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Selected Topics on Business Informatics: Editorial Introduction to Issue 31 of CSIMQ

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This thematic issue introduces two structured literature review articles as well as a couple of empirical ones. The authors of the literature reviews move into the broad field of assuring the quality of IT artifacts, focusing on different dimensions of the software engineering process. The quality of the artifacts used in the development of an IT product – from system requirements, through patterns and models, to the target source code – is likely to be the deciding factor in the success or failure of an IT solution in contemporary, highly competitive IT market [1]. Vance, Elie-Dit-Cosaque, and Straub reported back in 2008 that a wide range of quality constructs has had a substantial influence on end users' trust in IT artifacts [2].

With the ever-increasing scale of computerization in more and more areas of life, insufficient emphasis on quality is not only associated with significant costs of bug-fixing. After all, considerable risks arise from the possibility of exploiting the vulnerabilities of the target product. In extreme cases, poor quality can lead to loss of health and life. Not surprisingly, academics and practitioners alike have been looking at this challenge for many years, and from numerous perspectives. It is important to note that software quality is a shared consideration for both Software Engineering and Management Information Systems communities, which can offer complementary views of the phenomenon [3].

Thus, Hermann, Tenbergen, and Daun conduct an extensive analysis of the comprehension quality of conceptual visual models used across the software engineering process. Their investigation of the state-of-the-art regarding factors that impact model comprehension is fueled by 566 contributions sourced from ACM, IEEE, SpringerLink, ScienceDirect, and Google Scholar databases, 109 of which are included in the final analysis. By outlining a set of various metrics used to measure model comprehension, the authors provide assistance to modeling practitioners in matching existing guidelines for their specific considerations.

Staegemann, Volk, Perera, Haertel, Pohl, Daase, and Turowski, on the other hand, focus on the problems of the testing process, analyzing barriers and challenges in applying the concept of Test-Driven Development (TDD). TDD denotes a software development practice where planning and implementing segments of test code come before writing production code itself [4]. The authors put the Scopus database to work, coming up initially with 262 contributions, 57 of which were found potentially relevant, and a final set of 10 papers that supported the research question were

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scrutinized. Based on their analysis, the authors highlight:

- the lack of general testing knowledge, experience, and competence among developers committed to working in a TDD regime;
- the still unadulterated divergence between university curricula in Computer Science and industry needs;
- no prior exposure of team members to TDD; and resulting
- significant overhead required to get familiar with TDD-specific processes and procedures;
- difficulties with switching mindsets build around practices typically associated with test last development – in particular, concerns about possible additional work and the need to manage the test database;
- inconviction regarding the method among managers;
- inadequate developer's toolset;
- fragmentary or non-existent system design.

Robl and Bork approach the problem of Enterprise Architecture Management (EAM) university teaching. They dive into courses, modules, certification & Master's programs run by 22 universities from several countries to identify similarities and differences in the way EAM is taught between Computer Science and Business Informatics. Based on the feedback of 11 scholars, the authors scrutinize frameworks included in the curricula, compare characteristics of course descriptions, and analyze recommended literature. Ultimately, they propose a prototype EAM course that could be taken advantage of by educational entities that are yet to offer EAM-related content.

Last but not least, Axelsen, Jensen, and Ross address the concern of assessing when a Blockchain-based Decentralized Autonomous Organization (DAO) is sufficiently decentralized. Based on eight semi-structured interviews with domain experts, the authors come up with a definition of "sufficient decentralization" and deliver an IT-focused conceptual artifact engineered to evaluate the level of decentralization in a given DAO over a number of dimensions. The findings are extrapolated into five general propositions regarding the effects that decentralization has on the oversight of the crypto-based regulated financial activity.

References

[1] J. Tian, "Quality-Evaluation Models and Measurements," *IEEE Softw.*, vol. 21, no. 1, pp. 84–91, 2004. Available: https://doi.org/10.1109/MS.2004.1293078

[2] A. Vance, C. Elie-Dit-Cosaque and D. W Straub, D. W., "Examining Trust in Information Technology Artifacts: The Effects of System Quality and Culture," *J. Manage. Inform. Syst.*, vol. 24, no. 4, pp. 73–100, 2008. Available: https://doi.org/10.2753/mis0742-1222240403

[3] D. Russo, P. Ciancarini, T. Falasconi and M. Tomasi, "A Meta-Model for Information Systems Quality," *ACM Trans. Manag. Inf. Syst.*, vol. 9, no. 3, pp. 1–38, 2018. Available: https://doi.org/10.1145/3230713

[4] S. Mäkinen and J. Münch, "Effects of Test-Driven Development: A Comparative Analysis of Empirical Studies," *Lect. Notes Bus. Inf. Process.*, vol. 166, pp. 155–169, 2014. Available: https://doi.org/10.1007/978-3-319-03602-1_10