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For General Release

Information Services International-Dentsu, Ltd.

ISiD Significantly Extended “iQUAVIS” Functions For Supporting Model-based Development (MBD)

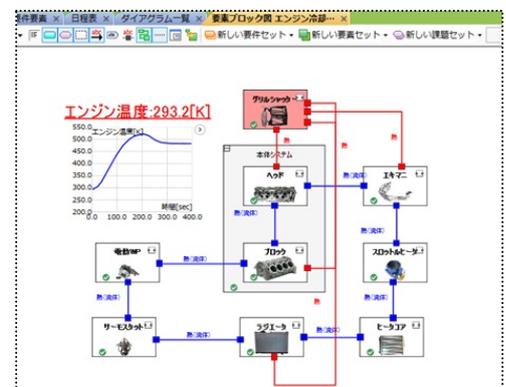
The New Version of iQUAVIS Facilitates Large-scale Team Design and Enables Full-Fledged MBD Application to Development of Large-scale Products, Such as Vehicles and Engines

Information Services International-Dentsu, Ltd. (Head office: Minato-ku, Tokyo; President & CEO: Setsuo Kamai; “ISiD”) has begun providing the latest version (Ver. 3.0) of iQUAVIS, a system for supporting conceptual design¹ in product development. The latest version features new functions that suit for full-fledged introduction on model-based development (MBD) at larger-scale development projects, which is being adopted by a growing number of companies in the automotive and other manufacturing sectors.

As global competition of automotive and other manufacturing industry intensifies, a growing number of companies are embracing the full-fledged adoption of MBD as a new innovative manufacturing framework that will enable them to win out in the global market. By reducing as much numbers of trial manufacture of actual machine as possible and introducing design methods using numerical models, test results and simulated models from early stage of design in conceptual design, it enables companies to increase probability of success in developing large-scale products with a high degree of difficulty.

Introducing MBD into conceptual design allows the generation of highly precise models and facilitates interaction between designers of different roles and technical fields. For this reason, MBD has been partially introduced, mainly by large automakers, and has been trialed repeatedly to date, to respond to more sophisticated requirements of project operation. Numerous companies acknowledged its effectiveness, and some have begun considering the adoption of MBD method for large-scale projects, such as the development of entire vehicles or engines.

iQUAVIS is the first tool in the industry for visualization of conceptual design process, which has been adopted by more than 70 companies including automakers and manufacturers of precision instruments. It is highly evaluated as a tool for promoting MBD in conceptual design. The latest version of iQUAVIS responds to the increasing need for full-scale introduction of MBD, and introduced functions that enable team design on complex and large-scale development projects. Specifically, when multiple teams of different roles —such as functional units or component units— considering designs simultaneously, iQUAVIS allows teams to work together by using the system. iQUAVIS functions allow



iQUAVIS Ver.3.0 screen image

teams to check mutual impacts and trade-offs by stepwise refinement and verification². ISID has also greatly reinforced the modeling function, which allows using sophisticated modeling definitions and integrations to simulation tools. (See the attachment for details.)

Working with Group companies, such as iTiD Consulting and ISID Engineering, ISID offers consulting services aimed at optimizing the design development process, engineering services to support highly precise model generation and other total MBD solutions. ISID will work to expand its sales channels in anticipation of expansion of the MBD market. Going forward, the ISID Group will strive to further reinforce its MBD solutions, centered on iQUAVIS, contributing to innovations of “*mono-zukuri* (manufacturing)” in Japan.

1. Conceptual design: This refers to the process of determining overarching design specifications for realizing required product functions and capabilities by considering realization methods and the structure and performance of principal components. This is the process prior to making detailed CAD or other designs.
- 2 A patent is pending for the “data management function for stepwise refinement by reconciling mutual impacts and trade-offs” on iQUAVIS (Ver. 3.0).

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<< Attachment: Principal Functions Expanded on iQUAVIS Ver. 3.0 >>

(1) Facilitates Team Design in Large-scale Development

- Taking automobile development as an example, to achieve target values for the entire vehicle, it is necessary for multiple teams to work together on both performance target values (i.e. fuel consumption, power) and physical means (i.e. engine and transmission). In addition, the engine and other units require detailed consideration at the level of the multiple parts of which they are composed. Complex interdependent relationships exist between units and parts and the performance and functional targets to be achieved. The key to successful product development is to smoothly reconcile these considerations between teams with different roles.
- The latest version of iQUAVIS contains functions that link models with different roles and different layers, such as performance and functional targets and units and parts, managing design differences in relation to requirements for the degree of mutual influence and trade-offs between individual design teams, allowing stepwise refinement to take place alongside detailed considerations. As a result, iQUAVIS enables design consideration with a high probability of success in achieving target values for the overall vehicle.

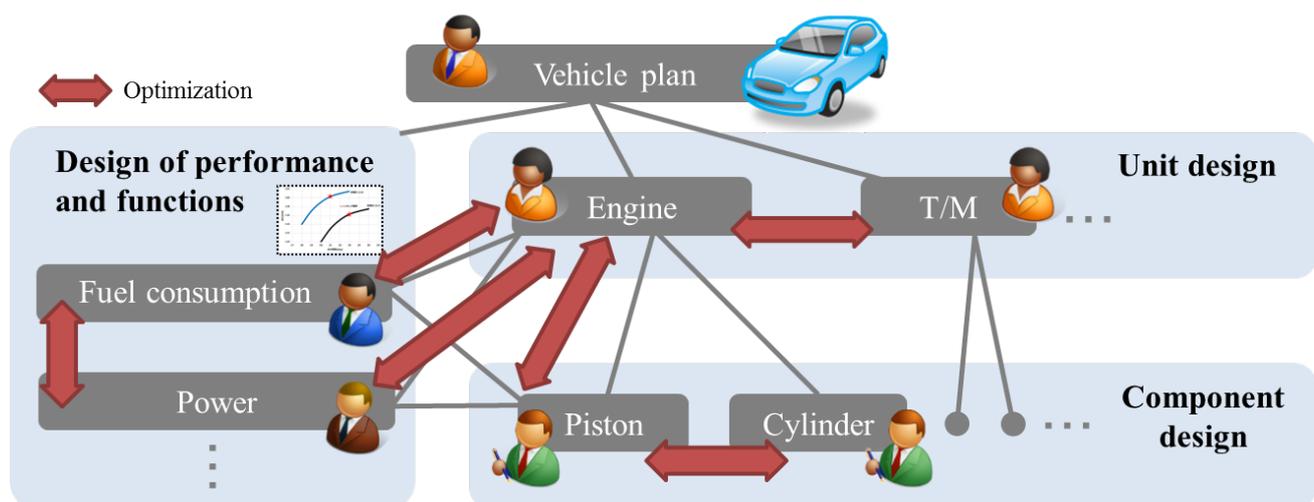


Figure 1. Overview of the Stepwise Refinement through Reconciled Design in Automobile Development Achieved by iQUAVIS

(2) Substantially Reinforced Modeling Function and Realization of a Simulation Function

- In the latest version of iQUAVIS, we have reinforced modeling functions at each stage, which should be considered in the conceptual design: analysis of requirements (required specifications and quantities to be achieved) and component design (considering methods of physical realization). In addition, we have added a new model definition function: function design (considerations of the ideal technology scenario to achieve requirements).
- At each stage of consideration, relationships between models are retained as mutual links by the system, simplifying considerations going back and forth between stages.

- A new integration function* has been added for the “function design” model simulation function and the “component design” of the model and 1D simulation tools, enabling more sophisticated design consideration.

* Compatible with OpenModelica. Also compatible with 1D simulation tools using the Modelica language, and customizable to user environments.

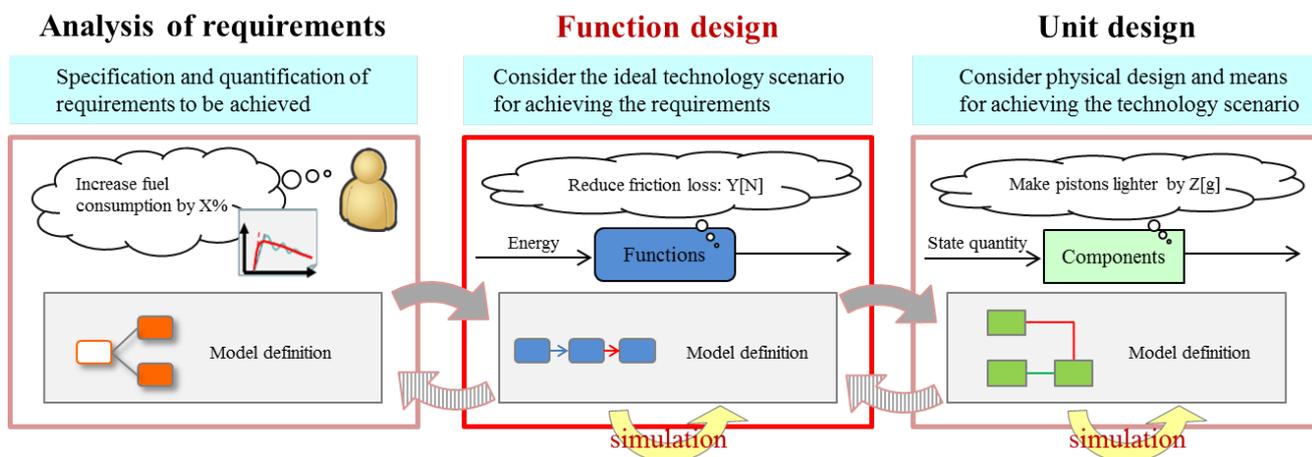


Figure 2. Overview of Modeling Using Conceptual Design Achieved with iQUAVIS

Note

1: Modelica is the registered trademark of Modelica Association.

2: Company and product names in this release are the trademark or registered trademark of each company respectively.