

Lecture Notes
in Business Information Processing

112

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Advanced Information Systems Engineering Workshops

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Preface

CAiSE is a well-established highly visible conference series on information systems engineering. CAiSE conferences also have the tradition of hosting several workshops which focus on particular topics in the field and provide ample room for discussion of new developments.

This year, CAiSE hosted ten workshops that were carefully selected based on the quality and maturity of their proposals, their potential and attractiveness, their fit to the information systems engineering field, and finally, their history. The papers accepted in eight of these workshops are contained in these proceedings. These are (in reverse alphabetical order):

- WISSE: Workshop on Information Systems Security Engineering
- ONTOSE: Workshop on Ontology, Models, Conceptualization and Epistemology in Social, Artificial and Natural Systems
- IWSSA: Workshop on System/Software Architectures
- HC-PAIS: Workshop on Human-Centric Process-Aware Information Systems
- GRCIS: Workshop on Governance, Risk and Compliance in Information Systems
- EOMAS: Workshop on Enterprise and Organizational Modeling and Simulation
- BUSITAL: Workshop on Business/IT Alignment and Interoperability
- AgilES: Workshop on Agility of Enterprise Systems

Some statistics: the workshops in these proceedings attracted a total of 104 submissions. After a thorough review process managed by the respective workshop organizers, 35 full papers were accepted (34%) and 17 short papers. The overall acceptance rate for full papers is 34% and for full+short papers 50%.

Two further workshops organized individual proceedings published elsewhere:

- CSSI: Workshop on Case Studies in Service Innovation
- NGEBS: Workshop on Next-Generation Enterprise and Business Innovation Systems

The variety of topics addressed in this book confirm the fact that although information systems engineering is a well-established and mature discipline it is still thriving as a very attractive research domain with many challenges that remain to be solved.

We would like to take this opportunity also to thank all the workshop organizers and all the referees and members of the Program Committees for their hard work in organizing the workshops and ensuring their high scientific quality.

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Workshop on Information Systems Security Engineering WISSE

Information systems security problems are currently a widespread and growing concern that affects most areas of society, such as business, domestic, financial, government, healthcare, and so on. The scientific community has realized the importance of aligning information systems engineering and security engineering in order to develop more secure information systems. Nevertheless, there is lack of an appropriate event that promotes information systems security within the context of information systems engineering. The International Workshop on Information Systems Security Engineering (WISSE) series aims to fulfil this gap. WISSE 2012 was the second version of the workshop, with the first one being introduced with great success at the 23rd International Conference on Advanced Information Systems Engineering (CAiSE 2011). The workshop aims to provide a forum for researchers and practitioners to present, discuss and debate on one hand the latest research work on methods, models, practices and tools for secure information systems engineering, and on the other hand relevant industrial applications, recurring challenges, problems and industrial-led solutions in the area of secure information systems engineering.

This second edition of the workshop, held in Gdańsk (Poland) on June 25, 2012, was organized in conjunction with the 24th International Conference on Advanced Information Systems Engineering (CAiSE 2012). In order to ensure a high-quality workshop, following an extensive review process, four submissions were accepted as full papers and one as a short paper addressing a large variety of issues related to secure information systems engineering.

We wish to thank all the contributors to WISSE 2012, in particular the authors who submitted papers and the members of the Program Committee who carefully reviewed them. We express our gratitude to the CAiSE 2012 Workshop Chairs for their helpful support in preparing the workshop. Finally, we thank our colleagues from the Steering Committee, Nora Cuppens, Jan Jürjens and Luis Enrique Sánchez, for initiating the workshop and contributing to its organization.

June 2012

Nadira Lammari
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Workshop on Ontology, Models, Conceptualization and Epistemology in Social, Artificial and Natural Systems ONTOSE

Following the aims and scope of the ONTOSE Workshop Series to bring together researchers from different disciplines, ONTOSE 2012 covered a wide range of topics related to ontologies and their usage in different kinds of software systems. The sixth edition of the workshop was hosted for the fourth year as a satellite event of the CAISE Conference.

The Program Committee accepted 5 long and 3 short papers out of 16 submissions.

The three long papers are focused on economy: the first one proposes an ontology-based, event-driven architecture for integrating information, processes and services to coordinate delivery; the second paper describes how topic maps can be used to build ontologies of economic indicators useful in the analysis of economic ratios on account and the semantic connections between them; the third one presents an ontology of contracts which introduces some important innovations having positive impacts on enterprises. The fourth long paper is about a temporal model capturing important concepts involved in the representation of time-aware activities and their relations. The model is described by means of UML formalization, enriched with OCL constraints where needed. Finally, in the fifth long paper an enhanced version of the MoKi tool equipped with an ontology evolution approach that permits one to evolve an ontology by providing a mechanism for facing the tracking challenge is presented.

The short papers are about ongoing research project or case studies involving ontology: one of them describes an ontology of events that, combined with an already existing ontology of crowds, should enable one to build application scenarios useful in the analysis of people participating in big events and how they group; the second paper concerns the important topic of ontology enrichment and alignment, and proposes a method for discovering new concepts and examining the equivalence of properties in different LOD description schemas by using open information extraction techniques on Web resources. The last short paper focuses on the modeling of scientific information, comparing two of the more widespread models, and provides directions for mapping them in a way that enables clients to integrate data coming from heterogeneous sources.

We wish to thank all the people who helped make ONTOSE 2012 a success. Namely, we thank all the authors who submitted their valuable contributions and the CAiSE workshop organizers (Marko Bajec and Johann Eder) who actively supported us during the entire process.

June 2012

Fabio Sartori
Miguel-Angel Sicilia
Christian Kop

ONTOSE Organization

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10th International Workshop on System/Software Architectures IWSSA

As the 10th in the series of the International Workshop on System/Software Architectures (IWSSA 2012), this workshop reflected the importance of systems and software architectures as a touchstone for many system and software engineering (SSE) projects. In particular, this workshop addressed, and bridged the gap between, system engineering and software engineering, through seamless integrations of system architectures and software architectures, which by and large have been developed and used disparately. The increasing connectivity between systems, hence their complexity, and the successive emergence of new technologies and computation paradigms, and the advent of new development approaches lend new opportunities for academicians, practitioners and even politicians to steadily strive to come up with new system designs or even revisit old ones.

In this context, service-oriented and/or service-driven architectures are gaining momentum within the SSE community and even changing the way in which system operations are conceived. Indeed, “services thinking” almost equates to not developing any more, but orchestrating and choreographing the functionalities that have been developed in the past, typically by means of well-defined interfaces. Interoperability, heterogeneity, etc., are commonplace in this context. IWSSA workshops especially focus on the enactment/connection of the different kinds of system and software requirements into/to concrete design issues for system/software architectures, with a special emphasis on non-functional requirements analysis.

This was the second time IWSSA was held in association with the International Conference on Advanced Information Systems Engineering (CAiSE 2012). The present edition received a total of 20 paper submissions out of which seven papers were finally selected as full papers and three as short papers. This fact does not belittle the quality of the rest of the papers which were also well rated and we hope to be able to receive submissions of improved versions to subsequent editions. We would like to sincerely thank the CAiSE Workshops Chairs, Johann Eder and Marko Bajec, for their support, the IWSSA 2012 Program Committee members and external reviewers for their excellent work during the review process, and most importantly the authors of the papers for their very interesting and high-quality contributions, which makes it possible this workshop series every year.

June 2012

Lawrence Chung
Manuel Noguera
Nary Subramanian
José Luis Garrido

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Workshop on Human-Centric Process-Aware Information Systems HC-PAIS

We are pleased to present the papers of the First Workshop on Human-Centric Process-Aware Information Systems (HC-PAIS 2012) held in conjunction with the 24th International Conference on Advanced Information Systems Engineering (CAiSE 2012). The objective of the HC-PAIS workshop was to extend the spectrum of the main conference by giving researchers and practitioners a forum to present and discuss cutting-edge research in the field of information systems engineering. The HC-PAIS workshop was themed on the human-centric view on information systems and the interplay of technological and work psychological aspects in the context of process-aware information systems (PAIS). It aimed to offer a portal for researchers, discussions, and contributions of interdisciplinary research dedicated to the investigation of particularly human-centric processes that demand human judgment, skills, competencies, experiences, and discernment.

This edition of the workshop attracted papers from six different countries including Australia, Austria, Germany, Italy, Poland, and Spain. We received nine papers, from which the top three of the best rated papers were selected, an acceptance rate of 33%. The accepted papers addressed various aspects such as gesture-based process modeling, creativity in process design, and user-centric abstraction of workflow logic.

In “Towards Gesture-Based Process Modeling on Multi-Touch Devices,” Jens Kolb, Benjamin Rudner and Manfred Reichert present experimental research results of multi-touch process modeling and suggest a core gesture set for modeling and adapting processes.

Kathrin Figl and Barbara Weber investigate in their paper “Individual Creativity in Designing Business Processes” how process model competence and individual creativity style as well as creative capacity influence creativity in a business process redesign task by means of an empirical study.

In “User-Centric Abstraction of Workflow Logic Applied to Software Engineering Processes,” written by Gregor Grambow, Roy Oberhauser and Manfred Reichert, an approach to model user decisions influencing the actual trace of workflows is presented and applied to a concrete application scenario.

We thank the authors for submitting their papers, the Program Committee members for reviewing the papers, and the CAiSE 2012 Workshop Co-chairs and the Organizing Committee for all their support.

June 2012

Sonja Kabicher-Fuchs
Jan Recker
Stefanie Rinderle-Ma

HC-PAIS Organization

HC-PAIS 2012 was a collaboratively organized workshop of the Research Group Workflow Systems and Technology, University of Vienna, and the Business Process Management Group, Queensland University of Technology.

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Workshop on Governance, Risk and Compliance in Information Systems GRCIS

The importance of governance and associated issues of compliance and risk management is well recognized in enterprise systems. This importance has dramatically increased over the last few years as a result of numerous events that led to some of the largest scandals in corporate history. The governance, risk and compliance market is estimated to be worth over US\$32 billion. Tool support for governance, risk and compliance-related initiatives is provided by over 100 software vendors; however, while the tools have on average tripled in price since 2003, they are often insufficient to meet organizational needs. At the same time, there is an increasing complexity in the facilitation of compliant business processes, which stems from an increasing number of regulations, frequent and dynamic changes, as well as shared processes and services executing in highly decentralized environments.

In the age of outsourcing, dynamic business networks, and global commerce, it is inevitable that organizations will need to develop methods, tools and techniques to design, engineer and assess processes and services that meet regulatory, standard and contractual obligations. Governance, risk and compliance (GRC) can be expected to play a significant part in several applications. This area is emerging as a critical and challenging field of research and innovation. It introduces, among others, the need for new or adapted modeling approaches for compliance requirements, extension of process and service modeling and execution frameworks for compliance and risk management, and detection of policy violations. In addition, it introduces questions relating specifically to the use of technology to support compliance management. For example, how auditors and regulators can put into use techniques such as continuous monitoring and data analysis to assess whether an organization complies with relevant rules and regulations, or how technology can be used to support assessment of design and operational effectiveness of controls.

The GRCIS workshop aims to provide a forum for researchers from diverse areas related to GRCIS to make a consolidated contribution in the form of new and extended methods that address current challenges. Three full research papers were accepted for publication this year, representing a 30% acceptance rate.

June 2012

Marta Indulska
Shazia Sadiq
Michael zur Muehlen
Yao-Hua Tan

GRCIS Organization

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Workshop on Enterprise and Organizational Modeling and Simulation EOMAS

Enterprises and other organizations of the twenty-first century are crucial components in delivering services to society and contributing to the economic prosperity and quality of life for people. Service is delivered when an enterprise or organization is conducting its business within its business environment using optimal technology and knowledge. With the growing complexity of modern business processes and continuously changing business environments, business and software engineering requires advanced approaches with properties such as ability for reengineering, scalability, adaptability, and reimplementation.

However, an extended enterprise and organizational study involves both analysis and design activities, in which modeling and simulation play a prominent role. The growing role of modeling and simulation is attracting the serious attention of researchers. Modeling and simulation are tools and methods that are effective, efficient, economical, and widely used in business and software engineering, organizational studies, knowledge transfer and business process management. Complementary insights of modeling and simulation constitute a whole cycle of elaboration of these complex sociotechnical systems.

The EOMAS Workshop (Enterprise Organization Modeling and Simulation) was founded in 2005 by SIGMAS (Special Interest Group on Modeling and Simulation), which is a formal entity of the AIS (Association for Information Systems). EOMAS participants are an international community of professionals from a broad spectrum of disciplines who want to share the benefits of their knowledge and expertise. The main objective of the annual EOMAS workshops is to fill in the gap between business and IS and to minimize the failure rate of information systems through the application of proper modeling and simulation before the system is built. EOMAS aims to benefit and serve the community and advance the discipline of modeling and simulation in the broad context of computing (e.g., software engineering, information systems and information technology) and contribute to the theory of modeling and simulation, the development of methodologies, tools and techniques. A collection of the fully reviewed papers presented at the 8th EOMAS workshop were selected for publication in these proceedings.

June 2012

Vojtech Merunka
Martin Molhanec

EOMAS Organization

The EOMAS workshop is organized annually as an international forum for researches and practitioners in the field of enterprise and organizational modeling and simulation. Organization of this workshop and peer reviews of the contributions made to this workshop were accomplished by an international team of researchers in the field of enterprise modeling and simulation, business and informatics.

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- SIGMAS (Special Interest Group on Modeling and Simulation of the Association for Information Systems) – in collaboration
- CAiSE 2012 (International Conference on Advanced Information System Engineering)
- TU Delft (Delft University of Technology, Department of System Engineering)

7th International Workshop on Business/IT Alignment and Interoperability BUSITAL

Nowadays, information services are core assets for companies having a sustainable competitive advantage. The continuous growth of information and communication technologies-enabled innovations provides organizations with new efficient mechanisms for communication, information sharing, resource management and planning, and helps them to explore new market opportunities. The special theme of the 24th edition of CAiSE was “Information Services” where the notion of service plays a more and more extensive role in the enterprise development. However, we feel that in the context of enterprise development the notion of services should not be limited to information services. Accordingly, we stress the Service Science Research Manifesto by Chesbrough and Spohrer, which calls for an integrated view, integrating management science with computer science. It is interesting that in this context the notion of service refers to different definitions: in management science a service is defined as a business economic activity, offered by one party to another to achieve a certain benefit, and generated by business processes; in information systems a service is a complex (or simple) task executed (within) an organization on behalf of a customer; and in computer science a service is a programmable, self-describing, encapsulated, and loosely coupled functions accessed and invoked over the Internet.

As a consequence, the governance of information services in this increasing evolving scenario asks for new models of alignment not only with the traditional organizational boundaries but also with an outer context that challenges organizations to anticipate the constantly evolving business, technological, and social environment, where interoperability issues are key success factors. Information systems have to support these evolutionary challenges while preserving the alignment between business strategies, business processes, social context, and application portfolios. Furthermore, the recent decade brought yet another wave of ICT innovations: cloud, smart and mobile technologies are rapidly integrating our daily life and opening new business opportunities for organizations. Following new trends while mastering the complexity and gaining the maximum value from IT is the major challenge for both business and IT leaders. Traditionally, methods, approaches, theories and applications of business-IT alignment have been vividly discussed by practitioners and researchers in IT. This seventh edition of the BUSITAL workshop clearly demonstrated the increasing interest of business-IT alignment in the management community.

June 2012

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International Workshop on Agility of Enterprise Systems (AgilES 2012)

An enterprise system provides a technical platform that enables organizations to run their business more effectively. As strategic and operating conditions become increasingly turbulent due to factors such as hyper-competition, increasing demands from customers, regulatory changes, and technological advancements, the ability to sense relevant change and respond appropriately becomes an important determinant of enterprise success. The agility of an enterprise system typically refers to the ability of an organization and the information system supporting its business processes to rapidly adapt to market and environmental changes in productive and cost-effective ways.

The Workshop AgilES was started with this purpose in mind: to bring the results of rigorous scientific research and experience of industrial practices on enterprise systems, especially about enhancing agility of enterprise systems, to researchers and practitioners, so that they can create a shared vision and bridge any communication and understanding gaps. The call for papers attracted high-quality submissions from North America and Europe. Considering that the concept of the agility of enterprise systems is still in its infancy stage, the Program Committee decided to accept two papers and reserved more time during the workshop for discussion.

AgilES 2012 was a team effort. We would like to thank the Program Committee and external reviewers who worked extremely hard to get things done in time. The CAiSE conference organization teams were also very instrumental in handling the co-hosted workshops and deserve special thanks. Special thanks also go to Marko Bajec, Johann Eder and Vojtech Merunka for their support. Last, but not least, we thank all authors and participants for contributing to a rich experience.

We hope that you will find the workshop proceedings interesting. We also hope that in the years to come, AgilES will become a platform for dialogue on new concepts and research on enterprise systems and their agility.

June 2012

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