

Lecture Notes in Business Information Processing

127

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Preface

BIS Workshops give researchers the possibility to share preliminary ideas and first experimental results and to discuss research hypotheses. It was initiated to focus attention on topics that have not yet found a place in canonical research, though they may experience fruitful discussion when confronted with a well-focused audience. Discussions held during presentations allow for improving the paper and preparing it for publication. From our experience, workshops are also a perfect instrument to create a community around very specific research topics, thus offering the opportunity to promote it.

Four workshops took place during BIS 2012. They covered such topics as applications and economics of knowledge-based technologies (AKTB), business and IT alignment (BITA), enterprise systems for higher education (ESHE), and formal semantics for future enterprise (FSFE). Additionally, the Future Internet Symposium was organized in conjunction with BIS 2012.

The 25 articles contained in this volume are an extended version of papers accepted for BIS workshop as well as for the Future Internet Symposium. There were 63 submissions for all mentioned events. Based on reviews, the respective Workshop Chairs accepted 24 papers in total, yielding an acceptance rate of 38%. There is also one invited paper hosted by the BITA workshop.

We would like to express our thanks to everyone who made the BIS 2012 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 2012

Witold Abramowicz
John Domingue
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AKTB 2012 Workshop Chairs' Message

The 4th Workshop on Applications of Knowledge-Based Technologies in Business (AKTB 2012) was organized in conjunction with 15th International Conference on Business Information Systems (BIS 2012) held in Vilnius, Lithuania. It continued the successful series of AKTB workshops held in Poznan (2011, 2009) and Berlin (2010).

The mission continuously followed by the AKTB workshops is to invite scientists and practitioners to share their research expertise and knowledge, to provide new insights in modeling-advanced enterprise solutions, and to demonstrate experimental results of computational intelligence methods applied in various areas of business-related information processing.

AKTB 2012 kept the tradition of focusing on innovative and robust computational solutions validated by experimental research and based on the in-depth domain knowledge of various business areas.

The main topics of the workshop are concentrated on serving the needs of contemporary business enterprises 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
- Business process and information requirements analysis
- Information technologies and software developments for business process modeling
- 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
- Advanced research and case studies of application computational methods in banking, insurance and credit risk evaluation, and company rating systems

In all, 18 articles were submitted to the AKTB2012 workshop. Each paper was evaluated in a double-blind review process by at least two independent reviewers of the Program Committee. The highest ranked nine articles were accepted for presentation during the conference and the second stage of reviewing before including them in the conference proceedings.

Each reviewer evaluated the quality of the article by taking into account the criteria of relevance of the article to the workshop topics, the adequacy of the

article title and the content, its originality and novelty, the coherence of the methodological background, the substantiation and validity of the conclusions, and the quality of presentation of the paper.

The following 24 outstanding researchers who represent prestigious scientific institutions from 15 countries joined the Program Committee:

Rajendra Akerkar	Western Norway Research Institute, Norway
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Lia Bassa	Foundation for Information Society, Hungary
Tânia Bueno	Instituto de Governo Eletrônico, Brazil
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Réz Tamas	HandSoft Ltd., Hungary
Margaret Tan	Nanyang Technological University, Singapore
Danuta Zakrzewska	Technical University, Lodz, Poland
Du Zhang	California State University, USA

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

We would like to express our gratitude for the joint input to the success of AKTB 2012 to all authors of submitted papers, members of the Program Committee, Vilnius University and Department of Information Systems of the Poznan University of Economics, and to acknowledge the outstanding efforts of the Organizing Committee of the 15th International Conference (BIS 2012).

BITA 2012 Workshop Chairs' Message

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 is usually 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 a restraining focus with one tradition or technology. We need to be aware of and be able to deal with a number of dimensions of 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 processes, and (3) formal communications.

BITA 2012 was the third workshop on this subject following an event in 2011, which was located at the 14th International Conference on Business Information Systems in Poznan. The workshop aimed to bring together people who have a 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 ten submissions. The Program Committee selected five submissions. We had an invited speaker at the workshop, Wim Van Grembergen, who gave a speech with the title "Enterprise Governance of IT and the COBIT 5 Framework".

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

July 2012

Ulf Seigerroth
Kurt Sandkuhl

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ESHE 2012 Workshop Chairs' Message

Enterprise systems, such as ERP systems, for example, are an important part of the IT infrastructure of today's enterprises worldwide. Hence, the integration of these systems plays an important role in the area of educational environments. Because of their high potential of illustration, visualization, and simulation of business and decision-making processes for learners, enterprise systems have a high significance for future pedagogic innovations within higher education. The primary challenge is to tap this potential in the education of enterprise systems. currently, there are different approaches (e.g., case studies) to train students in these systems. Furthermore, there are also technical solutions that support the learning process in the field of enterprise systems.

After the First ESHE Workshop held in Poznan, Poland, in conjunction with the 12th International Conference on Business Information Systems (BIS) in April 2009 and the Second ESHE Workshop hosted in Valencia, Spain, in conjunction with the Second International Conference on Computer Supported Education (CSEDU) in April 2010, the Third Workshop on ESHE took place in conjunction with INFORMATIK 2011 in Berlin, Germany, in October 2011. The current 4th ESHE Workshop was held in Vilnius, Lithuania, in conjunction with the 15th International Conference on Business Information Systems (BIS) in May 2012.

The 4th Workshop of Enterprise Systems in Higher Education (ESHE) 2012 aimed to continue the innovative concepts in the field of the creation of new and adequate learning environments and also at possible technical solutions, which offer technology-enhanced learning environments for teachers and learners. The main objective of the workshop is to bring researchers and practitioners together to explore the issues and challenges related to enterprise systems in higher education.

The following submissions were accepted for publication by the Program Committee of the ESHE 2012 Workshop:

“Serious and Simulation Games – A Definition Approach,” by Bastian Kurbjuhn

“Cloud-Based Online Learning Platforms,” by Stefan Bensch

“Repository-Based ERP Case Studies: A Study About Chances and Benefits of Agile Case Study Development,” by Hans-Jürgen Scheruhn, Stefan Weidner, and Sandro Sicorello

“Interactive Learning – Teaching IT Project Management Using an Explorative Role Play,” by Stefan Weidner

We would like to thank all contributing authors for their submissions and also take the chance to thank the members of our Program Committee for the successful cooperation the last four years.

May 2012

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Klaus Turowski
Liane Haak
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FSFE 2012 Workshop Chairs' Message

The Formal Semantics for the Future Enterprise Workshop was created with the main goal of bringing together researchers to share their knowledge and experience in the formal aspects of the future enterprise. Nowadays, many companies undergo a lot of changes, at all levels. In this respect, the workshop seeks to create, promote, and spread the formal application fundamentals that will enable the transition to those future enterprises. During this workshop, we discussed and tackled advanced formal approaches in enterprise-related semantics and enterprise virtualization, the transition from data to knowledge, as well as the issues related to representing and storing the knowledge of the enterprise, using semantics and ontologies. Another important aspect is collaboration, with a focus on the formal aspects of communication technology and security. Also, the workshop focused on the formal approach to business processes and decision-making automation.

The Program Committee selected four submission for presentation at the workshop. The paper of P. Bertoli et al. discusses SMART, a solution designed to support operative business process management under the premises of fragmented software systems and complex dynamics depending on non-controllable heterogeneous events and actions. SMART offers a flexible and agile modeling approach, where external services, information sources, and proprietary support systems can be meaningfully and smoothly integrated according to business logics, so as to result in operative consoles that can be used as effective coordination tools. The paper of L.G. Cretu discusses the enterprise architecture (EA) approach as a means to manage the enterprise transformation complexity. The author has developed a methodology to transform EA descriptions made in plain natural language into machine-readable EA models using Semantic Web technologies. The paper of A. Butoi et al. proposes a protocol to provide data storage confidentiality, in the context of virtualization to cloud resources. The protocol splits enterprise data into small encrypted chunks and disperses them into data storage volumes, handling separately the read/write operations. The paper of C.I. Muntean et al. explores the meaning of Twitter hashtags, in order to retrieve connections that might exist between different hashtags and their textual representation and to grasp their semantics through the main topics they occur with.

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

Gheorghe Cosmin Silaghi
Razvan Petrusel
Robert Buchmann

Future Internet Symposium 2012 Chairs' Message

While we cannot be sure about the concrete shape of the Future Internet (FI), we can expect with confidence that it will continue touching more and more aspects of our lives and our environment, and that it will provide novel features that are often denoted as smart.

The smart applications in the FI are expected to bring people, things, and data together in innovative ways. The smart applications will come from diverse areas such as entertainment, health, utilities, transport, mobility, and logistics. The FI will encompass the “Internet of Content,” the “Social Internet,” the “Internet of Services,” the “Internet of Things,” and other concepts that are being proposed. However, a simple analysis of the anticipated smart applications and FI concepts reveals a set of conflicting requirements. Hence, shaping the FI to serve such diverse needs and capabilities is a challenging task.

The 2012 Future Internet Symposium focused on the requirements of novel FI application domains and the problems of the current Internet in addressing those requirements, and it proposed solutions to these problems and the steps necessary to make the smart FI a reality. Here, we publish two selected peer-reviewed articles presented at the symposium. The first one, by Anna Fensel et al., introduces a conceptual framework that applies a number of technologies on the Web and in social media to support effective communication of e-offerings. The second one, by Alex Oberhauser et al., addresses recommendations of mobile services to users with the help of knowledge representation and information-retrieval techniques over combined social Web data sources.

In addition to the presentations of peer-reviewed papers, FIS 2012 had the honor of welcoming two keynote speakers: Stephan Haller of SAP Research in Zürich (Switzerland) and Darius Šilingas of No Magic Europe in Kaunas, Lithuania. Stephan discussed the requirements for the realization of the Internet of Things (IoT). His main point was that for the deployment of the IoT to be manageable, we need advanced tools for the modeling and discovery of processes and services. Darius, in turn, illustrated how the main principle of model-driven development is to raise the level of abstraction in modeling to keep models understandable and maintainable. He stressed that models need to be constrained in size, by employing modularity and decomposition, to be able to capture usefully the growing complexity of the FI.

August 2012

Witold Abramowicz
John Domingue
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