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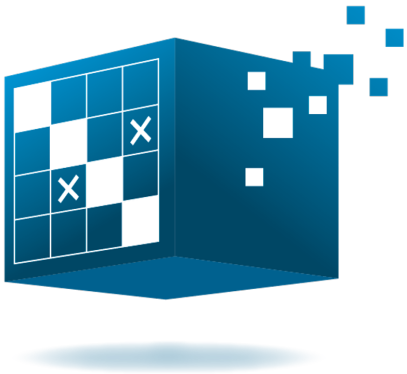

Proceedings of the 27th International Dependency and Structure Modeling (DSM) Conference

- Part 1: Full Papers -

Integrating systems across multiple domains

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Foreword

It is with great pleasure that we welcome you to the **27th International Dependency and Structure Modeling (DSM) Conference – DSM 2025**, taking place at the **Stevens Institute of Technology in Hoboken, New Jersey, USA.**

The setting for this year's conference – on the banks of the Hudson River with breathtaking views of the Manhattan skyline – offers not only an inspiring backdrop for intellectual exchange but also a vibrant space for reconnecting with colleagues and forging new collaborations.
This year also marks the return of the DSM Conference to the United States after five successful years hosted in Europe (2021–2024) and one virtual edition in 2020 due to the COVID-19 pandemic.

As the DSM community continues to grow and evolve, this year's conference brings together researchers, practitioners, and thought leaders from around the world to explore the latest advancements in complexity management, systems thinking, and the use of the Design Structure Matrix across diverse domains. From academia to industry, our shared commitment to solving complex challenges through structured, systems-oriented approaches makes this annual gathering both timely and vital.

The theme for DSM 2025 is "**Integrating Systems Across Multiple Domains**", continuing the direction set in DSM 2024 to broaden the scope of the conference and include all areas of Systems Engineering. This expansion reflects our ambition to foster a more holistic understanding of system integration and complexity across a wide range of disciplines.

Aligned with this theme, we are pleased to announce the support and sponsorship of key partners:

- **INCOSE**, the leading international systems engineering society,
- **Dassault Systèmes**, a global leader in simulation and digital engineering tools, and
- **The Systems Engineering Research Center (SERC)**, a U.S. Department of Defense University Affiliated Research Center.

As in every year, the conference is strongly supported by the **Design Society,** the leading scientific design community, as an endorsed event.
These strong collaboration partners enable us to cultivate stronger ties between research and practice and promote impactful advancements in the field.

For DSM 2025, authors were given the option to submit either **Full Papers**, included in **Part 1 of the Proceedings**, or **Extended Abstracts**, published **in a separate Part 2**. As in past years, all Full Paper submissions underwent a rigorous peer review process, evaluated by at least two members of our esteemed Scientific Committee. As a result, these proceedings offer a robust snapshot of the current state and future directions of Dependency and Complexity Management.

We extend our sincere gratitude to all contributors, reviewers, sponsors, and organizers whose efforts have made DSM 2025 possible. We are confident that this year's conference will provide valuable insights, foster new collaborations, and contribute meaningfully to the ongoing development of our field.

We encourage you to engage fully with the technical program, participate actively in discussions, and take advantage of the many networking opportunities. Whether you are presenting your latest work, exploring new ideas, or attending for the first time, we hope this conference proves to be intellectually rewarding and professionally enriching.

On behalf of the organizing committee, **welcome to DSM 2025**. We look forward to a memorable and inspiring event.
Warm regards,

Ali Yassine, Matthias Kreimeyer & Christopher Langner

Scientific Committee

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All contributions in these proceedings have undergone a rigid review process. We would like to cordially thank all reviewers for their invaluable support.

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