Media Briefing

**Altair at Hannover Messe 2024**

Download the **Media Kit** [here](https://web.altair.com/altair-at-hannover-messe-press-preview-2024)!

**Why is Altair participating at Hannover Messe?** Hannover Messe is the world’s leading industrial trade fair, where companies from the mechanical engineering, electrical engineering, energy, and digital industries come together to present solutions for a sustainable, high-performance industry. More than 4,000 companies will be acting as an interconnected industrial ecosystem and demonstrate how electrification, digitization, and automation can achieve carbon neutrality.

**Altair will present its solutions for:**

# Simulation-Driven Design

# AI-Powered Engineering

# Digital Twin

# AI on the Factory Floor

**Topic:** The Science of Possibility

**Introduction to Altair:**

Altair leverages computational science to drive innovation and intelligent decisions for a safer, more connected, and more sustainable future.

When talking to industry experts, the challenges and topics mentioned most often are:

* Succeeding in digital transformation by applying artificial intelligence (AI) and machine learning in product development and on the factory floor
* Time and cost reduction in product development
* Sustainability and energy efficiency

For nearly 40 years, our entrepreneurial spirit and technical expertise have fueled our growth and that of our customers’ by seeking technology and business firsts. We support and empower 13,000+ customers globally to address these challenges and compete more effectively in a connected world, all while creating a more sustainable future.

At Hannover Messe 2024, Altair will present technologies, methods, and examples of how companies can succeed in their quest for digital transformation by applying simulation, data analytics, AI, and high-performance computing (HPC).

# **Simulation-Driven Design**

Despite Finite Element Method (FEM) software being commercially available for half a century, the key bottleneck in development is still the transformation of a CAD design into a simulation model.

Altair’s unique technology enables designers and engineers to place simulation at the core of innovation. By applying our optimization technologies at the beginning of the design process, teams can inform the design direction from the beginning. This approach enables teams to meet performance targets faster while also guaranteeing an optimal balance of weight and cost.

By performing structural analyses on fully featured CAD assemblies within minutes, [Altair® SimSolid®](https://altair.com/simsolid) - part of the Altair HyperWorks design and simulation platform – is the game-changing simulation technology for designers, engineers, and analysts. It eliminates geometry preparation and meshing: the two most time-consuming, expertise-extensive, and error-prone tasks performed in a conventional structural simulation.

[Altair® Inspire™](https://altair.com/inspire) - also part of Altair HyperWorks – is an intuitive, powerful family of integrated software products that accelerates simulation-driven design throughout the product development lifecycle, from concept to reality, while reducing product time to market.

Used early in the design process, Inspire enables the creation of designs focused on both performance and manufacturability. Inspire empowers its users to explore, develop, and manufacture high-performance products in a single, intuitive environment.

Electronics are a part of our lives – both professionally and personally – with the latest gadgets delivering an immediate gateway to the world. Innovation, time to market, and lower cost are the keys to electronics success, and the pressures to quickly deliver innovative products at lower cost is intense. Altair’s simulation-driven design delivers a smarter approach to electronics product development.

**Examples/use cases:**

* [**Case Study with Synex Tech GmbH**](https://altair.com/resource/fighting-fire-with-innovation-altair-inspire-empowers-m-h-cnc-technik-to-optimize-synex-s-innovative-fire-extinguisher?lang=en) **- Fighting Fire with Innovation**
* [**Customer Story with Samsung**](https://altair.com/customer-story/samsung-improving-pcb-development) **- Samsung SDI Improves PCB Development**
* [**Technical Document with ATNA**](https://altair.com/resource/simulation-under-high-pressure-fast-results-for-complex-machines?lang=en) **- Simulation Under High Pressure**

# **AI-Powered Engineering**

As the pace of innovation accelerates, the use of AI and machine learning is becoming standard practice. Altair, a leader in generative design and AI, enables teams to discover actionable insights, speed design, and accelerate product development.

[Altair® physicsAI™](https://altair.com/physicsai), Altair® expertAI™, Altair® shapeAI™, and [Altair® romAI™](https://altair.com/romai) unlock limitless potential for gaining insights, accelerating predictions, and improving engineering decisions. With seamless integration into the [Altair® HyperWorks®](https://altair.com/altair-hyperworks) platform, they deliver unparalleled AI-powered engineering capabilities.

## Digital Twins - Overcome Industry Bottlenecks in Product Development

Altair's [digital twin](https://altair.com/digital-twin) solutions and technology like romAI enable the industry to build digital behavior models faster and:

* Run models faster
* Avoid co-simulation to capture high-fidelity behavior
* Accelerate system models by 1,000x while maintaining accuracy

The following examples will be presented:

* [**Danecca**](https://altair.com/resource/disrupting-the-battery-development-process-with-an-intelligent-digital-twin?form=bypass) **- Disrupting the Battery Development Process with an Intelligent Digital Twin**
* [**Customer Story with Gruppo Cimbali**](https://altair.com/resource/digital-twins-boost-barista-altair-helps-gruppo-cimbali-speed-up-innovation-and-go-to-market?lang=en) **- Digital Twins Boost Barista**
* [**Customer Story with Patrone and Mongiello**](https://altair.com/resource/rolling-out-a-better-process-digital-twin-slashes-waste-15-and-runtime-hours-to-seconds?lang=en) **- Rolling Out a Better Process**
* [**Customer Story with Leonardo**](https://altair.com/resource/getting-the-signal-with-digital-twin-leonardo-deploys-digital-twin-to-capture-in-flight-behavior-of-helicopter-radar?lang=en) **- Getting the Signal with Digital Twin**

### Pattern Identification and Optimization

Based on the result fields of many simulated design variants, a group with uniform behavioral patterns is created using unsupervised learning, a machine learning approach. This allows hundreds of simulations to be processed intuitively. The example of megacasting impressively demonstrates the advantage AI over traditional methods.

Example:

* [Megacasting video](https://web.altair.com/altair-at-hannover-messe-press-preview-2024?wvideo=eqfcgpuxsu)
* [BMW](https://altair.com/customer-story/bmw-emulating-engineering-expertise-with-ai) - Emulating Engineering Expertise With AI
* [ABI-Report](https://altair.com/docs/default-source/news-documents/ca-1318-media-license-altair-v2.pdf?sfvrsn=7ed4b66_1) - ABI Research ranked Altair as overall leader

# **AI on the Factory Floor**

Today, most companies want to invest in data analytics and AI, but [recent data shows](https://altair.com/resource/altair-frictionless-ai-global-survey-report-2023) that only 13% of all companies excel at delivering on their data strategy. The reasons for this vary from company to company.

With Altair’s data analytics solutions, you can scale AI initiatives without requiring a big team of data scientists or expensive service engagements. Upskill your workforce so users from novice and expert users alike can leverage the data and analytics tools needed to provide data-driven insights.

### Enhance Supply Chain Management

Inefficiencies, delays, and higher costs are just some of the challenges the manufacturing supply chain faces today. Altair understands these challenges and provides comprehensive supply chain management solutions to optimize sourcing, inventory, and logistics. Our tools, including supplier collaboration, demand planning, and logistics optimization, help customers enhance efficiency and cost savings.    
  
With Altair’s data analytics and supply chain optimization expertise, manufacturers can master variable demand and streamline their operations, ensuring they can deliver high-quality products to their customers on time and within budget.

### Plan Maintenance and Prevent Equipment Failure

Conducting preventative maintenance, according to use time and cycles, helps all industries avoid equipment failure. But it can also mean stopping a well-functioning machine even if there’s nothing currently wrong. Predictive maintenance is a better way an organization can maintain equipment without disrupting production.    
  
By pairing our intuitive machine learning tools with cloud-based or edge computing systems to analyze data from your factory floor, [Altair® RapidMiner®](https://altair.com/data-analytics) - Altair’s data analytics and AI platform – helps you keep a close eye on your equipment’s health. Our solutions give you the confidence to keep machines running, knowing that you can catch and address issues that aren’t easily detectable, avoiding costly failures and equipment downtime.

### Transform the Warranty Process

The sheer number and variety of warranty claims in the automotive market makes traditional business intelligence-based methods unwieldy. But these claims contain valuable information about product quality and reliability, and customer expectations, and can also reveal design or manufacturing defects. Our solutions enable automakers to utilize this data source to improve existing products, develop more reliable new products, and increase profitability.