Structural awareness in complex product design – The Multiple-Domain Matrix

Complexity in product development represents a challenge that can be outlined by the following statements: In spite of well-known approaches on avoiding, reducing, and controlling complexity in product development, a steady increase of complexity can be assumed for the past and predicted for the future. Structures that result from the connectivity of elements represent an important tool for accessing complexity in product development. And if complexity can be controlled, it does not necessarily imply negative aspects but can provide competitive advantages in product development.

Concerning the management of complexity in product development this paper introduces an approach that focuses on the constellations formed by existing linkages in objects. This provides far-reaching possibilities for analysis, control, and optimization of complex products and services in a holistic context, while the amount of data remains manageable.

Stichworte: MDM; multiple-domain-matrix; graph theory

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