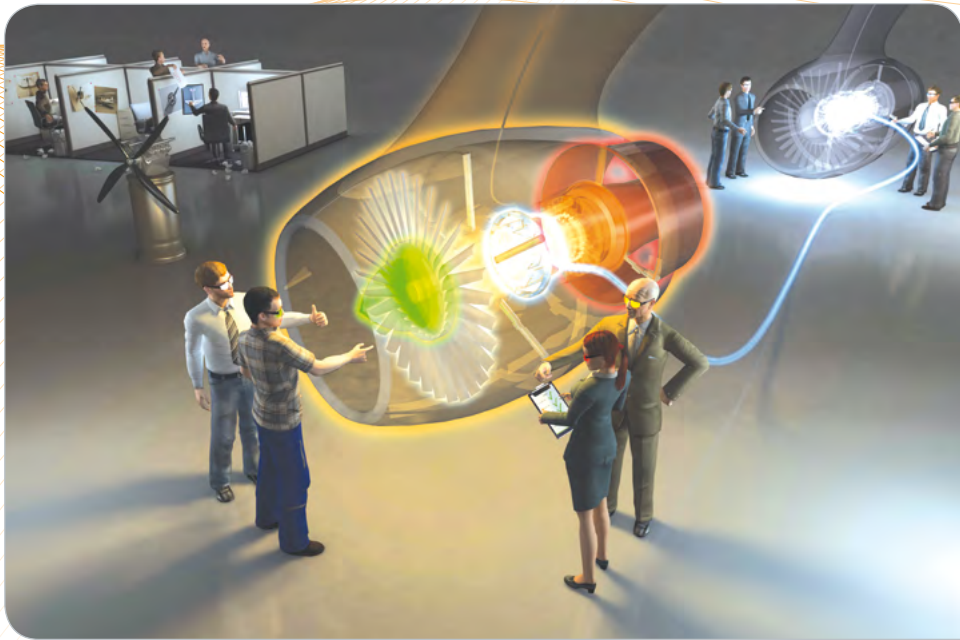
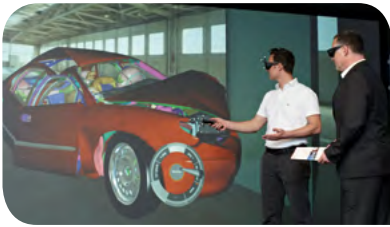


# IC.IDO

Leading Decision-Making Platform  
Based on Virtual Reality



# Make the right decisions at the right time, and execute cost-effectively with IC.IDO



Virtual Reality (VR) is the most promising technology for engineering design and manufacturing. Virtual Reality speeds up design, development and planning processes in an interactive and collaborative environment, providing an unprecedented degree of 3D immersion and product understanding.

Part of ESI Group's Virtual Product Engineering portfolio, IC.IDO provides an exceedingly powerful solution combining high-end visualization and real-time simulation of product behavior in its actual size, and allows product operation very close to reality. The solution was created between ESI industry experts and customers. By visualizing 3D data in IC.IDO, decision-makers in various industrial sectors are able to handle multi-discipline, multi-layer and multi-site capital-intensive decision processes in the best imaginable conditions.

Customers, ranging from small and mid-size companies among the manufacturing industry to the largest manufacturing organizations in the world (aerospace, automotive, defense, etc.), rely on IC.IDO to increase their competitive advantage and to enhance significantly their ability to innovate.

## Deepest know-how in Virtual Reality, 20 years of experience in industrial processes

10 YEARS OF RESEARCH

From 1990

OVER 10 YEARS  
OF INDUSTRIALIZATION

Industrial since 2000

WE DRIVE INNOVATION  
IN COLLABORATION:  
OVER 100 CUSTOMERS WORLDWIDE

Today



IC.IDO empowers decision-makers to assemble / repair / produce their new product in a given factory at the right time, by the right people

### IC.IDO CUSTOMERS BENEFIT FROM:

- Over 20 years of successful development of Virtual Reality solutions dedicated to highly demanding industries (automotive, aerospace, defense, etc.);
- A development strategy driven by industrial challenges;
- Senior consultants with many years of technology and process know-how.

# Face your industrial challenges with IC.IDO

- Build large, complex and/or expensive products in the best conditions ever.
- Manage High-Volume Production with the fewest chances of errors.
- Resolve complex design or manufacturing issues in a highly collaborative environment.
- Enhance Low-Volume Production Operations (highly complex products).



## IC.IDO solution benefits

IC.IDO makes up for missing physical prototypes

- > Reduction of costly physical mockups and prototypes

Virtual prototypes enable frontloading

- > Earlier understanding, validation, tryout

IC.IDO optimizes and fosters collaboration worldwide

- > Engaging decision-making processes

Hands-On interactive solution

- > Personal experience of the product
- > Better understanding = Better decisions



FASTER DECISIONS | IMPROVED QUALITY | BETTER PRODUCT

## How does IC.IDO work?

STEREOSCOPIC  
PROJECTION  
HARDWARE



IC.IDO'S VISUAL  
DECISION  
PLATFORM SOFTWARE



STAKEHOLDERS





# Four main applications of IC.IDO

## VIRTUAL ENGINEERING



IC.IDO allows decision-makers from various industries to experience their Virtual Prototypes in a truly realistic way from the very earliest stages of design and manufacturing.

### The solution:

- Enables frontloading, significantly reducing time to market;
- Reduces costs related to design changes and schedule amendments;
- Allows to validate feasibility aspects and compliance rules.

## VIRTUAL BUILD



- The virtual validation of assembly processes validates product design and process interplay, which reduces iterations and costly late change requirements to a minimum.
- Assembly processes stored in the planning system are validated at an early time and, if necessary, can be modified, thus reducing “time to volume”.
- Assembly personnel can be trained early on before production series launch, thus boosting productivity!

## VIRTUAL SERVICE



- Early validation and optimization of the feasibility of service and repair work.
- Reduction of tooling change requests and related costs.
- Shortening down times due to unnecessary and excessively long work deployments.
- Savings on warranty and maintenance costs.

## VIRTUAL PRODUCT PRESENTATION



- Interactive presentations of large and complex Virtual Products with customers and suppliers.
- Realistic appearance and plausible behavior.
- Experiencing Human to Machine Interface.
- Variants and configurations can be demonstrated and validated.
- Portable version allows for product presentation on trade & road shows.

# IC.IDO software: platform highlights

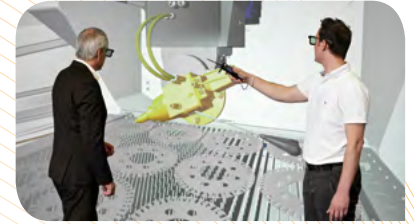
## EFFECTIVE WORKFLOW & COLLABORATION SUPPORT

- Best in class immersive User Interface (UI)
- Natural & easy operation via well-known devices
- Multi-user & multi-site operation
- Highly flexible workflows: parameter modification at run-time



## MOST ROBUST APPLICATION FOR:

- Collaborative reviews
- Service and repair validation
- Interactive product presentation
- Digital assembly and feasibility study



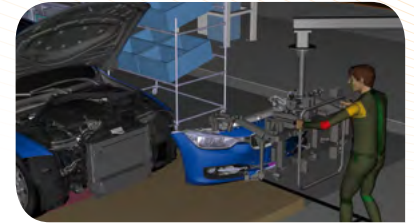
## BEST IN CLASS SCALABILITY AND PERFORMANCE

- Massive multi-threading
- Robust cluster infrastructure
- Tailored renderers available
  - > High-end visualization
  - > Massive data in real-time
  - > High performance OpenGL



## MOST REALISTIC INTERACTION WITH PRODUCT DATA

- Real-time simulation of:
  - > Collision, friction & gliding
  - > Constraints & kinematics
  - > Flexible (and plastic) objects



# IC.IDO hardware: scalable virtual reality workplace

Easy to integrate in existing processes connecting to numerous Computer Aided Engineering (CAE) and Product Lifecycle Management (PLM) systems

Simple, robust and standardized solution

Compatible with nearly every 3D hardware

Efficient visualization and simulation from small desktop 3D installation to high-end multi wall installations (CAVE)



IC.Flight portable hardware



Manufacturing lines engineering reviews performed within IC.IDO system



Stereoscopic multiple walls immersive visualization system used in the ergonomic assessment of a car cockpit



# Tracking devices: main components for a highly-immersive experience



A Virtual Reality solution requires information on the user's position and orientation in order to immerse him or her into the virtual world. Tracking systems provide such 6D information concerning users, input devices and mixed mock ups (seats, tools, devices). Today's optical tracking solutions are easy to deploy and demand marginal maintenance. IC.IDO supports numerous tracking solutions available on the market.



## How does IC.IDO Virtual Reality solution revolutionize decision-making ?



- Real-time physics simulation assures realistic behavior of virtual objects – reliable and proven.
- Best in class immersive user interface lets you intuitively engage with your virtual product – no barriers.
- Unique collaboration capabilities enable cooperation on the virtual model between remote sites – no limitations.
- Powerful Multi-CAD and PDM support for quick process integration.
- Unique massive data visualization fluently uncovers the largest data sets.



Flexible objects behave in real-time according the laws of physics

# IC.IDO customer feedback

*"IC.IDO helps us cope with technological and process challenges."*

*"IC.IDO has been instrumental in improving communication with our key customers."*

*"We use IC.IDO daily in our development projects and we can't do without it."*

*"The system was set up within a day."*

*"Significantly faster time to market."*

*"Reduction of development time."*

*"We are impressed by IC.IDO team's know-how."*

*"Dramatic reduction of error risks."*

## AUTOMOTIVE - SPECIAL CONSTRUCTION VEHICLES - EARTH MOVING EQUIPMENT - SHIPBUILDING

AMG, Audi, Behr, BMW, Caterpillar, Chrysler, Daimler, Edscha, Faurecia, Fisker, Ford, Hyundai, Jaguar Land Rover, Mercedes, Meyer Werft, Opel, PSW, Seat, Skoda, Valmet Automobile, Volkswagen, Volvo

## MACHINERY & PLANT ENGINEERING - AEROSPACE - DEFENSE - TRANSPORTATION

Airbus, BASF, Bitzer, Boeing, Bombardier, Breuning, EADS, Extricom, Gabler, Hitachi, Jungheinrich, Maquet, MTU, Niles, Oerlikon, Oak Ridge National Laboratory (ONRL), Optima Group, Rheinmetall, Sauter, Voith, Siemens Energy, Siemens Transportation, Trumpf, Westinghouse

## UNIVERSITIES - RESEARCH ORGANIZATIONS

Chemnitz University of Technology, Kaiserslautern University of Technology, Vienna University of Technology, German Aerospace Center (DLR), Greek Manpower Employment Organization (O.A.E.D.), Dresden University of Technology, University of Erlangen-Nuremberg, Fraunhofer Research Organization, Karlsruhe Institute of Technology (KIT), etc.

## PARTNERS

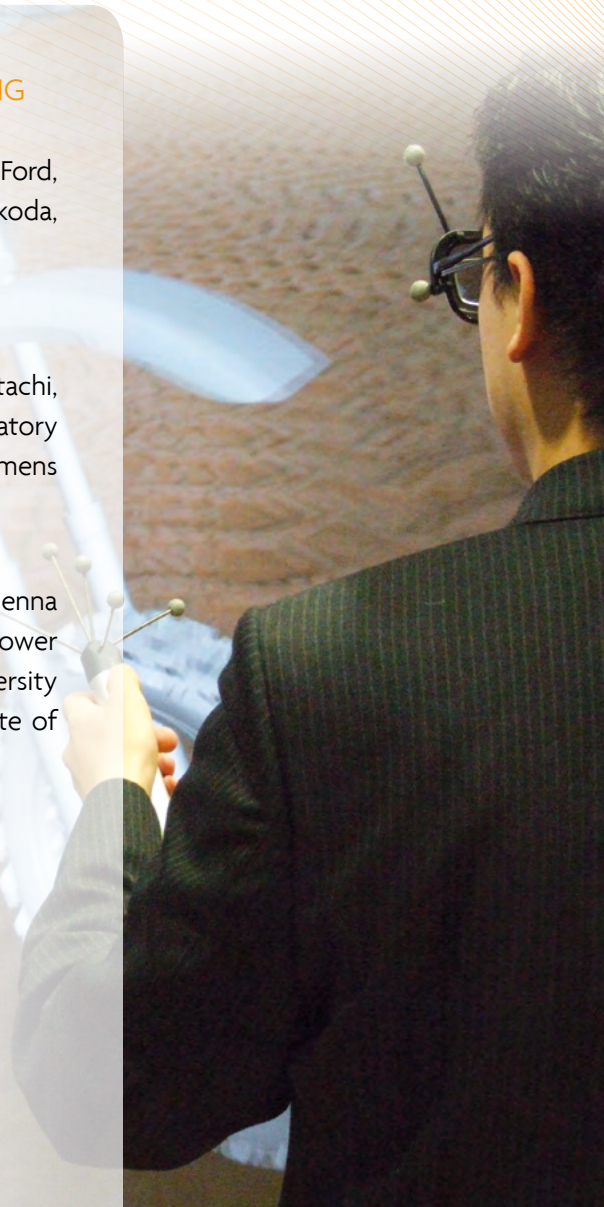
eSZett, Ci-base, Trivit, Messebau Keck, PLG-IT, Longtek, Vision Strategy, etc.

## HARDWARE SUPPLIERS

Imsys, Dell, NVIDIA, HP, Christie, etc.

Please check our website to find out more:

[www.esi-group.com/corporate/alliances](http://www.esi-group.com/corporate/alliances)



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**ABOUT ESI GROUP**

ESI is a pioneer and world-leading provider in Virtual Prototyping that takes into account the physics of materials. ESI boasts a unique know-how in Virtual Product Engineering, based on an integrated suite of coherent, industry-oriented applications. Addressing manufacturing industries, Virtual Product Engineering aims to replace physical prototypes by realistically simulating a product's behavior during testing, to fine-tune fabrication and assembly processes in accordance with desired product performance, and to evaluate the impact on product use under normal or accidental conditions. ESI's solutions fit into a single collaborative and open environment for End-to-End Virtual Prototyping. These solutions are delivered using the latest technologies, including immersive Virtual Reality, to bring products to life in 3D; helping customers make the right decisions throughout product development. The company employs about 1000 high-level specialists worldwide covering more than 40 countries. ESI Group is a French company listed in compartment C of NYSE Euronext Paris. .