Lecture Notes in Computer Science

Commenced Publication in 1973
Founding and Former Series Editors:
Gerhard Goos, Juris Hartmanis, and Jan van Leeuwen

Editorial Board

David Hutchison
   Lancaster University, UK
Takeo Kanade
   Carnegie Mellon University, Pittsburgh, PA, USA
Josef Kittler
   University of Surrey, Guildford, UK
Jon M. Kleinberg
   Cornell University, Ithaca, NY, USA
Friedemann Mattern
   ETH Zurich, Switzerland
John C. Mitchell
   Stanford University, CA, USA
Moni Naor
   Weizmann Institute of Science, Rehovot, Israel
Oscar Nierstrasz
   University of Bern, Switzerland
C. Pandu Rangan
   Indian Institute of Technology, Madras, India
Bernhard Steffen
   University of Dortmund, Germany
Madhu Sudan
   Massachusetts Institute of Technology, MA, USA
Demetri Terzopoulos
   New York University, NY, USA
Doug Tygar
   University of California, Berkeley, CA, USA
Moshe Y. Vardi
   Rice University, Houston, TX, USA
Gerhard Weikum
   Max-Planck Institute of Computer Science, Saarbruecken, Germany
Business Process Management Workshops

BPM 2005 International Workshops
BPI, BPD, ENEI, BPRM, WSCOBPM, BPS
Nancy, France, September 5, 2005
Revised Selected Papers
Preface

Six parallel Business Process Management workshops were held on September 5th, 2005, in conjunction with the Third International Conference on Business Process Management (BPM 2005) in Nancy, France. This was the first time BPM had associated workshops, and the workshop program was a great success.

The topics of the workshops ranged from fundamental process modeling primitives to the recently emerged field of Web service choreography and orchestration, represented in the “Workshop on Business Processes and Services” and the “Workshop on Web Service Choreography and Orchestration;” a topic which intersects the research fields of business process management and Web services. Another strong focus was on business process design and business process intelligence, emerging areas that have gained increasing importance in supporting business process reengineering to derive superior process designs. These topics were covered in the respective workshops.

A widely discussed topic in several sessions was business process interoperability in the workshop on “Enterprise and Networked Enterprises Interoperability.” Finally, the last workshop in these proceedings called “Business Process Reference Models” aimed at discussing different views on reference models in order to come to a common understanding of the terms involved.

We would like to thank the workshop organizers for their efforts in the workshop preparation, the organization of the review process, the exciting workshop programs and their management onsite and for their cooperation in the post-publication process.

Further, we thank all the authors for their submissions to the workshops, the Program Committees for their hard work during a brief reviewing period, the invited speakers and presenters for their very interesting presentations and the audience for their interest, questions and discussions.

Christoph Bussler
Armin Haller
Organization

Workshop Organization Committee

Christoph Bussler
Workshop Chair
Digital Enterprise Research Institute (DERI), Ireland

Armin Haller
Publications Chair
Digital Enterprise Research Institute (DERI), Ireland

BPS 2005
Marlon Dumas, Queensland University of Technology, Australia
Schahram Dustdar, Vienna University of Technology, Austria
Frank Leymann, University of Stuttgart, Germany

WSCOBPM 2005
Christoph Bussler, Digital Enterprise Research Institute (DERI), National University of Ireland

Alistair Duke, Next Generation Web Research, British Telecommunications plc (BT)

Dumitru Roman, Digital Enterprise Research Institute (DERI), Leopold-Franzens Universität Innsbruck

Michael Stollberg, Digital Enterprise Research Institute (DERI), Leopold-Franzens Universität Innsbruck

BPI 2005
Malu Castellanos, Hewlett-Packard Labs, USA
Ton Weijters, U. of Eindhoven, The Netherlands

ENEI 2005
Boudjlida, Nacer, UHP Nancy 1, LORIA, France
Panetto, Hervé, UHP Nancy 1, CRAN, France
BPD 2005

Tom Davenport, School of Executive Education, Babson College

Hajo A. Reijers, Department of Technology Management, Eindhoven University of Technology

Michael Rosemann, Faculty of Information Technology, Queensland University of Technology

BPRM 2005

Ekkart Kindler, Paderborn, Germany
Markus Nüttgens, Hamburg, Germany
Table of Contents

Workshop on Business Processes and Services

Preface (BPS 2005) ................................................................. 1

Guided Interaction: A Language and Method for Incremental
Revelation of Software Interfaces for Ad Hoc Interaction
   Phillipa Oaks, Arthur H.M. ter Hofstede ................................. 3

Towards P2P-Based Semantic Web Service Discovery with QoS Support
   Le-Hung Vu, Manfred Hauswirth, Karl Aberer ......................... 18

Global and Local QoS Guarantee in Web Service Selection
   Danilo Ardagna, Barbara Pernici ........................................... 32

Web Service Discovery and Dynamic Invocation Based
on UDDI/OWL-S
   JianJun Yu, Gang Zhou ...................................................... 47

Workshop on Web Service Choreography and
Orchestration for Business Process Management

Preface (WSCOBPM 2005) ......................................................... 57

Standards for Web Service Choreography and Orchestration: Status
and Perspectives
   Alistair Barros, Marlon Dumas, Phillipa Oaks .......................... 61

From Collaboration Models to BPEL Processes Through Service
Models
   Giorgio Bruno, Marcello La Rosa .......................................... 75

A Framework for Automated Negotiation of Service Level Agreements
in Services Grids
   André Ludwig, Peter Braun, Ryszard Kowalczyk,
   Bogdan Franczyk .............................................................. 89

A Constrained Object Model for Configuration Based Workflow
Composition
   Patrick Albert, Laurent Henocque, Mathias Kleiner .................. 102
# Table of Contents

A High-Level Specification for Mediators (Virtual Providers)
*Michael Altenhofen, Egon Börger, Jens Lemcke* 116

WSMX Process Mediation Based on Choreographies
*Emilia Cimpian, Adrian Mocan* 130

*Roozbeh Farahbod, Uwe Glässer, Mona Vajihollahi* 144

## Workshop on Business Process Intelligence

Preface (BPI 2005) 159

Conformance Testing: Measuring the Fit and Appropriateness of Event Logs and Process Models
*A. Rozinat, W.M.P. van der Aalst* 163

Mining Staff Assignment Rules from Event-Based Data
*Linh Thao Ly, Stefanie Rinderle, Peter Dadam, Manfred Reichert* 177

Towards a Framework for the Agile Mining of Business Processes
*Barbara Weber, Manfred Reichert, Stefanie Rinderle, Werner Wild* 191

Genetic Process Mining: A Basic Approach and Its Challenges
*A.K. Alves de Medeiros, A.J.M.M. Weijters, W.M.P. van der Aalst* 203

On Web Services Workflow Mining
*Robert Gombotz, Schahram Dustdar* 216

## Workshop on Enterprise and Networked Enterprises Interoperability

Preface (ENEI 2005) 229

## Session: Enterprise Modelling Language for Enterprise Interoperability

Exchange of Business Process Models Using the POP* Meta-model
*Reyes Grangel, Ricardo Chalmeta, Stefan Schuster, Iñaki Peña* 233
<table>
<thead>
<tr>
<th>Title</th>
<th>Author(s)</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>UEML 1.0 and UEML 2.0: Benefits, Problems and Comparison</td>
<td>Giuseppe Berio</td>
<td>245</td>
</tr>
<tr>
<td>Facilitating Interoperability: A Cross-Analysis of the Language UEML</td>
<td>Petia Wohed, Birger Andersson, Hervé Panetto</td>
<td>257</td>
</tr>
<tr>
<td>Session: Networked Enterprises Interoperability</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inter-agent Communications During the Virtual Enterprise Creation</td>
<td>Kamel Boukhelfa, Mahmoud Boufaida</td>
<td>269</td>
</tr>
<tr>
<td>Applying Enterprise Models to Design Cooperative Scientific Environments</td>
<td>Andrea Bosin, Nicoletta Dessi, Maria Grazia Fugini, Diego Liberati, Barbara Pes</td>
<td>281</td>
</tr>
<tr>
<td>Architecture-Based Interoperability Evaluation in Evolutions of Networked Enterprises</td>
<td>Pin Chen</td>
<td>293</td>
</tr>
<tr>
<td>Enabling Interoperability of Networked Enterprises Through an Integrative Information System Architecture for CRM and SCM</td>
<td>Bernhard Selk, Sebastian Kloechkner, Antonia Albani</td>
<td>305</td>
</tr>
<tr>
<td>Session: Interoperability Requirements and Models</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interoperability in Service-Based Communities</td>
<td>Toni Ruokolainen, Lea Kutvonen</td>
<td>317</td>
</tr>
<tr>
<td>Requirements to Improve the Synchronisation of Inter-enterprise Models</td>
<td>Cristina Campos, Reyes Grangel, Ricardo Chalmeta, Óscar Coltell</td>
<td>353</td>
</tr>
</tbody>
</table>
On Automating Networked Enterprise Management

Ustun Yildiz, Olivier Perrin, Claude Godart 363

Session: Interoperability Applications and Case Studies

A Methodology for Process Evaluation and Activity Based Costing in Health Care Supply Chain

Michelle Chabrol, Julie Chauvet, Pierre Féniès, Michel Gourgand 375

Web Services Experiment Using TravelXML: Standard XML for Electronic Commerce in the Travel Industry

Michiko Oba, Norikazu Matsuyama, Kojiro Nakayama, Norihisa Komoda 385

Data Level Enterprise Applications Integration

Marko Vujasinovic, Zoran Marjanovic 390

Workshop on Business Process Design: Past, Present, Future

Preface (BPD 2005) 397

Design Processes for Sustainable Performances: A Model and a Method

Antonella Longo, Gianmario Motta 399

Designing Business Process Variants - Using the BAT Framework as a Pragmatic Lens

Mikael Lind, Göran Goldkuhl 408

BPR Implementation: A Decision-Making Strategy

Selma Limam Mansar, Hajo A. Reijers, Fouzia Ounnar 421

Applying Specialization to Petri Nets: Implications for Workflow Design

George M. Wyner, Jintae Lee 432

“Intelligent” Tools for Workflow Process Redesign: A Research Agenda

Mariska Netjes, Irene Vanderfeesten, Hajo A. Reijers 444

Risk Management in the BPM Lifecycle

Michael zur Muehlen, Danny Ting-Yi Ho 454

Workshop on Business Process Reference Models

Preface (BPRM 2005) 467
Business Process Reference Models: Survey and Classification

Peter Fettke, Peter Loos, Jörg Zwicker

Understanding the Term Reference Model in Information Systems Research: History, Literature Analysis and Explanation

Oliver Thomas

On the Syntax of Reference Model Configuration – Transforming the C-EPC into Lawful EPC Models

Jan Recker, Michael Rosemann, Wil van der Aalst, Jan Mendling

Configurable Process Models as a Basis for Reference Modeling

W.M.P. van der Aalst, A. Dreiling, F. Gottschalk, M. Rosemann, M.H. Jansen-Vullers

Author Index