DS DELMIA V6R2011x - FACT SHEET

A Lifelike Experience of Production for a Sustainable Future

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BRAND 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 decision making throughout the extended enterprise
- Accelerates manufacturing process planning for maximum production efficiency, lowered costs, improved quality, and reduced time to market
- Connect and collaborate anytime from anywhere through web-enabled authoring/collaboration of manufacturing processes plans and details
- Delivers ready-to-use industry specific PLM business processes that supports rapid deployment of V6 solutions

BRAND V6R2011x ENHANCEMENTS QUICK VIEW

- **Announcing DELMIA Manufactured Product Planning (MPP)** – *Efficiently define the manufactured product from the Engineering definition including process, resource, and work instructions planning through production execution.*
- **Announcing DELMIA Work Instruction Planning (WKI)** – *Easily create textual instructions, complemented with images and attached documents that describe each step of the manufacturing process plan.*
- **Announcing DELMIA Process & Resource Editor (PRE)** – *Quickly define the scope of the project and connect process with products and manufacturing resources.*
- **Enhancements to DELMIA V6 Machining solutions** – *Includes multi-positional machining, worn cutting tool management, in-process model creation, parallel-processing computation of tool paths.*
- **Enhancements to DELMIA Process Planning solutions** – *New generative process planning capabilities save time and effort planning activities for process planners.*

Brand 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.

BRAND DOMAINS & V6R2011x ENHANCEMENTS

DS DELMIA V6

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 management. 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-enabled 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 V6R2011x

Release of DELMIA Manufactured Product Planning (MPP)

DELMIA Manufactured Product Planning (MPP) is a new V6 solution that allows users to easily modify a product's engineering definition in order to create an "as-manufactured" definition for use by downstream manufacturing planning and detailing stakeholders. In this V6 immersive environment, manufacturing planners are able to create all relevant manufacturing stages of the manufactured product that have not been defined by product engineering. This includes the definition of Manufacturing Assemblies and Product Transformations.

Release of DELMIA Work Instructions Planning (WKI)

DELMIA Work Instructions Planning (WKI) is a new solution that delivers work instructions that are authored and managed in the context of the V6 PLM 2.0 environment. All aspects of the V6 PLM 2.0 manufacturing planning environment

– such as product and resource definitions, configurations, updates, and layouts are considered during the authoring of the manufacturing work instructions. With its intuitive user interface, users of DELMIA Work Instructions Planning are able to easily create textual instructions, complemented with images and attached documents that describe each step of the manufacturing process plan – saving these details as PLM 2.0 objects. Work instructions are delivered to the shop floor in HTML formats.

Release of DELMIA Process & Resource Editor (PRE)

The new DELMIA Process & Resource Editor (PRE) provides manufacturing project managers with an easy to use solution for creating and managing the Product, Process and Resource (PPR) structure of a project or program. Managers can quickly define the scope of a project, connect process with products and manufacturing resources, organize supporting documentation and define project tasks. As downstream stakeholders enrich the plan with details, managers are able to access relevant data to monitor the project's progress.

NC Programmers Save Time and Effort with V6R2011x

V6R2011x delivers new capabilities that will save the NC tool path programmer both time and effort. This release includes multi-position machining, worn cutting tool management and simulation, in-process model creation, and support for parallel-processing computation of tool paths.

- Multi-positional machining allows the programmer to define a tool path for a single workpiece and then apply that tool path to additional workpieces positioned at various locations and orientations on the machine tool table.
- Worn cutting tool management and simulation allows the NC programmer to define the ideal and worn cutting tool dimensions. The tool path programmer can then simulate the tool path with material removal based on the best case and worst case cutter condition to determine the program will generate parts that meet quality specifications.
- In-process model creation is now supported. This allows the NC programmer to generate a workpiece based on one NC program and use this workpiece as the stock for the next NC program in the manufacturing process.
- Parallel-processing computation delivers time savings when computing complex tool paths for 3D parts using a computer that has multiple CPUs. Computational efficiency improvements of up to 2X can be realized.

Automatic Process Generation based on Product Structure

Process Planners using DELMIA Process Planning (PPG) and DELMIA Body in White Process Planning (BPP) benefit from the ability to automatically generate and update their process plans based on the definition or modification to the product structure and fastener definitions respectively. These generative plans,

which serve as the starting point for the planner, can be modified with a minimal amount of user interactions through the V6 3D immersive planning environment.

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 vehicles to market. In this situation, we analyze three kinds of definitive trends:

Long term shift in consumer preferences

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 habit and they have to "do it right the first time," as it's costly to tryout multiple approaches in these turbulent times. Therefore, Virtual Manufacturing is inevitable to identify/reduce errors and come out with the right product at the right time with improved product quality at less cost.

Global 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 investments and hence the need of the hour is to collaborate quickly and efficiently with these partners at the lowest structural cost to be competitive in this market and deliver the right product to the customer at the right time.

Increased Customer Segmentation

With Increased customer segmentation and a high degree of vehicle customization that is Environment focused, it's a challenge to deliver innovation faster without any additional investment and by making sure that existing assets are re-used 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.

OEM Pricing Pressure

OEM's are facing pricing pressure because of a shift in customer expectations on value for money and so 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 components which are non-core and re-use components across platforms and focus on key areas of manufacturing which has inherent cost advantages and will deliver quality to the customer.

Pressure on Engineering and Manufacturing Teams

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

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. Product updates can be easily communicated to the Manufacturing team through the integrated Change Management capability in V6 thereby helping planners to reconcile their work with new design data.

Fastener Planning

The Fastener Planning solution for automotive body-in-white processes helps the planner by providing direct access to the V6 fasteners defined by the product engineer in resource context. Also, Capacity Planning takes into account the fastening capacity of weld robots thus assisting in the reduction of the number of stations by keeping the takt time intact.

Mechanical Device Builder

Mechanical Device Builder enhances user productivity by creating kinematic models of manufacturing tooling, for example, fixtures or clamps, and simulating them in a virtual environment, enabling tooling designers and process planners to work concurrently and validate the behavior of the system. Kinematic joints including screw joints can be created to accurately define the behavior of a resource.

Machining Solutions

With the Machining Solution, users can easily model resources with kinematics, such as NC machines and 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. The new parallel processing support shortens tool path computation time. Also, the nominal or worn tool simulation delivers a more realistic NC machine simulation and other Product enhancements significantly reduce programming time.

Resource Planning

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. An innovative user environment called Live System editor has been introduced to easily create product flow across systems and to distribute and balance the processes across system more efficiently. This tool helps the user in reviewing the buildup of the product based on the operation performed at each station thus performing process verification from station-to-station. A new capability in this release allows the user to create macros to automate resource planning and improve his efficiency.

Live Simulation

An 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. New Sectional views of the product have been introduced now that augments collision detection and measurements which are very useful analysis tools for any type of manufacturing assembly study.

Rich Robot Library

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 the robot programmer can not only create optimized spot welding programs but also get accurate cycle time with support of RRS (Realistic Robot Simulation). The user can then generate offline programs for standard Robot vendors: ABB, Kuka, Motorman, Nachi, Kawasaki. Additionally, programmers have the capability to calibrate the virtual workcell model with the real world work piece position and make sure that the Robot program works correctly in the factory with reduced “touchup.”

Virtual Ergonomics

The 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 key to lowering the number of work related injuries and also analyzes energy expenditure of the worker and enables for early projects acceptance signoff by the safety and health group.

Virtual Controls Validation and Commissioning

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 workcell or manufacturing line and use the actual PLC and its logic to control the simulation of the manufacturing processes.

Aerospace Industry

The Aerospace and Defense industry has been transforming to meet stringent FAA regulations, environmental and safety requirements, and customer specifications with higher quality, lower product lifecycle cost, and faster concept-to-market response time. 3 industry trends driving this transformation are:

Global Market

The global market is emerging in many ways. Emerging-market countries such as China are building new products to compete with established market players. The established market is outsourcing to maintain cost competitiveness, or setting up the company's own facilities in other countries. Companies are partnering together with risk-sharing contracts, whether driven by cost or by international economic negotiations. Most of this activity is price-driven. New challenges emerge as a result, such as conformity between As-Designed, As-Planned, and As-Built across a vast supplier network. Collaborative efforts are no longer as easy as arranging a meeting, so how can clear and efficient communication happen? Ultimately job retention becomes a challenge, as companies struggle with keeping their existing manufacturing facilities competitive. Due to larger geographical distances, scheduling and logistics are increasingly mission-critical to ensure ramp-up and full production rates are met for on-time customer deliveries.

Fleet Maintenance Responsibilities

Within commercial and defense markets, the trend is for the aerospace OEM to assume increasingly more responsibilities in fleet maintenance. While this trend has led to additional focus on maintainability and serviceability, quality is the largest contributor to maintenance and warranty challenges. An out-of-commission vehicle is now a "lose-lose" situation for both the owner and the OEM, since they both lose money during this time. While ground support turnaround time must be minimized, so should quality issues due to immature product designs or manufacturing mistakes. To eliminate the quality problem upfront, feedback to design in the early stages of product maturity becomes essential. The new challenge, however, has extended beyond building the first vehicle correctly, but in consistently identify quality issues and the ability to quickly adapt to address identified issues.

Continual Innovation

While continual innovation has always been a prudent approach for both product and manufacturing facility modernization, it has now become mandatory due to increasing green vehicle requirements. Carbon footprint reduction is driving new enhancements to existing programs and facilities; thus, new programs must plan infrastructure with this need in mind. Since introducing innovative change is high-risk, both design and manufacturing

are dependent on mitigating the risk as low-cost as possible. Flexibility and change adaptation responsiveness become critical.

Transformation initiatives are being adopted to meet these needs, such as Design for Manufacturing and Maintenance, Model Based Definition, Digital Factory Planning, and Paperless Shop Floor initiatives. A solution is required for manufacturing and production that provides visibility and reuse of configured design data to allow rapid response for change management and validation. A virtual analytical manufacturing and production environment must enable multiple alternate scenarios to be tested and analyzed, ultimately for choosing the lowest-cost-and-highest-efficiency combination for shop floor use. In addition, all manufacturing stakeholders require visibility and access to requirements, upstream and downstream changes, and analytical results that affect their own decision-making. Production execution must be capable of controlling the shop floor as-planned, provide corrective actions when things go wrong, and enable accurate as-built recording of results. And the added benefit of this virtual environment? The actual shop floor could be anywhere.

PLM 2.0 - V6 Manufacturing Solution

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

Methods Planning & Validation

Methods Planning & Validation in a collaborative digital environment delivers early consistency and visibility to authoring the manufacturing BOM while concurrently defining upstream and downstream operations. Planners create work breakdown structures up front, refining and validating with configured 3D geometry as it evolves. Additional flexibility is built into the system by establishing manufacturing precedence networks that serve as the basis of production rate analysis and work instruction authoring downstream. Fastener planning becomes a critical aspect of the build sequence, enabling the complete definition of manufacturing assemblies. 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. Product updates are easily communicated to the Manufacturing team through the integrated Change Management capability, thereby helping planners to reconcile their work with new design data.

Producibility Analysis

Producibility Analysis provides Design for Manufacturing & Assembly and Design for Maintainability tools, delivering feedback to Design during the high-impact stages of product development. Assembly fitting and simulation, human modeling and task simulation, robotic simulation, and modeling of complex kinematic devices enable the manufacturing engineer to validate the feasibility of the product's manufacture from the shop floor context. Multiple scenarios can be evaluated and updated concurrently to provide an effective decision-making environment, as different facility alternatives may be considered. The concurrent design, manufacturing, and maintenance environment enables the product design to mature faster, resulting in less rework and warranty costs to product quality issues.

Tool & Equipment Design

Tool and Equipment Design delivers complete definition and validation capabilities to identify common needs based on product, methods, layout, and production rate requirements. Designers of jigs, tools, and equipment can create kinematic models and simulate them in a virtual environment, enabling tooling designers and planners to work concurrently and validate the entire system's behavior. Stationary fixtures and their intended use can also be validated with respect to the manufacturing flow. Tooling requirements, common equipment, and long lead items can be more accurately defined, reducing overall tool-crib inventory costs and increasing the utilization of specialized tools.

Facilities Planning

Facilities Planning combines product, methods, and tooling requirements to deliver cost-effective decision-making based on production needs, whether built on-site or supplier-provided. Layouts can be efficiently defined or reused from other CAD environments. Planners can investigate alternate trade studies to determine the optimal combination of floor space, stations, material handling, and the logistics to ensure production rates are met. Resource sharing with existing programs and across configurations can be investigated to prove-out capital equipment cost reduction initiatives. Results can be easily updated in this change-managed and configuration-controlled environment.

Production Rate Analysis

Production Rate Analysis delivers collaborative alternate scenario studies to experiment with methods flow for rate change. This initial offering enables planners to understand the impact of product or sequence changes in a stochastic environment, taking into account planned and unplanned delays. Cycle time reduction requirements to meet production can then be quantified for further action and investigation.

Production Preparation

Production Preparation delivers its full value through the reuse of upstream definition, for validation and authoring of production shop floor work instructions and automation programming deliverables. In this initial offering, planners can author text-based "0D" and "2D" work instructions for manual tasks as the sole authority, complete with textual details, buyoff and certification requirements, and data collection and inspection points. With the Machining solution, NC programmers can easily model resources with kinematics, such as NC machines and tool changers, simulate the machine motion and material removal based on tool paths, validate the part setup and document the entire manufacturing process. Whether the tasks are manual or automated, the validated instructions are stored in a centralized location, version and configuration-controlled, and available for shop floor delivery.

Production Execution

Production Execution provides breakthrough technology for delivering and executing work instructions as per production schedule and accommodating shop floor change requests, improvements, and non-

conformances. In this initial offering, the validated work instructions and offline programs prepared can be distributed for procedurally-enforced shop floor execution. Production supervisors can ensure better control and accuracy of the as-planned shop floor work being completed.

Industrial Equipment Industry

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 a 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. The Industrial Equipment industry is a globally distributed value chain that is demanding more and more agility. The industry has adopted a design anywhere, manufacture anywhere concept. This brings in the need for effective collaboration tools overcoming distance and language barriers. There is a need to be cost effective in the manufacturing operations.

Industrial Equipment: PLM 2.0 - V6 Manufacturing Solution

Industrial Equipment: Manufacturing Process Planning
Allows the definition, detailing and validation of the manufacturing process in a 3D Digital environment to determine the assembly process, sequence and eliminate unbuildable conditions during assembly as well as eliminate surprises during manufacturing on the shop floor, especially in a BTO and ETO industry where each product is a new product.

Industrial Equipment: Improved Commitment to Deliver Schedule
Calculating the time for each operation process, helps the user commit a delivery date to their customer.

Industrial Equipment: Resource Planning
This solution allows the user to determine the right tools and resources for each manufacturing process. This helps them make better decisions and improve the management of their resources.

Industrial Equipment: Balance Production to Improve Flow
Tools are provided that allow the user to Balance the production processes to improve production flow; Improvement in the plant utilization is useful in an assembly line situation such as heavy mobile equipment and industrial equipment product industries, and this has a direct positive impact on the Profit & Loss statements.

Industrial Equipment: Mechanical Device Design and Validation
Define and validate the construction and behavior of mechanical devices in a digital form which reduces the need for multiple physical prototypes resulting in significant time and cost savings.

Industrial Equipment: Machine Tool Simulation
Creating digital machines and validating their behavior is useful for the machine tool industry. Companies are able 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.

Industrial Equipment: NC Tool Path Definition and Validation
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.

Industrial Equipment: Jigs and Fixtures
Jigs and fixtures can be created and validated in the context of manufacturing operations. This facilitates the saving of costs for tooling and fixtures without having to do any rework.

Industrial Equipment: Robotic Simulation and Offline Programming
Robotic work stations can be created in 3D, and the robotic operations can be simulated and validated. The programs created for digital robots can then be translated and downloaded into the shop floor robot thus saving the shop floor robot time spent in manual programming. In the industrial equipment industry this is particularly useful in Arc welding and Material Handling applications.

Industrial Equipment: Ergonomic Solutions
The use of DELMIA's suite of solutions for ergonomic simulation and analysis provides 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.

Industrial Equipment: Controls
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.

Industrial Equipment: Assembly Work Instructions and Technical Documentation
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. The 3D work instructions allow for communication across language barriers, giving more agility for Industrial Equipment manufacturers.

The PLM 2.0 V6 manufacturing solution provides the users with different tools to design the production processes, validate the manufacturing in 3D and thus gain control over time and cost for manufacturing.

Energy Industry

The Energy Industry forms the backbone of any country's infrastructure and the key to its economic well-being. The world's energy demand is expected to double in the next 20 years led by the growth within the developing countries. It is essential for companies in the energy industry to minimize expensive delays in projects which can often cost more

than $1 million per day. With so much at stake, organizations need a surefire way to execute construction, maintenance and refurbishment projects with greater efficiency, minimal downtime and reduced risk.

Energy: PLM 2.0 - V6 Digital Construction Solutions

Virtual Construction
Plan in detail the Construction schedule and validate it in a 4D (3D + time) environment. Optimize the schedule in 3D to help minimize expensive rework and schedule delays.

Virtual Maintenance
Plan and validate Maintenance schedules to minimize downtime during scheduled outages. Easily replay, validate and rehearse scenarios prior to performing critical work during an actual maintenance or refurbishment project.

Virtual Decommissioning
Plan and validate the dismantling and decommissioning of the plant. Safely and efficiently plan the removal of hazardous waste for site remediation.

Collaboration with Stakeholders
Increase collaborative work in a 3D environment between the Owner, Operator, Engineering Procurement and Construction (EPC), Equipment suppliers and contractors.

Worker Task Simulation
Simulate and validate worker tasks in congested and often times hazardous conditions to ensure health and safety of workers to comply with applicable standards and regulations.

Worker Training
Simulate critical worker tasks to train new workers and subcontractors, who are unfamiliar with the layout of the facility.

Construction and Operations Logistics
Validate Construction and Operations logistics of the Plant to optimize movement of material, equipment and personnel.

Electronic Work Instructions
Foster an “intelligent jobsite” for supervisors and workers to view their job and associated work instructions in a highly interactive 3D environment.

Advanced Robotics Solutions
Validate in a 3D environment the most advanced and sophisticated robotic applications – such as remote handling devices, telerobotics, and remotely operated vehicles (ROVs).

High Tech Industry

The High Tech industry forms a vital part of most country's economy. Across the industry, companies are finding innovative ways to capture opportunities within a global environment.
The companies are operating in a mass market with huge demand variability. The High Tech industry is a globally distributed value chain. The industry has adopted a design anywhere, manufacture anywhere concept. This brings in the need for effective collaboration tools overcoming distance and language barriers. There is a need to be cost effective in the manufacturing operations.

High Tech: PLM 2.0 - V6 Manufacturing Solution

High Tech: Manufacturing Process Planning
Allows the definition, detailing, and validation of the manufacturing process in a 3D Digital environment to: 1) Determine the assembly process and sequence; and eliminate unbuildable conditions during assembly. 2) Eliminate surprises during manufacturing on the shop floor.

High Tech: Resource Planning
This solution allows the user to determine the right tools and resources for each manufacturing process. This helps them make better decisions and improve the management of their resources.

High Tech: Balance Production to Improve Flow
Tools are provided that allow the user to balance the production processes to improve production flow. Improvement in the plant utilization is useful in an assembly line situation and this has a direct positive impact on the Profit & Loss statements. Improve the production of final products or molded parts.

High Tech: Mechanical Device Design and Validation
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.

High Tech: Machine Tool Simulation
Creating digital machines and validating their behavior is useful for the machine tool industry by 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.

High Tech: NC Tool Path Definition and Validation
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 the final product.

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Jigs and fixtures can be created and validated in the context of manufacturing operations. This facilitates the saving of costs for tooling and fixtures without having to do any rework.

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Robotic work stations can be created in 3D, and the robotic operations can be simulated and validated. The programs created for digital robots can then be translated and downloaded into the shop floor robot thus saving the shop floor robot time spent in manual programming.

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High Tech: Assembly Work Instructions
Create Assembly sequence and work instructions for use in the field for assembly, right the first time; ensuring trouble free installation and customer satisfaction. The work instructions allow for communication across language barriers, giving more agility for High Tech manufacturers.

The PLM 2.0 V6 manufacturing solution provides the users with different tools to design the production processes, validate the manufacturing in 3D and thus gain control over time and cost for manufacturing.