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Themengebiet	Innovation in Products, Processes and Materials - Industrial Technologies

End2End PLM Implementation

System matrix and Digital Twin

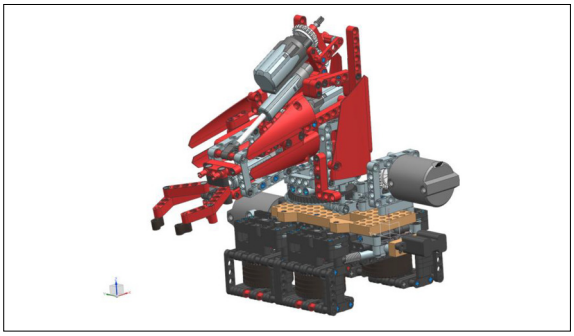

Figure 1: Sortic Lego Robot

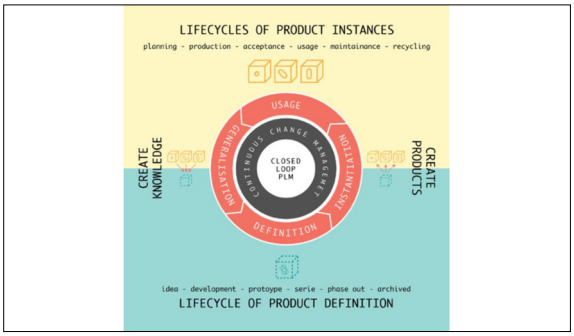

Figure 2: Closed Loop PLM (Nyffenegger, 2017)

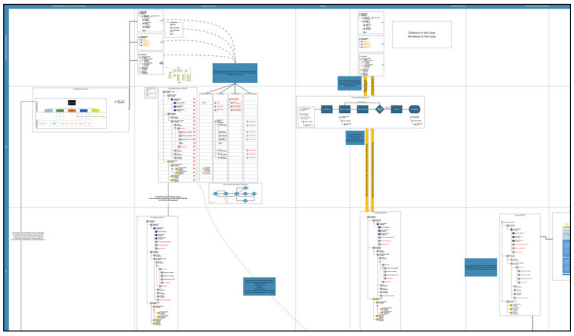

Figure 3: Systemmatrix End2End

Problemstellung: The HSR – University of Applied Sciences Rapperswil – is trying to bring the practice closer to their students. They want to combine the theoretical world with the physical. Therefore, they started a project called Sortic. Sortic is a fictitious company which produces sorting machines for the industry. They have built it with Lego to keep the complexity low and make it simple to understand. Their goal is to bring down every single process which relates to the company concerns. From the product idea to the after sales & services, every aspect should be covered. So far, all the tools are implemented but the overview and a clear data strategy are missing.

Ziel der Arbeit: The goal of this paper was to make an End2End Implementation of a product lifecycle management (PLM) description of the Sortic company by creating a system matrix. Also, all resulting gaps from Sortic should be described. Additionally, a so-called “Digital Twin” concept and an implementation of a Digital Twin database is supposed to be created regarding the development process of a Sortic.

Fazit: Even if the complexity is trying to be broken down by the Lego-based machine, the system matrix stays complex. In a real-world application, the complexity will be even bigger. The paper also shows that the complexity will result in several issues and concerns. The gaps, which occurred, can be the foundation of new projects, theses and papers.
The Digital Twin model will be the future of mechatronic system producing companies. Thereby, especially the pairing activity between the real and the virtual world will be the key to the success of a Digital Twin. Additionally, it can be said that out of a well-designed Digital Twin database several value-adding applications can be generated throughout a product lifecycle of a product.