SIEMENS

Ingenuity for life

Teamcenter Product Configurator

Managing increased product variability complexity

Benefits

- Bring product variability management up front in the product definition and design process to maximize re-use and commonality while reducing engineering effort

- Deliver full visibility of the variance of a product suite, enabling each discipline to manage areas of configuration unique to their domains within a common framework

- Manage all aspects of configuration under an integrated change management solution

- Enable the digital twin using a common variability thread for highly complex products, with sophisticated impact analysis across the product suite

Summary

Engineering complexity explodes as products become more complex, product cycle times become shorter, markets and manufacturing go global and customers demand more choices and customization.

Companies need a solution that enables them to manage this complexity, from product inception through manufacturing, in a simple way that enables re-use and commonality and eliminates engineering cycles on products that will never be offered on the market.

Teamcenter Product Configurator has been designed to address these needs through a variability backbone across the Siemens Digital Industries Software portfolio, providing a single, consistent definition of product features, rules and

product content across a company's entire product definition and execution process.

Managing complexity

Product variability permits companies to offer good, better, best products to meet market needs at price points and feature levels that customers want, providing greater return on product development investments.

Complexity is a byproduct of increased product variability. Product complexity is growing exponentially due to market demands, technical complexity, corporate strategy, product/process variety, consumer demand, financial constraints and competitive pressure.

Product configurators play a vital role for managing this product complexity. With features allocated to products, and rules to govern their compatibility with each other, companies develop, maintain and grow product variants efficiently.
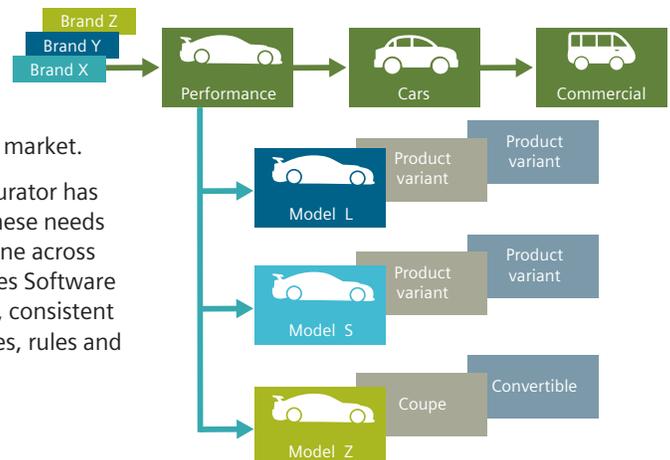
Teamcenter Product Configurator

Features

- Intuitive, grid-based user experience delivers real-time feedback to validate and resolve any conflicts within the conditions created against the content

- Coordination of change across planning, system engineering, BOM, design, manufacturing and after-sales with comprehensive impact analysis to support product decisions and quality

- Architecture breakdowns for feature organization and to guide product development

- Product suite breakdown including product lines and market-offered product models

- Controlled feature sharing across the product suite including variability scoping and feature availability

- Standard rules to govern feature compatibility within products

- Features, product lines and rules as extensible business objects

- Effectivity and comprehensive change management with impact analysis

- Guided and manual user experiences including those for engineering configuration and impact analysis

- 3D product variant visualization

- Leverage common or mapped architecture to apply the common variability backbone for multiple domains of product data across requirements, system/logical definition, CAD, CAE, BOM and manufacturing consumption

- Intuitive grid-based user interaction and understanding without writing complex rule code

- Produce an accurate digital twin for any product variant on demand
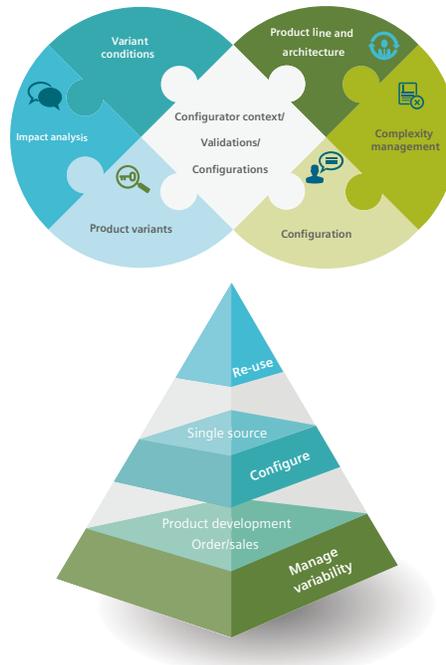
Product Configurator explained

With Teamcenter Product Configurator, the variability definition is separated from the content definition, allowing the autonomy needed for configuration experts and content engineers to work semi-independently but still maintain a tight link where the two domains come together. Features defined in the configurator can be used to define variant content such as Bills of Material (BOMs) and CAD designs.

The separation additionally ensures that variability and rule definitions can be applied to multiple structures and across multiple domains such as requirement and system definitions, design, engineering, manufacturing and service.

A dictionary within the configurator provides a single, global definition of each product feature, and is used to define clear ownership and control. Based on market requirements, product planners add and manage features in the corporate dictionary and control the release and consumption rules for those features within a product family or across product families. Planners can allocate features for use in products and product lines along with rules governing usage of features. This dictionary enables quick summaries of where features are used and allows packaging of features into groups, making it easier to design, source and manufacture.

Subsets of features from the corporate dictionary are allocated to product lines and scoped to specific product models. This single source of features and product rules makes it easy to share them across products to maximize product development investments. Product lines and summarized features can be used to generalize and
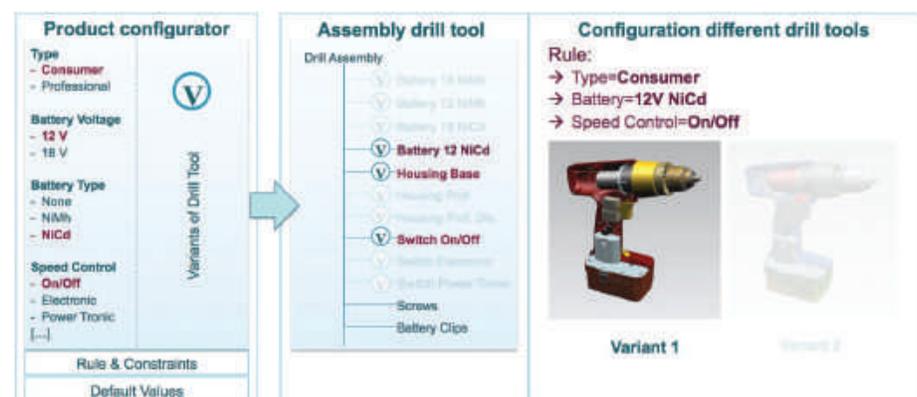
Configuring a "consumer" version of a drill.

simplify the maintenance. All of this information – features, rules, product lines and product models – is presented in an easy-to-maintain matrix.

Change is inevitable throughout product development. With Teamcenter Product Configurator, change control is straightforward, with the ability to revise and release features as products evolve. Effectivity controls the introduction of features or changes to features by start and end date or unit. You also can set obsolescence and remove features from a product in a controlled manner.

All of this control makes certain that any user working to configure a product will arrive at a validated configuration for that product. This information is presented to the end user through a guided configuration which limits the features they see and select to only those that are allowed.


Similar functionality, different customer needs.

Teamcenter Product Configurator not only allows all engineering disciplines to see and manage the overall product configuration needs but also enables each engineering discipline to manage areas of configuration unique to its domain within a common framework.

Utilizing early and continuous validation with real product data, issues can be identified and resolved long before

they surface on the manufacturing floor. Manufacturing engineering then generates the Bill of Process leveraging the same configuration information that has been defined upstream in engineering.
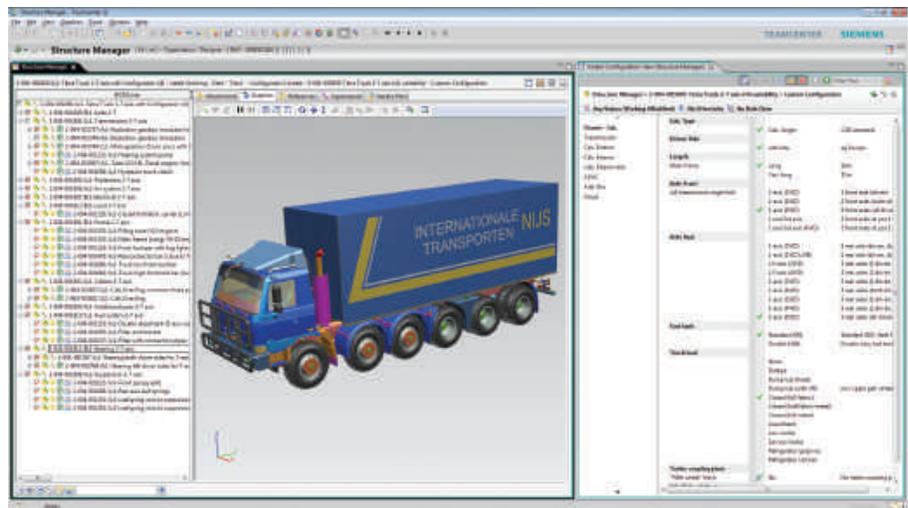
Bill of Materials with variance (left pane), visualization (center) and configurator (right)

Take control of your product variants
Addressing ever-increasing pressure to offer greater choice and variety in their products to meet customer expectations, Teamcenter Product Configurator enables manufacturers to specialize a product to their specific needs. The configure-to-order approach, which brings product specialization closer to the customer, is growing in importance. Using traditional processes, configure-to-order can overwhelm resources with duplicated data that can introduce errors into product development. Teamcenter Product Configurator delivers a single variant management backbone that makes certain that all disciplines are working from a common understanding of product configurability.

Teamcenter Product Configurator

Integrated	Seamless connection across Teamcenter domains and beyond
Scalable	Ability to handle any level of product complexity
Visual	Accurate geometry on-demand for any configuration
Role-focused	Separation of content + variability definition for flexibility, reuse, need-to-know IP exposure
Informative	Impact analysis across features, constraints and content

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