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CALL FOR PAPER



Call for Papers, Issue 1/2025

The Future of Systems Development: Managing Technology, Social, and Individual Aspects

Christoph Rosenkranz · Viktoria Stray · Manuel Wiesche

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1 Description of the Special Issue

The last two decades have seen considerable changes in the information technology (IT) landscape. This has been driven by the rise of data-driven machine learning (ML) and artificial intelligence (AI) technologies (Janiesch et al. 2021), the prominence of increasingly digital business strategies (Bharadwaj et al. 2013), which rely on digital innovation in almost any industries (Vial 2021), the changing role of IT in general, where the ubiquity of IT leads to an ontological reversal (Baskerville et al. 2020), and profound changes in the way people in IT and business work together (Urbach et al. 2019). Along with these fundamental changes, we have seen the rise of new solutions, methods, and artifacts, and profound differences in the ways information systems are engineered. For example, agile methods (Conboy 2009) are now the de-facto standard approach for developing systems in industry (VersionOne 2022), and DevOps increasingly transforms how IT departments develop and operate IT or work together with business departments or customers (Peters et al. 2022). With information systems engineering tasks increasingly being data-driven and becoming immersive, customer demands are even more in the focus of research and practice.

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M. Wiesche (🖾) TU Dortmund University, Dortmund, Germany e-mail: manuel.wiesche@tu-dortmund.de This special issue seeks to advance the body of knowledge in information systems engineering toward sociotechnical approaches such as next generation systems development, (post) agile, and DevOps. More precisely, we seek submissions to topics related, but not limited to the following:

1.1 Technological: Advances in Automation Technologies

Various technologies have changed software engineering by automating and augmenting many software engineering tasks. For example, machine learning (ML) has automated tasks such as generating code and bug fixing (GitHub 2022; Mashhadi and Hemmati 2021). In addition, ML is also widely adopted in modern software-based systems, including safety-critical domains such as autonomous cars, medical diagnosis, or drone flight (von Krogh 2018). Similarly, DevOps practices help speed up and automate the process of developing, deploying, and managing applications, such as continuous integration speeding up release updates (Wiedemann et al. 2020). These developments affect information systems engineering topics such as:

- Changing focus from project to product perspective.
- Developing adequate success measures and performance metrics.
- Effects of automation on software engineering task and task distribution.
- Novel ways to address innovation in systems development projects.
- Managing projects and products with high degree of automated elements.

- Changing and new forms of organizing IT work such as outsourcing, freelancing, consulting.
- ...

1.2 Social: Democratizing Software Engineering

While modern software engineering concepts such as agile, DevOps, and lean have integrated users more into the software engineering processes, the fusion of IT and business departments into autonomous product teams and the increasing importance of low-code and no code platforms have led to the emergence of new software engineering ecosystems (Bock and Frank 2021; Karl et al. 2020; Maruping and Matook 2020). As a result, a plethora of different approaches compete for any given scenario, shaping the landscape of software engineering with even more available options. For example, low-code platforms such as Mendix are now a viable option for allowing business users to develop software on their own, with minimal technical skill and without the apparent need for IT departments or developers (Frank et al. 2021). MLbased tools such as ChatGPT already demonstrate the ability to build program code based on pure textual descriptions (no-code). At the same time, this raises questions related to scalability, reliability, and technical debt of the solution as well as ethical or legal issues. These developments affect information systems engineering topics such as:

- Implications of model-driven and low/no-code development for managing IT functions.
- Changing and novel information systems engineering roles;
- New information systems engineering trade-offs emerging (performance vs. quality vs. reliability).
- New forms of organizing information systems development beyond agile, hybrid, and waterfall.
- Implications for planning, architecture, and governance.
- Implications for education, training, and teaching information systems engineering.
- ...
- 1.3 Individual: Human Factors in Information Systems Engineering

Although automation, artificial intelligence, and machine learning are increasingly important, at the same time the human factor plays an ever more central role in information systems engineering. For example, it is of paramount importance that the right people with the right skills are selected to work in self-organizing product teams, capable of making autonomous decisions related to all business and technical aspects for their product (Tyler et al. 2019). Intraand inter-team coordination in autonomous teams is a challenge, especially in large-scale agile settings (Berntzen et al. 2022). Further, retaining top IT talent is one of the enduring challenges in research and practice (Wiesche et al. 2019). Changing work conditions including shifting work-life priorities, external shocks as the COVID pandemic have severe consequences for individual working in software engineering. These developments affect information systems engineering topics such as:

- Motivation, work-life balance, satisfaction, and retention of software engineers.
- Skills, competencies, knowledge, and job design.
- Project and program management.
- Changes in labor market structures, demands, and career paths.
- Teamwork in agile autonomous teams.
- Coordination in large-scale agile.
- Management/leadership and collaboration in a hybrid work setting.
- ...

This special issue is intended to provide practitioners and researchers with a venue to present insights, innovations, and solutions in information systems engineering. We welcome both behavioral and design-oriented work but submitted papers must have a strong empirical basis/component to be eligible for this special issue. BISE provides a forum for information systems engineering research with a strong empirical component and a venue for publishing empirical results relevant to both researchers and practitioners. In addition to the open call for papers, authors of conference papers are encouraged to submit extended versions of their work. To comply with the goals of a journal publication, we are asking to revise and substantially extend the original conference papers. Some possible extensions can be adding additional data gathered through case studies or experiments, additional empirical validation, systematic comparisons with other approaches, or a sound theoretical foundation. Revised papers should explicitly explain how they extend the original conference papers.

2 Submission of Papers

Any form of rigorous theoretical contribution (conceptual, empirical, or design-oriented) using any scholarly method is welcome. Papers must address the core theme of nextgeneration information systems engineering, and potential topics include, but are not limited to, the ones outlined above. Please submit papers by 2 January 2024 at the latest via the journal's online submission system (http://www.editor ialmanager.com/buis/). Please observe the instructions regarding the format and size of contributions. Papers should adhere to the general BISE author guidelines (https://www.bise-journal.com/author_guidelines).

All papers will be reviewed anonymously (double-blind process) by at least two referees regarding relevance, originality, and research quality. In addition to the editors of the journal, including those of this special focus, distinguished international scholars will be involved in the review process.

3 Schedule

Submission Deadline: 2 January 2024 Author Notification 1: 15 April 2024 Completion Revision 1: 1 August 2024 Author Notification 2: 15 September 2024 Completion Revision 2: 15 October 2024 Online publication: ASAP Publication Date: February 2025

4 Editors

4.1 Special Issue Editors

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- Viktoria Stray, University of Oslo
- Manuel Wiesche, TU Dortmund University

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