

Lecture Notes
in Business Information Processing

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Business Information Systems Workshops

BIS 2011 International Workshops
and BPSC International Conference
Poznań, Poland, June 15-17, 2011
Revised Papers

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Preface

There are many topics in business information systems that deserve attention but have not yet found a place in canonical research. Workshops give researchers the possibility to share preliminary ideas, first experimental results, or to discuss research hypotheses. Discussions held during presentations strengthen the paper and prepare it for publication. From our experience, workshops are a perfect instrument with which to create a community around very specific research topics, thus offering the opportunity to promote it. Topics that do not find critical feedback in the main track of the International Conference on Business Information Systems (BIS) may experience fruitful discussion when confronted with a well-focused audience.

Over the last few decades, business information systems have been one of the most important factors of the transition toward a knowledge-based economy. At the same time they have been subject to continuous rapid development and innovation driven both by industry and by academia. These innovations were carefully observed as well as shaped by researchers attending BIS for the last 14 years.

From time to time a well-recognized conference is collocated with BIS. In 2011, the Poznań University of Economics also hosted the Business Process and Services Computing (BPSC) conference. Additionally, three workshops were successfully organized in conjunction with BIS 2011, covering topics of applications and economics of knowledge-based technologies (AKTB), business and IT alignment (BITA), and legal information systems (LIT). This volume contains papers that were accepted and presented at the BIS 2011 workshops.

On this occasion, we would like to express our thanks to everyone who made the BIS 2011 workshops a success: all Workshop Chairs, members of the Workshop Program Committees, authors of submitted papers, invited speakers, and finally all workshop participants. We cordially invite you to visit the BIS website at <http://bis.kie.ue.poznan.pl/> and to join us at future BIS conferences.

August 2011

Witold Abramowicz
Leszek Maciaszek
Krzysztof Węcel

BPSC 2011 Conference Chairs' Message

The papers published in this volume were presented at the 4th International Conference on Business Process and Services Computing (BPSC 2011) held in Poznań, Poland, in conjunction with the 14th International Conference on Business Information Systems (BIS 2011) during June 15–17, 2011.

The BPSC conferences present and publish research findings and IT industry experiences with relation to process-centric service-oriented development and integration of enterprise and e-business information systems. By looking at the convergence of business processes and services computing, BPSC conferences identify the most hopeful trends and propose new directions for consideration by researchers and practitioners involved in large-scale software development and integration. The background principle is to consider process management as a new paradigm with semantics and meta-models as radically different from applications that merely implement business processes.

The BPSC papers in this volume were selected after a rigorous review process. All submitted papers received about three/four reviews on average and some received as many as five reviews. The acceptance rate was 50%.

The Program Committee was chaired by the undersigned. The Organizing Committee was chaired by Krzysztof Węcel of Poznań University of Economics. As the originators of BPSC conference series and as the Chairs of BPSC 2011, we would like to thank the members of the Program and the Organizing Committees for making the 2011 edition of the conference a success.

Witold Abramowicz
Leszek Maciaszek

AKTB 2011 Workshop Chairs' Message

The Third Workshop on Applications of Knowledge-Based Technologies in Business (AKTB 2011), organized in conjunction with 14th International Conference on Business Information Systems (BIS 2011) in Poznań, continued the series of AKTB workshops held in Berlin (2010) and Poznań (2009).

AKTB 2011 kept the tradition of focusing on in-depth knowledge of various application areas, innovative and robust solutions supported by experimental research.

The main goal of this workshop was to bring together researchers and practitioners, specialists and market analysts to share their experience and to invoke scientific discussion in the areas of application of contemporary computational intelligence methods for modeling and implementation of business information systems. We invited papers which could provide advanced services for the information systems users as well as propose innovative solutions for systems and process modeling.

The main topics of the workshop were concentrated on serving the needs of and providing solutions to contemporary businesses by applying intelligent knowledge-based technologies:

- Advanced knowledge-based business information systems
- Computational intelligence for business (artificial neural networks, fuzzy systems, expert systems)
- Decision support systems in business enterprises, financial institutions and e-management
- Knowledge-based models of data mining in business
- Information technologies and software developments for business process modeling and information requirements analysis
- Agent-based and embedded systems in business applications
- Information systems in e-business, e-banking and marketing
- Online trading by using evolution-based methods, neural networks, and rule-based systems
- Advanced computational approaches to portfolio optimization and selection
- Analysis of financial time series, estimations, modeling, algorithms of application of investment strategies in financial markets

Eighteen articles were submitted to the AKTB workshop. Each paper was evaluated in a double-blind review process by at least two independent reviewers of the Program Committee.

Each reviewer evaluated the quality of the article according to the following criteria: conformity of the article to the workshop topics, originality and novelty, methodological background, relevance of the article, adequacy of the article title and the content, substantiation and validity of the conclusions, and quality of presentation of the paper.

The 28 members of the Program Committee are outstanding researchers from 18 countries, as shown in the next table.

<i>Country</i>	<i>PC members</i>
Austria	2
Brazil	1
France	1
Germany	2
Greece	1
Hungary	2
Korea	1
Lithuania	5
Norway	1
Poland	3
Romania	1
Singapore	1
South Africa	1
Spain	1
UK	3
USA	2

We appreciate the expertise and quality of the work of the Program Committee members, who provided in-depth analysis of the submitted research works and highlighted valuable insights for the authors. The high standards followed by the reviewers led to a high-quality workshop, excellent presentations, intensive scientific discussions, and added value to the conference workshop proceedings.

The nine highest ranked articles were accepted for the conference proceedings and presentation during the conference. Eight articles were evaluated as not corresponding to the workshop themes or requirements.

The variety of countries represented by the authors and the article acceptance rate are as follows:

<i>Country</i>	<i>Authors</i>	<i>Submitted papers</i>	<i>Accepted</i>	<i>Acceptance rate</i>
Australia	1	0.50	0.50	1.00
Austria	1	1.00	1.00	1.00
Belgium	1	0.50	0.50	1.00
Denmark	1	0.33	0.33	1.00
Germany	10	3.50	1.50	0.43
Lithuania	16	8.67	4.67	0.54
Poland	1	0.50	0.50	1.00
Romania	5	3.00	1.00	0.33

We would like to express our gratitude to all authors of submitted papers, the members of the Program Committee, the Department of Information Systems of the Poznań University of Economics, Vilnius University and our acknowledgement of the outstanding efforts of the Organizing Committee of BIS 2011.

Second Workshop on Business and IT-Alignment (BITA 2011)

Preface

A contemporary challenge for enterprises is to keep up with the pace of changing business demands imposed on them in different ways. There is today an obvious demand for continuous improvement and alignment in enterprises, but unfortunately many organizations do not have proper instruments (methods, patterns, best practices etc.) to achieve this. Enterprise modeling and business process management are two areas belonging to a tradition where the mission is to improve business practice and business and IT alignment. In this tradition the alignment process usually is manifested in taking a business from one state into another improved state, i.e., a transformation of the business and its supporting IT into something that is regarded as better. A challenge in business and IT alignment is to move beyond this narrow focus on one tradition or technology. We need to be aware of and able to deal with a number of dimensions of the enterprise architecture and their relations in order to create alignment. Examples of such dimensions are: organizational structures, strategies, business models, work practices, processes, and IS/IT structures. Among the concepts that deserve special attention in this context is IT governance. An effective IT governance aligns IT investments with overall business priorities, determines who makes the IT decisions, and assigns accountability for the outcomes. There are ordinarily three governance mechanisms that an enterprise needs to have in place, (1) decision-making structures, (2) alignment process, and (3) formal communications.

BITA 2011 was the second workshop on this subject following an event in 2010, which was located at the 13th International Conference on Business Information Systems in Berlin. The workshop aimed to bring together people who have strong interest in business and IT alignment, and encouraged a broad understanding of possible approaches and solutions for business and IT alignment, including IT governance subjects. We invited researchers and practitioners from both industry and academia to submit original results of their completed or ongoing projects. Specific focus was on practices of business and IT alignment, i.e., on case study and experiences papers.

The workshop received 14 submissions. The Program Committee selected five submissions and agreed to invite one additional paper for presentation at the workshop.

We thank all members of the Program Committee, authors, and local organizers for their efforts and support.

July 2011

Ulf Seigerroth
Kurt Sandkuhl

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Sweden

LIT 2011 Chairs' Message

The 4th Legal Informatics and Legal Information Technology Workshop was held on June 17, 2011 in Poznań, Poland. The event was organized together with the 14th International Conference on Business Information Systems. It was well received by all participants and should be remembered as a successful continuation of the LIT workshop series.

In terms of statistics LIT 2011 was smaller than previous edition. Six papers were submitted, out of which four works were accepted for publication. This resulted in the moderate acceptance rate of 66.7%.

Still, despite the higher acceptance rate, we managed to stick to the rigorous procedures in terms of accepting papers, similar to the ones applied to the previous edition¹. We are certain that this factor inevitably led to the very good quality of the workshop and specifically the works contained in this publication.

At the opening of the session, Mirosław Kutylowski of the Wrocław University of Technology gave an inspiring keynote address on challenges for electronic identity documents. The resume of the speech is included in the book.

In the paper of Tantisripreecha et al. the problem of creating a procedure to build rules for a legal knowledge base is scrutinized. Their method uses abduction to select rules for the legal reasoning process. At the end of the article a case study is given to prove its practical usability.

Boer et al. propose a model-based diagnosis view on the complex social systems in which public administration organizations operate. Such a view targets multi-agent system and can be helpful in determining problematic agent role instances. The diagnosis itself can be used to explain the driving forces behind policy making in public administration.

Kutylowski et al. in their study investigate the concept of “sole control” of the signature creation device which is fundamental for the framework of electronic signatures as defined in EU law. On the brink of the technology development the paper shows how the notion of this kind of legally declared idea may evolve in time. The outcome of this work is that recent approaches can potentially give the digital signer much more control and protection than with the technologies employed so far.

The work of Gray et al. discusses the quest for a superexpert system which will support negotiation. The authors classify such systems as ones using expert epistemology – a theory of knowledge. In the paper the system supporting the Harvard Principled Negotiation model is presented. The system manages

¹ Review notes were independently given by at least three reviewers assigned randomly from the Program Committee. Cases of possible conflicts of interest were avoided in advance. In some cases of largely diversified reviews we took advice from additional reviewers.

hierarchical complexity of issues in conflict, advises on cumulative scoring of wins and losses, and, above all is able to maximize win – win options.

This year's event covered a wide area of topics with many challenges appearing on the horizon. The availability of such a forum is vital to support the development of knowledge in the IT and law area.

Finally, we would like to give our cordial thanks – especially—to all the authors as well as participants whose work and attendance enabled us to organize the workshop. We are aware that there would be no workshop in this shape without the participating community. We also would like to express our deepest thanks to the Program Committee members who supported us with their knowledge and judgments. Without the silent work of these people the selection of the works would not be feasible. Finally, as always we would like to express our profound gratefulness to the organizers of the hosting conference (BIS 2011). Their support allowed us to organize of the 4th Legal Informatics and Legal Information Technology Workshop.

Erich Schweighofer
Piotr Stolarski
John Zeleznikow

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