

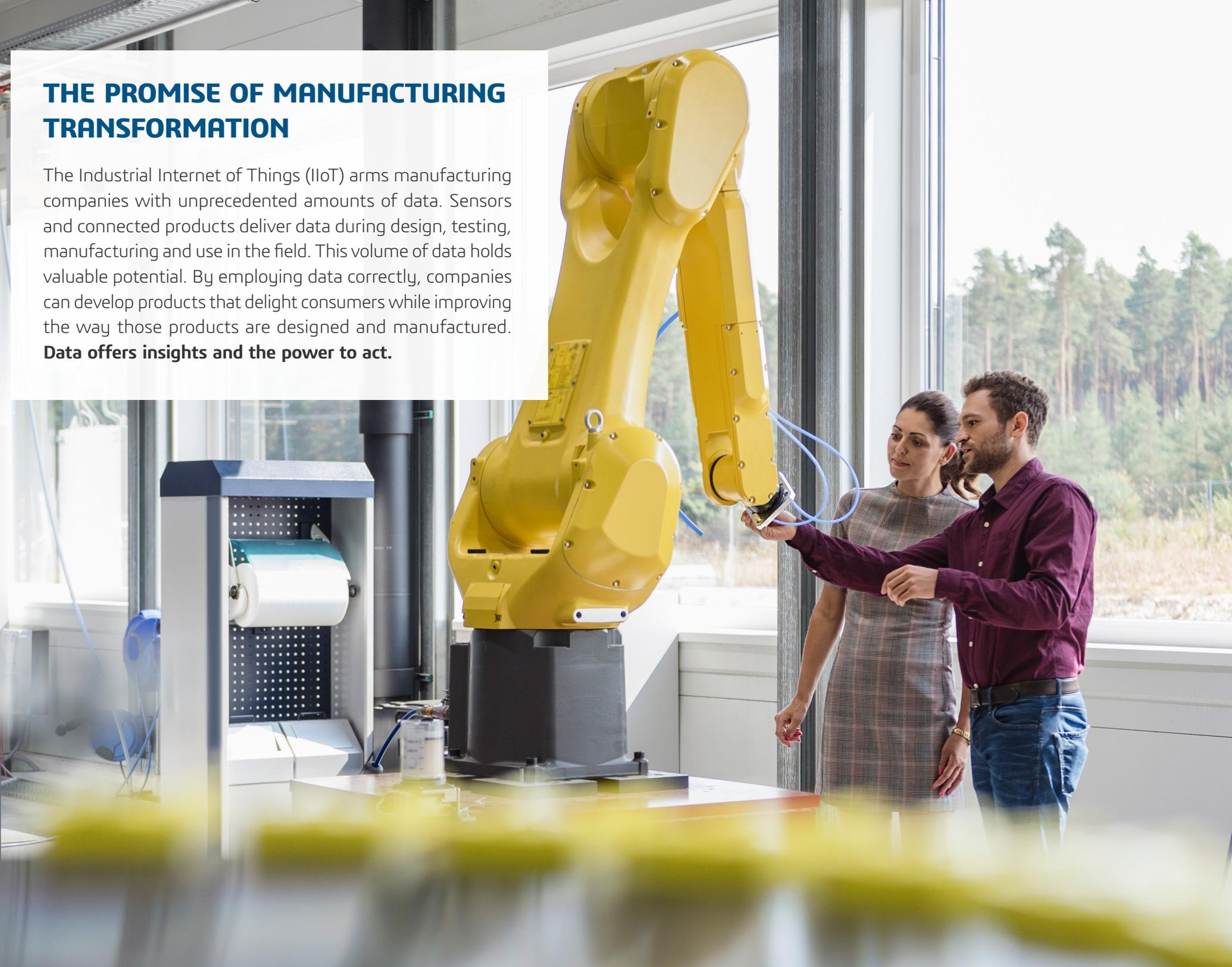


**TRANSFORMING MANUFACTURING:
THE POWER OF DATA IN ACTION**

THE PROMISE OF MANUFACTURING TRANSFORMATION

The Industrial Internet of Things (IIoT) arms manufacturing companies with unprecedented amounts of data. Sensors and connected products deliver data during design, testing, manufacturing and use in the field. This volume of data holds valuable potential. By employing data correctly, companies can develop products that delight consumers while improving the way those products are designed and manufactured.

Data offers insights and the power to act.



DIFFERENT INDUSTRIES, DIFFERENT NEEDS

As manufacturers implement factory modernization plans, data solves business challenges that occur across industries.

Leaders in **automotive** must manage lean manufacturing processes, synchronize operations, and reduce inventories, all while increasing production. They need real-time visibility into their global operations to better optimize quality and production processes. The challenges mount when delivering autonomous vehicles. Driverless vehicles must comply with new safety regulations while incorporating innovative new technologies.¹

Industrial equipment companies seek the latest technology to help them succeed in new markets. The increase of connected systems, people and data is a cornerstone of industrial equipment manufacturers' ability to respond to current and future customers' preferences.

In order to reduce backlogs of up to ten years, **aviation manufacturers** must reduce the time and cost required to deliver commercial aircraft. They must balance accelerating production of these complex systems while maintaining quality standards. The use of advanced design, simulation and manufacturing solutions that help identify problems more efficiently by eliminating the need to manually translate data helps manufacturers to deliver on target.

A great source of regulatory risk for **medical device manufacturers** today is in meeting quality standards such as Corrective and Preventive Actions (CAPA). Medical device companies require a solution that combines engineering, quality and regulatory compliance processes integrated into their research and development.

Business technology transformation initiatives which maximize the power of data in action offer solutions to manufacturers across industries.

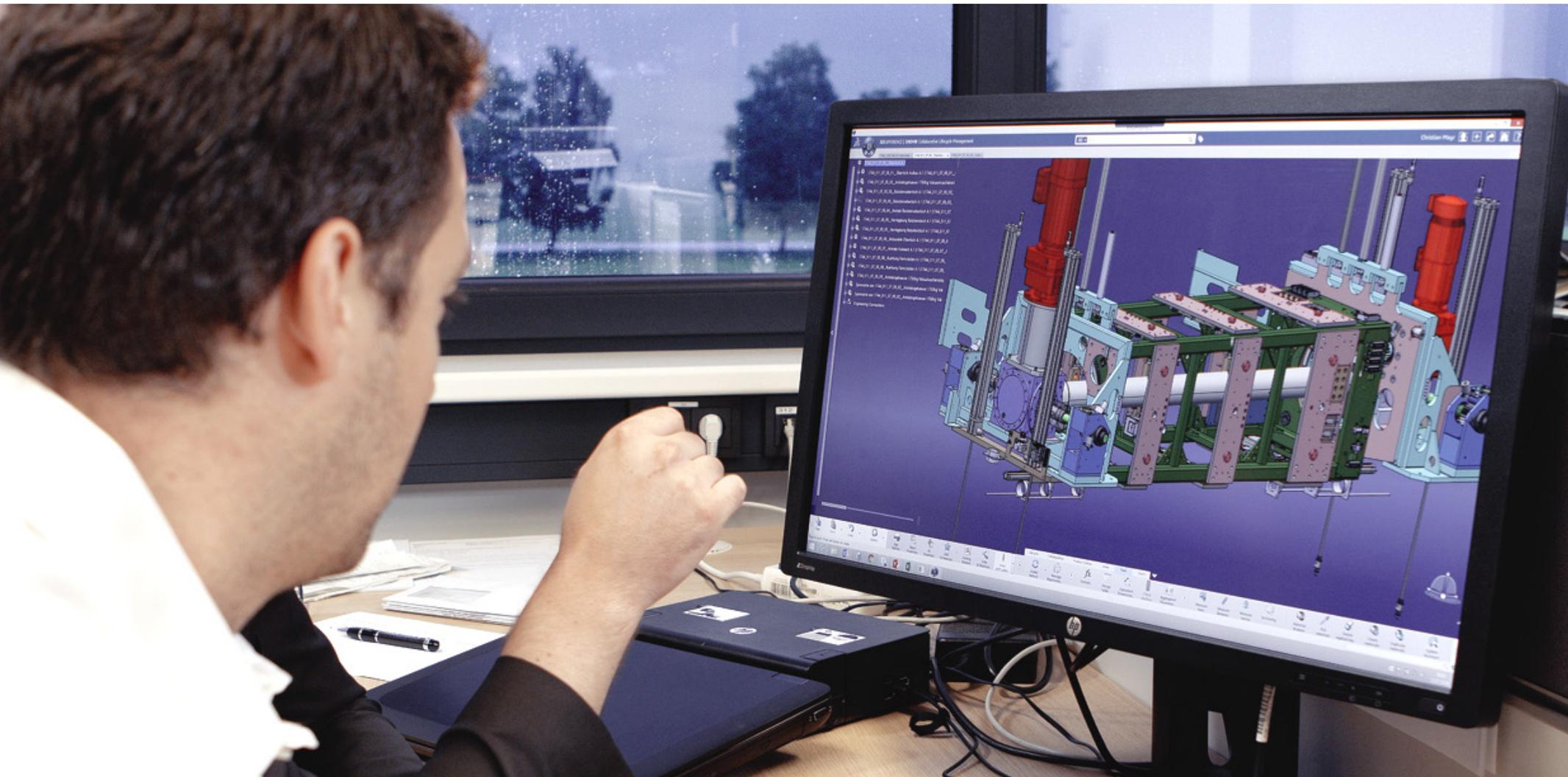


PUTTING DATA INTO ACTION

A 3D virtual model (a virtual experience twin) can vastly simplify your operations. At the heart of the **3DEXPERIENCE**® platform, the virtual experience twin provides an exact 3D virtual model of your product — from the ideation or requirements phase continuing through the full product lifecycle.

The **3DEXPERIENCE** platform maintains the virtual experience twin and all relevant project data. Using a 3D virtual model allows a safe and

cost-effective way to test design changes and manufacturing processes in a virtual environment before implementing in the real world. Simulating manufacturing planning and execution in the virtual world first minimizes production costs and improves quality and flexibility. This allows companies to respond more quickly to changing market demands.



THE POWER TO MOVE

In the automotive sector, the pressure to innovate is in high gear. Vehicles must cater to consumer desires for entertainment, comfort, safety, performance and connectivity. On top of all that, they need to be energy efficient.

The good news? Suppliers can improve the manufacturing process with new tools that help them develop and virtually validate products. These future-forward innovations help industry leaders deliver outstanding products and services to vehicle owners to secure customer loyalty and win new market share.

One manufacturer facing unique hurdles is AeroMobil, a Slovakian company developing a flying car by combining the best of ground and air travel. The process involves daunting design and certification challenges, since the final product needs to meet specifications for both the automotive and aerospace industries. AeroMobil uses Dassault Systèmes' Product Lifecycle Management software ENOVIA, available on the **3DEXPERIENCE** platform, to determine the best design before prototyping.

“ ENOVIA allows us to monitor and measure ourselves against these complex targets. We assign regulations to each component and system, enabling us to remain focused and keep track of the design of each piece to ensure the product is safe.”

– Doug MACANDREW
Chief Technology Officer, AeroMobil

AeroMobil stays organized with ENOVIA by storing documents, information, work plans and reports in the program at a very early stage. The company's designers outline requirements and assign tasks before sharing this information with departments like testing, development, finance and purchasing.

In addition, AeroMobil uses ENOVIA to validate R&D choices before cars hit the factory floor. “The customer drives our decision-making process, and ENOVIA allowed us to digitally imagine the vehicle environment and how the customer would experience that environment,” MacAndrew stated.





Companies that focus exclusively on ground transportation also benefit from the **3DEXPERIENCE** platform. 3CON, which manufactures interiors and ergonomics equipment for the automotive industry, had to accelerate the design and delivery of products tailored to client specifications while improving cooperation between work sites. The Austrian company configures its bill of materials with ENOVIA, increasing collaborative innovation and cementing itself as a leader in the space.

3CON manages workflows more efficiently with ENOVIA's integrated project management solution. The solution enforces design approvals so they are completed at the right time by the right person.

“**ENOVIA provides us with a clear change management scheme that we could refer back to whenever needed.**”

– Christian MAYR
Chief Technology Officer, 3CON

The company further deployed Dassault Systèmes' digital manufacturing tool, DELMIA, to program and simulate its Computer Numerical Control (CNC) machining protocol. Through this process, software can digitally administer the movement of factory tools like grinders, lathes and mills. 3CON used DELMIA and the CNC system to virtually simulate and position robots before physically installing them on the assembly line.

As a result, the company improved design productivity by 30% and reduced commissioning time at customer sites by 50%. “With the **3DEXPERIENCE** platform, we have a flexible and open environment that enables us to collaborate and share information with our clients,” Mayr stated.

THE POWER TO INNOVATE

Manufacturers use technology to build parts more efficiently and intelligently. For German firm Wittur, the **3DEXPERIENCE** platform provided the tools they needed to achieve this objective.

The company, which produces a wide range of elevator components, modules and systems, needed to simplify its complex IT infrastructure and leverage diverse data across groups. They adopted Dassault Systèmes' EXALEAD OnePart search application to increase part reuse and reduce the number of redundant or duplicate units in its system. EXALEAD identifies existing pieces to use in new projects, so Wittur avoids creating extra components unnecessarily. The new workflow simplified processes by giving employees access to a consolidated source of standardized parts information that the entire company could use.

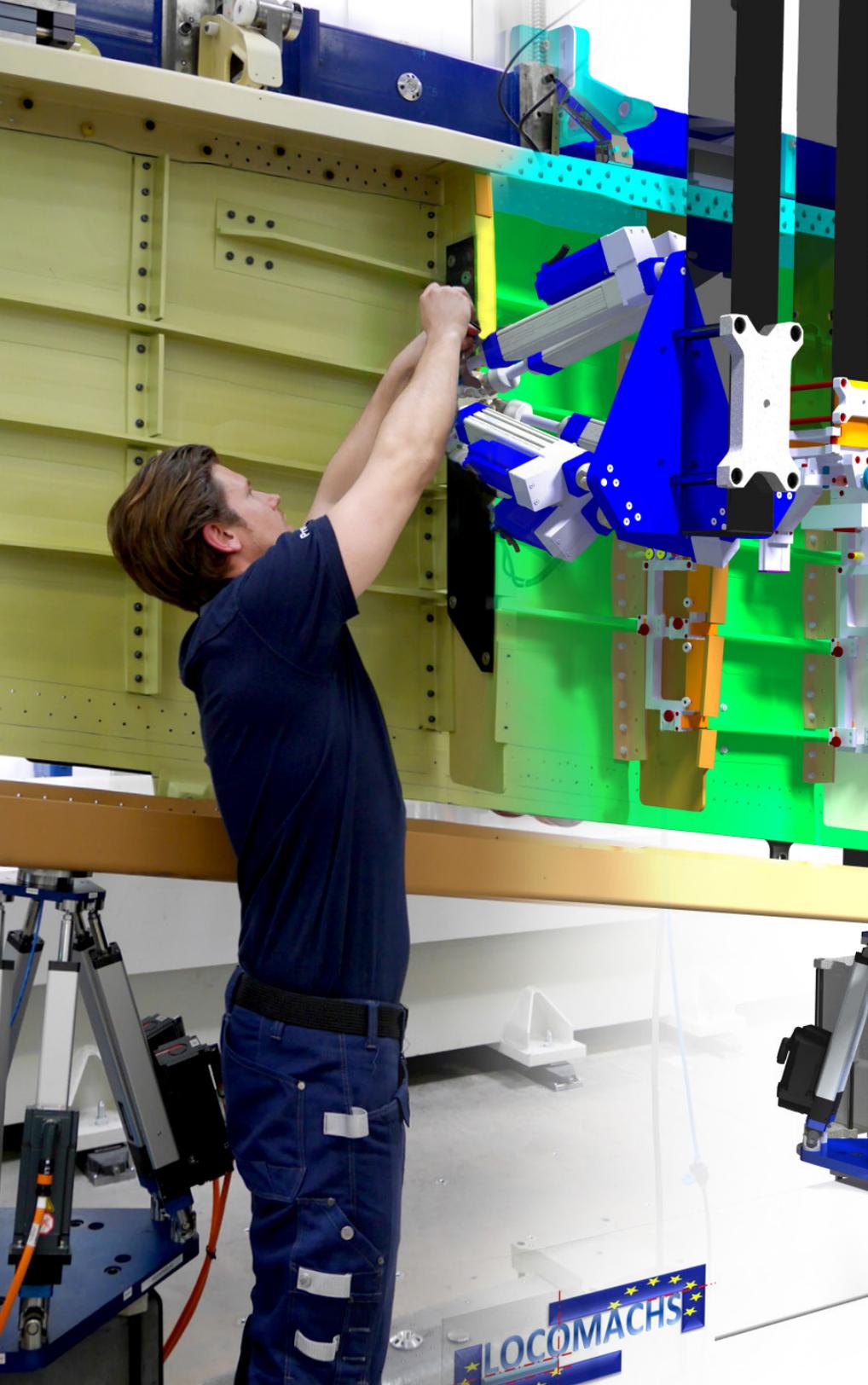
"Our workers need to obtain the right drawing information as quickly as possible," Markus Aichinger, corporate R&D manager, said. "EXALEAD OnePart is fast, and its search results are pertinent and very precise. Before, our engineers would have to search for information in different sources. Now it's EXALEAD that does this for them."

Indeed, EXALEAD reduced the overall time Wittur's employees spent manually looking for data by a combined 20 hours per day. The company saved \$207,000 annually in the process.



THE POWER TO STREAMLINE

Aerospace and defense manufacturers seek transformation initiatives for their supply chains to improve efficiency. Manufacturers and their supply chains must somehow navigate ever-more-complex systems, growing demand, increased competition and government requirements to keep costs down. Companies may need to make significant changes as they learn to use data correctly, but if they can leverage the latest technologies to bring together teams in locations around the globe, innovation will accelerate.



A research and development project called LOCOMACHS (Low-Cost Manufacturing and Assembly of Composite and Hybrid Structures) is a perfect example of this. Comprising 31 key European players in the aircraft industry, LOCOMACHS develops technologies that produce and assemble composite parts faster by mitigating time-consuming operations that generate recurring costs for production lines.

Business leaders chose the **3DEXPERIENCE** platform to improve data efficiency. The LOCOMACHS team planned and simulated the wing fixture and assembly line with DELMIA, which simplified the process and made structural assembly more cost-effective. Then workers at LOCOMACHS used DELMIA to determine the optimal number of wing box operators; they also used the ergonomics aspect of the software to design platforms that helped pilots reach the work area safely. Both data points were key to avoiding potential bottlenecks.

“We were able to more efficiently balance the workload between stations and reduce overall lead times because there were fewer errors to correct,” said Peter Helgesson, director of production technology at LOCOMACHS partner Prodtex.

DELMIA also produced virtual work instructions that were easier to understand than paper documents, so LOCOMACHS could cut operator training and keep data live and updated.

“The aerospace industry has a lot to gain by adopting an integrated and collaborative environment that facilitates the complex process of building an airplane. The **3DEXPERIENCE** platform can help with this process.”

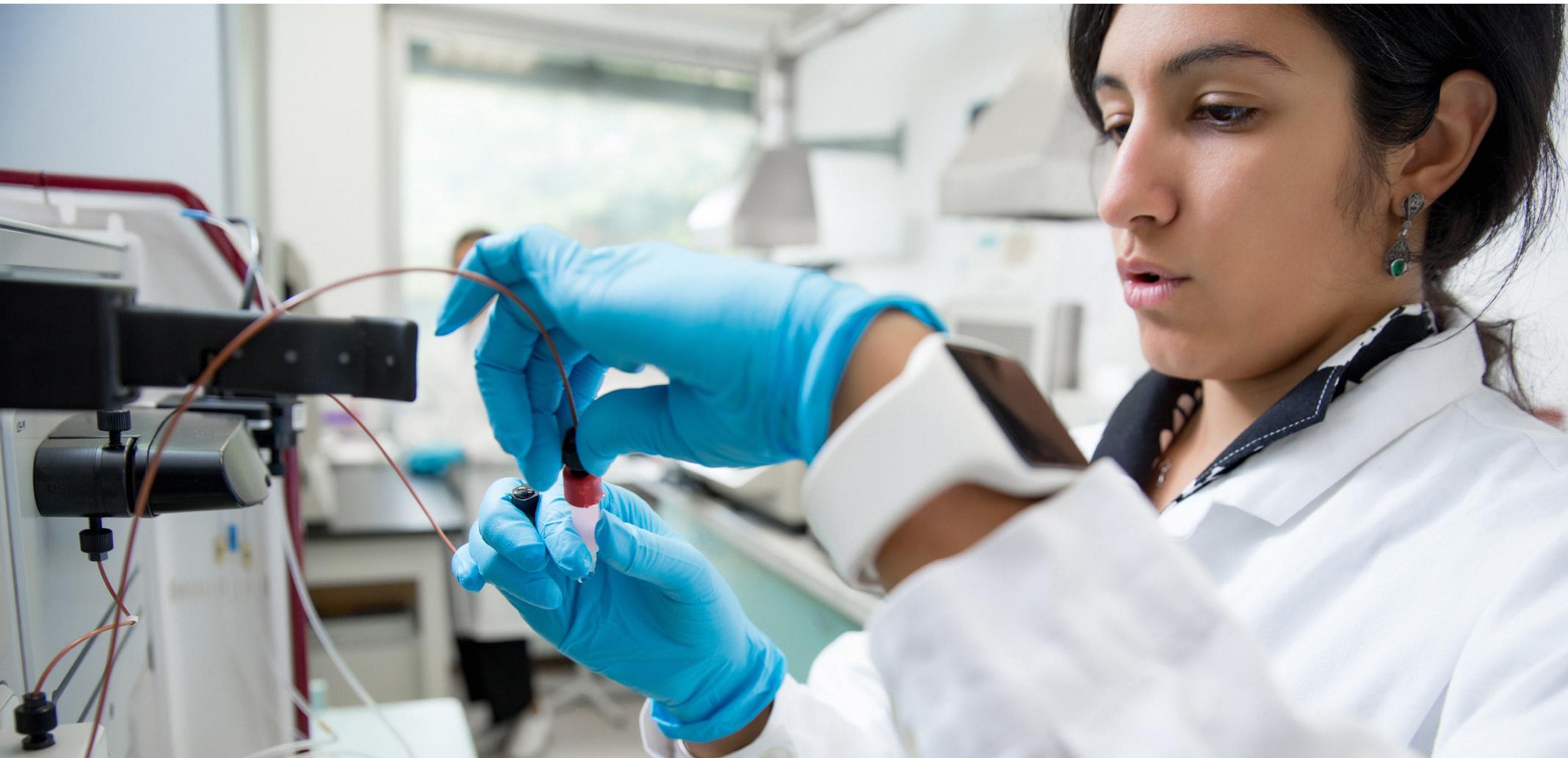
– Peter HELGOSSON
Director of Production Technology at Prodtex

THE POWER TO HEAL

Medical device makers employing adaptive manufacturing use flexible components to get an order through logistics more quickly. By simplifying processes, they deliver products to market faster to help customers.

One company leading the charge is AB SCIEX, a U.S. manufacturer of scientific instruments and software services for clinical research and industrial markets. The firm needed to augment existing systems and manage engineering design data so users around the world could be more productive.

AB SCIEX deployed ENOVIA across its entire enterprise in 12 separate locations, supporting hundreds of employees. Personnel worked faster, more efficiently and with fewer challenges, thanks to ENOVIA's industry-standard business processes for configuration, workflow, contracts and requirements. In the process, AB SCIEX improved existing product designs, enhanced development processes and increased collaboration with suppliers.



One of the biggest challenges was compliance. Like many life sciences firms, AB SCIEX must follow an ever-increasing number of international environmental regulatory requirements. The company used ENOVIA to track new and emerging laws throughout the supply chain and to ensure its products complied with global directives.

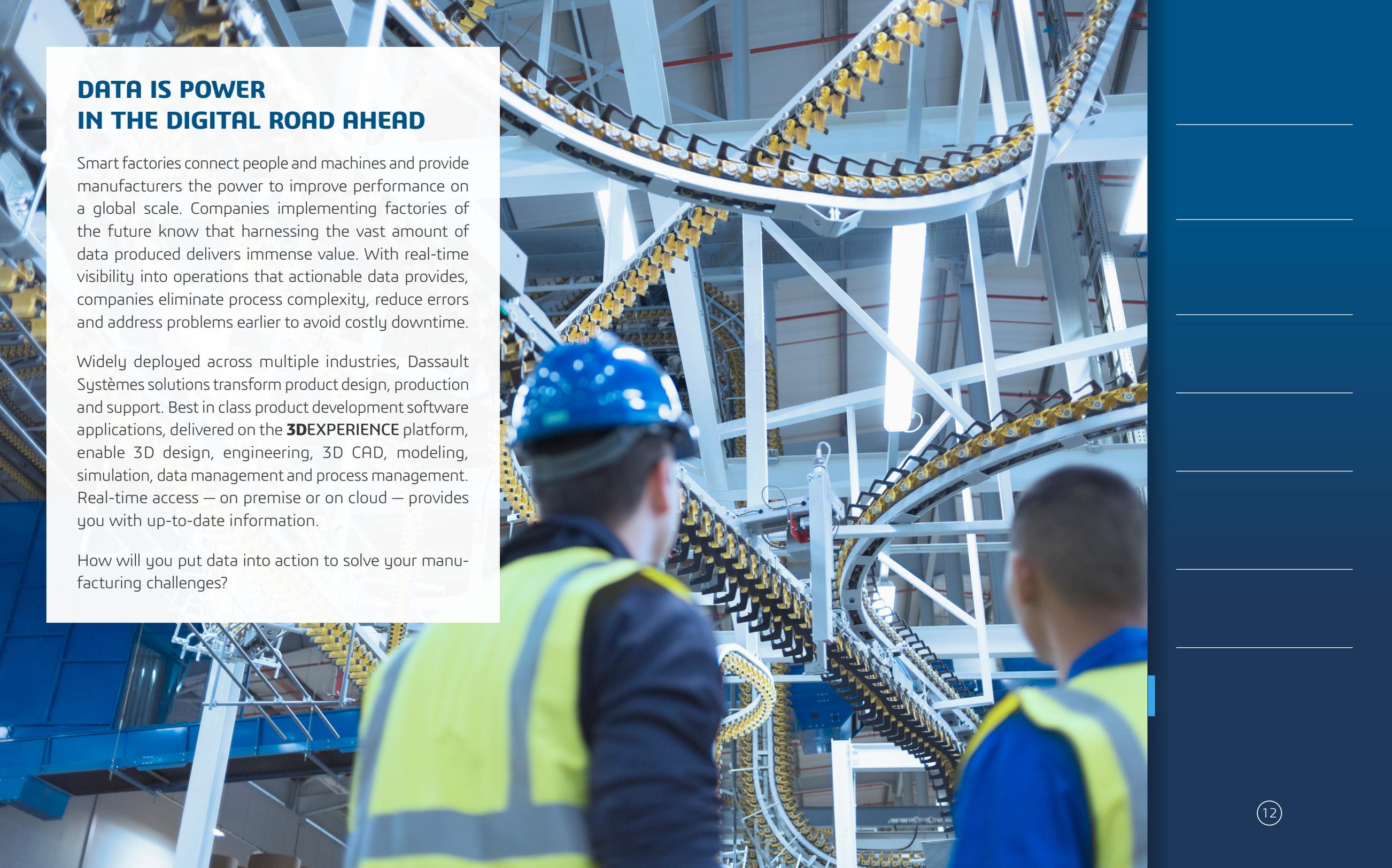
“The beauty of the **3DEXPERIENCE** platform and ENOVIA was that it allowed us to manage environmental compliance by region.”

– George VALAITIS
Program Manager

Workers in any sector who received a bill of materials could import data directly into ENOVIA and determine which components did or did not comply. That made it much easier for teams to collaborate. “One significant advantage is that everything is available up front,” Valaitis stated. “ENOVIA is a very clear communication tool for our managers.”

AB SCIEX’s product development cycle has indeed gotten more efficient. “Our implementation program is allowing us to tidy up existing designs, enhance our processes and attain environmental compliance all at the same time,” Valaitis concluded.





DATA IS POWER IN THE DIGITAL ROAD AHEAD

Smart factories connect people and machines and provide manufacturers the power to improve performance on a global scale. Companies implementing factories of the future know that harnessing the vast amount of data produced delivers immense value. With real-time visibility into operations that actionable data provides, companies eliminate process complexity, reduce errors and address problems earlier to avoid costly downtime.

Widely deployed across multiple industries, Dassault Systèmes solutions transform product design, production and support. Best in class product development software applications, delivered on the **3DEXPERIENCE** platform, enable 3D design, engineering, 3D CAD, modeling, simulation, data management and process management. Real-time access — on premise or on cloud — provides you with up-to-date information.

How will you put data into action to solve your manufacturing challenges?

Inceptra supports engineering and manufacturing organizations with best-in-class solutions to digitally design, simulate, produce, and manage their products and processes, enabling enhanced innovation and productivity.

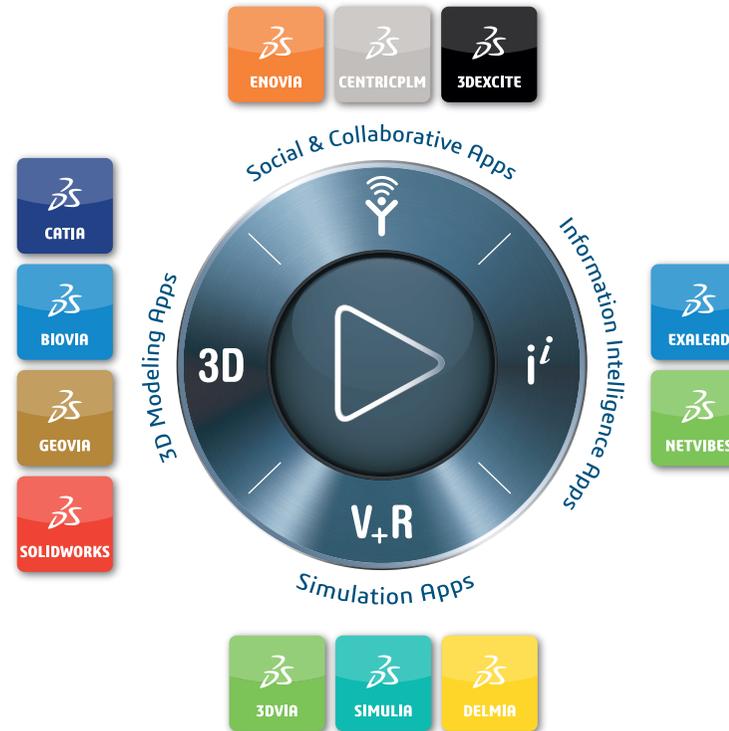
As the largest Platinum partner in North America, Inceptra is dedicated to Dassault Systèmes' product development software portfolio, complementary solutions, and related services, including training, implementation, integration, support, consulting, and automation services. For more information, please visit Inceptra.com.

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Our 3DEXPERIENCE® platform powers our brand applications, serving 11 industries, and provides a rich portfolio of industry solution experiences.

Dassault Systèmes, the 3DEXPERIENCE® Company, provides business and people with virtual universes to imagine sustainable innovations. Its world-leading solutions transform the way products are designed, produced, and supported. Dassault Systèmes' collaborative solutions foster social innovation, expanding possibilities for the virtual world to improve the real world. The group brings value to over 250,000 customers of all sizes in all industries in more than 140 countries. For more information, visit 3ds.com.



Sources:

¹McKinsey & Co., [6 Factors for a Successful Digital Manufacturing Transformation](#),

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