Success Story
COMET

SCCH
Software Competence Center Hagenberg
Programme: COMET – Competence Centers for Excellent Technologies
Programme line: K1-Centres
COMET subproject, duration and type of project:
moFOCS, 01/2015 – 12/2018, multi-firm

Analysis of the core

In the realm of the project moFOCS, funded by the Austrian Research Promotion Agency, Software Competence Center Hagenberg (SCCH) teamed with Siemens Aktiengesellschaft Österreich – Transformers to optimize the production of transformer cores.

Optimizing transformer cores

The core of an industrial transformer consists of individual sheet metal layers intersected by sheet metal coils. The quality of the initial materials (transformer laminates) influences the quality of the final product with respect to dissipation losses and noise generation. The challenge was how to meet customer requirements while optimizing production costs. For example, sheet metal needs to be purchased as economically as possible and cut with minimum scrap. Primary success factors for the project were the integration of the attributes of raw material data from suppliers, the interaction of all stakeholders, and the successful development of reliable models for sheet metal cutting optimization and for prognosis of relevant attributes of a manufactured transformer. The experts in production planning and engineering collaborated on the project. SCCH served as partner for modelling, data analysis and optimization.

Predicting the quality

SCCH's learning model examines which factors influence product quality. The model enables optimization of material selection. After production the transformer is measured and compared to predictions. The model is adapted based on the measurements. The advantage is that the model is flexible and reacts, e.g., to changes and cancelations. This supports decisions in acquisition and order planning.

Fig. 1: Researcher focused on the question: How to optimize the production of transformers? (Image source Siemens Aktiengesellschaft Österreich)

Impact and effects

Significant aspects of a Smart Factory include flexibility and resource efficiency, represented in this project by the adaptation of the prognosis model and by cutting optimization of the sheet metal. In addition to scrap minimization and prediction of attributes such as dissipation losses and noise generation, optimization encompasses setup time minimization on machines, which in turn contributes to reducing feasible lot sizes.

Contact and information
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