

# Functional Value of TRIZ Components - Universal Concept and Direct Implications

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**Abstract.** In TRIZ, explicit Value Analysis methods based on Function Analysis crucially depend on the functional value of a component as a measure for its functionality. In this work a meaningful, universal concept for the functional value of components - or systems, respectively - is derived from scratch by exploiting the requirement of invariance under valid component operations. As a key result, functionality is generally de-termined by net functional contribution and not necessarily by absolute functional performance. This is in clear contradiction to the empirical ap-proaches used in standard Value Analysis in TRIZ sofar, and therefore provides an essential part for more advanced Value Analysis frameworks such as VA++. The derived concept allows to achieve deeper insights and correct, consistent results. Some of the most important implications for both theory and practical application are explained and demonstrated in detail.

**Keywords:** TRIZ · Value Analysis · Functionality · Ideality · Function Analysis · Functional Value · Trimming · VA++ · Systematic Innovation.