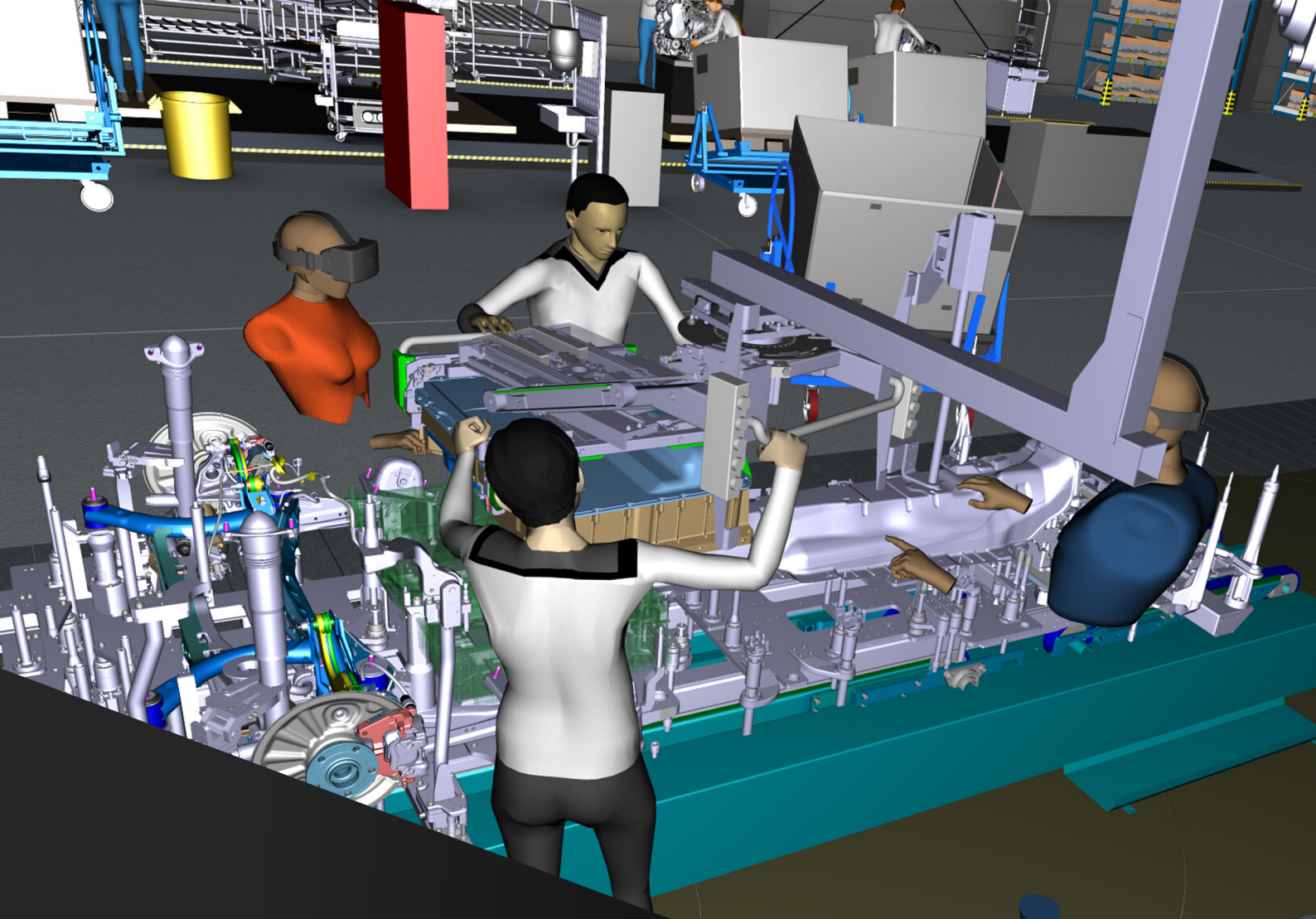

Overcoming Challenges in Process Validation & Product Integration

With ESI's IC.IDO Virtual Reality Engineering Software

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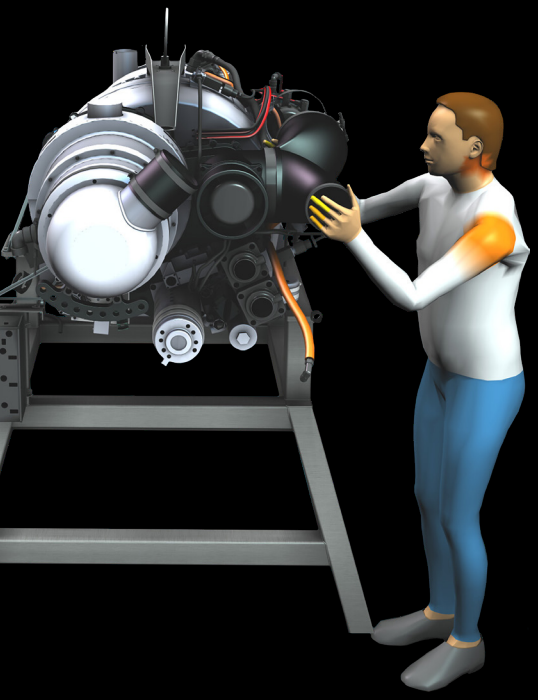
Virtual Reality Solution | Brochure



Product development and process validation without physical testing faces significant challenges, especially as products become more complex and innovative. At key development milestones, cross-functional teams must review designs and assess engineering progress, focusing on crucial questions: How well are components integrated? Can parts be easily accessed for installation or removal? Are there blind spots? Will wire harnesses reach without binding? Traditionally, these evaluations relied upon full-scale physical mock-ups or pre-production products to demonstrate ease, effectiveness, and safety of assembly and maintenance procedures.

However, the push for sustainable innovation and the shift towards electrification introduce new risks. The use of lightweight materials and novel manufacturing methods adds complexity to design, leading to unidentified risks before production begins, when people often first experience the new products in the context of performing assembly, operational, or maintenance tasks. Product, process, and resource interaction issues could go unnoticed until it's too late, resulting in costly adjustments and missed opportunities for optimization.

Learn more

Revolutionizing Design with IC.IDO: Leveraging VR for Early Product and Process Optimization

Virtual Reality (VR) software is revolutionizing product development and process optimization by enabling **collaborative virtual workflows**. By immersing teams in high-fidelity, full-scale virtual mock-ups, VR allows enterprises to experience future products, evaluate integration, and optimize human-centric processes long before physical production environments are available.

This proactive approach helps identify potential issues early in the development process, ensuring more efficient and effective product designs. IC.IDO (eye see, I do) by ESI powers VR environments specifically designed for engineers, designers, production planners, and process engineers. IC.IDO allows these professionals to experience their products in a virtual context, **simulating the physical build and maintenance processes** themselves. This capability eliminates the need to wait for physical product availability or invest in constructing physical mock-ups, enabling a more efficient and streamlined development process.

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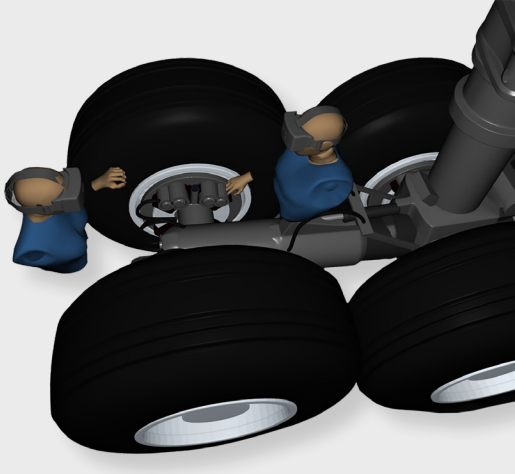
Key Applications

Real-time physics simulation of product interactions, collisions, & mechanism behavior.

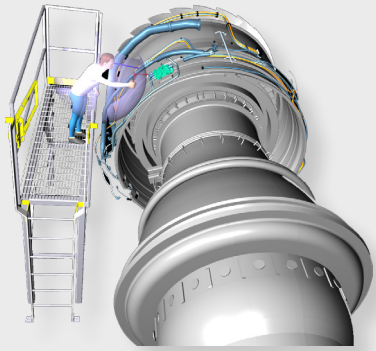


Collaborate with remote participants in a common virtual environment.

Evaluate space claim, clearances, visibility, and accessibility of components.

Evaluate and optimize cable & hose routing and handling.

Define and refine installation and removal paths.

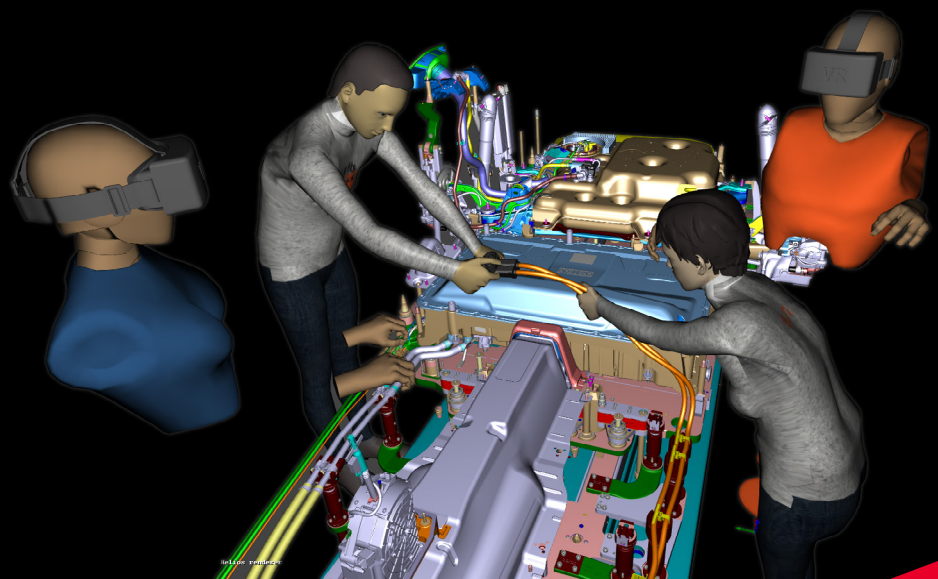


Create outputs for **engineering changes,** process communication & familiarization.

Mix physical reality with Virtual Reality for **realistic virtual process participation.**

Define, tryout, play back, refine, and **optimize assembly processes.**

Validate procedures, work cells, production lines for **effective human workflows.**



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Maximizing Efficiency and Collaboration: The Value of IC.IDO

Seamless Immersive Experience: Experience products in VR/XR environments with minimal data preparation and **no required coding**, streamlining the design and evaluation process.

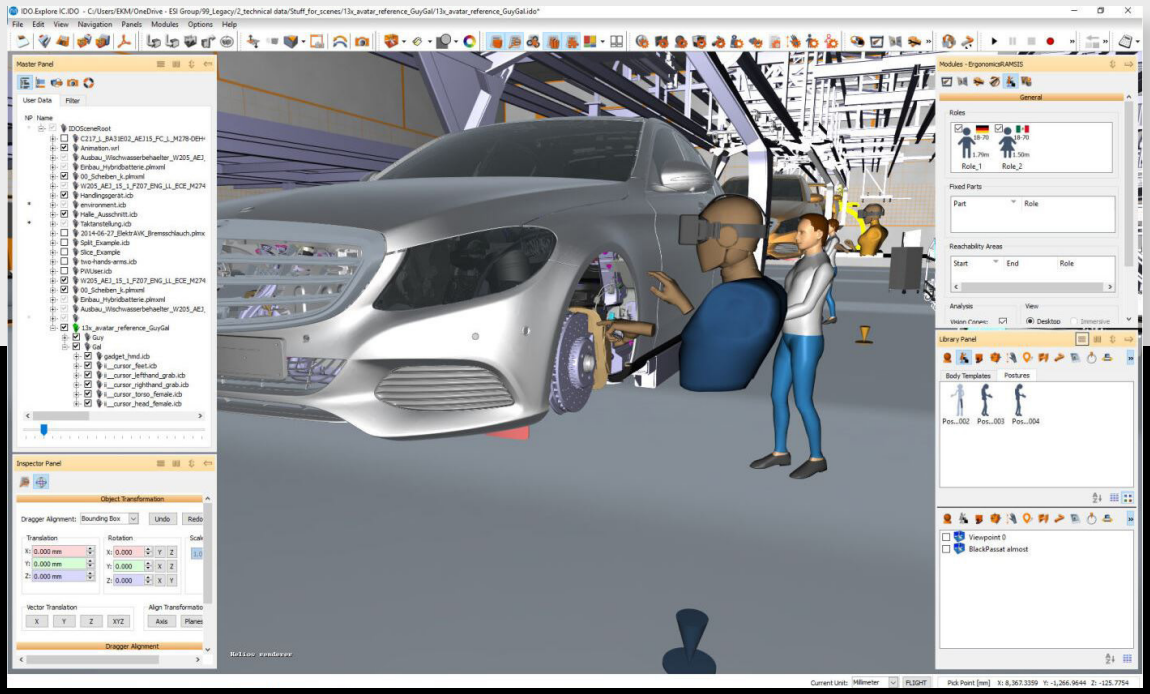
Accelerated Decision-Making: Evaluate and optimize proposed products without waiting for physical mock-ups, allowing integrated teams to **quickly identify and resolve** potential issues.

Enhanced Design Evaluation: Assess the **real-world impact** of design decisions on personnel by experiencing products in the context of processes like assembly and maintenance.

Informed Trade-Offs: Make **better-informed trade-off decisions** by understanding the full scope of human-product-process-resource interactions early in the development process.

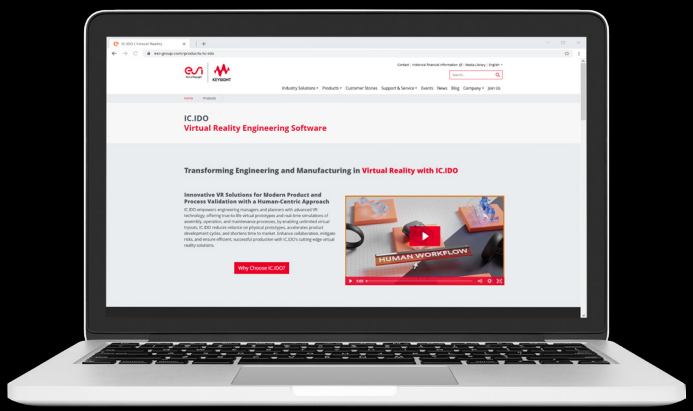
Improved Collaboration: Foster more **effective collaboration** between teams and suppliers by experiencing and refining products in a shared virtual environment.

Reduced Risk and Inefficiencies: Significantly **reduce risks and inefficiencies**, ensuring smoother transitions through start-of-production, ramp-up, final production, and sustainment phases.



Discover how ESI's IC.IDO Virtual Reality software can be used to support immersive, human-centric product development and process validation.

Learn more



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