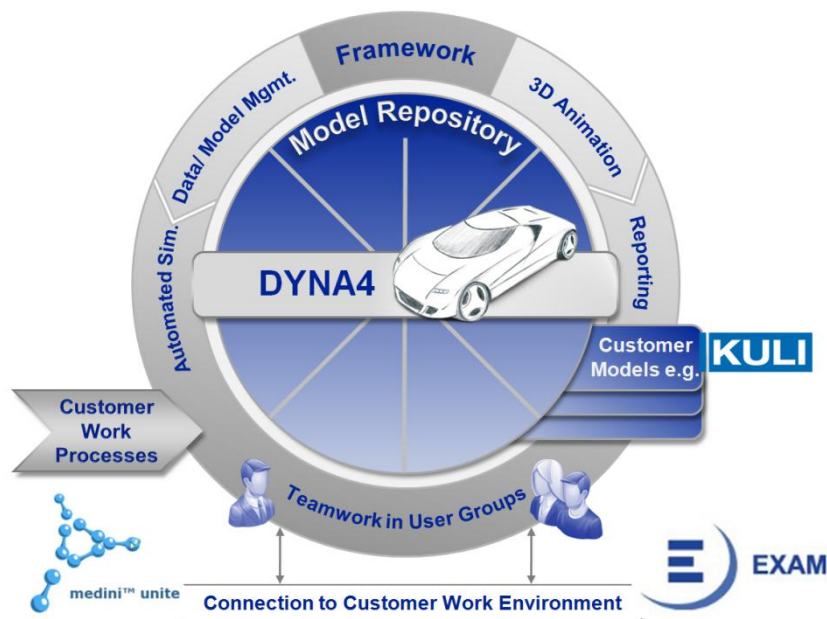


## DYNA4 2.1 Simulation Framework: Easier Handling and New Interfaces

The latest version 2.1 of the DYNA4 simulation framework not only expands the integration possibilities but also focuses on simplifications for the simulation user. Virtual test drives with DYNA4 can now be completely controlled via the freeware test automation tool EXAM. The integration of medini™ unite enables clear visual model comparisons to be performed for the simple tracking of model changes in DYNA4. For detailed thermal management analyses, KULI models can now be integrated into the DYNA4 Model Repository. This provides further options for using DYNA4 efficiently with an existing infrastructure. To ensure optimum user workflows, DYNA4 2.1 offers significant simplifications for simulation users. The (model) user now no longer requires Simulink experience in order to perform test drives on a PC or HIL environment but can assemble the virtual test vehicle from a menu and can configure the planned test maneuvers in DYNA4 or, for example, in the EXAM test automation process.



### **Integration and connection possibilities for full flexibility**

As an open and modular simulation platform, DYNA4 has always offered full integration of existing customer Simulink models, including model, data and project management. In order to make optimum use of the company's existing infrastructure and the expertise that this offers, further interfaces have now been created, such as a generic XML-RPC API for the automation of DYNA4. This interface provides full integration with the EXAM test automation process, thus enabling functional tests to be carried out with complex, parameterized test maneuvers in HIL environments. Furthermore, a context menu now provides connection with medini™ unite, making it very easy to perform and display Simulink model comparisons graphically. In this way, many different variants in the Model Repository can also be compared quickly and clearly with the local project version being used. The integration of KULI thermal management models enables a detailed consideration of a vehicle's thermal behavior to be made when designing powertrains for hybrid and electric vehicles. In particular, this makes it possible to study the warm-up behavior of the internal combustion engine. The import of navigation data from the free navigation service [www.openrouteservice.org](http://www.openrouteservice.org) as road data in DYNA4 enables tests to be performed on any real-world routes. This offers the possibility, for example, to analyze the predictive energy management of hybrid vehicles or to perform long-distance tests with trucks.

In DYNA4 2.1, the Evaluation and Analysis of Simulation Results section has been expanded by the addition of adaptable templates for export to Excel, in addition to the existing interface to NI Diadem, the interactive Plot GUI, PDF reports and 3D animations in DYNAanimation.

### **DYNA4 2.1: Easier and faster for simulation users**

While very flexible options are available for model developers and DYNA4 framework configuration, the use of DYNA4 has now been further simplified for simulation users in version 2.1 in order to cover an even wider range of applications.

For example, virtual test drives can now be performed by users without Simulink experience if compiled models are made available in the DYNA4 Model Repository by the model developer. The user puts together the required vehicle configuration from a menu and DYNA4 creates a virtual vehicle in the background from the Model Repository with all of the necessary model components and links. For test drives, users can access the driving maneuver database and automatically perform either standard ISO maneuvers and test cycles or their own maneuvers. To enable users

to carry out many different kinds of simulations automatically, they are supported by the Task Concept, in which entire sequences are stored and can be executed in batch operation. Parameter variations can also be performed automatically and corresponding evaluations can be generated.

The main focus of version 2.1 is on connectivity and handling, thus ensuring that existing customer models and tools can be efficiently used in DYNA4 as an integrative simulation platform by as many simulation users as possible.

14. December 2011

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### **About TESIS DYNAware**

TESIS DYNAware is your key to cutting-edge technology solutions for real-time vehicle simulation. For more than 19 years, the automotive industry has been benefiting from the efficiency-enhancing simulation solutions of TESIS DYNAware in the development of electronic control units and components.

The products and services of TESIS DYNAware are focused on sustainably supporting our customers' innovation and development processes, as is well-documented in numerous customer references. In accordance with this objective, TESIS DYNAware integrates the simulation models and work processes of our customers and its own model components and process tools into an overall solution that supports the development process. This experience in model integration and our process expertise have been combined to form the DYNA4 Simulation Framework. At the same time, the extensive range of applications for DYNA4 reflects the core competencies of TESIS DYNAware: simulation solutions for new engine and powertrain concepts, vehicle dynamics control systems and driver assistance systems, as well as for energy management and the complete vehicle.

### **About ikv++ technologies ag**

ikv++ technologies ag is a mid-sized software company based in Berlin/Germany. Since more than 10 years ikv offer solutions and tools for system analysis and design for functional safety as well as for the

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development of embedded software systems. The most important tools of ikv's product family medini™ are:

medini™ unite, a convenient diff/merge tool for Simulink, Stateflow oder Targetlink. With medini™ unite you can easily analyze and visualize the differences between models and can merge the different versions into a new target model. Moreover, it automatically creates a fine-grained change documentation. Typical users of the tool are development engineers which work in a team or in distributed environments.

medini™ analyze is an comprehensive tool which implements efficiently core activities of the functional safety analysis according to ISO 26262 and integrates them with existing processes and tool landscapes. Target users are safety managers and experts as well as development engineers and quality managers involved in the development of electronic and software based components.

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