In many enterprises the development of mechatronic systems rigidly follows the functional structure of former products. Often, such a historically formed structure has its equivalent even in the organisational structure of the enterprise. The authors studies within the car industry showed that the close adaptation of development processes to an existing conceptual design of a product, is the main reason why the integrative power of mechatronic engineering cannot be brought to bear. The proposed paper discusses the different possibilities for overcoming the described technological lock-ins. The analysis shows that under the circumstances of mechatronic system design, the search for solutions with the help of scientific effects is especially useful in breaking down fossilised conceptual designs. Applying this method during the conceptual design of a new product will force the members of a design team, coming from different departments of an enterprise, into an interdisciplinary co-operation really deserving of its name. To support the search for solutions with the help of scientific effects, the authors present a computer tool consisting of an effects database structured by a flexible file manager. The system allows...
the search for scientific effects from several (also user-defined) points of view. The effects within the database are set down as calculation sheets, which can be used to determine the properties of a possible solution at a very early stage of the design process.

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