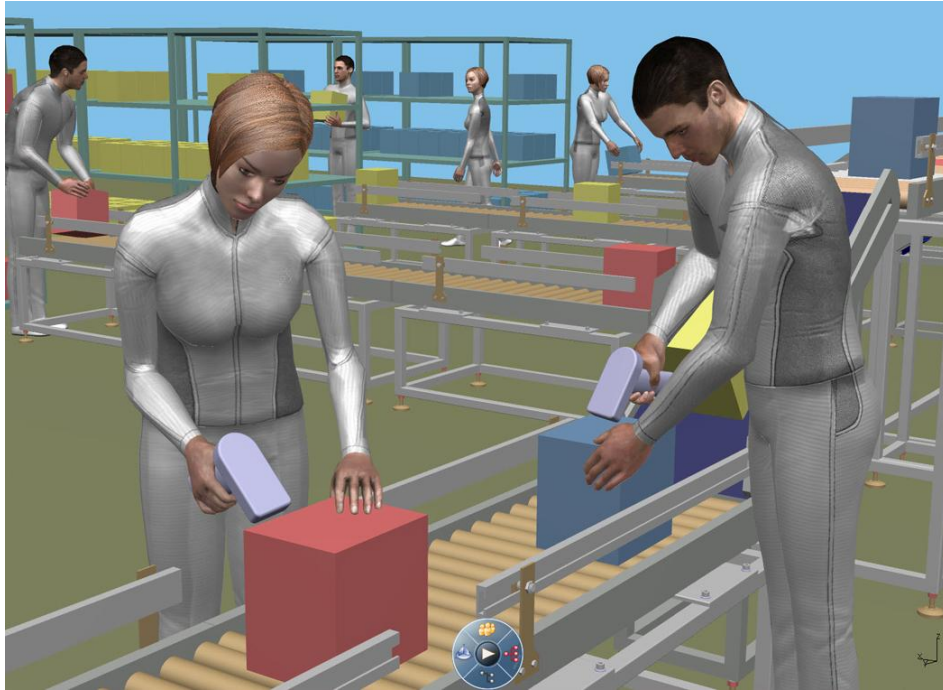




DS DELMIA V6R2011 - FACT SHEET

Breakthrough User Experience



- **BRAND VALUE AT A GLANCE**
- **BRAND V6R2011 ENHANCEMENTS QUICK VIEW**
- **BRAND OVERVIEW**
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DS DELMIA VALUE AT A GLANCE

DELMIA delivers a 3D collaborative innovation and production experience for all actors in the manufacturing lifecycle such as virtual process and system definition, workcell set-up, optimization, scheduling, and operation, to maintenance of real-time production systems. Collaborative Manufacturing Lifecycle Management (MLM) in the 3D virtual world brings all Intellectual Property (IP) in the corporate community into one system allowing all actors to make correct and timely decisions by accessing up-to-date manufacturing lifecycle information—as fast and easy as surfing the web in the 3D virtual world of DELMIA—accelerating process engineering to achieve maximum production efficiency, lower costs, improved quality, and reduced time to market.

- Collaborative innovation and production experience for manufacturing planning and execution.
- Makes available to the extended enterprise controlled access to manufacturing planning and production information
- Manufacturing Lifecycle Management supports timely decisions making throughout the extended enterprise
- Accelerates manufacturing process planning for maximum production efficiency, lower costs, improved quality, and reduced time to market
- Connect and collaborate anytime from anywhere through web enable authoring/collaboration of manufacturing processes plans and details
- Delivers ready-to-use industry specific PLM business processes supports rapid deployment of V6 solutions

DS DELMIA V6R2011 ENHANCEMENTS QUICK VIEW

- **Lifelike Human Manikin; delivers both natural motion and ease of programming in an aesthetically pleasing set of manikins.**
- **Lifelike Conveyors: delivers conveyors that allow the items they transport to behave just as the will in the physical world.**
- **New Product Release: (PSS) DELMIA Production System Simulation**
- **New Product Release: (ARW) DELMIA Robotics Arc Welding**
- **Breakthrough GUI for NC Machining**

DS DELMIA Overview:

DS V6 provides to an enterprise one complete, unified, PLM portfolio that covers the entire product lifecycle. This includes Global Manufacturing solutions that are fully integrated across the entire spectrum of PLM 2.0; Lifelike Experience, Collaborative Innovation, Virtual Design, Realistic Simulation, and Digital Manufacturing & Production. Manufacturing Lifecycle Management (MLM) 2.0 is a key part of PLM 2.0 and can be best summarized by what it brings to our customers; a 3D Collaborative Production Experience.

Digital Manufacturing & Production delivers a natural interactive 3D PLM environment for creating, sharing, and experiencing manufacturing IP. With the solutions delivered by DS DELMIA in this domain, users are able to design, plan, simulate, and optimize a



production system in a virtual world, prior to the actual launch of production. These capabilities will assist companies to achieve maximum production efficiency, lower costs, improve quality, and reduce time to market.

DS DELMIA V6 is more than an authoring tool for robot and NC programmers. DELMIA V6 is a breakthrough for the manufacturing community that makes all manufacturing IP easily available to all stakeholders in the extended enterprise.

DS DELMIA DOMAINS & V6R2011 ENHANCEMENTS

DS DELMIA V6

DELMIA delivers a 3D collaborative innovation and production experience for all actors in the manufacturing lifecycle such as virtual process and system definition, workcell set-up, optimization, scheduling, and operation, to maintenance of real-time production systems. Collaborative Manufacturing Lifecycle Management (MLM) in the 3D virtual world brings all Intellectual Property (IP) in the corporate community into one system allowing all actors to make correct and timely decisions by accessing up-to-date manufacturing lifecycle information—as fast and easy as surfing the web in the 3D virtual world of DELMIA—accelerating process engineering to achieve maximum production efficiency, lower costs, improved quality, and reduced time to market.

V6 Virtual Manufacturing and Production for PLM 2.0

Global Collaborative Innovation...

V6 makes manufacturing and production information available to the dynamic communities of an extended enterprise. Powered by the DS V6 single platform, the right people in the global community have immediate access to people, teams, IP, and manufacturing assets thereby accelerating IP sharing and creation by expanding the knowledge network with collaborative communities..

Lifelike Experience...

Through its unique and revolutionary 3D Navigation of manufacturing data, V6 provides a natural 3D PLM environment for locating, viewing, and authoring manufacturing IP. Additionally, new and innovative PLM context-based 3D authoring tools provide a user friendly experience when authoring manufacturing IP. V6 provides a new experience in process planning where the planner is able to define an assembly process using a natural and intuitive approach within the 3D product environment.

Single PLM platform for IP Management...

V6 effortlessly connects all PLM enterprise business process with a single platform accelerating IP creation through the pervasive proliferation of all engineering and manufacturing information and knowledge. A common UI experience for all applications fosters active participation of all stakeholders in



product and lifecycle. Context based decision making is enabled by automatic change propagation that is accessible by all communities in the PLM 2.0 environment.

On-Line Creation and Collaboration...

Today's demands on global manufacturing require the power of V6 in a mobile environment that enables you to connect, author, and collaborate to make optimum business decisions wherever you are through web enable authoring of manufacturing processes and real time collaboration with remote locations. V6 provides interactive web-based access to all production assets including plants, resources, processes, and best practices fostering innovation and collaboration with the global supply chains.

Ready to use PLM Business Processes...

Transform your manufacturing operations through ready-to-use industry specific PLM business processes that capture the value within each industry and provide the best and most tailored path for PLM 2.0 to drive innovation. Utilizing these PLM Business Processes, manufacturing becomes an integral part of program management using common IP, predefined industry-specific workflows, and best practices

Lower Cost of Ownership - ROI Breakthrough...

Lower cost of ownership at both the IT and user levels is achieved when DS V6 is deployed. V6 delivers lower costs for an enterprise IT organization by reducing deployment time through simplicity of installation, maintenance, and management via a single server and database for all manufacturing and collaborative business processes. Additionally, the adoption of the V6 SOA architecture allows easy integration with existing systems, and modeling of business processes with no programming skills needed to support an adaptable business model. At the user level, an evolved user interface minimizes the training investment and time needed to achieve optimum levels of user productivity.

DELMIA V6R2011

Lifelike Human manikin models deliver naturalness of human motion, ease in programming motion behavior, and aesthetic appeal...

DS DELMIA introduces the V6 Lifelike Human; an exciting innovation in appearance, motion, and programming interfaces that delivers to the V6 user community a lifelike human manikin for use in analysis and validation across the entire DS, V6 offerings. The V6 Lifelike Human delivers both male and female manikins with lifelike appearance, realistic motion constraints and kinematics allowing for increased usability and credibility in ergonomics analysis. Additionally, the programming GUI for the ergonomic suite of solutions delivers breakthroughs for the user experience that enhance the usability and make the human products fun to use. The V6 Lifelike Human is so realistic, that your enterprise can extend the usefulness of V6 beyond the design of products and process to the domain of product marketing and communications as well.





Lifelike Conveyors deliver conveyors that allow the items they transport to behave just as the will in the physical world...

DS is delivering breakthrough Lifelike Conveyor capabilities through key enhancement to DELMIA Smart Device Behavior. Users are able to create conveyor sections that utilize belt, roller, or smooth surfaces. Conveyor can be straight, curved, or concave/convex. Realistic dynamic solvers provide a lifelike experience to how items will move along the conveyor and the behavior that will happen when items on the conveyor collide with each other. This lifelike conveyor behavior allows the user to experience in a virtual environment how conveyor designs and part-transport plans will impact execution of process plans on the shop floor.

(PSS) DELMIA Production System Simulation...

Allows the Industrial Engineer to define and validate the manufacturing systems to execute a process plan. Users can derive the initial system from the process plan and define resources, material flow, buffers and transfer systems. Additionally, resource maintenance requirements and failure rates can be assigned and utilized during throughput, utilization, and bottle-neck analysis. Multiple “what-if” scenarios can be explored to help the engineer define an efficient manufacturing system.

(ARW) DELMIA Robotics Arc Welding...

With this new product, user safely program complex, multi-axes systems used in robotic arc welding applications offline in the V6 3D environment. Using new and powerful tools to automatically define robotic arc welding tool trajectories and positioning table motion, the user quickly moves from creation to validation and then implementation on the shop floor; thereby keeping shop floor robots busy making parts instead of taking them off-line for non-value added programming activities.

Breakthrough user experience in NC Machining with V6...

Enhancements to the V6 suite of machining solutions allow the NC programmer to immerse themselves in a virtual shop floor experience and create, validate, and optimize their NC programs within the context of the manufacturing environment. They can validate machine tool setup, cutter tool positions in the tool changer, and fixture/workpiece placement. Then the user can create the cutter path program taking into consideration all the physical aspects of the machining center. No longer constrained by the need to generate a cutter path separately from machine validation/simulation, the process of creating, validating, and optimizing an NC program is streamlined and quality of the NC programs are improved.

BRAND VALUE FOR INDUSTRIES

Automotive INDUSTRY

The Automotive Industry is facing some of the most complex challenges in its history. Growing consumer demand for more fuel-efficient and alternate fuels and greener vehicles



are driving a transformation of the industry across its entire value chain. To achieve the ultimate goal of producing greener vehicles, the industry needs to find more ways to cooperate and collaborate to develop the innovative technologies to bring next generation green vehicle to market. In this situation, we analyze 3 kinds of definitive trends:

1. Long term shift in consumer preferences from trucks and SUV's to smaller, more fuel efficient vehicles. Hence OEM's have to retool their manufacturing facilities and align their capacities to match this rapid changing buying habits and they have to "do it right the first time", as its costly to tryout multiple approaches in these turbulent times. Therefore, Virtual Manufacturing is inevitable to identify/reduce errors and come out with right product at right time with improved product quality at less cost.
2. Global Flat Market – Significant Growth fueled by emerging countries and hence the need for automakers to collaborate with other automakers or jointly develop new technology like hybrid power trains, share components such as transmission or fill excess production capacity by assembling vehicles for other OEM's. The industry transformation that is underway will see the rise of a variety of partnerships and investment and hence the need of the hour is to collaborate quickly & efficiently with these partners at the lowest structural cost to be competitive in this market.
3. With Increased customer segmentation and high degree of vehicle customization with Environment focus it's a challenge to deliver innovation faster without any additional investment and by making sure that existing assets are reused efficiently. Hence OEM's should simplify their manufacturing process to get the necessary value inside their products and still keep the price point affordable for consumers.
4. OEM's are facing pricing pressure and weak demand and hence to improve competitiveness, manufacturers are looking to outsource components to suppliers and vendors that produce comparable quality components at lower prices. The only way to achieve sustained cost reduction is to outsource component which are non-core and focus on key areas of manufacturing which has inherent cost advantages.
5. With the mounting pressure on both Engineering and Manufacturing teams at any OEM, Concurrent engineering is mandatory and process planners have to work more closely with the design teams before the freeze of design and make sure that the new models are producible in existing lines which are running on mixed production.

PLM 2.0 - V6 Manufacturing Solution

Automotive: To address some of these challenges more effectively, DELMIA products deliver the following value in PLM 2.0 - V6:



- Manufacturing Planning provides the manufacturing communities throughout the supply chain with comprehensive 3D process and resource planning solutions for creating and optimizing build-to-order and lean production manufacturing systems. Users can efficiently and reliably determine the time required to perform a specific job sequence based on commonly used time measurement methods or company-proprietary time standards
- Fastener planning solution for automotive body-in-white processes helps the planner by providing direct access to the V6 CATIA ABF fasteners defined by the product engineer in resource context. Also, Capacity Planning takes into account fastening capacity of weld robots thus assisting in reduction of number of stations by keeping the takt time intact.
- Mechanical Device Builder enhances user productivity by creating kinematic models of manufacturing tooling, namely, fixtures, clamps etc and simulate in a virtual environment enabling tooling designer and process planners to work concurrently and validate the behavior of the system.
- With the Machining Solution, users can easily models resources with kinematics, such as NC machines, tool changers thus enabling NC programmers to assign a virtual machine to a part operation and simulate the machine motion and material removal based on NC tool paths. Any detection of collisions, during simulation can be interactively corrected by modifying the machining setup, thereby enabling the NC programmer to validate the part setup and document the entire manufacturing process.
- Resource Planning provides capabilities to author manufacturing systems and has capabilities for manual balancing of processes/activities between systems and also allows customers to work efficiently on factory layouts for optimum utilization of space. A Innovative user environment called Live System editor has been introduced to easily create product flow across systems and distribute and balance the processes across system more efficiently
- Innovative and intuitive environment called Live Simulation enables users to simulate and validate behaviors of systems totally in 3D. With an immersive data browser, users can create sequences, new manufacturing scenarios, dynamic clash analysis and track the planning status of various resources in a line.
- With a rich library of robot models based on those supplied by robot vendors and with core functionalities like Clash integration with Teach, interference zone and analyze welds accessibility; Robot programmer can not only create optimized spot welding programs but also get accurate cycle time with support of RRS (Realistic Robot Simulation). User can then generate offline programs for standard Robot vendors Viz. ABB, Kuka, Motorman, Nachi, Kawasaki. Additionally, have the capability to calibrate with virtual work cell model with the real world work piece position and make sure that the Robot program works correctly in the factory with less amount of “touchup”.
- Virtual Ergonomics Solution is designed for manufacturing/maintainability planners to ensure ergonomics and human factors guidelines and standards compliance with analyses such as reach, space, vision, posture, safety, comfort, fatigue and more. This solution allows for potential problems identification at an early stage, while in a 3D environment where changes are easier to make. This solution is also key to lower the number of work related injuries and enables for early projects acceptance signoff by the safety & health group
- Virtual Controls Validation or Virtual Commissioning allows an enterprise to validate and optimize their control logic early in the system planning stages when making changes is both easy and inexpensive – as opposed to performing physical–shop floor validation when implementing changes is both restrictive and



expensive. This tool allows the user to connect any Programmable Logic Controller (PLC) (thru an OPC connection) to the simulation of the work cell or manufacturing line and use the actual PLC and its logic to control the simulation of the manufacturing processes.

INDUSTRIAL EQUIPMENT

The Industrial Equipment industry forms a vital part of any country's economy. Across the industry, companies are finding innovative ways to capture opportunities within global environment. It is mainly a "To-Order" industry, and so, the companies are involved in new product and process development each time for each customer.

Industrial Equipment Industry is classified into 5 sub industry segments. They are:

- 1) Industrial Manufacturing Machinery (Machine tools, packaging machines, presses, robots, oil & gas field machinery, printing machinery)
- 2) Heavy Mobile Machinery and Equipment(Construction & Mining Machinery, Fork Lifts, Farm Tractors)
- 3) Installed Equipment (Material Handling equipment like conveyors, cranes; Elevators, moving stairways)
- 4) Industrial Equipment products (Mechanical Power equipment products like generators, gearboxes, hydraulic pumps, turbines; heating & refrigeration such as industrial furnaces, ovens, container refrigeration plants)
- 5) Fabricated Metal products (Structural components, Sheet metal components, fasteners, springs, architectural structures)

Depending on the sub industry, the typical challenges faced in Industrial Equipment industry are

- 1) Shorten the development process for product, and manufacturing process
- 2) Introduce new models at lower development costs
- 3) Cost reduction in design and manufacturing
- 4) Install the equipment quickly, and commission it right the first time
- 5) Achieve flexible production to produce multiple products using the same manufacturing facility.
- 6) Achieve a better BID to WIN ratio (Proposal win ratio) in Build to Order(BTO) and Engineer to Order(ETO) industry

A solution is required that facilitates cost and time reduction in manufacturing, creating clear instructions for installation and assembly, proving of manufacturing methods prior to implementation, better estimation of manufacturing costs.



PLM 2.0 - V6 Manufacturing Solution

This section is a list of key values delivered by PLM 2.0 – V6 Manufacturing for this industry.

Industrial Equipment To address the complexity of the Industrial Equipment industry, DELMIA products deliver the following value:

- Allows the definition, detailing and validation of the manufacturing process in a Digital environment to
 - Determine the assembly process and eliminate unbuildable conditions during assembly
 - Eliminate surprises during manufacture on the shop floor, especially in a BTO and ETO industry where each product is a new product
- Calculate the time for each operation process helps the user commit to a delivery date to their customer.
- This solution supports the user to determine the right tools and resources for each manufacturing process. This helps them make better decisions and improved management their resource.
- Tools to Balance the production processes to improve production flow; this is useful in an assembly line situation such as heavy mobile equipment and industrial equipment product industries to get more out of the production line.
- Define and validate the construction and behavior of mechanical devices in a digital form; this reduces the need for multiple physical prototypes resulting in significant time and cost savings.
- Creating digital machines and validating their behavior is useful for machine tool industry allowing companies to quickly showcase the machine to the end customer and get a sign off before detailed engineering begins. This capability helps streamline the sales and specification process resulting in better collaboration between the machine builder and their customer and providing the engineering team with clarity on the project specifications.
- The use of DELMIA's suite of solutions for ergonomic simulation and analysis provide a means for the planners to validate the man/machine interface and maintenance operations allowing for early identification of potential problems and early acceptance signoff by the customer.
- The virtual validation of component machining programs on digital machines, setup, and tool selection eliminates the need for dry runs on the shop floor, and thus saves valuable machine time and speeds up delivery of final equipment to their end customer.
- Digital Validation of Control programs from any PLC against a 3D virtual model of the physical system saves 40% of the debug time during installation and commissioning
- Create Assembly sequence and work instructions for use in the field for installation of equipment, right the first time; ensuring trouble free installation and customer satisfaction.

ENERGY



Energy industry forms the backbone of any country's infrastructure and it is the key to economic well-being. The world energy demand is expected to double in the next 20 years led by the growth in the developing countries. Energy industry is expected to grow even in this tough economic climate multiple countries focus on improving their power infrastructure. Energy figures high on the economic stimulus plans of almost all countries.

Due to the growing demand for energy and environmental considerations such as climate change, all companies are looking to improve their operational efficiency and produce energy in a more sustainable manner.

Energy industry is divided into 5 industry segments

- 1) Power – Companies that produce power. This includes nuclear, thermal, hydro and alternative energy such Wind, solar, bio-fuels.
- 2) Process – Processing plants such as waste, cement, water treatment
- 3) Chemical – Plants that process chemicals such paints, fertilizers and petrochemical refining
- 4) Oil & gas – Oil & gas upstream exploration and production (onshore and offshore)
- 5) Utilities – Utility and Services companies responsible for transmission and distribution of electricity

The typical challenges of the Energy industry are:

- Complete construction and outage projects on time and on budget reducing expensive rework
- Ensure worker health and safety
- Increase operational efficiency of place to improve NPV (Net Present Value)
- Capture and reuse knowledge to replace aging and retiring workforce
- Reduce losses in transmission and distribution
- Sustainable development of energy

PLM 2.0 - V6 Manufacturing Solution

Energy To address the complexity of the Energy industry, DELMIA products deliver the following value:

- Do detailed planning of the Construction schedule to visualize and validate it in a 3D environment. The schedule can be optimized taking advantage the power of 3D.
 - This will help in minimizing expensive rework and eliminating redundant work
- Plan and validate Maintenance schedule to minimize downtime during scheduled outages. This will improve the productivity of the plant, thereby increasing the NPV.
- Collaborate work with Owner/Operator, EPC, Equipment suppliers and contractors. Communication is made easier by visualizing the project in 3D.



- Simulate and validate worker tasks in congested and often times hazardous conditions to ensure health and safety of workers
 - Detailed ergonomic analysis can be performed to comply with applicable regulations
 - The DELMIA Virtual Ergonomics Solution is designed for safety engineers to ensure ergonomics and human factors guidelines and standards compliance with analyses such as reach, space, vision, posture, safety, comfort, fatigue and more. This solution allows for potential problems identification at an early stage, while in a 3D environment where changes are easier to make. This solution is also key to lower the number of work related injuries and enables for early projects acceptance signoff by the safety & health group.
- Perform detailed simulation studies of the Construction and Maintenance process.
 - Define kinematics for robots and special kinematic devices to validate functioning in the plant environment
 - Simulate activities (including robotics and human simulation) with dynamic clash detection to verify and optimize activity sequence.
 - Assembly and disassembly simulation of equipment and temporary support elements
- Validate Construction and operations logistics of the Plant to optimize movement of material and equipment
- Foster intelligent jobsite for supervisors and workers to view their job and associated work instructions in a highly interactive environment
- Capture knowledge and best practices of the company of aging and experienced workforce.
- The 3D interactive environment provides an easy and intuitive learning environment for workers and operators.
- Eliminate or reduce expensive physical prototypes created for validation and training purposed by performing these tasks in 3D
 - These physical prototypes are typically one-off and developed specifically for a specific purposed and cannot be reused.
 - This also reduces waste and promotes a ecologically sustainable operation for the company.