

Lecture Notes in Business Information Processing

93

Series Editors

Wil van der Aalst

Eindhoven Technical University, The Netherlands

John Mylopoulos

University of 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

Stanisław Wrycza (Ed.)

Research in Systems Analysis and Design: Models and Methods

4th SIGSAND/PLAIS EuroSymposium 2011
Gdańsk, Poland, September 29, 2011
Revised Selected Papers



Springer

Volume Editor

Stanisław Wrycza
University of Gdańsk
Department of Business Informatics
ul. Piaskowa 9
81-864 Sopot, Poland
E-mail: swrycza@univ.gda.pl

ISSN 1865-1348

e-ISSN 1865-1356

ISBN 978-3-642-25675-2

e-ISBN 978-3-642-25676-9

DOI 10.1007/978-3-642-25676-9

Springer Heidelberg Dordrecht London New York

Library of Congress Control Number: 2011941500

ACM Computing Classification (1998): J.1, H.4, D.2

© Springer-Verlag Berlin Heidelberg 2011

This work is subject to copyright. All rights are reserved, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, re-use of illustrations, recitation, broadcasting, reproduction on microfilms or in any other way, and storage in data banks. Duplication of this publication or parts thereof is permitted only under the provisions of the German Copyright Law of September 9, 1965, in its current version, and permission for use must always be obtained from Springer. Violations are liable to prosecution under the German Copyright Law.

The use of general descriptive names, registered names, trademarks, 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.

Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India

Printed on acid-free paper

Springer is part of Springer Science+Business Media (www.springer.com)

Preface

Systems analysis and design (SAND) has been the central field of research and education in the area of management information systems (MIS) or, as it is called more frequently in Europe, business informatics, almost from the time of its origins. SAND continuously attracts the attention of both academia and business. The rapid progress of information and communications technology naturally generates requirements for new generations of SAND methods, techniques and tools. Therefore, international thematic conferences and symposia have become widely accepted forums for the exchange of concepts, solutions and experiences in SAND. In particular, the Association for Information Systems (AIS) is undertaking an initiative toward SAND's international development.

The objective of the EuroSymposium on Systems Analysis and Design is to promote and develop high-quality research on all issues related to SAND. It provides a forum for SAND researchers and practitioners in Europe and beyond to interact, collaborate and develop their field. The EuroSymposia were initiated by Keng Siau as the SIGSAND—Europe Initiative. Previous EuroSymposia were held at:

- University of Galway, Ireland – 2006
- University of Gdansk, Poland – 2007
- University of Marburg, Germany – 2008

The accepted submissions of EuroSymposium 2007 were published in: A. Bajaj, S. Wrycza (eds), *Systems Analysis and Design for Advanced Modeling Methods: Best Practices Information Science Reference*, IGI Global, Hershey, New York, 2009. After a three-year break, one of the former organizers, the Department of Business Informatics of the University of Gdansk, decided to re-start the EuroSymposium as a joint undertaking of two AIS units—SIGSAND and PLAIS. Therefore, the three organizers of the 4th EuroSymposium on Systems Analysis and Design were:

- SIGSAND – AIS Special Interest Group on Systems Analysis and Design
- PLAIS – The Polish Chapter of AIS
- The Department of Business Informatics of University of Gdansk, Poland

SIGSAND is one of the most active AIS SIGs with a substantial record of contributions to AIS. It provides services such as the annual North American and European SAND Symposia, research and teaching tracks at major IS conferences, a listserv and special issues in journals.

The Polish Chapter of the Association for Information Systems (PLAIS) was established in 2006 as the joint initiative of Claudia Loebbecke, former President of AIS, and Stanislaw Wrycza, University of Gdansk, Poland. PLAIS co-organizes international and domestic IS conferences.

The Department of Business Informatics of the University of Gdansk conducts intensive teaching and research activities. Some of its academic manuals are bestsellers in Poland. The department is also active internationally, organizing various conferences including the 10th European Conference on Information Systems (ECIS 2002) and the 7th International Conference on Perspectives in Business Informatics Research (BIR 2008). The department is a partner of the European Research Center for Information Systems consortium.

EuroSymposium 2011 - the 4th SIGSAND/PLAIS Symposium on Systems Analysis and Design - was held in Gdansk, Poland, on September 29, 2011.

EuroSymposium had an acceptance rate of 45%, with submissions divided into the following three groups:

- Business Processes Modeling
- Integrated Systems Development
- Software Development

The accepted papers reflect the current trends in the systems analysis and design field.

During EuroSymposium 2011, two keynote speeches were given:

- *Vijay Khatri, Operations and Decision Technologies Kelley School of Business, Indiana University, USA*: Developing an Agenda for Research in Systems Analysis and Design at the Intersection of Design Science and Behavioral Science.
- *Jaroslaw Jackowiak, ISV Technology Manager, Academic Initiative Architect IBM Software*: IBM Cloud Concept and Implementation.

I would like to express my thanks to all authors, reviewers, Advisory Board, International Program Committee and Organizing Committee members for offering their support, effort and time. They made possible another successful Systems Analysis and Design EuroSymposium.

September 2011

Stanislaw Wrycza

Organization

General Chair

Stanislaw Wrycza

University of Gdansk, Poland

Organizers

- AIS SIGSAND - Special Interest Group on Systems Analysis and Design of Association for Information Systems
- PLAIS - Polish Chapter of Association for Information Systems
- Department of Business Informatics, Faculty of Management of University of Gdansk

Advisory Board

David Avison

ESSEC Business School, France

Richard Baskerville

Georgia State University, USA

Sjaak Brinkkemper

Utrecht University, The Netherlands

Gordon B. Davis

University of Minnesota, USA

Phillip Ein-Dor

Tel Aviv University, Israel

Guy Fitzgerald

Brunel University Uxbridge, UK

Joey F. George

Florida State University, USA

Dimitris Karagiannis

University of Vienna, Austria

Julie E. Kendall

Rutgers University, USA

Claudia Loebbecke

University of Cologne, Germany

John Mylopoulos

University of Toronto, Canada

Keng Siau

University of Nebraska-Lincoln, USA

International Program Committee

Stanislaw Wrycza

University of Gdansk, Poland (Chair)

Eduard Babkin

Higher School of Economics, Moscow, Russia

Akhilesh Bajaj

University of Tulsa, USA

Dinesh Batra

Florida International University, Miami, USA

Jan vom Brocke

University of Lichtenstein

Glenn J. Browne

University of Virginia, Charlottesville, USA

Rimantas Butleris

Kaunas University of Technology, Lithuania

Sven Carlsson

Lund University, Sweden

Marco De Marco

Sacro Cuore Catholic University of Milan, Italy

Bjoern Erik Munkvold

University of Agder, Norway

Andrew Gemino

Simon Fraser University, Burnaby, Canada

VIII Organization

Rolf Granow	Luebeck University of Applied Sciences, Germany
Alan R. Hevner	University of South Florida, Tampa, USA
Seamas Kelly	University College Dublin, Ireland
Vijay Khatri	Indiana University Bloomington, USA
Marite Kirikova	Riga Technical University, Latvia
Andrzej Kobylinski	Warsaw School of Economics, Poland
Karl Kurbel	European University Viadrina Frankfurt (Oder), Germany
Mirosława Lasek	University of Warsaw, Poland
Bogdan Lent	University of Applied Sciences, Zurich, Switzerland
Leszek Maciaszek	Macquarie University Sydney, Australia and Wrocław University of Economics, Poland
Bartosz Marcinkowski	University of Gdansk, Poland
Jacek Maslankowski	University of Gdansk, Poland
Nava Pliskin	Ben-Gurion University of the Negev, Israel
Paul Ralph	Lancaster University, UK
Michael Rosemann	Queensland University of Technology, Australia
Matti Rossi	Aalto University School of Economics, Finland
Reima Suomi	University of Turku, Finland
Carson Woo	University of British Columbia, Canada
Iryna Zolotaryova	Kharkiv National University of Economics, Ukraine
Joze Zupancic	University of Maribor, Slovenia

Organizing Committee

Stanisław Wrycza, Anna Szynaka, Łukasz Malon, Bartosz Marcinkowski,
Jacek Maslankowski
Department of Business Informatics, University of Gdansk, Poland

Table of Contents

Part I: Business Processes Modeling

Reengineering University: Modeling Business Processes to Achieve Strategic Goals	3
<i>Aleksey Shutov</i>	

SysML Requirement Diagrams: Banking Transactional Platform Case Study	15
<i>Stanislaw Wrycza and Bartosz Marcinkowski</i>	

Part II: Integrated Systems Development

Customer Knowledge Management Models: Assessment and Proposal ...	25
<i>Dorota Buchnowska</i>	

ERP in the Cloud – Benefits and Challenges	39
<i>Anna Lenart</i>	

Building Project Teams in Enterprise System Adoption: The Need for the Incorporation of the Project Type	51
<i>Piotr Soja</i>	

Model of Information Systems' Selection for the Company Management	66
<i>Iryna Zolotaryova and Anna Khodyrevska</i>	

Part III: Software Development

A Method to Discover Trend Reversal Patterns Using Behavioral Data	81
<i>Jerzy Korczak and Aleksander Fafuła</i>	

Toward a Theory of Debiasing Software Development	92
<i>Paul Ralph</i>	

OBCAS - An Ontology-Based Cluster Analysis System	106
<i>Janusz Tuchowski, Katarzyna Wójcik, Paweł Lula, and Grażyna Paliwoda-Pękosz</i>	

Author Index	113
--------------------	-----