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REQUINO

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Due to the high pressure of international competition, companies must consequently optimize their product development processes with regard to time, cost and success rate. The complexity of mechatronic products calls for an integrated development process in which the domains mechanics, electronics and software interlock with each other. Through the interdisciplinary development environment and the constantly growing heterogeneous data volumes, a methodical software based support of the project and process management in all developmental phases is essential. A defective or non-existent requirements management approach could result in an inconsistent construction resulting in enormous cost over-runs for iterations in the construction process. This on the other hand jeopardizes time or quality goals in the product development. Manufacturing companies therefore require a pragmatic requirements management methodology in order to develop their products error-free right from the beginning.

Model-based requirements analysis: The foundation for an optimized development process

REQUINO is a browser-based tool that accompanies the user from requirements management right up to draft concepts. With the help of REQUINO requirements can be precisely structured, categorized and verified as well refined by structure- and behavior-diagrams. Furthermore first concepts can be developed, compared with one another and validated against specified requirements. The recursive and holistic approach of the tool enables a continuous validation of the concepts for the system and its components. Therefore REQUINO enables the examination of various alternative concepts (Design Space Exploration) so that promising solutions can be recognized early on. Thus REQUINO optimally supports the user in realizing an efficient design and development process.

Concept evaluation, diagrams, QFD, FMEA

Efficient and comprehensive requirements management

Through its structured, categorized and verifiable requirements analysis REQUINO is superior to conventional text-based tools. REQUINO has command over various system analysis methods like FMEA (Failure Mode and Effects Analysis), QFD (Quality-Function-Deployment) and the Impact Analysis. The most important prerequisite for the Impact Analysis is the „Traceability" of requirements and design-elements. With REQUINO, traces can be generated both for elements within a model as well as for different models. Thereby the user always has an overview of the dependencies of each individual element.

The tool based on SysML also comprises of mechanisms for variant management that enables the development of newer variants of mechatronic products and the import and export of requirements in the ReqIF-Standard which facilitates the exchange of requirements between software-tools of different manufacturers. The linking to external information, that is available in documents on websites or the import and export of requirements from and to EXCEL works smoothly

Pragmatic solutions for the mechatronic product development

Overall REQUINO provides new and pragmatic solutions for the mechatronic product development for small, medium and large scale organizations. As a comprehensive requirements-management-tool REQUINO forms the basis for an efficient development process: From the requirements analysis across the draft concept and the FMEA right up to the risk analysis. Furthermore REQUINO helps to improve or adapt existing products to the current market. This represents a decisive competitive advantage for organizations. REQUINO allows the user to clearly identify customer expectations and to develop quality assured product concepts that contribute to the economic success of the organizations.

Characteristics

- Based on UML/ SysML
- Part of the ModelBus®-tool set

Services

- Model based development process from the requirements management right up to conceptualization
- Structure- and behavior-diagrams for the definition and refinement of requirements
- Integration of requirements from standards and directives
- Generation of baselines
- Traceability
- Creation of first system-concepts on the basis of the requirements
- Examination of various alternative concepts (Design Space Exploration)
- Integrated FMEA-, QFD-, Impact- and Risk- analysis
- Interactive collaboration of multiple users
- Import/ Export of ReqIF, Excel
- Usable as a web- and desktop-application

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