

Information Systems for Useful Innovation in Enterprises. Editorial Introduction to Issue 37 of CSIMQ

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This issue increases awareness of the adequacy and urgency of relying on methodologies, techniques, and best practices from the Information Systems (IS) discipline to foster useful innovation in enterprises.

Innovation is essential for the economic and societal growth of nations, it creates new jobs, new business models, and new revenue streams as well as allows for the resolution of ever-evolving human needs. Enterprises that aim to thrive in the market must allocate resources and time to innovate besides the usual productivity focus. Innovating, however, is a very challenging task because it requires a high level of knowledge and creativity. These two are highly dependent on each other. As Bloom's taxonomy [1] indicates, creativity is the production of new or original work, which can be achieved after one's ability to remember, understand, apply, analyze, and evaluate knowledge. Hence, creativity leverages applied knowledge. Within this context, approaches of Knowledge Management (KM) [2] are increasingly valid for adequate support of decision-making for innovation directions.

Digital transformation (DT) is the process of adoption and use of digital technologies by an enterprise [3] and sets the scenes for innovation. For example, shifting from an on-premise to a Cloud solution allows for a higher reach and scale therefore new potential revenue streams arise until the possibility of disrupting traditional business models. Best practices in innovation processes like applied Design Thinking [4] suggest that the creation of innovative solutions shall start from doing research on human desirability, followed by economic viability and technological feasibility.

Further, to be useful for enterprises, innovation solutions should be incorporated into well-established company realities, which is a grand challenge nowadays. In fact, innovation solutions shall be aligned with the management and operational aspects of an enterprise. Management aspects revert to the vision, strategy, and culture of an enterprise (from corporate to single business units) whereas operational aspects may comprise compliance with policies and regulations, risk management, data privacy, vulnerabilities, and related security management issues.

Methodological approaches are essential to tackle such a grand challenge. The Information Systems (IS) discipline, although young, is continuously involved in building its research knowledge base [5], which is also relevant in practice. As such, it positions at the forefront for the creation of useful innovation for enterprises, which is the main topic of this issue of CSIMQ.

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The first article, titled “What Drives Innovation Activities in German SMEs in the Service and Production Sector? An Integration of Theoretical and Empirical Findings”, delves into the examination of potentials, challenges, and success factors of innovation activities in German small and medium-sized enterprises (SMEs), particularly in the service and production sectors. The scope of the study is motivated by the opportunities that lie in the adoption of innovation for SMEs, with the latter being the central pillar of the German market economy. A mix of qualitative and quantitative research methods were followed, where findings from the literature have been supplemented with findings from a questionnaire to SMEs and interviews with experts. The results of this research show that SMEs, in their innovation activities, face different challenges and success factors, depending on the sector they belong to. The study also highlights the significance of knowledge management as an essential instrument for companies’ innovative capacity.

The second article, titled “Determining Critical Success Factors of the Digital Transformation Using a Force-Directed Network Graph”, is devoted to the understanding of successfully planning digital transformation projects in companies, which is a current challenge for the success of the projects. For this, the relevant literature is analyzed qualitatively and quantitatively through a force-directed network graph. Findings point to the most critical success factors being related to the business change rather than to introducing technology. The force-directed network graph method is used to enhance transparency and comprehension of the categorization of factors, revealing the complexity and interrelationships of digital transformation’s critical success factors.

The third article, titled “Information Security Management in Small Public Sector Organizations: Requirements and Design of a Procedural Approach”, shifts the focus on information security management as a consequence of the digitalization phenomenon, which led to an increased exposure of small public sector organizations to cyber-attacks. Through a Design Science Research strategy, the article proposes a conceptual design and procedural model that supports the implementation of requirements of the Network and Information Systems Directive 2 (NIS-2) in local governments. The NIS-2 is a European directive that aims to improve cybersecurity in critical infrastructures and digital services. Findings from the analysis of NIS-2 and the relevant literature are compiled in a list of requirements for the conceptual design of an artifact.

The fourth article, titled “Integrating Models of Observing and Observed Activities Based on an Example of Empirical Research in Information Systems Discipline”, is focused on demonstrating the usefulness of a conceptual modeling approach for the explicit integration of both the observer activities and observed activities in the context of empirical research. The Fractal Enterprise Model (FEM) is chosen for the conceptual modeling, and a concrete Design Science research project is considered for a proof of concept. Findings take the form of a pattern of practice for empirical works, which can support the planning and soundness evaluation of a research project in the Information Systems (IS) discipline.

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