PoEM Companion 2024

Companion Proceedings of the 17th IFIP WG 8.1 Working Conference on the Practice of Enterprise Modeling Forum, M4S, FACETE, AEM, Tools and Demos co-located with PoEM 2024, Stockholm, Sweden, December 3-5, 2024

Edited by
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This proceedings volume includes papers from:
PoEM 2024 Forum, PoEM 2024 Modeling Tool Presentations, and PoEM 2024 Workshops.

https://poem2024.dsv.su.se/

Preface

PoEM 2024 is the 17th 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 Modeling (EM) by offering a forum for sharing experiences and knowledge between the academic community and practitioners from industry and the public sector. PoEM is closely associated with IFIP WG8.1 Design and Evaluation of Information Systems. In the 2024 edition, the conference theme is dedicated to Industry 5.0. PoEM 2024 took place from 3rd to 5th of December. It was organized by Evangelia Kavakli and Janis Stirna and held as a physical conference at the Department of Computer and Systems Sciences of Stockholm University in Kista, Sweden.

Following its tradition, PoEM 2024 organized several associated events. First, the PoEM 2024 Forum was organized to offer a platform for discussing emerging ideas, challenges, methods, techniques, and tools relevant for Enterprise Modeling. The Forum aims to offer a high level of interactivity between presenters and participants.

Besides, the PoEM 2024 Modeling Tool Presentations aims to bridge the gap between modeling tool research and the practice of enterprise modeling tooling, experienced by practitioners and tool vendors. Within this track, both parties are encouraged to present innovative and/or recently developed modeling tools and tool development platforms.

Finally, PoEM 2024 also offered the possibility to co-locate workshops. The workshop chairs received three workshop proposals, which were accepted:

- The 2nd International Workshop on the Foundations and Applications of Capabilities in Enterprises, and Transformations and ESG Initiatives (FACETE) was organized by Geert Poels and Jonas Van Riel.
- The 1st International Workshop on Models for Simulation (M4S) was organized by Philipp Zech, Michael Vierhauser, Ruth Breu, Hans Vangheluwe, Kurt Sandkuhl, Souvik Barat and Vinay Kulkarni.
- The workshop on Advancing Enterprise Modelling through Digital Transformation, FAIR Data Management, and Blockchain Integration was organized by Markus Helfert, Mansoor Ahmed and Shahid Hussain.

These proceedings are composed of all accepted papers of these associated events.

- The PoEM 2024 Forum received 15 submissions out of which 10 have been accepted. Additionally, 5 peer reviewed papers from the main research track have been accepted to the Forum.
- The PoEM 2024 Modeling Tool Presentations received one academic and one industrial submission, both have been accepted for presentation, the academic submission forms part of these proceedings.
- The 2nd International Workshop on the Foundations and Applications of Capabilities in Enterprises, and Transformations and ESG Initiatives Simulation received four submissions out of which three have been accepted.
- The 1st International Workshop on Models for Simulation received six submissions out of which five were full papers and one was a poster submission. After review, all submissions were accepted and included in these proceedings.
- The workshop on Advancing Enterprise Modelling through Digital Transformation, FAIR Data Management, and Blockchain Integration received four submissions, which have all been accepted.

We extend our gratitude to all the workshop organizers for their efforts in proposing workshops and managing the paper review process. These workshops provide an engaging and valuable addition to PoEM's scientific program by offering a space for presenting early-stage, innovative ideas that spark discussion, inspire collaboration, and may ultimately evolve into PoEM papers. We further want to thank Evangelia Kavakli and Janis Stirna, the general chairs of PoEM 2024, for the honour of organizing the associated events.

Organization

General Chairs

Evangelia Kavakli	University of the Aegean, Greece
Janis Stirna	Stockholm University, Sweden

Program co-chairs

Elda Paja	IT University of Copenhagen, Denmark
Jelena Zdravkovic	Stockholm University, Sweden

PoEM Forum Chairs

Marite Kirikova	Riga Technical University, Latvia
Iris Reinhartz-Berger	University of Haifa, Israel

PoEM Modeling Tool Presentations Chairs

Dominik Bork	TU Wien, Austria
John Krogstie	Norwegian University of Science and Technology, Norway

PoEM Workshop Chairs

Simon Hacks	Stockholm University, Sweden
Ben Roelens	University of Madeira, Portugal

PoEM 2024 Forum

The PoEM 2024 Forum welcomed submissions addressing novel ideas and practical experiences in the arena of enterprise modeling, including foundations of enterprise modeling, enterprise modeling for software development, enterprise modeling languages and ontologies, human factors of enterprise modeling, enterprise engineering, enterprise modeling for resilience and sustainability and empirics of enterprise modeling. Three types of submissions were encouraged: visionary, industry experience and doctoral projects.

These proceedings include the 15 papers accepted for the Forum. The 10 papers were selected by the program committee after a rigorous and deep reviewing process. Each paper was assigned to 3 members of the program committee and discussed by the Forum chairs. The five additional papers were invited to the Forum from the main research track and had already undergone the peer review process of the conference. The accepted papers represent 9 countries and the authors contribute methods and frameworks for enterprise modeling, as well as cover aspects related to security & compliance and . knowledge management & engineering in enterprise modeling. We thank the program committee members for the high-quality reviews contributing to the quality of the Forum.

Program Chairs

Marite Kirikova	Riga Technical University, Latvia
Iris Reinhartz-Berger	University of Haifa, Israel

Program Committee

Souvik Barat	Tata Consultancy Services Research, India
Dominik Bork	TU Wien, Austria
Jānis Grabis	Riga Technical University, Latvia
Simon Hacks	Stockholm University, Sweden
Audrone Lupeikiene	Vilnius University Institute of Mathematics and Informatics, Lithuania
Raimundas Matulevicius	University of Tartu, Estonia
Jarkko Nurmi	University of Jyväskylä, Finland
Robert Pergl	Czech Technical University in Prague, Czechia
Thomas Polacsek	ONERA, France
Jolita Ralyté	University of Geneva, Switzerland
Ben Roelens	Open Universiteit, The Netherlands
Peteris Rudzajs	Riga Technical University, Latvia
Vjeran Strahonja	University of Zagreb, Croatia
Wilfrid Utz	University of Vienna, Austria
Thorsten Weyer	Technische Hochschule Mittelhessen, Germany

PoEM 2024 Modeling Tool Presentations

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 vendors and the market are heavily interested in the newest scientific achievements and how to incorporate them into the tooling environments.

The aim of this event is thus to bridge the gap between modeling tool research and the practice of enterprise modeling tooling, experienced by practitioners and tool vendors. Within this track, we invite both parties to present innovative and/or recently developed modeling tools and tool development platforms. We hope that this event will foster knowledge exchange and initialize fruitful collaboration.

In the scientific realm, tools are often developed by Master's or Ph.D. students who create artifacts as a proof of a hypothesis of their research or to show the feasibility of an innovative idea. In the industrial realm, tool vendors develop, maintain, and extend professional and mature tools, which are used by hundreds of thousands of customers. 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.

The PoEM 2024 Modeling Tool Presentations received 1 academic and 1 industrial submission. The academic submission was accepted after peer review, and the industrial submission was accepted after a relevance check.

Program Chairs

Dominik Bork	TU Wien, Austria
John Krogstie	Norwegian University of Science and Technology, Norway

Program Committee

Robert Buchmann	Babeş-Bolyai University of Cluj Napoca, Romania
Victoria Döller	University of Vienna, Austria

2nd International Workshop on the Foundations and Applications of Capabilities in Enterprises, Transformations, and ESG Initiatives (FACETE 2024)

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 received four submissions, of which three are included in these workshop proceedings after being reviewed by at least three members of the program committee. The accepted papers align well with the purpose and themes of the FACETE workshop. The first paper, "Essential Aspects for Capability Pre-Analysis" by Georgios Koutsopoulos, focuses on the discovery and demarcation of capabilities and makes a significant contribution to the workshop. In many organizations, capabilities are used as foundational building blocks for analysis, yet too little attention is often given to the critical initial steps of effectively identifying them. The second paper, "Definition and Breakdown of Future Viability in Enterprise Architecture – A Structured Literature Review" by Christoph Rosenau and Kurt Sandkuhl, emphasizes the role of business capabilities as essential components in creating modular and adaptable architectures. Using tools like business capability maps, this paper explores how organizations can align IT systems with strategic business goals. It highlights the value of capability-based management, particularly for enhancing future viability through scalability and organizational flexibility. The final paper, "Generating Business Capability Maps Using GenAI: A Case Study" by Jürgen Jung and Pierre Wienke, presents an innovative approach to building capability maps by leveraging GenAI technology. This paper addresses the practical aspects of capability-based management, offering a hands-on perspective on applying emerging technologies to benefit this field.

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

Program Committee

Martin Henkel	Stockholm University, Sweden
Evangelia Kavakli	University of the Aegean, Greece
Georgios Koutsopoulos	Stockholm University, Sweden
Oscar Pastor	Valencia University of Technology, Spain
Ella Roubtsova	Open Universiteit, The Netherlands

1st International Workshop on Models for Simulation (M4S) 2024

Simulation capitalizes on structural, behavioral, and physical models. They embody the fundamental concepts of a system, whereas simulation actualizes those principles in a dynamic setting. The modeling community is facing new issues in terms of authenticity, trustworthiness, and sensitivity of models due to the increasing popularity of digital twins which in turn capitalize on models as one of their fundamental pillars next to the physical twin, and bidirectional data exchange between the physical and virtual world. In socioeconomic systems, additional challenges emerge as some characteristics of these systems are only partially observable by sensors and require innovative ways of modeling. Models and simulations are effective instruments for comprehending, examining, and forecasting the behavior of intricate systems in several fields. To fully maximize these advantages, a thorough reassessment of the fitness of models for simulation is necessary.

Our workshop targets the following objectives:

- Elicit the current state and readiness of system and software models for use in digital twin-based simulation.
- Identify core scenarios and, from these, essential model requirements for digital-twin-based simulation.
- Outline the main areas of study that need to be addressed in the near future to ensure that system and software models are suitable for simulations of cyber-physical and socioeconomic systems and processes based on digital twins.

The 1st International Workshop on Models for Simulation received six submissions out of which five were full papers and one was a poster submission. All submissions were accepted after being reviewed by at least two reviewers. The topical focus of the submissions includes optimizing energy management through digital twins in renewable energy communities, enhancing interoperability between Building Information Modeling (BIM) and simulation tools, and improving network simulation accuracy by incorporating processing delays. Additional discussions focus on the application of digital twins in smart agriculture for monitoring and optimizing crop production processes.

Program Chairs

Philipp Zech	University of Innsbruck, Austria
Michael Vierhauser	University of Innsbruck, Austria
Ruth Breu	University of Innsbruck, Austria
Hans Vangheluwe	University of Antwerp, Belgium
Kurt Sandkuhl	Rostock University, Germany
Souvik Barat	Tata Consultancy Services Research, India
Vinay Kulkarni	Tata Consultancy Services Research, India

Program Committee

Balbir Barn	Middlesex University, United Kingdom
Tony Clark	Aston University, United Kingdom
Istvan David	McMaster University, Canada
Vinay Kulkarni	TCS Research, India
Judith Michael	RWTH Aachen, Germany
Saurabh Mittal	Mitre Cooperation, United States of America
Benjamin Nast	University of Rostock, Germany
Pablo Antonino Olivera	Fraunhofer IESE, Germany
Aditya Paranjape	Monash University, Australia
Karthik Vaidhyanathan	IIIT Hyderabad, India

Workshop on Advancing Enterprise Modelling through Digital Transformation, FAIR Data Management, and Blockchain Integration

This workshop examines cutting-edge methods in enterprise modeling, concentrating on digital transformation, FAIR data management, and blockchain integration. The workshop participants will engage in conversations and activities to improve their knowledge of these essential notions and their applications, such as when to do the best practices of enterprise modeling better with the assisting of novel strategies along with tools like FAIR principles of data management and also with the privacy perspectives of these enterprise applications using blockchains. By exploring the convergence of these issues, this exciting workshop seeks to equip attendees with actionable understanding and processes to push innovation and efficiency in enterprise environments. Join us to delve into the destiny of enterprise modeling and its functional implications for your organization.

Due to the current hype, this workshop aspires to furnish an exhaustive understanding of cutting-edge ideas in enterprise modeling, concentrating on the practical application of digital transformation, FAIR regulations for data management, and blockchain technologies. With these state-of-the-art technologies, the extensive and overarching domain of enterprise modeling could be realized much better for separate companies to see the future of entire modeling with the rapidly disrupting era of constant evaluations. Following the described purposes, with this workshop, we plan to provide attendees with the proficiency and tools to execute these ideas within their organizations, ultimately pushing greater efficiency, translucency, and innovation.

The Workshop on Advancing Enterprise Modeling through Digital Transformation, FAIR Data Management, and Blockchain Integration received four submissions, all of which have been accepted after a thorough review by the program committee. These accepted papers align closely with the workshop's core theme and cover crucial topics such as the impact of blockchain technologies on FAIR data management within digital transformation. The papers also address the development of digital archive maturity through enterprise architecture, the importance of data value and its influence on decision-making through enhanced data frameworks, and the potential of decentralized technologies—like blockchain and interplanetary file systems—to empower data subjects. This last area of focus is particularly relevant in public governance, such as healthcare data management, where empowering individuals to control their data is increasingly emphasized by regulations like the GDPR in Europe.

Program Chairs

Markus Helfert	Maynooth University, Ireland
Mansoor Ahmed	Maynooth University, Ireland
Shahid Hussain	Penn State University Behrend, United States of America

Program Committee

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