

Lecture Notes in Business Information Processing

267

Series Editors

Wil M.P. van der Aalst

Eindhoven Technical University, Eindhoven, The Netherlands

John Mylopoulos

University of Trento, Trento, Italy

Michael Rosemann

Queensland University of Technology, Brisbane, QLD, Australia

Michael J. Shaw

University of Illinois, Urbana-Champaign, IL, USA

Clemens Szyperski

Microsoft Research, Redmond, WA, USA

More information about this series at <http://www.springer.com/series/7911>

Jennifer Horkoff · Manfred A. Jeusfeld
Anne Persson (Eds.)

The Practice of Enterprise Modeling

9th IFIP WG 8.1. Working Conference, PoEM 2016
Skövde, Sweden, November 8–10, 2016
Proceedings

Editors

Jennifer Horkoff
City University London
London
UK

Anne Persson
University of Skövde
Skövde
Sweden

Manfred A. Jeusfeld
University of Skövde
Skövde
Sweden

ISSN 1865-1348 ISSN 1865-1356 (electronic)
Lecture Notes in Business Information Processing
ISBN 978-3-319-48392-4 ISBN 978-3-319-48393-1 (eBook)
DOI 10.1007/978-3-319-48393-1

Library of Congress Control Number: 2016955498

© IFIP International Federation for Information Processing 2016

This work is subject to copyright. All rights are reserved by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, express or implied, with respect to the material contained herein or for any errors or omissions that may have been made.

Printed on acid-free paper

This Springer imprint is published by Springer Nature
The registered company is Springer International Publishing AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Preface

The 9th IFIP Working Conference on the Practice of Enterprise Modeling (PoEM 2016), was held during November 8–10 in Skövde, Sweden, hosted by the University of Skövde.

Enterprise modeling (EM) includes a set of activities by which knowledge about several perspectives of an organization is elicited, documented, analyzed, and communicated, typically through a structured, iterative, stakeholder-centric, and model-based approach. This way, the knowledge of the enterprise is made explicit and further actions can be performed, such as making strategic decisions, undertaking organizational reengineering, standardizing ways of working, developing or acquiring information and communication technology. As a consequence, EM has an impact on large economic markets such as consulting and information system development, making it a relevant field of research and industrial practice.

The PoEM conferences, starting in 2008, have contributed to establishing a dedicated forum where the use of EM in practice is addressed by bringing together researchers, users, and practitioners. The main focus of the PoEM conferences is EM methods, approaches, and tools as well as how they are used in practice. More specifically the goals of the conference are to contribute to a better understanding of the practice of EM, to contribute to improved EM practice, as well as to share knowledge among researchers and practitioners.

PoEM is supported by the IFIP WG8.1 and is a very interesting and dynamic event where new research challenges emerge from success and failure stories related to EM practices, and practitioners take the opportunity to learn about new EM methods and tools.

This year PoEM received 54 paper submissions covering a wide variety of EM topics. Each paper was evaluated by at least three members of our expert Program Committee members, providing constructive feedback. We were able to accept 18 full papers and nine short papers, all published in this volume. The acceptance rate for full papers was thus below 35%.

The conference audience enjoyed an excellent keynote by Prof. Robert Winter, from the Institute of Information Management, University of St. Gallen, Switzerland. Prof. Winter's talk was entitled "Establishing 'Architectural Thinking' in Organizations".

This year, the PoEM conference included two associated events, occurring on the first day. A Doctoral Consortium was organized to highlight upcoming EM doctoral research, providing students with valuable feedback. For the first time, PoEM hosted the OMI (Open Models Initiative) Symposium, a gathering to discuss and promote the result of the Erasmus+ project OMI that focusses on developing a shared repository of tools and meta-models for EM.

We hope that this PoEM conference contributed to further strengthening and integrating the field of EM. PoEM is a working conference. Hence, the focus lies on practical concepts, tools, and methods, as well as on the evaluation of the usefulness of

EM. However, we appreciate the community trend of identifying cross-links to related domains, such as requirements modeling.

To conclude, we would like to express our gratitude to a number of people who spent their time and energy in organizing and successfully running PoEM 2016. We would like to thank the Program Committee members and additional reviewers for their help in selecting the papers for the scientific program of the conference, the authors of the papers for their confidence in PoEM, and the presenters and session chairs for lively presentations and discussions. We are grateful to the PoEM Steering Committee chairs for their continuous assistance and the chairs of the doctoral consortium for creating an exciting event. Finally, we extend our gratitude to the local organizing team at the University of Skövde for their hospitality and for organizing this conference. We would also like to thank our colleagues in the local IT department and administration of the University of Skövde for their strong support and enthusiasm.

September 2016

Jennifer Horkoff
Manfred A. Jeusfeld
Anne Persson

Organization

Steering Committee

Anne Persson	University of Skövde, Sweden
Janis Stirna	Stockholm University, Sweden
Kurt Sandkuhl	University of Rostock, Germany

General Chair

Anne Persson	University of Skövde, Sweden
--------------	------------------------------

Program Chairs

Manfred A. Jeusfeld	University of Skövde, Sweden
Jennifer Horkoff	City University London, UK

Doctoral Consortium Chairs

Eva Söderström	University of Skövde, Sweden
Kurt Sandkuhl	University of Rostock, Germany

Local Organizing Committee

Joeri van Laere	University of Skövde, Sweden
Jesper Holgersson	University of Skövde, Sweden
Kristens Gudfinnsson	University of Skövde, Sweden

Program Committee

Raian Ali	Bournemouth University, UK
Marko Bajec	University of Ljubljana, Slovenia
Judith Barrios Albornoz	University of Los Andes, Colombia
Giuseppe Berio	Université de Bretagne Sud and IRISA UMR, France
Robert Andrei Buchmann	Babeş-Bolyai University of Cluj Napoca, Romania
Rimantas Butleris	Kaunas University of Technology, Lithuania
Albertas Caplinskas	Institute of Mathematics and Informatics, Lithuania
Tony Clark	Middlesex University, UK
Wolfgang Deiters	Fraunhofer ISST, Germany
Dulce Domingos	Universidade de Lisboa, Portugal
Ulrich Frank	Universität of Duisburg Essen, Germany
Giovanni Giachetti	Universidad Andres Bello, Chile

Jaap Gordijn	Vrije Universiteit Amsterdam, The Netherlands
Jānis Grabis	Riga Technical University, Latvia
Stijn Hoppenbrouwers	HAN University of Applied Sciences, The Netherlands
Paul Johannesson	Royal Institute of Technology, Sweden
Håvard Jørgensen	Commitment AS, Norway
Monika Kaczmarek	University of Duisburg Essen, Germany
Dimitris Karagiannis	University of Vienna, Austria
Lutz Kirchner	Scape Consulting GmbH, Germany
Marite Kirikova	Riga Technical University, Latvia
John Krogstie	IDI, NTNU, Norway
Robert Lagerström	Royal Institute of Technology, Sweden
Birger Lantow	University of Rostock, Germany
Ulrike Lechner	Universität der Bundeswehr München, Germany
Pericles Loucopoulos	The University of Manchester, UK
Florian Matthes	Technische Universität München, Germany
Raimundas Matulevičius	University of Tartu, Estonia
Graham McLeod	Inspired.org, South Africa
Christer Nellborn	Nellborn Management Consulting AB, Sweden
Selmin Nurcan	Université Paris 1 Panthéon-Sorbonne, France
Andreas L Opdahl	University of Bergen, Norway
Oscar Pastor	Universitat Politècnica de Valencia, Spain
Anne Persson	University of Skövde, Sweden
Michaël Petit	University of Namur, Belgium
Ilias Petrounias	University of Manchester, UK
Henderik Proper	Public Research Centre Henri Tudor, Luxembourg
Jolita Ralyté	University of Geneva, Switzerland
Colette Rolland	Université Paris 1 Panthéon-Sorbonne, France
Kurt Sandkuhl	University of Rostock, Germany
Ulf Seigerroth	Jönköping University, Sweden
Khurram Shahzad	Royal Institute of Technology, Sweden
Nikolay Shilov	SPIIRAS, Russian Federation
Pnina Soffer	University of Haifa, Israel
Janis Stirna	Stockholm University, Sweden
Darijus Strassunskas	POSC Caesar Association, Norway
Eva Söderström	University of Skövde, Sweden
Victoria Torres	Universidad Politécnica de Valencia, Spain
Olegas Vasilecas	Vilnius Gediminas Technical University, Lithuania
Hans Weigand	Tilburg University, The Netherlands
Robert Winter	University of St. Gallen, Switzerland
Eric Yu	University of Toronto, Canada
Jelena Zdravkovic	Stockholm University, Sweden

Additional Reviewers

Aleatrati Khosroshahi,
Pouya
Blaschke, Michael
Bock, Alexander
Borchardt, Ulrike
Bork, Dominik
de Kinderen, Sybren
Dännart, Sebastian

Heumüller, Erich
Holgersson, Jesper
Huth, Dominik
Kapocius, Kestutis
Korman, Matus
Marosin, Diana
Normantas, Kestutis
Pant, Vik

Razo-Zapata, Iván S.
Savickas, Titas
Schilling, Raphael
Tantouris, Nikolaos
Uludag, Ömer
Välja, Mergus
Walch, Michael

Contents

Keynote

- Establishing ‘Architectural Thinking’ in Organizations 3
Robert Winter

Regular Papers

- Causes and Consequences of Application Portfolio Complexity –
An Exploratory Study 11
*Pouya Aleatrati Khosroshahi, Jannis Beese, Florian Matthes,
and Robert Winter*
- Enterprise 2.0 – Literature Taxonomy and Usage Evaluation 26
Mayla Alimam, Emmanuel Bertin, and Noël Crespi
- Towards Support for Strategic Decision Processes Using Enterprise
Models: A Critical Reconstruction of Strategy Analysis Tools 41
Alexander Bock, Ulrich Frank, Arne Bergmann, and Stefan Strecker
- Strategic Enterprise Architectures 57
Evellin Cardoso, John Mylopoulos, Alejandro Mate, and Juan Trujillo
- Data Journey Modelling: Predicting Risk for IT Developments 72
Iliada Eleftheriou, Suzanne M. Embury, and Andrew Brass
- Data Model Development for Process Modeling Recommender Systems 87
Michael Fellmann, Dirk Metzger, and Oliver Thomas
- Value-Driven Risk Analysis of Coordination Models 102
Dan Ionita, Jaap Gordijn, Ahmed Seid Yesuf, and Roel Wieringa
- A Semi-automated Method for Capturing Consumer Preferences
for System Requirements 117
Vu Nguyen, Eric-Oluf Svee, and Jelena Zdravkovic
- Scaffolding Stakeholder-Centric Enterprise Model Articulation 133
Stefan Oppl and Stijn Hoppenbrouwers
- An Artifact-Based Framework for Business-IT Misalignment
Symptom Detection 148
Dóra Óri

Coopetition with Frenemies: Towards Modeling of Simultaneous Cooperation and Competition Among Enterprises	164
<i>Vik Pant and Eric Yu</i>	
Defining the Responsibility Space for the Information Systems Evolution Steering.	179
<i>Jolita Ralyté, Wanda Opprecht, and Michel Léonard</i>	
A Textual Description Based Approach to Process Matching	194
<i>Maria Rana, Khurram Shahzad, Rao Muhammad Adeel Nawab, Henrik Leopold, and Umair Babar</i>	
Securing Airline-Turnaround Processes Using Security Risk-Oriented Patterns	209
<i>Silver Samarūtel, Raimundas Matulevičius, Alex Norta, and Rein Nõukas</i>	
Enterprise Modelling for the Masses – From Elitist Discipline to Common Practice	225
<i>Kurt Sandkuhl, Hans-Georg Fill, Stijn Hoppenbrouwers, John Krogstie, Andreas Leue, Florian Matthes, Andreas L. Opdahl, Gerhard Schwabe, Ömer Uludag, and Robert Winter</i>	
Exploring and Conceptualising Software-Based Motivation Within Enterprise	241
<i>Alimohammad Shahri, Mahmood Hosseini, Keith Phalp, Jaqui Taylor, and Raian Ali</i>	
Modeling Organizational Capabilities on a Strategic Level	257
<i>Janis Stirna, Jelena Zdravkovic, Martin Henkel, Pericles Loucopoulos, and Christina Stratigaki</i>	
Explorative Survey into Goals, Focus, Experiences and Extent of Enterprise-Wide Process Modelling in Practice	272
<i>Frank Wolff</i>	
Short Papers	
Enterprise Modeling as a Decision Making Aid: A Systematic Mapping Study	289
<i>Souvik Barat, Vinay Kulkarni, Tony Clark, and Balbir Barn</i>	
The Value of Enterprise Modelling: Towards a Service-centric Perspective	299
<i>Martin Benkenstein, Michael Fellmann, Michael Leyer, and Kurt Sandkuhl</i>	
The Goal-Based Selection of the Business Process Modeling Language	307
<i>Ligita Businska and Marite Kirikova</i>	

A Toolbox Supporting Agile Modelling Method Engineering: ADOxx.org
 Modelling Method Conceptualization Environment 317
Nesat Efendioglu, Robert Woitsch, and Wilfrid Utz

Using Attack-Defense Trees to Analyze Threats and Countermeasures
 in an ATM: A Case Study 326
*Marlon Fraile, Margaret Ford, Olga Gadyatskaya, Rajesh Kumar,
 Mariëlle Stoelinga, and Rolando Trujillo-Rasua*

Towards a Classification Framework for Approaches to Enterprise
 Architecture Analysis. 335
*Birger Lantow, Dierk Jugel, Matthias Wißotzki, Benjamin Lehmann,
 Ole Zimmermann, and Kurt Sandkuhl*

Measuring and Visualising Projects' Collective Method Rationale. 344
Fredrik Linander, Kai Wistrand, and Fredrik Karlsson

An Integrated Conceptual Model for Information System Security Risk
 Management and Enterprise Architecture Management Based on TOGAF . . . 353
Nicolas Mayer, Jocelyn Aubert, Eric Grandry, and Christophe Feltus

Separation of Modeling Principles and Design Principles
 in Enterprise Engineering 362
*Tetsuya Suga, Peter De Bruyn, Philip Huysmans, Jan Verelst,
 and Herwig Mannaert*

Author Index 375