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Titel des Beitrags: Maintenance effort estimation with KAMP4aPS for cross-disciplinary automated PLC-based Production Systems - a collaborative approach

Abstract: Automated production systems (aPSs) are often in operation for several decades. Due to a multiplicity of reasons, these assets have to be maintained and modified over the time multiple times and with respect to multiple engineering domains. An increased economic pressure demands to perform these tasks in an optimized way. Therefore, it is necessary to estimate change effects with respect to interdisciplinary interdependencies, required surrounding non-functional tasks and the effort and costs included in each step. This paper outlines available cost estimation methods for PLC-based automation and Information Systems. We introduce KAMP4aPS, an approach to enhance a software-focused approach for information systems, to estimate the necessary maintenance tasks to be performed and its related cost for automation and mechanic hardware too. KAMP requires a metamodel to derive these tasks automatically. Unfortunately, a domain spanning metamodel is missing for aPS. Hence, we need to develop a part of the metamodel derived from an AutomationML description for the chosen demonstrator at first. Finally, we apply and compare different estimation methods and KAMP4aPS to analyze the exchange of a fieldbus system as exemplary change scenario on a lab size plant to demonstrate the benefits of our disciplinespanning approach.