a wide range of business processes. In their paper, they address the problem of determining the presence of these patterns in process models. This is usually done manually by the analyst, who inspects the model and interprets its elements in terms of the semantics of those patterns. They present an approach to perform this discovery based on the event log created during process execution. The approach makes use of an ontology and the semantic annotation of the event log in order to discover the patterns automatically by means of semantic reasoning. They illustrate the application of the proposed approach in a case study involving a purchase process implemented in a commercial workflow system.

The paper by Stephanie Meerkamm, entitled 'The process configurator' addresses the issue in which for a particular business process different variants exist in order to fulfil the individual requirements of the different users. The management of process variability is an important aspect mainly during modelling. One common way to deal with variability is configuration. Her paper presents the concept of a configurator. A main contribution of her paper is a staged configuration process. The sequence of the decisions selecting a variant can be determined individually and for capturing the process variability it was developed a generic data model which captures the characteristics of the process domain which is multi-perspective and empowers the derivation of variants based on a model which integrates all possible variants.

The paper by Souvik Barat and Vinay Kulkarni, entitled 'A component abstraction for business processes' is related to the continued increase in business dynamics, which is letting increasingly harder to deliver purpose-specific business system in the ever-shrinking window of opportunity. As business systems for the same intent tend to be similar but never the same, they have considerable overlap with well-defined differences. Software product line engineering techniques attempt to address this problem for software artefacts. Separation of business process concerns from application functionality, as advocated in process centric application development, demands solution on similar lines for business processes too. To this effect, they propose an abstraction for business processes that addresses composition, variability and resolution in a unified manner. They present the abstraction, its model-based realisation, and illustration with an example.

The paper by Mario Sánchez, Diana Puentes and Jorge Villalobos, entitled 'Building a modular YAWL engine with Cumbia' addresses the current need for novel strategies to develop and adapt workflow engines in efficient ways in order to have BPM and workflow solutions with the capacity to support frequent changes in the corporate environment. One key strategy is to build new engines by reusing as much as possible from existing components. According to the authors, this requires two things. Firstly, the mechanisms and technologies to build a library of reusable, extensible and adaptable workflow components. And secondly, a platform to integrate those components and form full applications. In their paper, they show that Cumbia, being a platform for the development of workflow engines based on the modularisation of workflows according to concerns, suits this task. This is illustrated with YOC, a Cumbia-based implementation of YAWL.

The paper by Marcelo Fantinato, Maria Beatriz Felgar de Toledo, Lucinéia Heloisa Thom, Itana Maria de Souza Gimenes, Roberto dos Santos Rocha and Diego Zuquim Guimarães Garcia, entitled 'A survey on reuse in the business process management domain', has as main goal to present an overview of the principal research works published in this area. Considering that several research projects should already have been developed applying reuse approaches in the BPM domain, the authors carried out a preliminary survey to systematically find these works, describe them and perform a general evaluation about them. The main goal of this paper is presenting projects found in the main indexed vehicles to foster more research on this area. As a result, 52 papers were found, classified and described. Moreover, an overall description of the methodology and of the results are also presented.

Finally, the regular paper by A. Ruokonen, T. Kokko and T. Systä, entitled 'Scenario-driven approach for business process development' describes a scenario-driven approach for developing business processes specified as WS-BPEL descriptions. They look for simplicity in the business level notation and leverage example-like modelling principles in order to enable process sketching. First, they identify the essential functional requirements for business processes, which are then modelled as simple scenarios, defining a sample run through the process. Such scenarios, specifying sent and received messages among the services, are synthesised into a state machine, which is transformed into an initial process model given in UML activity model notation. To enable mapping into WS-BPEL code, the transformation exploit domains-specific rules, i.e., their target model consists of a subset of UML with WS-BPEL specific constraints and stereotypes. The initial process model can be further refined to enable generation of executable WS-BPEL descriptions. They apply the approach on two cases, a simple process for managing loan requests and an industry case study from a logistics provider are presented.