

spring 2011

# DELMIA world news

The DS Digital Manufacturing & Production Magazine



**Intercim**  
Dassault Systèmes Acquisition



**NASA Marshall**  
In-Space Operations



**Bilsing Automation**  
Driving Business

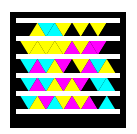
**EDAG Light Car:**  
Electric Car of the Future





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As a world leader in 3D and Product Lifecycle Management (PLM) solutions, Dassault Systèmes brings value to more than 115,000 customers in 80 countries. A pioneer in the 3D software market since 1981, Dassault Systèmes applications provide a 3D vision of the entire lifecycle of products from conception to maintenance to recycling. The Dassault Systèmes portfolio consists of CATIA for designing the virtual product - SolidWorks for 3D mechanical design - DELMIA for virtual production - SIMULIA for virtual testing - ENOVIA for global collaborative lifecycle management, and 3DVIA for online 3D lifelike experiences. For more information, visit [www.3ds.com](http://www.3ds.com)

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All of us sincerely appreciate your loyalty and dedication; I look forward to our continued partnership and working with you to provide innovative solutions to meet industry demands.



Dear Valued Readers,

Thank you for joining us for the 22nd edition of the DELMIA World News. 2011 is already proving to be another exciting year for us all. On March 17th, Dassault Systèmes announced the acquisition of Intercim. This strategic move will expand Dassault Systèmes' manufacturing and supply chain reach by defining a new step for PLM. One that will deliver digital continuity from engineering to the real factory operations, helping DS customers in advanced and highly regulated industries scale up their operations to the next level of productivity.

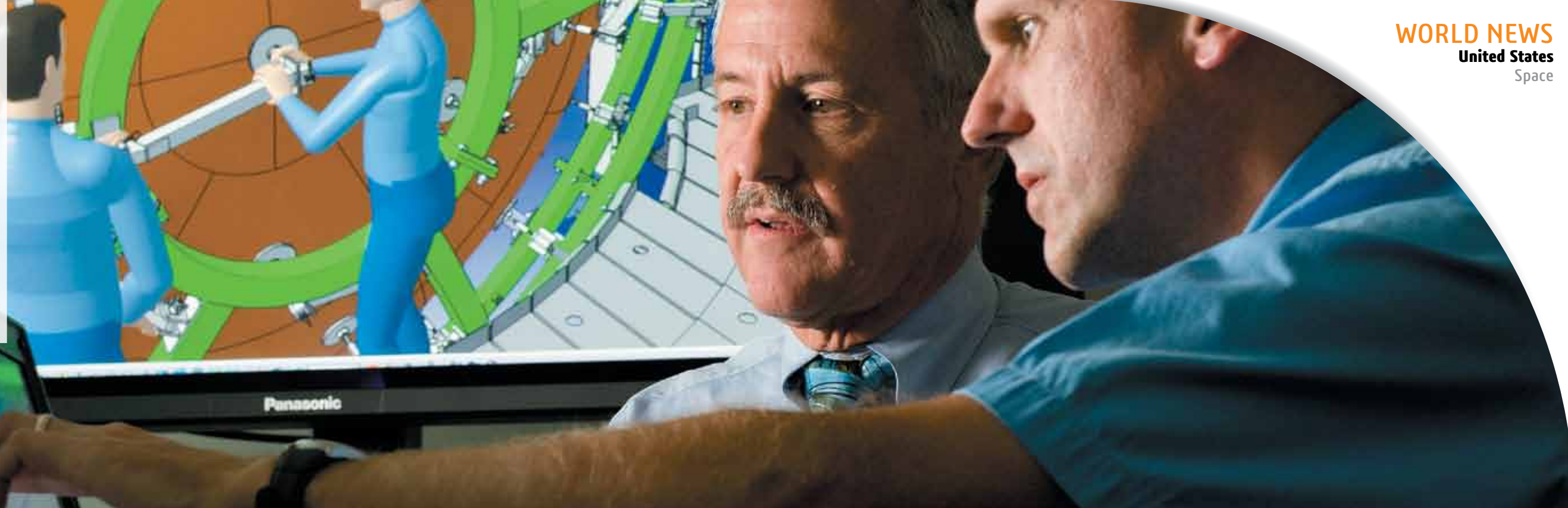
Product innovation requires production innovation. With the addition of Intercim, DELMIA's virtual production platform now enables customers to demonstrate what they have built was exactly what they had planned to build, and use this conformity information for certification purposes. Doing so, Dassault Systèmes defines a new step for PLM, delivering digital continuity from engineering to the real factory operations. Each unit produced is "built right" the first time, in full intent, and is certified to operate. This certification aspect of the DELMIA new offering makes it especially relevant for the aerospace and life sciences industries where safety is a major challenge in and beyond the manufacturing process. We are very excited about sharing this next step in our mission with all of you.

This issue of the DELMIA World News examines the latest in V6, our recent V6R2011X release. V6R2011X delivers new single-platform enabled capabilities that push the boundaries of collaboration. You will also learn about NASA Marshall and how their use of 3D simulation saves money; how DELMIA Robotics helps Bilising Automation North America drive business; and why EDAG Light Car, the electric car of the future, is using DELMIA V6. All are great examples of how DELMIA solutions enhance today's manufacturing landscape.

All of us sincerely appreciate your loyalty and dedication; I look forward to our continued partnership and working with you to provide innovative solutions to meet industry demands. Meanwhile, enjoy this new edition of the DELMIA World News.

Best regards,  
Philippe Charlès  
CEO, DELMIA, Dassault Systèmes

In a 3D virtual environment, NASA can simulate almost any process before it occurs. Ultimately, 3D simulation has increased team collaboration while reducing manufacturing and ground operations costs.



NASA Marshall is tasked with designing the best spacecraft and propulsion systems.

## Money is Better Spent in Space

### How NASA's use of 3D Simulation Saves Money on the Ground

NASA's Space Shuttle program took flight in 1981. Over the years, much has changed in the way NASA designs and manufactures spacecraft. After three decades, the last shuttle launch is planned for the summer of 2011. As the new Constellation program takes off, 3D technology is one of the changes that is helping NASA reap major benefits.

When the space shuttle was being designed in the 1970s, NASA was primarily focused on flight operations. In addition to being the first orbital spacecraft designed for reuse, engineers had to ensure it could carry various payloads to orbit; provide crew rotation for the International Space Station (ISS); perform servicing missions; recover satellites from orbit; and return them to Earth.

Even with advanced technology, the limitations of 2D drawings forced NASA to focus mainly on flight with little consideration for optimized manufacturing processes or ergonomics. At

Marshall Space Flight Center (MSFC) in Alabama, engineers were tasked with designing the best spacecraft and propulsion systems possible. Once transported to Kennedy Space Center (KSC), NASA's primary launch operations site, engineers had to adapt ground operations to an as-built vehicle.

Because the shuttle was designed primarily for flight and astronaut tasks in orbit, engineers had to develop "work-arounds" for nearly every task required for launch, making the space shuttle very expensive to operate.

"If you're spending money on ground operations, you're not spending it on in-space operations," notes Charlie Dischinger, who leads the human factors engineering team at Marshall. Since the late 1990s, Dischinger has used 3D digital manufacturing software to simulate worksite design for astronauts in orbit. Recently his team has been simulating ground operations that influence spacecraft design in order to eliminate the costly "work-arounds."

With DELMIA, the Dassault Systèmes digital manufacturing solution, NASA Marshall can go beyond the requirements for a good flight design to assess manufacturing processes and human tasks. Introducing DELMIA at the outset of the Constellation program

fundamentally changed how NASA engineers operate. Now, before even considering launch operations at Kennedy, the Materials and Process Laboratory at Marshall ensures that designs are cost-effective and feasible.

The manufacturing simulations team has used DELMIA since the late 1980s, and that team is now focused on driving efficiencies in the Constellation program. For example, while simulating a welding process for the Ares I rocket – a crew launch vehicle – the team found that the weld head could not move into position without hitting another piece of hardware. The weld head needed to remain perpendicular to the joint, which simulation showed was impossible as originally designed.

"Identifying an issue like this early in the process keeps the project on time," said Steven Phillips, who leads the Advanced Processes and Digital Solutions Team within Marshall's Materials and Process Laboratory. "If we had not found the problem, it would have been a big hit to our schedule, and it could have damaged some very expensive equipment."

In another simulation, the team considered reusing Apollo-era hardware to weld joints on the Ares I rocket. Reusing the hardware

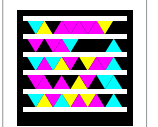
would save time and money, but the team needed to be sure it would work before moving ahead. Simulation identified a critical kinematic issue, which was addressed before any work began. The project was completed on schedule.

Much of the work done by Marshall's human factors team influences tasks that occur after manufacturing is complete. Worksite analysis is performed to evaluate a human's reach, posture, line of sight and other elements that contribute to project success.

For example, once a vehicle is manufactured, it is transported to Kennedy and prepared for launch. Originally, NASA would build a vehicle and then determine how to transport it; this is no longer necessary with 3D simulation. Now, Marshall's human factors team simulates how a person would interact with the vehicle to secure it for transport and designs the vehicle to accommodate these considerations.

In a 3D virtual environment, NASA can simulate almost any process before it occurs. Ultimately, 3D simulation has increased team collaboration while reducing manufacturing and ground operations costs. ■

Use your smart phone to learn more.



**MORE INFORMATION**

[www.nasa.gov/centers/marshall/home/index.html](http://www.nasa.gov/centers/marshall/home/index.html)

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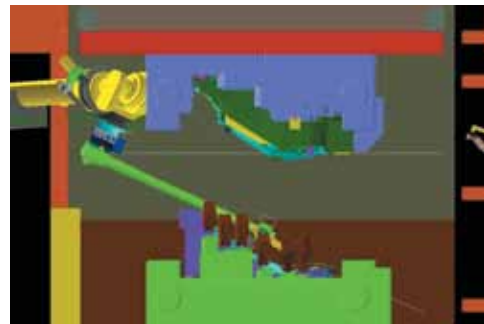
# DELMIA Robotics Drives Bilsing Automation Business

## Pressroom and Bodyshop Simulation Attracts Automotive Clients

Bilsing Automation is a global provider of flexible tooling and handling systems for pressroom and body shop applications. The company is focused on providing optimum product performance that results in cost reductions, while supporting the customer through planning, design, engineering, assembly and commissioning.

As part of its services, Bilsing Automation also offers 3D digital simulation and on-site training. The company employs DELMIA Robotics to produce digital simulations of robotic workcells as well as for offline programming.

Bilsing's success is built upon its ability to quickly develop a customized automation solution from the company's catalog of standard components. By simulating robot motions, they are able to verify that the robots can achieve all the required motions, all without interferences. This can eliminate re-tooling during the build phase, hugely affecting system launch time.



Collisions can be avoided by using DELMIA Robotics.

Currently, all of the Bilsing simulations are produced by its office in France, although the simulations can be shared via virtual design reviews with anyone on the project, no matter where they are located. "System simulation is a requirement in order to gain projects from many OEM's," says Fabien Davaine, Bilsing project simulation engineer. "We have experience in various software, but DELMIA is really the best one – the easiest, the fastest and the most effective."

Bilsing's North American operations gained a significant competitive advantage due to their deployment of robotic simulations. According to Ben Pauzus, General Manager for Bilsing North America, "DELMIA simulations in the virtual world play a significant role in convincing customers that a proposed automation system will achieve all of its specifications."

A case in point was when a Tier One automotive supplier called upon Bilsing to help with a manufacturing line in Tennessee requiring 13 die sets for transfer press tooling. In the case of transfer press lines, the OEM proposes the process and provides the supplier with the part data. It's the responsibility of the die designer to develop dies around those curves. Says Pauzus, "The OEM had made it clear that they would not approve the dies without verifying the tooling curves through simulation." Using "volume sweeps" in DELMIA, Bilsing was able to demonstrate the operation of the system as well as verifying there would be no interference between the robot motions and the die sets. The simulation was completed within a week, verifying the die and tooling design and resulting in Bilsing being awarded the business.

According to Pauzus, the business case for simulations is largely based on the principle of reducing the amount of time spent on intervention on the factory floor. "Using this software, we can not only determine the production rate of a given line, but which movement is possible with a robot or shuttle as well as determining the best trajectory for the robot motion. We can also identify any collisions which may occur in the virtual world, eliminating re-tooling or reprogramming late in the production cycle."

As product development cycles continually shorten, the focus on productivity becomes even more crucial. "Today's OEMS expect the supplier to bring the dies into the press with the tooling in place and be up and running within two hours," says Pauzus. "This could not be accomplished without simulation and offline programming in a virtual 3D world." ■



DELMIA simulations in the virtual world play a significant role in convincing customers that a proposed automation system will achieve all of its specifications.

**MORE INFORMATION**  
[www.bilsing-automation.com](http://www.bilsing-automation.com)

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V6 opens up completely new horizons for 3D applications. This is reflected in the simple and intuitive representation of assembly sequences from the EBOM by drag and drop, which greatly lightens the workload.



The new generation of electric vehicles.

# EDAG Light Car: Electric Car of the Future

## Sets New Standards for Information Acquisition with DELMIA V6

The EDAG Light Car has a body concept developed specifically for the new generation of electric vehicles, using the latest lightweight materials, semi-finished parts and assembly sequences. With its innovative lighting concept, it is one of the first vehicles to use O-LED technology as an individually adaptable design and communication element outdoors. EDAG Group is a partner of the international mobility industry whose main activities include the complete development of vehicles and production facilities. Additionally, the company is positioned as a turnkey partner in plant construction and small-series production.

To develop and implement this unusual, future-oriented approach for design, traffic control systems and vehicle technology, the teams at EDAG take advantage of the software portfolios from Dassault Systèmes. Starting with the design on up to the finished product, the process includes the entire scope of manufacturing lifecycle management and product lifecycle management. The EDAG Light Car was developed using CATIA V5. The production concept was realized with DELMIA V6—from planning the assembly and process sequence to the setup of the manufacturing cell, robot simulation and line balancing of the EDAG Light Car manufacturing cell. Karina Schäfer, a project manager and expert responsible for digital factory production solutions, explains the decision for DELMIA V6 with the positive experience in using DELMIA software for other EDAG projects.

### Detailed Engineering in Three Phases

"The detailed engineering with EDAG basically occurs in a three-stage model," says Schäfer. The first stage covers pre-engineering, including the definition of product standards and the investigation of influential factors. "Pre-engineering influences the product with regard to production requirements." In the second stage of the digital factory, the concept engineering and 3D detailed engineering are depicted. Finally, the third step describes the virtual commissioning and implementation of the system. "After-all, our customers are also able to inspect the system using the virtual model," Schäfer points out.

This method using DELMIA V6 provides clear advantages by accessing an integrated data model that doesn't require problematic interfaces. "With EDAG Light Car, we've implemented DELMIA V6 for the first time in a pilot project," says Torben Möller, a planner from EDAG. "The product developer generally determines the structure of how the individual parts are assembled. With V6, operation is simpler than with V5, because through an intuitive drag and drop function, the necessary components and elements can be used and integrated, for example, into the assembly or process sequence." Basically, DELMIA V6 is conceived in such a way

that it permits database-supported planning in conjunction with ENOVIA. For the EDAG Light Car, the simple and intuitive operation of the planning software has been employed and tested with the database.

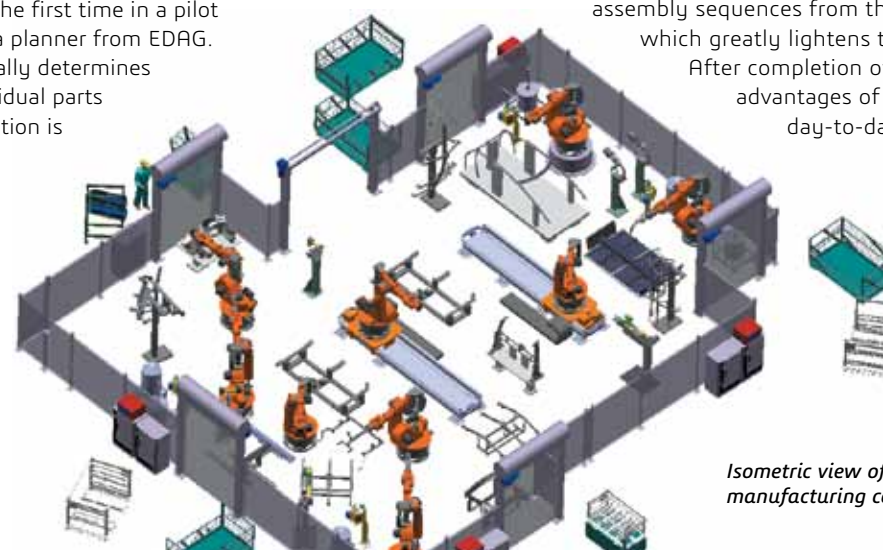
The successful pilot project demonstrates even more improvements for the day-to-day work of users. The "lifelike experience" provides users with a better overview of intermediate products and greater transparency throughout the manufacturing process. Here the V6 solutions offer powerful, user-friendly search and navigation capabilities in order to access desired information from anywhere online and depict it in realistic 3D environments that people understand intuitively, because they correspond to real life. "V6 opens up completely new horizons for 3D applications. This is reflected in the simple and intuitive representation of assembly sequences from the EBOM by drag and drop, which greatly lightens the workload," says Möller.

After completion of the pilot phase, the advantages of DELMIA V6 can be applied to day-to-day tasks.

element, application is simplified, more comprehensible and efficient for the planner," says Möller. In particular, data acquisition can be carried out more easily. "If in fact all information is available when using V6, the real work of the planner—that is the creative part of his job—can be significantly expanded, since with DELMIA V6 the process of information acquisition is considerably more transparent for planning," he concludes.

In conclusion, with V6 the creation of assembly sequences, linking of processes and resources and the creation of process sequences can be realized more easily than with V5. Nevertheless, there are further requirements that must be fulfilled in order to better meet the production needs.

In the course of the year, the successful, constructive and close cooperation between DS and EDAG will surely lead to further optimizations in using DELMIA V6. Adds Schäfer, "We are engaged in a close dialogue with Dassault Systèmes in order to improve DELMIA V6 even further for productive project implementation by drawing on experience from the EDAG Light Car project." ■



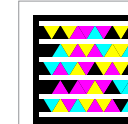
Isometric view of the manufacturing cell.

Since processes are assigned with the pre-defined and planned resources in 3D, this significantly simplifies project processing. "Thanks to the 3D

### MORE INFORMATION

www.EDAG.com  
www.edag-light-car.com/index\_en.html

Use your smart phone to learn more.



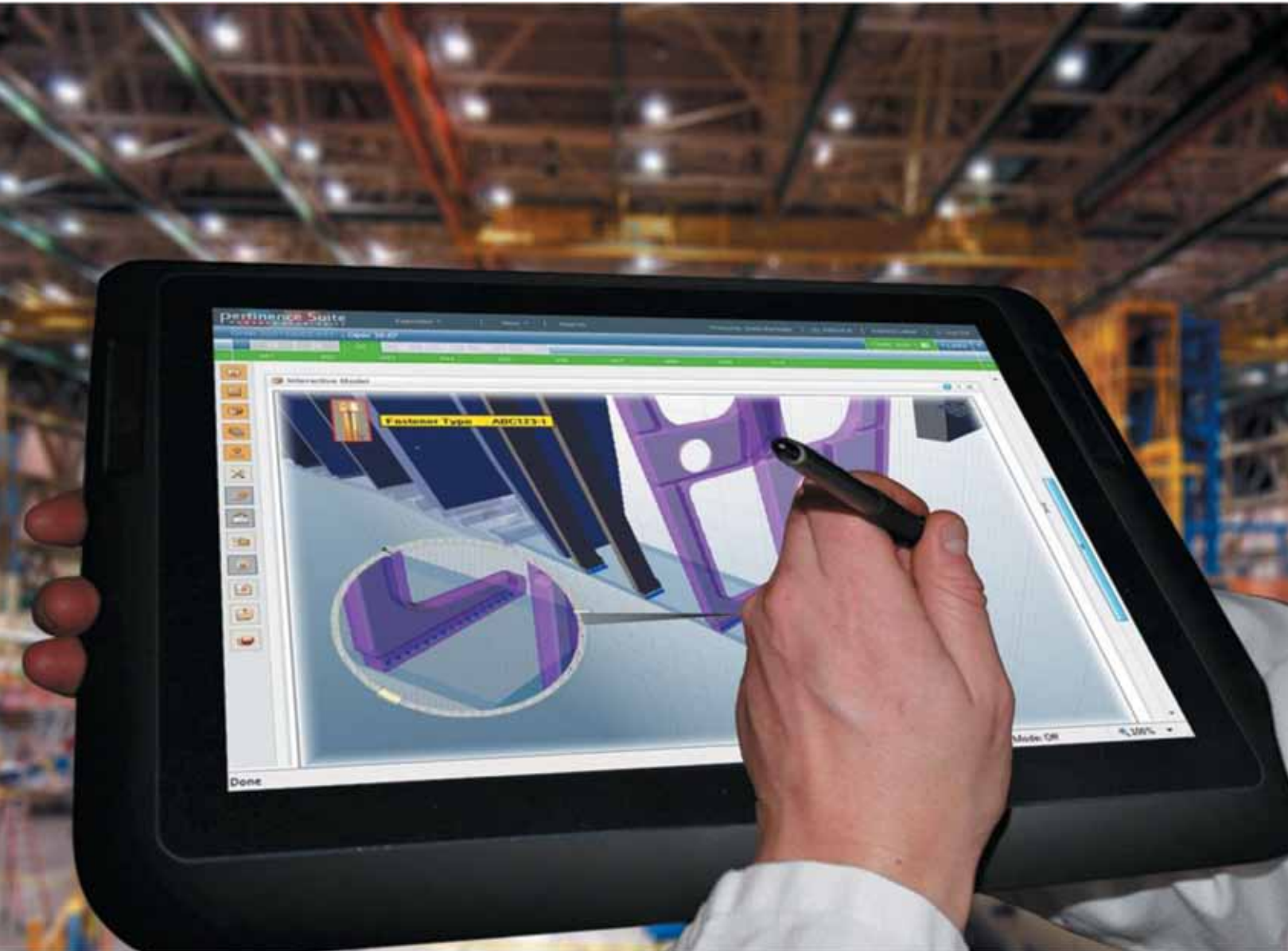
DELMIA.info@3ds.com

# Intercim Joins the DS Family to Further Digital Continuity from Engineering to the Shop Floor



**John Todd**  
CEO, Intercim

Engineers are now empowered with real-time visibility into manufacturing operations to ensure their designs are compliant with their organization's layout and capabilities.



DELMIA's reputation for excellence in digitizing shop floor production innovations was further strengthened in March as parent company Dassault Systèmes announced the acquisition of Intercim LLC, a leading provider of manufacturing and production operations management software for highly-regulated industries, at a valuation of \$36.5 million. Dassault Systèmes' purchase of Intercim, a partner since 2004, follows a June 2008 Memorandum of Understanding to provide the aerospace and defense industry with Intercim's Web-based manufacturing operations management solution integrated with Dassault Systèmes' V6 platform, as well as a 2009 minority investment and a 2010 Master Reseller Agreement.

produced is built correctly from the outset, fully inline with the original intent and vision of the design and engineering teams. When a product built with DELMIA is certified to operate, one can rest assured that it's built to last.

John Todd, CEO of Intercim, sees the melding of two cutting-edge production operations systems as a step toward full, seamless team collaboration and efficiency. "Engineers are now empowered with real-time visibility into manufacturing operations to ensure their designs are compliant with their organization's layout and capabilities," says Todd. "Conversely, manufacturing personnel are provided with an opportunity to diagnose problems they encounter and present them to engineering." Most importantly, these problems can be cooperatively resolved before a product reaches the assembly stage.

With the addition of Intercim's production innovation capabilities, all manufacturing stakeholders can compare the product being built with the original specifications of what they'd set out to build, and make sure that everything matches perfectly. This is critical in acquiring certification, especially for regulation-rich industries such as Aerospace or Life Sciences. Ultimately the integration between production operations solutions and digital machining and simulation tools represents a new step for PLM: delivering digital continuity from engineering to the real shop floor.



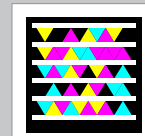
*Digital Process Work Instruction Player is a delivery mechanism for DELMIA-authored 3D dynamic planning to the shop floor, tightly integrating execution, process control and data collection.*

The certification elements of DELMIA's improved product offering makes it even more relevant to aerospace and life sciences industries where safety isn't just important – it's everything. With DELMIA, each unit



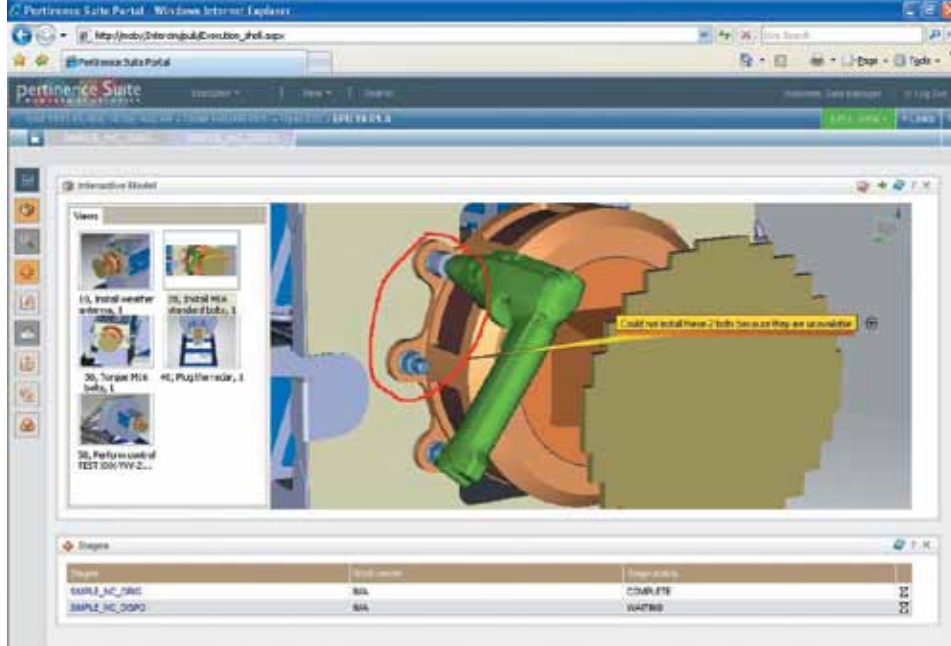
The combination of DELMIA V6 and Intercim will help DS customers reach new heights of efficiency and product quality.

Use your smart phone to learn more.



**MORE INFORMATION**  
[www.intercim.com](http://www.intercim.com)

[DELMIA.info@3ds.com](mailto:DELMIA.info@3ds.com)



*Manufacturing companies will be able to significantly improve production efficiency and product quality. The products enforce operational procedures, while making it easy for shop floor workers to comprehend their task at hand, collect required data, and get back to work as fast as possible.*

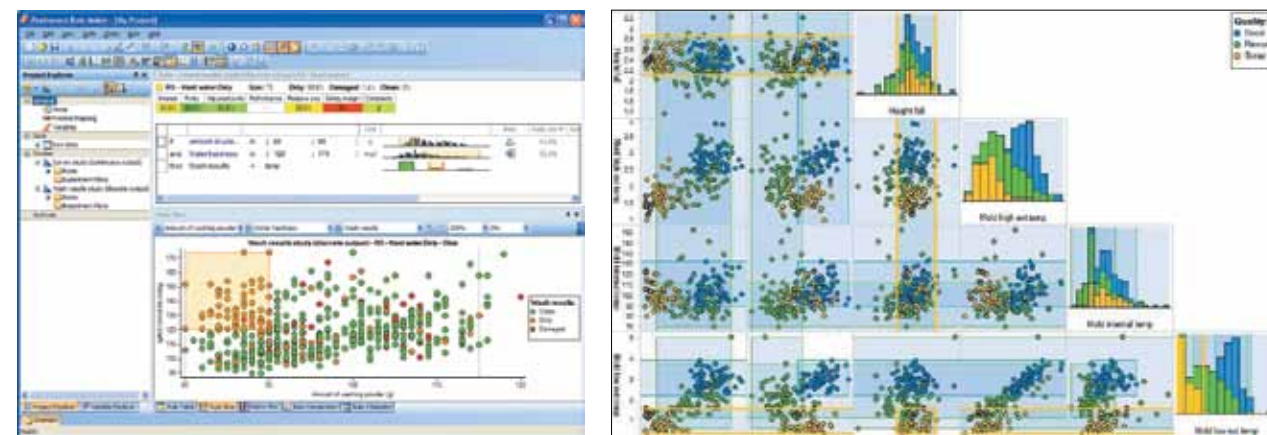
It can be difficult enough to keep productivity up and costs down in a single modern production facility. Today, with globalization as the de facto standard for manufacturing and a variety of regulations and particularities that differ from country to country, collaborative production is at an apex of complexity. Global production systems hinge upon balancing sophisticated manufacturing processes with the lowest-possible manufacturing costs – goals at both ends of the spectrum. DELMIA's digital modeling, simulation and online execution of global production systems validates new manufacturing concepts virtually while running production systems at peak performance.

Combining the strongest elements of DELMIA and Intercim effectively reconciles two factory communities – manufacturing professionals

and product engineers – to ensure that issues of non-conformance and deviations in product development are quickly resolved and rigorously tracked. For customers, this means a quicker and less painful process of addressing any problems that arise during production, ultimately resulting in improved product quality and higher output.

DS customers have already voiced their support of the Intercim acquisition and what it means for product development. Nancy Bailey, Vice President of Product Systems for Boeing, says that her team is "pleased to see Dassault Systèmes taking this step to extend its PLM product offering to include Manufacturing Execution capability." She adds: "As one of our large key suppliers, we anticipate greater company stability in support of the Velocity system used by the '787' program and look forward to additional innovations in this area." Additionally, leading aerospace customer Embraer has chosen DELMIA and Intercim to plan and run their global manufacturing operations, according to Philippe Charès, CEO of DELMIA, Dassault Systèmes.

There is no doubt that the combination of DELMIA V6 and Intercim will help DS customers reach new heights of efficiency and product quality. ■



*Process Rules Discovery is a totally unique manufacturing intelligence product that provides data analysis that is straightforward, flexible and easy-to-deploy.*



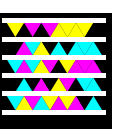
## Still using outdated machining technology?

**Times have changed and so have the tools.** DELMIA V6 Machining revolutionizes your process by enabling you to program smarter, faster directly in a 3D lifelike simulation. It joins engineering and manufacturing knowledge to save critical time and optimize your process, all in the context of the machine simulation.

Find out more at [3ds.com](http://3ds.com)



Use your smart phone to learn more.



DELMI A V6 Machining helps to decrease product development costs.

# DELMI A V6 Machining Brings Collaboration and Improved IP Management

Numerical control (NC) revolutionized machining in the mid 1900s by programming tools to operate automatically, as opposed to manually controlling them via handwheels or levers. Over more than half a century, significant improvements have been made to NC programming where end-to-end component design is highly automated using computer-aided design (CAD) and computer-aided manufacturing (CAM) programs to reduce development time and the potential for error once a machine comes online.

With Dassault Systèmes' V6 platform, machining has reached another milestone. V6 empowers users to create, share and experience products in 3D with real-time seamless collaboration across the extended enterprise, and DELMI A V6 Machining brings these benefits into the machine shop. Workers in all roles – including NC Programmers, Design Engineers and Tooling Engineers – can work collaboratively to eliminate redundant processes and increase productivity.

Traditional methods that are in practice today use multiple systems throughout the NC programming phases from program and verify to generate and simulate ISO codes before they make it to the shop machine. This adds numerous steps between programming and final version of the ISO codes and major issues, such as collisions, near misses, and erroneous motions, are often identified in the last step of the NC process during machine simulation. When these issues occur, they need to be fixed back in the programming phase and then post processed, simulated and validated all over again. Following these steps for every error found in simulation increases the overall lead time to get a validated NC file to the machine on the shop floor, thereby reducing overall productivity and prolonging a product's time to market.

DELMI A V6 Machining enables manufacturers to plan, detail, simulate and optimize their machining activities more efficiently. It delivers a unique solution to program not only tool paths but to program and control machine tools as well. With a lifelike user experience and a truly immersive user interface, machinists can quickly program complex multi-axis, multi-tasking machines. Through tight integration of machine tool simulation with tool path programming, NC programmers can now identify and solve problems upfront in the NC programming phase. What's more, collaboration between workers in all roles, including screen, data, intelligence sharing and real-time chat functionality, improves cohesiveness within a team. Traditional programming methods consume significant time for processing changes affecting the NC program. Now, with V6, changes can be effectively managed in real-time, with visual notification to the programmer and enables true collaboration with the team and the extended enterprise.

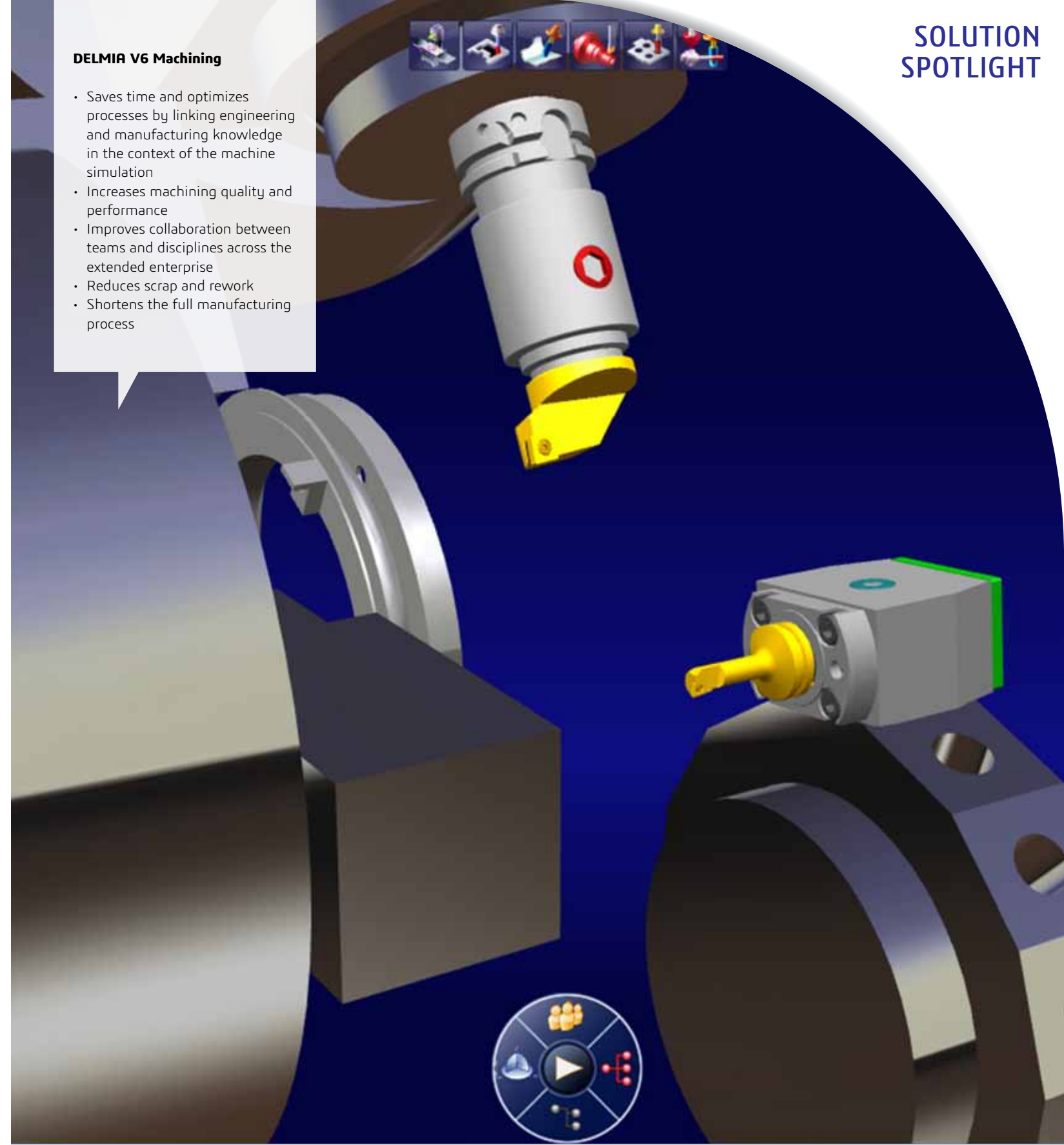
In addition, DELMI A V6 Machining changes the way data from NC programming activity is managed. Files are no longer stored in a flat tree structure; now, dynamic files are accessible through a simple search panel that helps users find any type of data they need quickly. A single, secure environment from design to manufacturing enables enhanced collaboration and easy lifecycle management. Full associativity with V6 product designs and powerful machining automation capabilities can dramatically reduce NC machine programming time. Parts, stock, fixtures and all resources, including cutters and machine tools, are all stored in the single IP platform thus allowing the full lifecycle management of these objects. Huge cost savings are achieved by naturally and transparently optimizing resource utilization.

The V6 3D environment delivers a lifelike experience as NC programmers create, optimize and validate their machine programs in the context of the physical machine. In this environment, DELMI A V6 Machining provides easy access to machining resources, NC programs and part setup information that is always up-to-date. This enables NC programmers to capture and leverage enterprise intellectual property and collaborate with other stakeholders.

Finally, the machinist can perform a very detailed simulation of the ISO code for a final check, prior to running the machine tool on the shop floor, eliminating any risk of errors. Reduced programming and machining time, with increased cutter life are real benefits from implementing DELMI A V6 machining. ■

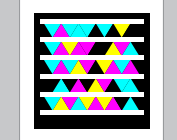
## DELMI A V6 Machining

- Saves time and optimizes processes by linking engineering and manufacturing knowledge in the context of the machine simulation
- Increases machining quality and performance
- Improves collaboration between teams and disciplines across the extended enterprise
- Reduces scrap and rework
- Shortens the full manufacturing process



V6 empowers users to create, share and experience products in 3D with real-time seamless collaboration across the extended enterprise

Use your smart phone to learn more.



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# Tips & Tricks: DELMIA Virtual Ergonomics



Users of Dassault Systèmes Virtual Ergonomics Solution often create postures for digital manikins to reach and manipulate tools as part of design, manufacturing or maintenance tasks. This work can be an individual effort with the time it takes to create a specific posture highly dependent on each user's experience with the tool. When completed in a traditional manner, posturing involves a number of aspects including reach, grip and available space, and depending upon complexity, can cost additional time and money when the work is not being saved for

reuse. The key to avoiding this and save valuable time and resources is in the ability to reuse.

**Tip: How to reduce time creating a posture**

Using catalogs to save local postures and human interface for common tools is a very effective way to reduce the time that posture creation usually requires. Since a company's manufacturing and maintainability groups often use the same tools and postures, human interface on those tools can be saved in catalogs and shared between groups. Instead of manually creating a posture and interface for the manikin to reach and grab a tool, users can save time by accessing the catalog. ■

**WHAT TO DO:**

**1. Define grip location and grip type**

- a. Define human interfaces on tool (where the manikin will grasp a tool and/or its visual target on tool tip)
- b. Define a Human Interaction on tool (what skill will be performed – for example, grip handle with right hand, look at tool tip, etc...)

**2. Save tool in catalog**

**3. Bring tool in context**

- a. When tool is instantiated in a context, human interfaces/interactions are still there

**4. Update human interaction**

- a. Use the update interaction command
- b. Select the interaction you need and the manikin to perform it when a list of human interactions in the context is given

If it is a tool to grasp, any manikin you select will automatically grasp that tool exactly as defined.

All it takes is 4 clicks!

The DELMIA World News is providing you with a look at the best practices in virtual ergonomics that allows users to save time and costs by leveraging a posture catalog.

**MORE INFORMATION**  
[www.3ds.com/virtualergonomics](http://www.3ds.com/virtualergonomics)  
[DELMIA.info@3ds.com](mailto:DELMIA.info@3ds.com)





# V6R2011x: Innovate freely

Dassault Systèmes' new 2011x release of Version 6 includes 900 new functions, delivers new single-platform-enabled capabilities that push the boundaries of collaboration and IP visibility, and automates processes and tasks. V6R2011x allows people to express their ideas with the power of 3D, connect through the power of communities and get the right information with intelligent searches.

The Version 6 single platform furthers collaboration and visibility with new R2011x solutions, including industry-first support for automotive and aerospace fastening processes fully integrated across all PLM domains. Cross-discipline program management now provides CATIA and DELMIA users with direct access to project tasks within their own environments, while the DELMIA Manufactured Product Planning solution allows users to move seamlessly from the product engineering definition to an "as-manufactured" definition.

**Customers are already responding.**  
"V6R2011x offers Parker Aerospace several

exciting advantages, including the ability to deliver the appropriate information to the right resources at the right time and the power to control objects for export compliance and intellectual property protection," said Bob Deragisch, manager, enterprise systems for Parker Aerospace.

In addition, Deragisch says that V6R2011x offers Parker Aerospace "substantial improvements in our total cost of ownership because we are replacing multiple systems with an end-to-end DS solution that integrates ENOVIA with our existing CATIA V4 and CATIA V5 investments and eliminates the need for us to write and maintain interoperability connections."

Numerous new V6R2011x industry solutions automate processes and tasks, freeing enterprises to innovate. CATIA, for example, delivers an automated process for developing flexible circuit boards with eCAD integration, while ENOVIA adds executive dashboards for product development status visibility in footwear, apparel and retail companies.

In addition to fastener processes, automotive customers will appreciate the fully integrated CATIA Live Rendering solution, which enables users to produce photorealistic renderings in real time. CATIA Generative 3D Wire Harness unifies logical definitions of wire harnesses with their physical mockups. Paired with Geensoft systems engineering solutions, these offerings deliver immediate business impact for automotive customers.

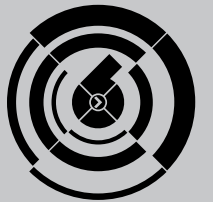
"Automating processes throughout a single collaborative platform and making data quickly discoverable with search-based applications frees up an enterprise's time to create and to be an idea-focused company," said Fabien Fedida, senior director, Global Offer Strategy and Business Intelligence, Dassault Systèmes. "Executing on those ideas with PLM isn't about just designing or manufacturing. It is about design and manufacturing and lifelike experience and more; it is about a single version of the truth, a single platform that brings communities together into a collaborative, innovative effort." ■



## How does your OEM see you?

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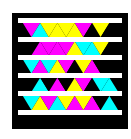


Dassault Systèmes' new 2011x release of Version 6 includes 900 new functions, delivers new single-platform-enabled capabilities that push the boundaries of collaboration and IP visibility, and automates processes and tasks.

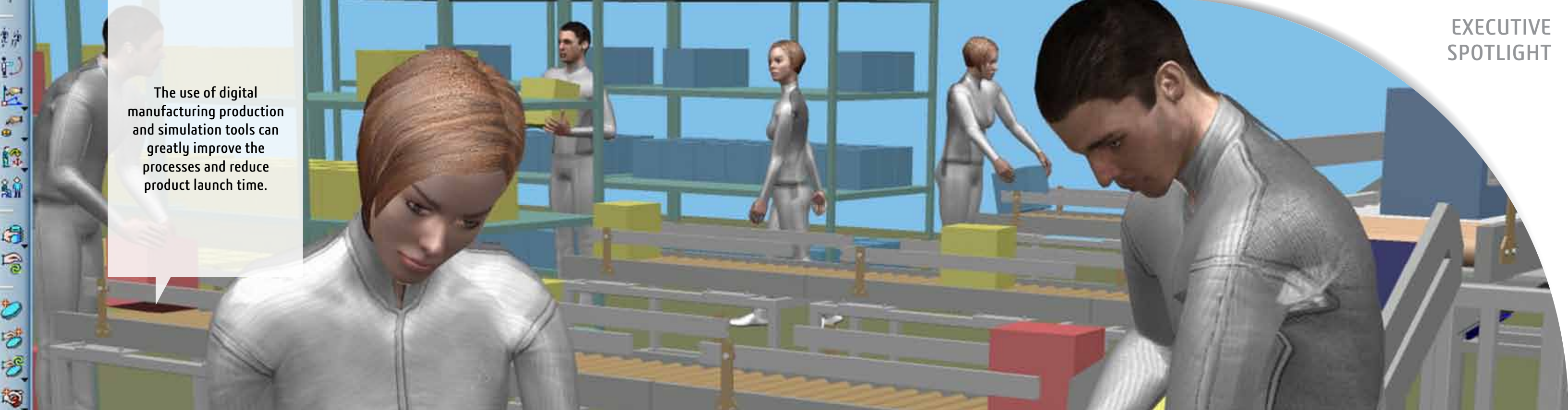
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Use your smart phone to learn more.



The use of digital manufacturing production and simulation tools can greatly improve the processes and reduce product launch time.



*Lifelike Experience includes the underlying human, process environment and systems under multiple physical phenomena.*

## Enhancing Today's Manufacturing Landscape



**Peter Schmitt**  
VP Sales, Americas,  
DELMIA, Dassault Systèmes

The development of new and innovative products is paramount to the strength and success of any industrial company. However, a new product development strategy must be coupled with the ability to manufacture efficiently. There needs to be a tight relationship between the product design and the processes needed to efficiently manufacture in today's

competitive economy, where the product launch cycle continually shortens.

Our experience with various manufacturers has shown that the lack of manufacturing process planning is having a detrimental effect on quality, productivity and cost-efficiency.

Recently, there was a manufacturer in an executive review session for a new engine design. The engine was developed in a sophisticated CAD engineering tool. On the screen simulation,

the engine fit nicely into the engine compartment. However, what was neglected was the process of getting the engine into the housing. By not addressing this assembly issue up front, it was found that, although the engine fit within the housing, there was no way to actually get it in the housing. Including an engineer experienced with the assembly process as well as the use of digital manufacturing tools would have identified this problem early in the design, avoiding costly rework.

Another scenario involved an automotive manufacturer. The manufacturing process was planned so that the vehicle would go directly from the body welding area into the paint booth. Unfortunately, when the vehicle arrived to the paint area it structurally did not fit, halting production for weeks. These are all situations that can be avoided with proper manufacturing planning through virtual simulation.

These same issues that affect manufacturing can also impact serviceability. A vehicle engine compartment may look beautifully compact and smartly designed in its CAD rendering, however, if in order to change a headlight, the mechanic has to remove the engine, then there is a problem. In a case involving a washer bottle and air cleaner, all fit nicely on-screen. However, when the parts arrived to the production floor, there was no way to install the washer bottle. This required re-processing, re-design, re-tooling and re-validation, costing a few 100 thousand dollars.

It is crucial in today's global and competitive economy that organizations rid themselves of their, "We'll figure it out on the plant floor" philosophy, which is outdated thinking given today's highly sophisticated process planning and simulation tools.

There are two ways that companies can address this issue. The first is focused on organizational changes. Companies need to rebuild and enhance their manufacturing discipline so that it has the ability to properly influence design for the better. Efficient processes need to be developed that follow the product from design through manufacturing including training materials for shop floor personnel at an early stage. There is a logical sequence of steps, where "part fit" in engineering is just the start. The next, and often missing step, is the logical assembly sequencing of the parts. Can the parts be put together in the proper order to complete the assembly? Next, discover and define the tooling and human handling required to assemble the parts. And lastly, provide shop floor work instructions that guide the operators in the correct processes. This allows engineering changes to be pushed to an earlier point in the product design where they are far less expensive than on the production floor. This also provides a positive impact on product and process quality.

Secondly, with workforce reduction resulting in fewer manufacturing engineers, we need to re-educate and train the engineering workforce to understand how to perform the task of manufacturing process planning. It is crucial that we have engineers

who understand enough about manufacturing processes in order to influence the product design. As noted, all too often we see that components may fit together perfectly in engineering, but be un-buildable once you add humans, tooling, manufacturing constraints and assembly sequencing to the mix.

Both of these approaches are based upon the premise that there are, and will continue to be, fewer engineers to perform the necessary tasks. In addition to training that will enable more work through a cross-disciplined workforce, there is a need for software and tools to help gain efficiencies to make up for fewer personnel and lack of in-depth experience. No one would think about creating a complex product from 2D drawings anymore as the power of 3D CAD has proved itself numerous times. The same applies to manufacturing processes. The use of digital manufacturing and production simulation tools can greatly improve the processes and reduce product launch time. ■

**MORE INFORMATION**  
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**AMERICAS**

**47th Design Automation Conference**  
June 5-10, 2011  
San Diego Convention Center  
San Diego, California  
[www.dac.com](http://www.dac.com)

**AIA 2011 National Convention & Design Expo**  
May 12-14, 2011  
Ernest Memorial Convention Center  
New Orleans, Louisiana  
<http://convention.aia.org>

**AWEA Windpower 2011 Conference & Exhibition**  
May 22-25, 2011  
Anaheim, California  
[www.awea.org](http://www.awea.org)

**DSCC 2011 (Dassault Systèmes Customer Conference)**  
**November 8-9, 2011**  
**Caesar's Palace**  
**Las Vegas, Nevada**  
[www.3ds.com/company/events/events-list/](http://www.3ds.com/company/events/events-list/)

**FDA News Quality Congress & Medical Device Quality Congress**  
June 7-9, 2011  
Marriott Bethesda North  
Bethesda, Maryland  
[www.fdanews.com/conferences](http://www.fdanews.com/conferences)

**INCOSE**  
June 20-23, 2011  
Colorado Convention Center  
Denver, Colorado  
[www.incose.org/symp2011](http://www.incose.org/symp2011)

**IPC It's Not Easy Being Green: Roadmap to Compliance Symposium**  
May 11-12, 2011  
Hilton Back Bay Hotel  
Boston, Massachusetts  
[www.ipc.org](http://www.ipc.org)

**Marcus Evans Medical Device R&D Summit**  
June 11-13, 2011  
Red Rock Casino  
Las Vegas, Nevada  
[www.marcusevans.com/marcusevans-summits.asp](http://www.marcusevans.com/marcusevans-summits.asp)

**OTC 2011 (Offshore Technology Conference)**  
May 2-5, 2011  
Reliant Park  
Houston, Texas  
[www.otcnet.org/2011](http://www.otcnet.org/2011)

**PACE (Packaging & Converting Executive Forum)**  
JW Marriott Las Vegas Resort  
June 8-10, 2011  
Las Vegas, Nevada  
[www.paceforum.com](http://www.paceforum.com)

**SAMPE 2011**  
May 23-26, 2011  
Long Beach Convention Center  
Long Beach, California  
[www.sampe.org/events/2011LongBeachCA.aspx](http://www.sampe.org/events/2011LongBeachCA.aspx)

**Speed News R&D Industry Suppliers Conference**  
May 4-6, 2011  
Jonathan Club  
Los Angeles, California  
[www.speednews.com/ConferenceInfo.aspx?conferenceID=22](http://www.speednews.com/ConferenceInfo.aspx?conferenceID=22)

**USA Nuclear Generator & Supplier Summit**  
June 14-17, 2011  
Gaylord Texan Resort 7 Convention Center  
Grapevine, Texas  
[www.usainc.org](http://www.usainc.org)

**EUROPE**

**All Energy 2011**  
May 18-19, 2011  
Aberdeen Exhibition & Conference Centre  
Aberdeen, United Kingdom  
[www.all-energy.co.uk](http://www.all-energy.co.uk)

**Composites Engineering Show**  
September 29-31, 2011  
NEC  
Birmingham, United Kingdom  
[www.compositesexhibition.com](http://www.compositesexhibition.com)

**Composites Roadshow 2011**  
May 11, 2011, Stade, Germany  
May 17, 2011, Stuttgart, Germany  
May 19, 2011, Windisch, Switzerland  
[www.3ds.com/de/composites-roadshow](http://www.3ds.com/de/composites-roadshow)

**Daimler CAE EDM Forum 2011**  
July 12-13, 2011  
ICS Stuttgart Fair  
Stuttgart, Germany  
[www.daimler.com/edm-cae-forum](http://www.daimler.com/edm-cae-forum)

**Dassault Systèmes Nordic PLM Forum**  
May 11, 2011  
Lindholmen Conference Center  
Göteborg, Sweden  
[www.nordicplmforum2011.com](http://www.nordicplmforum2011.com)

**Dassault Systèmes PLM Forum Finland**  
June 7, 2011  
Hotel Crown Plaza  
Helsinki, Finland  
[www.nordicplmforum2011.com](http://www.nordicplmforum2011.com)

**Dassault Systèmes PLM Forum Slovenia**  
June 1, 2011  
Hotel Slovenija  
Portoroz, Slovenia  
[www.3ds.com/si/dsplmforum](http://www.3ds.com/si/dsplmforum)

**ECF 2011**

**November 22-23, 2011**  
**Disneyland Paris**  
**Paris, France**  
[www.3ds.com/ecforum](http://www.3ds.com/ecforum)

**European Pharma Manufacturing Masters**  
May 9-10, 2011  
Hotel Melia,  
Berlin, Germany  
[www.business-masters.econique.com/overview\\_pharma\\_manufacturing.html](http://www.business-masters.econique.com/overview_pharma_manufacturing.html)

**Hi Fair**  
September 6-9, 2011  
Herning, Denmark  
[www.3ds.com/nordics](http://www.3ds.com/nordics)

**International Aviation and Space Salon (MAKS 2011)**  
August 16 – 21, 2011  
Chalet G6-6  
Zhukovsky, Moscow region, Russia  
[www.aviasalon.com/ru](http://www.aviasalon.com/ru)

**Monaco Yacht Show**  
September 23-26, 2011  
Port Hercules, Principality of Monaco  
[www.monacoyachtshow.com](http://www.monacoyachtshow.com)

**NEVA 2011: The International Shipping, Shipbuilding and Offshore Energy Exhibition**  
September 20-23, 2011  
Booth R8A029  
St. Petersburg, Russia  
<http://neva.transstec-neva.ru>

**NUKLEA**  
September 27-29, 2011  
Parc des Expositions  
Orléans, France  
[www.nuklea.fr](http://www.nuklea.fr)

**Offshore Europe**

September 6-8, 2011  
Aberdeen Exhibition & Conference Centre  
Aberdeen, United Kingdom  
[www.offshore-europe.co.uk](http://www.offshore-europe.co.uk)

**Paris Air Show**  
June 20-26, 2011  
Paris, Le Bourget, France  
[www.paris-air-show.com](http://www.paris-air-show.com)

**PLM Forum Germany**  
July 13-14, 2011  
Rosengarten Mannheim  
Mannheim, Germany  
[www.plmforum-2011.de](http://www.plmforum-2011.de)

**PLM Forum Greece**  
November 2011  
[www.3ds.com/company/events/plm-forum-greece](http://www.3ds.com/company/events/plm-forum-greece)

**PLM Forum Italy**  
May 4, 2011  
Palazzo dei Congressi  
Salsomaggiore Terme Parma, Italia  
[www.3ds.com/it/plm-forum-italia](http://www.3ds.com/it/plm-forum-italia)

**PLM Forum Russia 2011**  
October 2011  
Moscow, Russia  
[www.plmforum.ru](http://www.plmforum.ru)

**PLM Forum UK**  
May 12, 2011  
London, United Kingdom  
[www.3ds.com/uk-plm-forum](http://www.3ds.com/uk-plm-forum)

**Sociedad Nuclear Española**  
September 28-30, 2011  
Palacio de Congresos Yacimientos  
Atapuerca de Burgos  
Burgos, Spain  
[www.reunionanualsne.es](http://www.reunionanualsne.es)

**Spanish PLM Forum**

October 2011  
*Take a look at last year's event:*  
[www.youtube.com/watch?v=krAFT0LtoGo](http://www.youtube.com/watch?v=krAFT0LtoGo)

**ASIA PACIFIC**  
**Design Engineering & Manufacturing Solutions Expo Osaka**  
October 5-7, 2011  
Intex Osaka  
Osaka, Japan  
[www.dms-kansai.jp/en/Home/](http://www.dms-kansai.jp/en/Home/)

**DS GCG Forum**  
June 10, 2011  
Beijing, China  
[www.3ds.com/cn/company/regional-spotlights/china](http://www.3ds.com/cn/company/regional-spotlights/china)

**DS Japan Forum**  
October 19, 2011  
Tokyo, Japan  
[www.3ds.com/jp](http://www.3ds.com/jp)

**DS Korea Forum**  
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Seoul, Korea  
[www.3ds.com/kr/company/regional-spotlights/korea](http://www.3ds.com/kr/company/regional-spotlights/korea)



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