PoEM 2023 & EDEWC 2023

Companion Proceedings of the 16th IFIP WG 8.1 Working Conference on the Practice of Enterprise Modeling and the 13th Enterprise Design and Engineering Working Conference

Vienna, Austria, November 28 - December 1, 2023

Edited by

Tiago Prince Sales, David Aveiro, Monika M. Mandelburger, Henderik A. Proper, Agnes Koschmider, Petra Maria Asprion, Alessandro Marcelletti, Andrea Morichetta, Bettina Schneider, Geert Poels, Jonas Van Riel, Rodrigo Fernandes Calhau, Vinay Kulkarni, Ruth Breu, Philipp Zech, Souvik Barat, Sérgio Guerreiro, Sybren de Kinderen, Dominik Bork, Mark Mulder, Cristine Griffo

This proceedings volume includes paper from:

PoEM Workshops: BES, DTE, FACETE
Joint PoEM & EDEWC Tools and Demos
Joint PoEM & EDEWC Forum
EDEN Doctoral Consortium

https://conferences.big.tuwien.ac.at/poem2023
https://ede-network.org/edewc/edewc2023/

Preface

PoEM 2022 is the 15th IFIP WG 8.1 working conference on the Practice of Enterprise Modelling. This working conference aims to improve the understanding of the practice of Enterprise Modelling by offering a forum for sharing experiences and knowledge between the academic community and practitioners from industry and the public sector. In the 2022 edition, the special focus was on Enterprise Modeling and Model-based Development and Engineering. PoEM 2022 took place from 23rd to 25th of November. It was organized by Balbir Barn and Kurt Sandkuhl and held as a physical conference at Middlesex University in London, UK.

Following its tradition, PoEM 2022 also offered the possibility to co-locate workshops. We received two workshop proposals which were accepted. The 3rd International Workshop on Blockchain and Enterprise Systems (BES) organized by Petra Maria Asprion, Alessandro Marcelletti, Andrea Morichetta, and Bettina Schneider; and the 1st International Workshop on Digital Twin Engineering organized by Vinay Kulkarni, Ruth Breu, Philipp Zech, and Souvik Barat.

These proceedings are composed of all accepted papers of the two workshop with one additional paper that originated from the Models at Work initiative and which has been presented at PoEM 2022. The 1st International Workshop on Digital Twin Engineering received five submissions out of which five have been accepted. The 4th Workshop on Blockchain and Enterprise Systems (BES) received five submissions out of which four have been accepted. We want to thank all workshop organizers for proposing their workshop and taking care of all the paper management and workshop execution processes involved. These workshops form a interesting and valuable complement to the scientific program of PoEM as they allow for presenting premature and innovative ideas that trigger discussions and might lead to collaborations and, eventually, PoEM papers.

We further want to thank Balbir Barn and Kurt Sandkuhl, the general chairs of PoEM 2022, for the honour and pleasure of organizing the workshops.

PoEM Organization

General Chairs

Henderik A. Proper	TU Wien, Austria
Agnes Koschmider	University of Bayreuth, Germany

Program Committee Chairs

Monika Kaczmarek-Heß	University of Duisburg-Essen, Germany
João Paulo A. Almeida	Federal University of Espírito Santo, Brazil

Workshop Chairs

Tiago Prince Sales	University of Twente, The Netherlands
David Aveiro	University of Madeira, Portugal

Joint PoEM & EDEWC Forum Chairs

Sérgio Guerrero	TU Lisbon, Portugal
Sybren de Kinderen	TU Eindhoven, The Netherlands

Joint PoEM & EDEWC Tools and Demos

Dominik Bork	TU Wien, Austria
Mark Mulder	TEEC2, The Netherlands

Steering Committee

Anne Persson	University of Skövde, Sweden
Janis Stirna	Stockholm University, Sweden
Kurt Sandkuhl	University of Rostock, Germany

EDEWC Organization

Program Chairs

Cristine Griffo	Free University of Bolzano, Italy
Monika M. Mandelburger	TU Wien, Austria
Sérgio Guerreiro	INESC and University of Lisbon, Portugal

Steering Committee

David Aveiro	University of Madeira, Portugal
Henderik Proper	TU Wien, Austria
Mark Mulder	TEEC2, Netherlands

4th International Workshop on Blockchain and Enterprise Systems (BES 2023)

In an interconnected society, there is a growing need for coordination among different organisations, asking for trustable solutions to develop enterprise systems. Enterprise architectures integrate well-defined principle and practice for the analysis, design, planning, and implementation, for the successful development and execution of enterprise systems. To achieve an effective digital transformation, the organizations need to close the gap between business, information, processes and technology necessary to achieve their final strategy. In such a field blockchain technology can bring huge advantages in many sectors, it can guarantee the integrity and immutability of data without relying on a central authority or any particular entity. Thus, blockchain can be considered the enabling technology that guarantees a tamper-proof execution of contractual obligations among the involved organisations. However, for a large adoption of this technology, recent challenges should be addressed, especially for what concerns the support of multiple blockchain platforms and the generation of the related smart contracts, breaking the technological barriers for non-expert users.

In this context, the BES workshop has the ambition to change the way one thinks, designs and implements enterprise systems. From the technical perspective, the workshop can contribute to breaking the technological barriers to the wider use of the blockchain in enterprise systems, proposing novel approaches for the definition of such systems.

The four papers in the proceedings were selected by the program committee after a rigorous and deep reviewing process. Each paper was assigned to at least three members of the program committee. The accepted papers represent five countries in the world and the authors cover different aspects of blockchain and enterprise systems with a particular focus on algorithms, software engineering methodologies, conceptual models, execution, and case studies. We thank the program committee members for the high-quality reviews contributing to the quality of the workshop.

Program Chairs

Petra Maria Asprion	FHNW University of Applied Sciences and Arts Northwestern, Switzerland
Alessandro Marcelletti	University of Camerino, Italy
Andrea Morichetta	University of Camerino, Italy
Bettina Schneider	FHNW Basel, Switzerland

Program Committee

Christian Sturm	University of Bayreuth, Germany
Felix Härer	University of Fribourg, Switzerland
Francesco Tiezzi	University of Florence, Italy
Zina Ben Miled	Purdue School of Engineering & Technology, USA

1st International Workshop on the Foundations and Applications of Capabilities in Enterprises, Transformations, and ESG Initiatives (FACETE 2023)

The International Workshop on the Foundations and Applications of Capabilities in Enterprises, and Transformations and ESG Initiatives (FACETE) seeks to bridge the gap between the theory and practice of capability mapping, a pivotal tool in Enterprise Architecture and transformations. The workshop aims to consolidate divergent perspectives on the scientific foundations of capability mapping, including its ontology, meta-models, and notations, and seeks empirical studies into its practical applications, notably in strategic and digital transformations and ESG initiatives.

The workshop featured two invited presentations. Niels Vandevenne of innocom (Belgium) presented the journal-first paper Green Enterprise Architecture (GREAN)—Leveraging EA for Environmentally Sustainable Digital Transformation, published in Sustainability. Rodrigo Fernandes Calhau (University of Twente) presented the paper Modeling Competences in Enterprise Architecture: From Knowledge, Skills, and Attitudes to Organizational Capabilities, which is currently under review. Further, the workshop included three submitted papers that were reviewed by the members of the program committee. These papers are presented in these workshop proceedings.

As workshop chairs we wish to thank the program committee members, the authors and presenters, and all participants who actively engaged in the workshop discussions.

Program Chairs

Geert Poels	Ghent University, Belgium
Jonas Van Riel	Ghent University, Belgium
Rodrigo Fernandes Calhau	University of Twente, The Netherlands

Program Committee

Alfred Zimmermann	Reutlingen University, Germany
Asif Gill	University of Technology Sydney, Australia
Ben Roelens	Open University, Netherlands
Dominik Bork	TU Wien, Austria
Florian Matthes	Technical University of Munich, Germany
Jānis Grabis	Riga Technical University, Latvia
Jelena Zdravkovic	Stockholm University, Sweden
João Paulo A. Almeida	Federal University of Espirito Santo, Brazil
José Borbinhal	Universidade de Lisboa, Portugal
Maria-Eugenia Iacob	University of Twente, Netherlands
Martin Henkel	Stockholm University, Sweden
Rainer Schmidt	Hochschule München, Germany
Rogier van de Wetering	Open University, Netherlands

2nd International Workshop on Digital Twin Engineering (DTE 2023)

The present collection comprises all approved papers from the 2nd International Workshop on Digital Twin Engineering that was held at PoEM 2023. Out of a total of six submitted papers, four have been selected for oral presentation at the workshop.

We express our gratitude to all program committee members for reviewing workshop submissions and diligently handling all aspects of paper management and related activities. In addition, we would like to express our gratitude to David Aveiro and Tiago Prince Sales, the workshop chairs of PoEM 2023, and in addition to the general chairs of PoEM 2023, for making this workshop possible at the end of the day.

Program Chairs

Philipp Zech	University of Innsbruck, Austria
Vinay Kulkarni	Tata Research, India
Ruth Breu	University of Innsbruck, Austria
Souvik Barat	Tata Research, India

Program Committee

Aditya Paranjape	University College London, UK
Alexandra Jäger	University of Innsbruck, Austria
Clemens Sauerwein	University of Innsbruck, Austria
Deepali Kholkar	Tata Research, India
Georg Fröch	University of Innsbruck, Austria
Luca Davioli	University of Pisa, Italy
Philipp Zech	University of Innsbruck, Austria
Ruth Breu	University of Innsbruck, Austria
Simon Kranzer	Salzburg University of Applied Sciences, Austria
Souvik Barat	Tata Research, India
Suman Roychoudhury	Tata Research, India
Vinay Kulkarni	Tata Research, India

Joint PoEM & EDEWC Forum

The PoEM-EDEWC 2023 Forum continued the tradition of previous forum editions as a platform for discussing new ideas, challenges, methods, practices, and tools relevant to Enterprise Modelling. For the first time the PoEM Forum was organized together with the EDEWC forum. This is a result of organizing the forum during the business informatics 2023 week, with the idea of achieving cross-pollination over multiple related events. In total, we accepted 11 PoEM-EDEWC forum papers. Of these, we received 12 submissions for the PoEM forum of which 5 were accepted, whereas for the EDEWC we received 20 submissions, of which 6 were accepted. Finally, we are grateful to PoEM and EDEWC Program Committees for their reviewing efforts, and the PoEM 2023 organizing committee at TU Wien, Vienna, for their contributions and hard work.

Program Chairs

Sybren de Kinderen	Eindhoven University of Technology, The Netherlands
Sérgio Guerreiro	University of Lisbon, Portugal

Program Committee

Aduard Babkin	Higher School of Economics, Russia
Alessandro Gianola	University of Lisbon, Portugal
Carlos Páscoa	Portuguese Air Force Academy, Portugal
Christian Huemer	TU Wien, Austria
Cristine Griffo	Eurac Research, Italy
David Aveiro	Madeira University, Portugal
Florian Matthes	Technical University Munich, Germany
Geert Poels	Ghent University, Belgium
Giancarlo Guizzardi	University of Twente, The Netherlands
Graham McLeod	McLeod, inspired.org, South Africa
	University of Duisburg-Essen, Germany
Hans Mulder	University of Antwerp, Belgium
Jaap Gordijn	Vrije Universiteit Amsterdam, The Netherlands
Jan Verelst	University of Antwerp, Belgium
Jānis Grabis	Riga Technical University, Latvia
Jelena Zdravkovic	Stockholm University, Sweden
Jolita Ralyté	University of Geneva, Switzerland
Joshua Nwokeji	Gannon University, Pennsylvania, USA
Julio Nardi	Federal Institute of Espírito Santo, Brazil
Junichi Iijima	Tokyo Institute of Technology, Japan
Linda Terlouw	Delft University of Technology, The Netherlands
Maria d. G. S. Teixeira	Federal University of Espírito Santo, Brasil
Martin Op't Land	Capgemini, The Netherlands
	University of Antwerp, Belgium

Maurício Almeida	Federal University of Minas Gerais, Brazil
Miguel Mira da Silva	INESC and University of Lisbon, Portugal
Monika Kaczmarek-Heß	University of Duisburg-Essen, Germany
Petr Kremen	Babylon Health, UK Czech Technical University in Prague, Czech Republic
Robert Pergl	Czech Technical University in Prague, Czech Republic
Simon Hacks	Stockholm University, Sweden
Souvik Barat	Tata Consultancy Services Research, India
Stefan Strecker	University of Hagen, Germany
Stephan Aier	University of St. Gallen, Switzerland
Tatyana Poletaeva	INSA/LITIS, France
Victoria Döller	University of Vienna, Austria
Wilfrid Utz	OMilab, Austria

Joint PoEM & EDEWC Tools and Demos

Modeling tools play a critical role in the practice of enterprise modeling. The tools bring our modeling languages and techniques to life and provide the interface to modelers using our languages and techniques. As such, enterprise modeling research is historically interested in and engaged with the ideation and development of novel tools. Likewise, the tool vendor market is heavily interested in the newest scientific achievements and how to incorporate them into their tooling environments. The aim of this track was thus to bridge the gap between modeling tool research and the practice of enterprise modeling tooling experienced by practitioners and tool vendors. By bringing together the innovation coming from research with the experience from modeling practice on an industrial scale, the modeling tool track aims to foster networking and initiate collaborations.

In total, this track features five modeling tools originating from a primary academic background that also had an acoompanying paper that forms part of these proceedings. One of those five tool papers was submitted to the EDEWC tools track. Each of these submissions has been peer-reviewed by the program committee.

In addition, we are very happy to being able to attract eight industrial tool vendors to present their work. The list of these tool vendors and links to their tools are provided on the corresponding tools and demos webpage of PoEM 2023: https://conferences.big.tuwien.ac.at/poem2023/tool-presentations/.

Program Chairs

Dominik Bork	TU Wien, Austria
Mark Mulder	TEEC2, The Netherlands

Program Committee

Bas Van Gils	Strategy Alliance, The Netherlands
Felix Cammaerts	KU Leuven, Belgium
Felix Härer	University of Fribourg, Switzerland
Gabriel Morais	Université du Québec à Rimouski, Canada
Hans Mulder	Universiteit Antwerpen, Belgium
Ilia Bider	Stockholm University, Sweden Tartu University, Estonia
Iris Mulder	University of Applied Sciences Utrecht, The Netherlands
Istvan David	McMaster University, Canada
Kristina Rosenthal	Niederrhein University of Applied Sciences, Germany
Simon Hacks	Stockholm University, Sweden
Syed Juned Ali	TU Wien, Austria
Tony Clark	Aston University, England

Enterprise Design and Engineering Network Doctoral Consortium

The Enterprise Design and Engineering Network (EDEN) Doctoral Consortium is a workshop for doctoral students whose research is related to the Enterprise Design and Engineering research topics at any stage in their thesis. The goal of the Doctoral Consortium is to help the doctoral students with their thesis by giving feedback on their own research work as well as to give some general advice on making the most of their research environment. The first objective of the EDEN Doctoral Consortium is to encourage doctoral students to write, submit and present papers and to help them to improve the quality of the papers. The second objective is to be a platform for meeting each other as well as for meeting the members of the EE.

There are two doctoral consortium papers included in this proceedings. We are very thankful to the EDEWC program committee members for reviewing these submissions.

Program Chairs

Cristine Griffo	Free University of Bolzano, Italy
Monika M. Mandelburger	TU Wien, Austria
Sérgio Guerreiro	INESC and University of Lisbon, Portugal

Program Committee

Aduard Babkin	Higher School of Economics, Russia
Carlos Páscoa	Portuguese Air Force Academy, Portugal
Christian Huemer	TU Wien, Austria
Florian Matthes	Technical University Munich, Germany
Geert Poels	Ghent University, Belgium
Giancarlo Guizzardi	University of Twente, The Netherlands
Graham McLeod	McLeod, inspired.org, South Africa
	University of Duisburg-Essen, Germany
Hans Mulder	University of Antwerp, Belgium
Jaap Gordijn	Vrije Universiteit Amsterdam, The Netherlands
Jan Verelst	University of Antwerp, Belgium
Julio Nardi	Federal Institute of Espírito Santo, Brazil
Junichi Iijima	Tokyo Institute of Technology, Japan
Linda Terlouw	Delft University of Technology, The Netherlands
Maria d. G. S. Teixeira	Federal University of Espírito Santo, Brasil
Martin Op't Land	Capgemini, The Netherlands
	University of Antwerp, Belgium
Maurício Almeida	Federal University of Minas Gerais, Brazil
Miguel Mira da Silva	INESC and University of Lisbon, Portugal
Monika Kaczmarek-Heß	University of Duisburg-Essen, Germany
Robert Pergl	Czech Technical University in Prague, Czech Republic

Stefan Strecker	University of Hagen, Germany
Petr Kremen	Babylon Health, UK
	Czech Technical University in Prague, Czech Republic
Stephan Aier	University of St. Gallen, Switzerland
Tatyana Poletaeva	INSA/LITIS, France