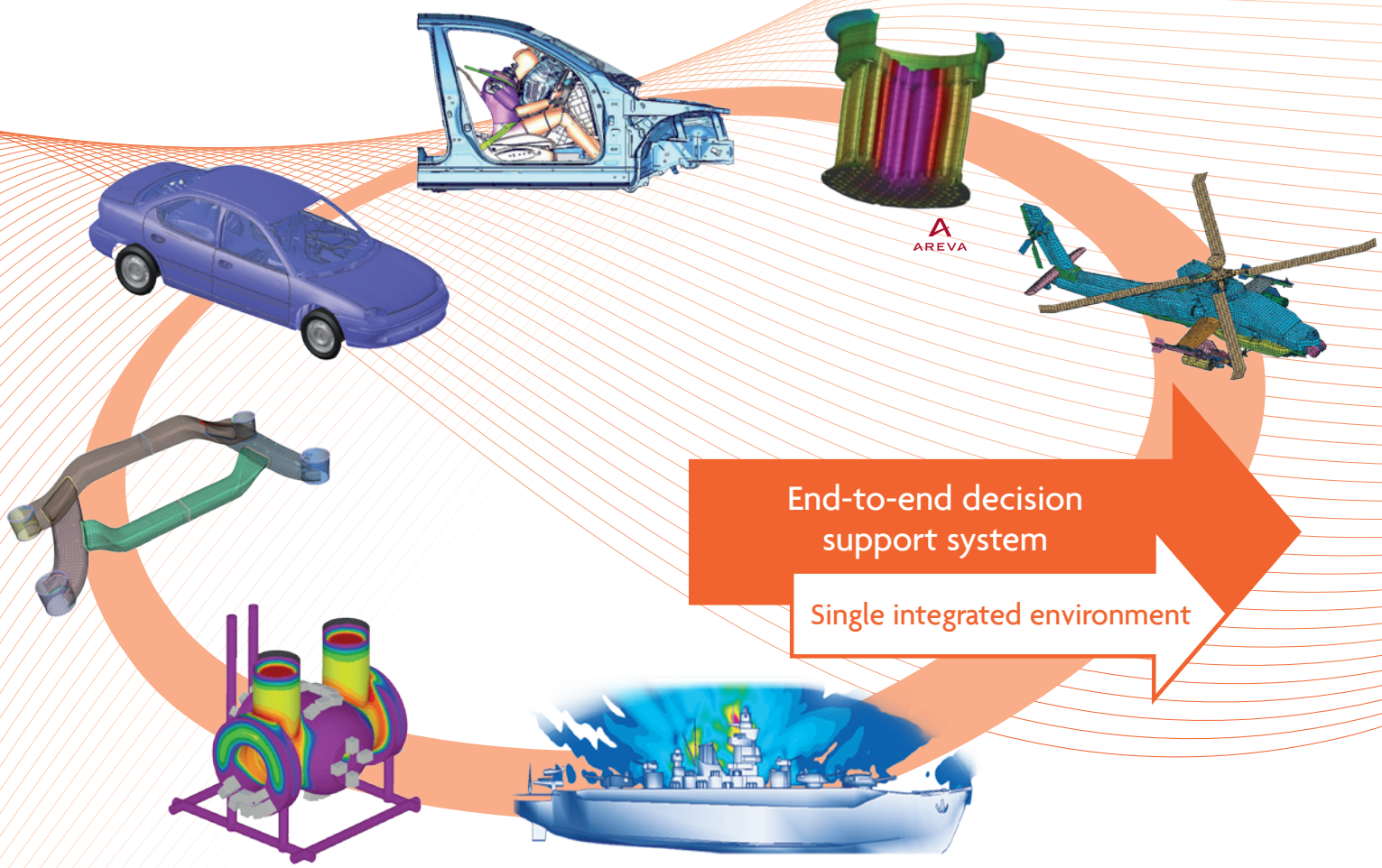
simulation systems integration

get it right®

Visual-Environment

OPEN & COLLABORATIVE ENGINEERING ENVIRONMENT



Visual-Environment

An integrated and versatile virtual prototyping platform for improved productivity.

Visual-Environment is a flexible and open engineering framework within a common platform, addressing multiple simulation domains. It encompasses the entire Computer-Aided Engineering (CAE) process from interfacing with Computer-Aided Design (CAD) to model set-up and post-processing all using a single core compute model.

For each application, engineers benefit from the comprehensive modeling tool Visual-Mesh to generate solution quality meshes on complex geometries for various trades including Crash, Safety, NVH, Energy, Heat Treatment, Weld, Casting, Flow, Electromagnetism, etc. Visual-Viewer post-processing tool caters to the requirements of the CAE community through its multi-page / multi-plot environment. The integrated software development toolkit, Visual-Software Development Toolkit (Visual-SDK), allows users to customize and extend this open architecture through process templates and macros.

Visual-Environment incorporates engineering knowledge, best practices, process, workflow management and simulation content management into your engineering design process.

Benefits

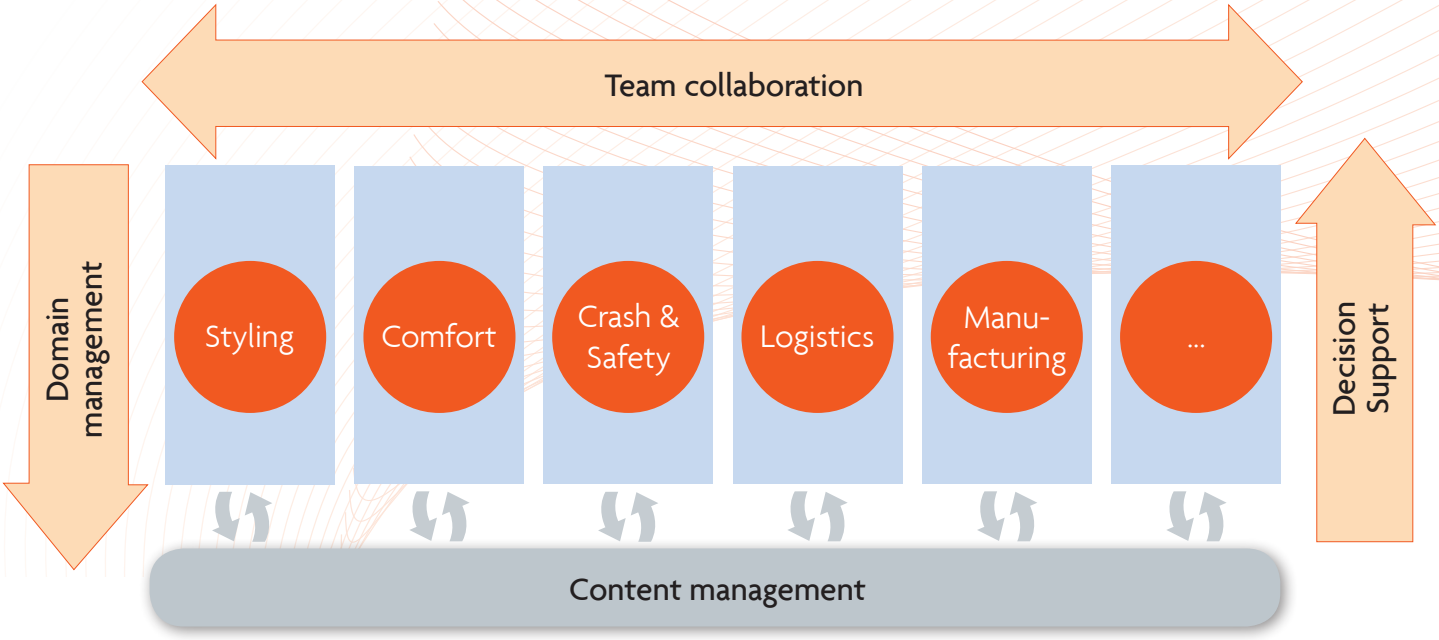
- Simulate complete workflows for a variety of physics within a single integrated environment;
- Reduce cost and time by eliminating tedious data exchange through the use of a single core compute model;
- Boost individual productivity with task automation;
- Shorten time per design iteration thanks to process automation;
- Improve product quality through a framework that enables concurrent engineering;
- Customize enterprise solutions with minimal effort.

Visual*DSS*, the end-to-end decision support system for CAE.

Visual*DSS*, an application within Visual-Environment, gathers simulation data from the different applications used during the whole simulation lifecycle and connects it all together. It enables the capture, storage and reuse of your enterprise knowledge and best practices, as well as the automation of repetitive and cumbersome tasks in your virtual prototyping process, and the propagation of engineering changes or design changes from one domain to another.

Hence, with Visual*DSS* consequences that design changes or engineering changes might have on the overall performance of the product are better understood.

Visual*DSS* connects to customer enterprise information such as Product Data Management (PDM) or Enterprise Resource Planning (ERP) and it integrates easily within the IT and data architecture of every company, by supporting most IT standards and linking to standard or corporate databases or Product Lifecycle Management (PLM) systems.



Visual*DSS*, *the end-to-end decision support system for CAE.*

Applications

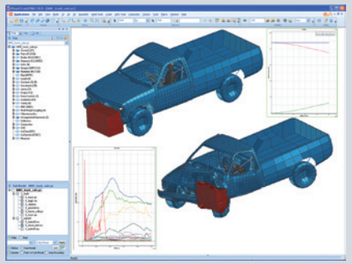
Visual-Mesh
PRE-PROCESSING TOOL TO GENERATE QUALITY MESHES ON COMPLEX GEOMETRIES

Visual-Software Development Toolkit
OPEN TOOL SET TO EXTEND AND/OR CUSTOMIZE YOUR ENVIRONMENT

Visual-Process Executive
FRAMEWORK TO CAPTURE AND DEPLOY YOUR ORGANIZATION'S BEST PRACTICES

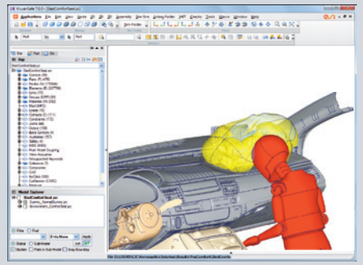
Visual-Viewer
POST-PROCESSING TOOL CATERING TO THE REQUIREMENTS OF THE CAE COMMUNITY

VIRTUAL PERFORMANCE



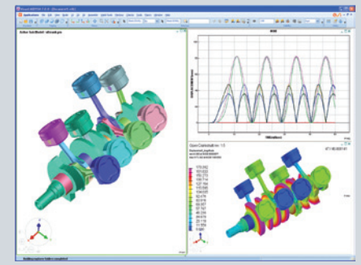
Visual-Crash

Visual-Crash helps engineers get their job done quickly and smoothly. Its intuitive multi-model, multi-window environment facilitates model building and browsing. Its dedicated visualization and plotting solution automates tasks and generates customized reports, analyzing PAM-CRASH result data within a uniform interface. Visual-Crash is also available for third party software.



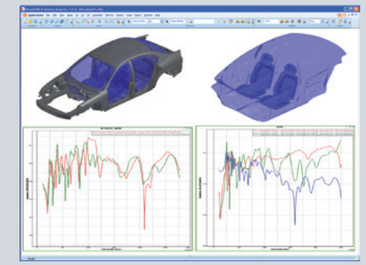
Visual-Safe

Visual-Safe provides advanced tools exclusively for safety applications. Dummy positioning, seat morphing and airbag folding, which work through simplified simulation, are some of the high-productivity tools in this application. Visual-Safe is also available for third party software.



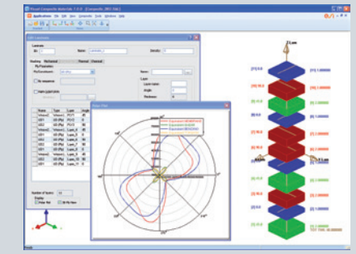
Visual-MEDYSA

Visual-MEDYSA guides you in building system models for design optimization and performance validation of complex mechanical systems such as engine, tires, chassis, suspensions and machinery transmissions.



Visual-NVH & Interior Acoustics

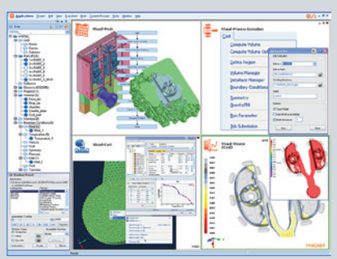
Visual-NVH & Interior Acoustics supports the setup of Noise, Vibration and Harshness (NVH) simulations ranging from structural transfer functions and point mobility analysis to full vehicle interior acoustics with road excitation.



Visual-Composite Materials

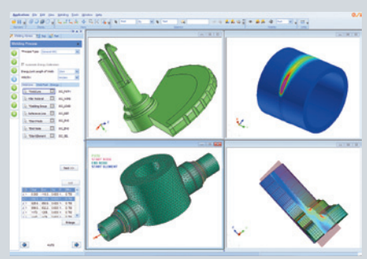
Visual-Composite Materials is a collaborative user environment that allows you to manage multi-domain composite material data.

VIRTUAL MANUFACTURING



Visual-Cast

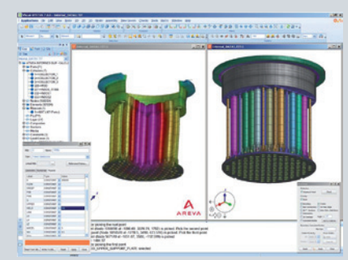
Visual-Cast is a complete, productive and innovative meshing-pre-post processing environment for foundry applications. It boosts the productivity of foundry engineers by performing automated tasks from set-up based on CAD to customized reports within a multi page/window/model environment.



Visual-Weld

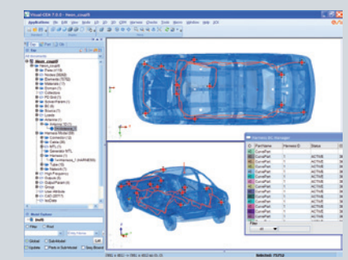
Visual-Weld is a workflow-based user interface for modeling welding fabrication processes including all manufacturing details. It facilitates fast and accurate distortion and weld quality virtual engineering at any stage of product design and manufacturing.

VIRTUAL ENVIRONMENT



Visual-SYSTUS

Visual-SYSTUS is a pre-processing environment for multiphysics applications to manage mechanical, electrotechnical, heat transfer data model, material and beam sections data, boundary conditions and loads. Dedicated workflows allow you to handle optimal multiphysics simulations. Visual-SYSTUS, speeds up your engineering process by building, managing and checking multiphysics complex models and automating related tasks.

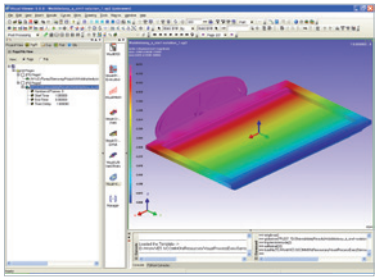


Visual-CEM

With an application scope ranging from electromagnetic compatibility, electromagnetic interferences and antenna placement to RADAR, stealth and active safety, this specialized environment gathers all advanced features for industrial and intuitive modeling: realistic emitting devices, wired antennas, sophisticated cable networks, etc.

Visual*DSS*
END-TO-END DECISION SUPPORT SYSTEM FOR CAE

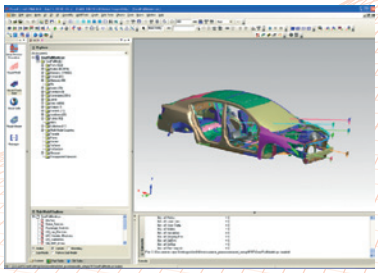
SAMSUNG Electronics Co. saves up to 90% engineering time with ESI's Visual*DSS*



"Using guided CAE automation early in the design process enables us to identify the right concepts and verify design changes in order to save time and cost. As we are very satisfied with ESI's support and assistance throughout the project, we are looking into implementing the simulation data management system in other divisions."

Jeong-Rho Lee, **Senior Engineer, SAMSUNG Electronics Corporation**

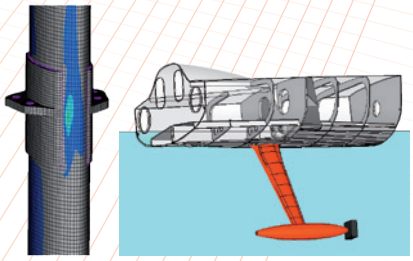
The Nissan Technical Center develops a new automation safety tool thanks to Visual*DSS*



"With the Visual-Process module in **Visual*DSS***, developed automation tools on FMVSS 210 Seatbelt Anchorage Analysis gave us not only immediate return on investment but also the confidence to leverage these tools to increase repeatability and reproducibility with substantial lead time and labor cost reduction."

Daniel Kim, **Nissan Technical Center, NA**

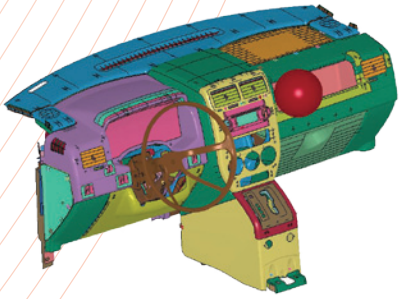
Safran Engineering Services uses Visual-Composite Materials for the virtual manufacturing and performance of a racing composite boat



"Using the Implicit and Explicit modules of Virtual Performance Solution as well as **Visual-Composite Materials** was very useful because we were able to model all kinds of materials and parts like the rigging, the keel and the mast."

Nicolas Diot, **Dynamics and Passive Safety CAE Manager, Safran Engineering Services (SAFRAN Group)**

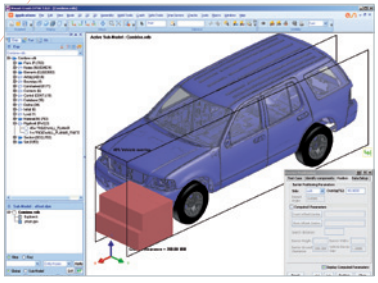
IAC streamlines its automotive component simulation and reporting process with Visual-Process and Visual-Safe



"With the use of **Visual-Safe IHIT**, we have been able to improve turnaround time from 3 weeks to 1 week on interior head impact. Target points, zone, approach angles, impactor / headform positioning in the FEA model and report generation are automatically done by using this software."

Arun Chickmenahalli, **FEA Manager in International Automotive Component**

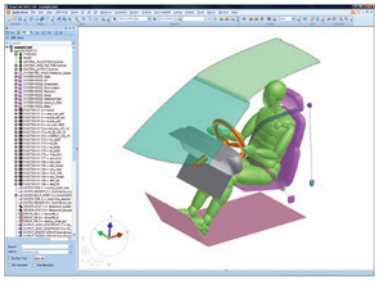
Toyota saves on iteration time between the processes using several Visual-Environment modules



"With the help of **Visual-Crash DYNA**, **Visual-Viewer** and **Visual-Process** modules of **Visual-Environment**, model setup for LS-DYNA analysis is quick, comparisons of results from different iterations are fast, simple and clear. **Visual-Process** allows us to set up customized macros of repeated processes to further improve turnaround time."

Jonathan Young and Kyle A. Ott, **Engineers, Toyota Technical Center**

Visual-Safe MAD eases Chrysler LLC's decision-making on vehicle safety



"With the help of **Visual-Safe MAD** and **Visual-Viewer** modules of **Visual-Environment**, model setup for Madymo analysis is very quick and comparing the results of different iterations is very fast, simple and clear. **Visual-Environment** helps us make proper decisions in vehicle safety. This tool is robust and substantially reduces the lead time and improves the productivity."

Mahesh Swamy, **Manager at Chrysler LLC.**

For more success stories, please visit: www.esi-group.com/visual-environment

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ABOUT ESI GROUP

ESI is a pioneer and world-leading provider in virtual prototyping for manufacturing industries that takes into account the physics of materials. ESI has developed an extensive suite of coherent, industry-oriented applications to realistically simulate a product's behavior during testing, to fine-tune manufacturing processes in accordance with desired product performance, and to evaluate the environment's impact on performance. ESI's solutions fit into a single collaborative and open environment for End-to-End Virtual Prototyping, thus eliminating the need for physical prototypes during product development. The company employs about 850 high-level specialists worldwide covering more than 30 countries. ESI Group is listed in compartment C of NYSE Euronext Paris. For further information, visit www.esi-group.com.

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