BIR 2024 Workshops and Doctoral Consortium

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The International Conference on Perspectives in Business Informatics Research (BIIR) is dedicated to business informatics, business information systems and information systems. It aims to support knowledge exchange between experienced and junior researchers, practitioners and industry professionals by promoting studies at the intersection of business applications and information systems engineering.

The 23rd BIR conference was organized by Prague University of Economics and Business, with the central theme being Artificial Intelligence in Business informatics: Opportunities and Challenges. The conference traditionally attracts co-located workshops which encourages exchanging ideas and fosters collaborations on various topics related to business information systems. This volume contains publications presented during the conference workshops and the Doctoral Consortium:

- The 14th workshop on Business and IT Alignment (BITA) addresses various aspects of the enterprise (e.g. organizational structures, strategies, architectures, business models, work practices, processes, and IS/IT structures) in order to create alignment between business and IT. The event received 10 submissions out of which it accepted 6 regular papers;
- The 9th workshop on Managed Complexity (ManComp) covers topics related to complexity identification, representation, controlling and reduction. The event attracted 10 submissions, accepting 4 regular papers and 3 short papers;
- The 2nd workshop on Domain-specific Modeling Methods and Tools (OMiLAB-KNOW) aims to stimulate knowledge exchange on the requirements, use, design decisions, tooling and evaluations regarding domain-specific conceptual modeling methods. Although initiated by the OMiLAB community of practice (http://omilab.org) the event welcomes also contributors from other communities with a conceptual modeling focus. This year the event attracted a total of 10 submissions and finally selected 5 regular papers and one short paper;
- The Doctoral Consortium of BIR 2024 provides an opportunity for PhD researchers to present their doctoral research plan and current progress and to receive feedback and ideas from senior researchers in Business Informatics acting as doctoral mentors. This year the doctoral consortium received 4 submissions, all of them were selected for inclusion in the proceedings: 2 regular papers and 2 short papers.

Each workshop was independently chaired and had its own international program committee of experts who evaluated each submission with 2-4 reviews. A doctoral mentor evaluated and supervised each doctoral paper submission.

Out of 34 initial submissions, this volume contains a total of 17 regular papers and 6 short papers presented on the Workshops Day at BIR 2024.

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We would like to express our gratitude to the chairs initiating these satellite events, to their program committees, to the authors who submitted their work for evaluation and to the hosts at University of Economics Prague who included the Workshops Day in the BIR 2024 program.

September 2024

Ana-Maria Ghiran
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Preface: 14th Workshop on Business and IT Alignment (BITA)

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A contemporary challenge for enterprises is to keep up with the pace of changing business demands imposed on them in different ways. Today, there is an apparent demand for continuous improvement and alignment in enterprises, but unfortunately, many organizations don't have the proper instruments (methods, tools, patterns, best practices, etc.) to achieve this. Enterprise modelling, enterprise architecture, and business process management are three areas belonging to business informatics traditions, with the mission of improving business practice and business and IT alignment (BITA). BITA is often manifested through the transition of an enterprise from one state (AS-IS) into another improved state (TO-BE), i.e., a transformation of the enterprise and its supporting IT into something that is regarded as better. Recent digitalization and transformation developments have brought new dimensions to BITA, where BITA becomes important in relation to smart products and smart business ecosystems. A continuous challenge with BITA is to move beyond a narrow focus on one tradition or technology. There is a need to be able to deal with the enterprise's multiple dimensions to create alignment between business and IT. Examples of such dimensions are organizational structures, strategies, architectures, business models, services, work practices, processes, and IS/IT structures.

This workshop aimed to bring together people who have an interest in BITA. We invited researchers and practitioners from industry and academia to submit original results of their completed or ongoing projects, and we also encourage a broad understanding of possible approaches and solutions for BITA. As organizational practices of business and IT alignment also are relevant for the research community, we included submissions of case study and experiences papers.

The workshop received ten submissions, and after the review process, six of these submissions were accepted for the workshop:

- Energy Management Systems in SME: State of Research and Methodical Considerations
- The Interplay Between Knowledge Management and the Social Dimension of Business IT Alignment
- Integrating Digital and Physical Care for Post-Covid Rehabilitation
- A Systematic Literature Review of AI-enabled Predictive Analytics in Smart Grids
- Application of supervised machine learning models for card payment workflow optimization
- Enterprise Architecture Management Value Creation Mechanisms.

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Acknowledgements

The BITA PC chairs thank the organizing team of the BIR 2024 conference and the BIR 2024 workshop chairs for the excellent support for the BITA workshop. Furthermore, we dedicate special thanks to the members of the international Program Committee for promoting the workshop, their support in attracting submissions, and for providing excellent reviews of the submissions. Without their committed work, BITA 2024 would not have been possible. Our thanks also include the external reviewers supporting the paper selection process and the authors of submissions and presenters at the workshop.

BITA Organization

Program Committee Chairs

- Ulf Seigerroth, University of Jönköping, Sweden
- Kurt Sandkuhl, University of Rostock, Germany, and University of Jönköping, Sweden

Program Committee

- Erik Bergström, Jönköping University, Sweden
- Chiara Di Francescomarino, University of Trento, Italy
- Hans-Georg Fill, University of Fribourg, Switzerland
- Jānis Grabis, Riga Technical University, Latvia
- Björn Johansson, Linköping University, Sweden
- Joakim Kävrestad, Jönköping University, Sweden
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- Michael Leyer, University of Marburg, Germany
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- Kurt Sandkuhl, Rostock University, Germany
- Ulf Seigerroth, Jönköping University, Sweden
- Nikolay Shilov, SPC RAS, Russia
- Alexander Smirnov, SPC RAS, Russia
- Janis Stirna, Stockholm University, Sweden
- Wieslaw Wolny, University of Economics Katowice, Poland
- Alfred Zimmermann, Reutlingen University, Germany

Workshop's webpage:

https://www.wirtschaftsinformatik.uni-rostock.de/forschung/veranstaltungen/selbst-organisierte-workshops/bita-2023-1/

Preface: 9th Workshop on Managed Complexity (ManComp)

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Managing Complexity and ManComp as a workshop within the International Conference on Perspectives in Business Informatics Research (BIR) has come to its ninth edition. The topic has a long tradition for algorithms and general problems. However, it is an important issue also in Business Informatics domain.

The workshop focusses on approaches and methods for managing complexity in the domain of applied informatics that may concern the interplay of systems and ecosystems of various sizes and substances. Its purpose is to share and transfer knowledge on complexity identification, representation, controlling and reduction as well as to exploit possible synergies in the development of innovative complexity handling strategies, approaches, and methods.

The goal of the workshop is bringing together researchers and practitioners to discuss theoretical approaches or real-life case studies featuring success and/or failure stories in managing complexity. Purpose of these discussions is to deepen the understanding of strategies, approaches, and methods in managing complexity in enterprise and software and hardware engineering. A cross-pollination of experiences in both domains is assumed.

This year the workshop consists of seven contributions. The first paper by Ksenija Lace and Marite Kirikova "Simplifying road to defining a scientific problem and hypothesis through gamified and storytelling-enhanced teaching of Requirements Engineering" addresses the problem of implementing of gamified learning strategies within a Requirements Engineering course to enhance student readiness for thesis projects.

The second paper, by Shashini Rajaguru, Björn Johansson and Gianluigi Viscusi "Users' Understanding of Smart Meters in Sweden: An interpretive study" delves into the perceptions, barriers, and concerns associated with smart meter usage, focusing on Sweden, where smart meter deployment is mandated by the government.

The third paper, by Aritha Kumarasinghe and Marite Kirikova, "Ontology for Data Science research results reuse" seeks to reduce the associated complexity of data science by proposing an ontology that can be used to represent research project results, based on attributes, that are meant to represent all conceivable aspects of a data science project.

The fourth paper, by Jarkko Nurmi and Ville Seppänen "How does the presentation mode of Enterprise Architecture artifacts affect their use in decision-making?" hypothesizes that the choice of presentation form significantly affects the value and usability of EA artifacts and argues that more research should be devoted to understanding the best ways to communicate and use complex architectural information in decision-making scenarios.

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The fifth paper by Jöran Lindeberg, Martin Henkel and Eric-Oluf Svee “What complex adaptive systems theory means for modelling of organizational rules” discusses how enterprise modelling of organizational rules grounded in CAS theory will have a different focus than if grounded in General Systems Theory.

The sixth paper by Victoria Klyukina “Modelling intangibles using EM: a meta-hierarchical method in strategic resource analysis” proposes a meta-hierarchical modelling method for intangibles, and to apply it in a real case example.

The seventh paper by Peter Forbrig and Anke Dittmar “Managing the complexity of business-process models by personas, stories, and related modelling artifacts” argues for using stories to propagate information. Additionally, the combined usage of modelling artefacts is demonstrated.

ManComp Organization

Program Committee Chairs:

- Marite Kirikova, Riga Technical University, Latvia
- Peter Forbrig, Rostock University, Germany
- Charles Møller, Aalborg University, Denmark

Program Committee:

- Robert Andrei Buchmann, Babeș-Bolyai University of Cluj Napoca, Romania
- Peter Forbrig, Rostock University, Germany
- Janis Grundspenkis, Riga Technical University, Latvia
- Saulius Gudas, Vilnius University, Lithuania
- Igli Hakrama, Metropolitan Tirana University, Albania
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- Audrone Lupeikiene, Vilnus University, Lithuania
- Bartosz Marcinkowski, University of Gdansk, Poland
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- Jacob Nørbjerg, Copenhagen Business School, Denmark
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- Werner Schmidt, University of Applied Sciences Ingolstadt, Germany
- Chris Stary, JKU, Austria
- Janis Stirna, Stockholm University, Sweden
- Jelena Zdravkovic, Stockholm University, Sweden
- Iryna Zolotaryova, Simon Kuznets Kharkiv National University of Economics, Ukraine

Workshop's webpage:

https://wwwswt.informatik.uni-rostock.de/ManComp2024/

Preface: 2nd Workshop on Domain-specific modeling methods and tools - OMiLAB nodes experience & knowledge exchange (OMiLAB-KNOW)

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The OMILAB-KNOW workshop – "OMiLAB Nodes experience & knowledge exchange" on Domain-specific Modeling Methods and Tools - was initiated by members of the OMiLAB community of practice and had the 2nd installment during BIR 2024.

Workshop discussions are stimulated by the ongoing activities and experiences of nodes within the OMiLAB network and community of practice (https://www.omilab.org/network/), drawing from lessons learned in recent projects where modeling methods have played a pivotal role. The typical outcomes from the network members include modeling tools, modeling method components or extensions, model-driven artifacts, application cases for domain-specific modeling, empirical and explorative evaluation strategies. Researchers and educators outside the OMiLAB network who are active in knowledge engineering, enterprise modeling, and domain-specific modeling are also encouraged to contribute to the workshop, particularly those with an interest in the value of conceptual models and the diversity of modeling purposes they can serve. Knowledge exchanges with other modeling-centric communities are thus expected to drive debates reflecting diverse perspectives.

This year we received 10 artifact-centric papers, and each submission was reviewed by 2-4 reviewers. Five papers were accepted as full papers and one as short paper.

The paper "Design and development of an IoT system for audiovisual self-administered tests" authored by Massimo Callisto De Donato, Flavio Corradini, Flavio Fabbrizi, Fabrizio Fornari and Barbara Re, serves the larger Society 5.0 vision with an Internet of Things solution based on Node-RED and low budget devices to support self-administration of certain health tests. The IoT solution deployment is preceded by ideation based on OMiLAB's design thinking installation.

IoT is also tackled as a modeling domain in "AOAME4FloWare: Ontology-based feature models for context-aware configurations in IoT applications" by Arianna Fedeli, Martin Peraic, Emanuele Laurenzi and Andrea Polini. The reported tool extends the AOAME (agile and ontology-aided) modeling environment to accommodate feature models and tailor them for an ontology-assisted contextualization of smart home installations.

AOAME is again used in the paper "An ontology-based meta-modelling approach for software test cases" written by Nehemiah Mung'Au and Emanuele Laurenzi, to support the modeling and semantic traceability of test cases and software testing procedures in a software projects management context.

"Evaluation of the intuitiveness of MIoTA" by Benjamin Nast and Kurt Sandkuhl revisits a previously introduced modeling method for air conditioning facilities and describes an evaluation protocol that was applied for the current iteration of the modeling method and tool, inspired by the SEQUAL quality assessment framework.

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In “A modeling approach to cyber threat mitigation” the authors Andrei Chiș, Ionuț Stoica and Ana-Maria Ghiran introduce an ADOxx-based implementation of a modeling language for cyberthreat mitigation that incorporates concepts from data flow diagrams and the STRIDE methodology and can generate security assessment scores by navigating diagrammatic design decisions.

Data flow diagrams and threat models also play a key role in the short paper “Introducing model-based tool support for applying zero-trust security for microservices at a bank” by Donald Baldwin, Martin Henkel and Erik Perjons. The paper reports on a tool based on a knowledge repository and supporting team communication, for the development of zero-trust system architectures. The main features are overviewed and a bank case study showcases the tool applicability.

We would like to thank all the authors who submitted papers to the workshop as well as the program committee for their informative feedback that helped polish the final versions of the papers. We express our gratitude to the BIR 2024 conference organizers for hosting this event, to the OMiLAB Community for promoting it and contributing with submissions, and of course to OMiLAB NPO for the tooling and technical support that enabled the research shared during the event.

OMILAB-KNOW Organization

Program Committee Chairs:

- Dr. Robert Buchmann, Babeș-Bolyai University, Romania
- Dr. Emanuele Laurenzi, FHNW, Switzerland

Program Committee:

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Workshop's webpage:

https://bir2024-ws.omilab.org/

Preface: Doctoral Consortium

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The Doctoral Consortium, held in conjunction with the 23rd International Conference on Perspectives in Business Informatics Research (BIR 2024), serves as a platform for doctoral students to discuss their Ph.D. research work. The consortium offers participants the opportunity to present their research proposals, engage in discussions with peers and experienced researchers, and receive valuable feedback to improve their research proposals and, consequently, their doctoral theses.

In addition to presenting their work, participants in the Doctoral Consortium can identify research issues related to their interests and exchange knowledge with fellow doctoral students. The proposals submitted to the consortium reflect the current status of each author's Ph.D. project. All submissions were reviewed by senior researchers in business informatics and evaluated based on the following criteria: relevance, originality, appropriate research methodology, research contribution, and clarity. This year, we are pleased to have accepted four contributions for publication. The participating students are from Czechia and Sweden.

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