

# Die Konfigurations- & Verträglichkeitsmatrix als Beitrag zum Management von Konfigurationswissen in KMU

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## Abstract

This thesis deals with the challenge of managing configuration knowledge in Small and Medium Sized Enterprises (SME). Configuration knowledge is the knowledge necessary to configure a variant product according to the customer needs and the technical restrictions. Especially in SME, configuration knowledge is often not managed in an effective manner, mainly because existing approaches don't take into account the special situation in SME.

This work analyses the current situation in SME, identifies needs to improve it and sets up requirements for methods and tools. Existing approaches are described and evaluated with respect to these requirements. Based on this evaluation, the need for a new approach is identified and such an approach is developed.

This approach - called „K- & V-Matrix“ - is based on three matrices and allows to describe structured configuration knowledge in a simple but effective way. It is explained in detail referring to a bicycle as a simple example. The requirements set up in the beginning are verified with emphasis on the integration in the engineering design process. Limits and disadvantages of the K- & V-Matrix are discussed as well.

In order to support the K- & V-Matrix as a method, the K- & V-Matrix-System has been developed. It consists of a data model, an editing tool and a query tool. Since the K- & V-Matrix can only deal with structured configuration knowledge, it has been complemented with a software to manage unstructured configuration knowledge. The integration between this software and the K- & V-Matrix is explained in detail.

Finally, the approach presented in this thesis is verified in an SME environment and suggestions for further research are made.