CSIMQ
Complex
Systems
Informatics
and
Modeling
Quarterly

Editorial Introduction to Issue 45 of CSIMQ: Contemporary Challenges in Digital Transformation and Complex Systems Analysis

Rébecca Deneckère[1*] and Martin Henkel[2]

[1]Université Paris 1 Panthéon-Sorbonne, France
[2]Stockholm University, Sweden

denecker@univ-paris1.fr, martinh@dsv.su.se

Complex Systems Informatics and Modeling Quarterly (CSIMQ) continues to serve as a forum for high-quality research at the intersection of informatics, modeling, and the study of complex socio-technical systems. This issue brings together seven contributions that reflect the breadth and depth of current research in these fields. Six articles are extended versions of papers selected from the 24th International Conference on Perspectives in Business Informatics Research (BIR 2025), all articles have been accepted through the journal's standard review process.

We warmly thank the reviewers for their rigorous, constructive evaluations and the CSIMQ editorial team for their support of the preparation of this issue.

The issue opens with two articles that explore advanced modeling and data-driven analysis within complex economic and organizational environments.

The first article, "Battery Storage Optimization on the German Continuous Intraday Market: An Experimental Analysis under Consideration of Price Uncertainties," examines how battery storage systems can be optimized for arbitrage revenues in the presence of price-forecast uncertainty. Using a genetic algorithm, the authors show how storage capacity and market volatility jointly influence profitability, offering insights for energy market stakeholders.

The second contribution, "Discovering Object-Centric Causal Nets with Edge Abstraction," advances the state of the art in object-centric process mining. The authors introduce Object-Centric Causal Nets and an edge-abstraction mechanism designed to reduce model complexity. Their evaluation demonstrates that the simplified models retain expressiveness while improving interpretability – an important step toward practical adoption in real-world analysis.

The next two articles shift the focus toward the digital transformation of public services and the organizational capabilities needed to manage such change.

In "AI Adoption in the Public Sector: Organizational Readiness and the Pursuit of Public Value," the authors explore the conditions shaping AI readiness in Kenya's public sector. Guided by the Technology–Organization–Environment framework and Dynamic Capabilities theory, the

---

[*] Corresponding author

study identifies infrastructural, organizational, cultural, and regulatory factors that influence AI adoption and its potential to create public value.

Complementing this perspective, "Towards the Framework of Active Ownership of a Public E-Service within Transformational Government" reconsiders the governance of public e-services. The proposed framework highlights the need for an accountable, lifecycle-long ownership structure to ensure usability, continuity, and alignment with the principles of transformational government.

The rest three articles address organizational transformation, IS integration challenges, and regulatory compliance in increasingly complex digital ecosystems.

The article "Game-Based Learning Design for Post-Merger Integration Methods: Requirements and Metamodel" proposes an innovative approach to training professionals tasked with IS integration during post-merger contexts. By combining game-based learning, cognitive load principles, and prior PMI-specific decision-support methods, the authors derive requirements and a metamodel to guide the design of engaging and effective learning experiences.

In "Resolving System-Organizational Misfits: Literature Review and a Framework," the authors synthesize twenty years of research on ERP misfit resolution. Through systematic review and thematic analysis, they identify misfit categories, intervention strategies, and theoretical foundations, while stressing the need for more comparative and actionable models that address socio-technical complexity.

The issue concludes with "Toward NIS2 Compliance for Multiple Stakeholders with Security Level Evaluation Framework," which analyzes the implementation of NIS2-related security evaluation activities. By demonstrating how the F4SLE framework can collect and reuse security-related data across multiple stakeholders, the authors provide practical guidance for reducing reporting burdens and achieving harmonized compliance processes.

Together, the articles in this issue reflect the journal's commitment to advancing knowledge on the modelling, governance, and transformation of complex systems. They showcase how researchers combine conceptual rigor, empirical investigation, and methodological innovation to address contemporary challenges in digital transformation, public-sector innovation, organizational alignment, and cybersecurity governance.

We thank all contributing authors for their excellent work and are pleased to present this issue to the CSIMQ community.