

DesignChain: Automated Design of Products Featuring a Large Number of Variants

Authors : Lars Rödel, Jonas Krebs, Gregor Müller

Abstract : The growing price pressure due to the increasing number of global suppliers, the growing individualization of products and ever-shorter delivery times are upcoming challenges in the industry. In this context, Mass Personalization stands for the individualized production of customer products in batch size 1 at the price of standardized products. The possibilities of digitalization and automation of technical order processing open up the opportunity for companies to significantly reduce their cost of complexity and lead times and thus enhance their competitiveness. Many companies already use a range of CAx tools and configuration solutions today. Often, the expert knowledge of employees is hidden in "knowledge silos" and is rarely networked across processes. DesignChain describes the automated digital process from the recording of individual customer requirements, through design and technical preparation, to production. Configurators offer the possibility of mapping variant-rich products within the Design Chain. This transformation of customer requirements into product features makes it possible to generate even complex CAD models, such as those for large-scale plants, on a rule-based basis. With the aid of an automated CAx chain, production-relevant documents are thus transferred digitally to production. This process, which can be fully automated, allows variants to always be generated on the basis of current version statuses.

Keywords : automation, design, CAD, CAx

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