

12-12-2022

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Recommended Citation

Plachkinova, Miloslava and Vo, Ace, "Evaluation of Design Science Research Artifacts: A Systematic Literature Review" (2022). *ICIS 2022 TREOs*. 21.
https://aisel.aisnet.org/treos_icis2022/21

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Evaluation of Design Science Research Artifacts

A Systematic Literature Review

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Design Science Research (DSR) in information systems (IS) emerged as a new methodological approach about 20 years ago (Hevner et al., 2004). It is centered around designing, building, and evaluating artifacts, such as design theories, theoretical frameworks, algorithms, constructs, models, methods, and instantiations. (Weigand et al., 2020). While the proliferation of these different types of artifacts allowed us to extend current knowledge and add more relevance to the IS field, it also brought many challenges related to complexity and diversity, making it more difficult to establish reliable evaluation practices and techniques. DSR studies are often scrutinized by reviewers, and rightfully so, in spite of some established assessment guidelines (Peffer et al., 2012; Venable et al., 2012); authors also still struggle to showcase the validity and effectiveness of their work. In one study on taxonomy evaluation, Szopinski et al. (2019) pointed out that only a small number of all DSR artifacts underwent an evaluation stage, and even then, the typical methods included predominantly illustrative scenarios with real-world objects and/or research about them, rather than actual implementations.

Our goal is to conduct a systematic literature review to highlight prominence techniques and pitfalls when evaluating DSR artifacts. We plan to organize existing knowledge and highlight strategies for success. Such a study can assist scholars to articulate the impact of their work more clearly and to promote their efforts in conducting rigorous and novel IS research. To that end, we will review scholarly manuscripts published in the past 10 years and identify patterns and trends when it comes to DSR artifact evaluation. We will make recommendations on the efficacy of the evaluation techniques and how they were carried out in research.

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