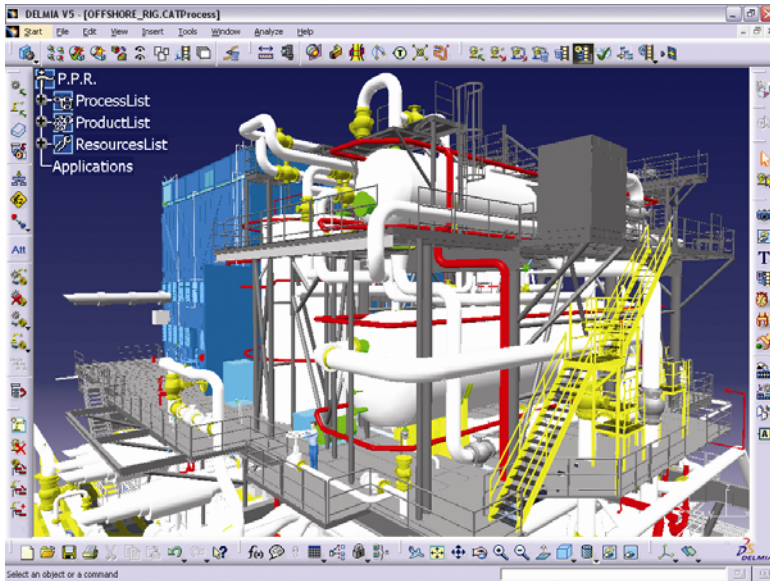


Construction/Maintenance Planning and Simulation

3D simulation and validation of complex tasks



Highlights

- Construction and maintenance optimization
- Virtual and digital simulation environment
- Human task modeling and analysis
- Life-like experience for operations and maintenance training
- 3D project planning, robotics and human task simulation
- 3D visualization, animation and navigation
- integration with major scheduling systems – MS Project, Primavera, Artemis
- Automated technical documentation and training aids
- Support for reverse engineering
- Multi-CAD support

Perhaps no industry is more critical to the world's comfort, safety and economic well-being than energy. But in a world concerned with the effects of climate change and energy security, the energy industry is constantly under pressure to adapt and keep pace with the changing needs of an increasingly globalized economic community clamoring for alternative power sources.

Meeting these challenges introduces high risk in capital and refurbishment projects. Companies must focus on asset life extensions and revamps due to high capital costs for new asset development and because current and predicted regulations make extension of existing assets more cost effective than building new ones.

But with an increased emphasis on plant/rig life extension and upgrades to improve operations, companies also must maintain schedule integrity and reduce facility downtime. For instance, a single day of asset outage in a nuclear facility could cost as much as \$1 million, driving the need for precise planning and risk reduction. In addition, energy sector companies are faced with increasing project risks amid complexity and growing concerns for Health, Safety and Environment issues to avoid disasters and emergencies.

To remain competitive and stay ahead of the ever-growing demand for clean, reliable and renewable energy, companies must plan, validate and simulate complex operations for new construction or refurbishment projects in a virtual/digital way. Smart energy companies – from oil and gas, onshore and offshore to wind, solar and nuclear – are seeking to reduce project lead times and ensure schedule integrity by optimizing the entire process ahead of time.

Virtual construction and maintenance solutions that can help companies reduce costs, time and risks by allowing them, for instance, to optimize plans for complex modifications upfront are the order of the day. Industry leading

companies seek to capture and reuse best practices and experience, optimize and validate maintenance and upgrade procedures, improve quality and timelines of cost estimation and visualize and navigate projects in real-time to integrate project schedules from multiple sources.

IBM PLM solutions, developed in conjunction with Dassault Systèmes, to meet the needs of energy companies include DELMIA and 3DVIA Composer. With the planning and simulation capabilities of DELMIA, energy companies can efficiently and effectively address health, safety and environment challenges, outage planning and construction sequence planning, process planning, resource modeling and validation and cost estimation. DELMIA is scalable and facilitates the reuse of proven sequences and best practices, the application of timed sequence processes, the definition of optimum material flow, the synchronization of construction of BOMs synchronized with EBOMs and 3D project geometry, as well as work instructions, lifelike training and 3D job aids.

Working in concert with DELMIA, 3DVIA Composer enables construction/maintenance planners to generate technical publications and interactive product documentation, illustrations and product catalogs. 3DVIA Composer also aids in the production of construction and retrofit assembly, operation and training and maintenance and service instructions. This rich content can be integrated with the asset management system in IBM's [Intelligent Plant Lifecycle Management solution](#).

When you choose IBM PLM, you get the full value of the IBM brand: trust, quality, experience, financial stability, global reach and a proven code of conduct. As your PLM partner, IBM offers deep industry knowledge, experience as a world-class manufacturer, strength in R&D, a broad range of solution offerings and a long-standing commitment to PLM.

With state of the art resources such as technical proof of concepts, IBM Global Business and Laboratory Services and third-party software form leading IBM Business Partners, IBM PLM can help you transform your business. With IBM PLM solutions, capturing best practices, educating and training your workforce and integrating your enterprise is not only possible - *it's real*.

IBM is helping energy companies add a layer of digital intelligence to their processes. For example, a power company can optimize grid performance, prevent outages, restore outages faster and allow consumers to manage energy usage right down to the individual networked appliance. "Smart" grids also can incorporate new sustainable energies such as wind and solar generation, and interact locally with distributed power sources, or plug-in electric vehicles.

IBM PLM solutions enable planning and simulation in 3D of entire construction or maintenance sequences and optimization of outage schedules and activities through better scheduling and planning. And with the unique capabilities of IBM PLM solutions, energy companies are well positioned to justify capital investments, conduct comprehensive process planning in early design phases, validate and simulate construction and retrofits and validate MRO procedures. With the ability to capture and reuse organizational knowledge, best practices and proven sequences, energy companies can accelerate time to startup, reduce time to completion, reduce costs and improve quality.



Choose IBM—the PLM leader

IBM's PLM expertise and leadership continues to be valued by our clients. Today, we are so much more than a PLM application software vendor.

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A world-class manufacturer

IBM possesses deep industry experience and knowledge of the challenges you face. As a primary user of PLM, we understand your business processes and have the support of a global team of engineers to help tackle your real world issues—and keep you ahead of your competition.

Breadth of offerings

We can impartially recommend PLM offerings to suit your organization, and employ and integrate the solution with your extended enterprise.

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