Abstract:

A linkage between a product's structural complexity and its costs cannot be denied – even if it is not measurable. This contribution presents an approach developed to analyze and measure the correlation between the structural assembly of mechatronic products and the composition of their development and production costs. Empirical findings will be deduced from the results of a study conducted with German companies. The goal of the study is to identify basic cost-drivers of multidisciplinary products. On that basis, guidelines for cost-efficient design – as they are well-known for mechanical design – should be deduced for mechatronic product design. The approach does not focus on specific component features but on the overall structural assembly of the product – for example the networking of physical principles, algorithms, circuits and control units. By the means of DSM analyses these structures are searched for characteristic criteria which are expected to correlate with certain characteristics of the cost structure. The procedure of the analysis and first findings about the correlation of structural criteria in the product structure and the cost structure are presented. On this basis statements for cost-efficient
design of mechatronic products can be developed.