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Position Statement

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The current SAP R/3 system supports configuration of products as part of the integrated logistics processes leading from sales order creation to manufacturing and/or purchasing. This functionality was introduced in several stages:

• in the 2.1 release a classification system was introduced that allowed to define classes and attributes (characteristics in the SAP terminology). Descriptions (master data) for products, materials, and other objects that are classically stored in a table in a relational database can be classified to inherit characteristics, value ranges, and defaults from the classes. This classification system is conceptually fairly complete in the object-oriented sense (it provides multiple inheritance, for instance) and serves as the backbone for modeling a knowledge base for configuration.

• in the 2.2 release it was possible to interactively specify values for a set of characteristics in the sales order for a variant product, e.g. a PC or a piece of furniture. It was possible to model dependencies that ensured the consistency and completeness of the given values, as well as performed necessary inferences. Subsequent explosion of the bill of materials or the generation of routings was based on this given set of characteristic values. Pricing and availability to promise could also be derived based on these values.

• in the 3.0 release "constraints" were introduced as a purely declarative form of dependency. At the same time configuration capabilities were expanded to allow multi-level interactive specification of characteristics (the decompositional hierarchy (part-of) being represented by classical "bill of materials").

• currently we are working on enhancements to the configurator and the modeling environment to allow getting away from the strictly "bill of material"-oriented approach to a more functional approach that also allows balancing resources and modeling other types of relations. This work is being carried out with heavy involvement of SAP customers on the requirements side.

Rather than just "plug" the SAP configurator as a product, I would like to relate experiences we have had in dealing with widely differing requirements, relate some of the technology we have employed (among others: a production rule system, a truth maintenance system) and the lessons we learned, as well a dwell on the challenges of integration of business processes.