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Siemens PLM Software

Energy and utilities

PLM solutions for tough industry challenges and sustained business growth

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Global megatrends in energy



Demographic change, resource scarcity and an increasing focus on environmental protection are three of the largest megatrends affecting the energy and utilities industry. These opposing dynamics place enormous pressures on companies engaged in this industry. In order to explore, find and leverage this planet's hydrocarbon, air, wind, geothermal, ocean and solar resources, innovation is required on a scale that has never been attempted before.

The challenge is to meet your current business needs without compromising the needs of future generations. Your company's teams are tasked with making complex decisions every day. But your company needs a structured and systematic way to harness the information, knowledge and new ideas that are dispersed across and beyond your enterprise. With this in mind, Siemens PLM Software provides powerful innovation solutions to help you master these challenges while allowing you to sustain a pattern of predictable business growth.

Business challenges



Your industry faces the overarching challenge of meeting today's never-ending global demand for energy while delivering its products in a safe, reliable and cost effective manner. Innovation is essential for mastering these complexities and enabling your company to:

- Grow top line revenue while keeping costs in line
- Extend and maintain the safe use of your long life assets
- Safely and securely deliver products along your supply chain
- Connect your globally distributed and sometimes disconnected teams

- Better manage risk in today's volatile markets
- Facilitate safe and secure employee working conditions
- Ensure quality and regulatory compliance with traceability to internal specifications and global regulations
- Capture and protect intellectual property

Mastering complexity



Globalization and risk

To address the needs of today's targeted global markets, you must be able to efficiently manage the global supply chain and the innovations that you initiate. These innovations will almost always require you to manage multiple processes, coordinate the participation of disparate disciplines and facilitate collaboration between your own operations and outside vendors. Management must have total visibility into the status of your innovation initiatives to facilitate accurate market alignment, reduce risk and provide on-time product delivery. In addition, managers need to be able to fully understand the impact of rising changes in order to identify potential bottlenecks before they pose insurmountable problems. Optimization of the innovation process is essential for managing the risks that arise in a globally distributed business.

Speed and complexity

As today's energy customers demand a greater say over how much and what kind of energy they consume, the ability to better inform your customers becomes more important. Collaboration between your company and an informed customer base has the potential for profoundly impacting the shape of your industry. It is increasingly important for you to accurately understand what your customers want before they know it and mask complexity while enabling these customers to appreciate the alternatives you provide.

Optimization and profitability

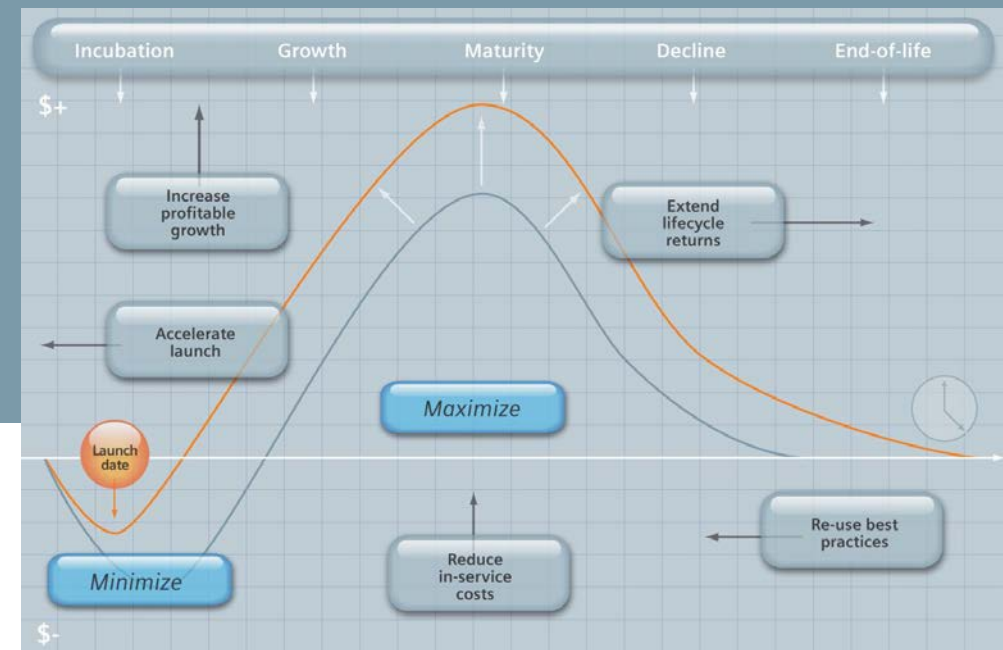
Energy and utility companies incur huge capital expenses as they procure the resources and improvements needed by their supply chains. Because many of these innovation projects are off-schedule, off-budget or noncompliant with established specifications, profitability carries a risky price tag. A lifecycle collaboration solution is needed to enable you to squeeze inefficiencies out of your supply chain innovations. This solution should provide total visibility into all of your supply chain's operational stages to ensure optimal performance and maximize profitability.

Sustainability and compliance

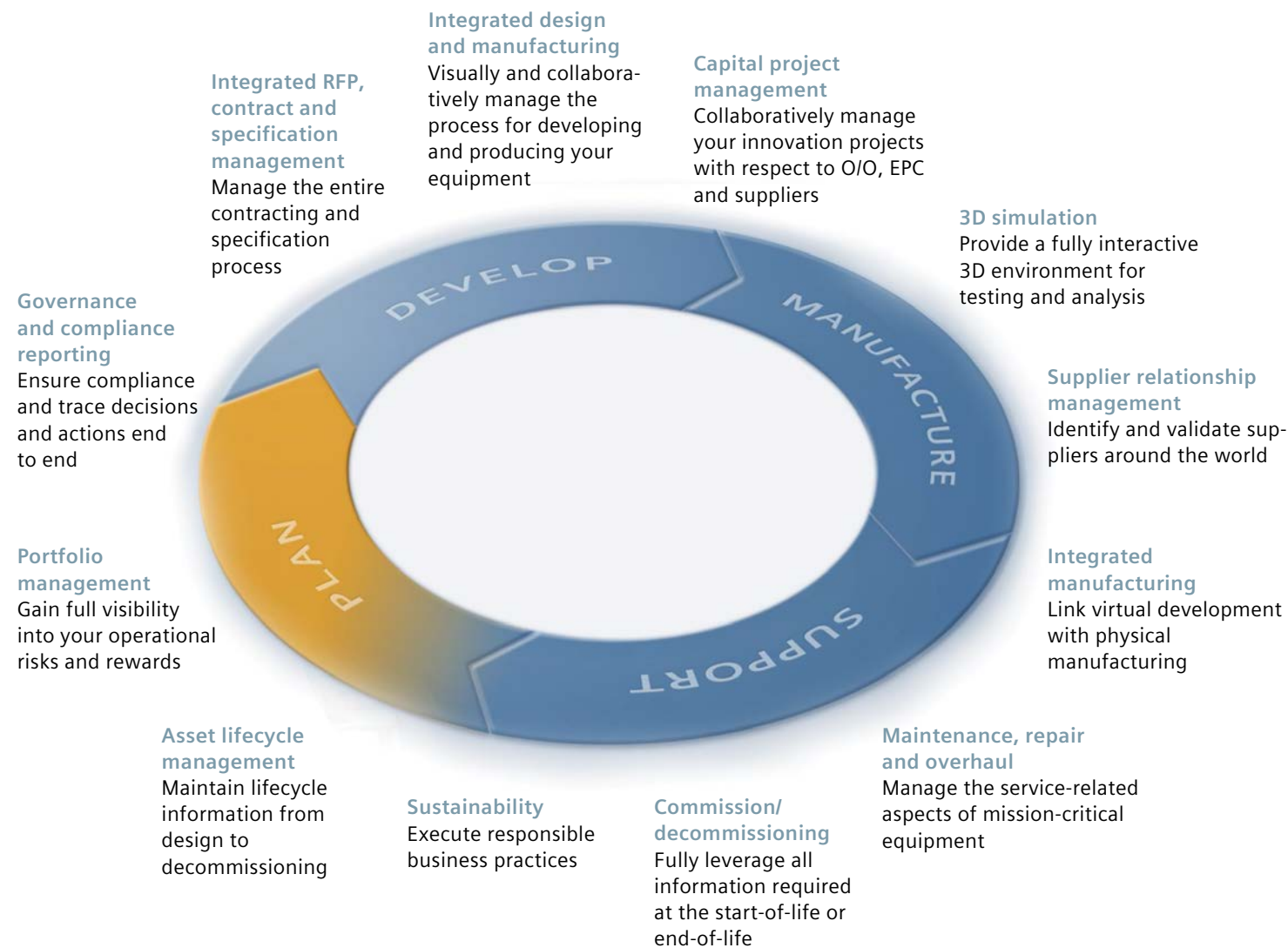
A plethora of regulations govern the operations of your industry. In addition, economic and governmental pressures drive you to find more sustainable sources of energy. Changing regulations and compliance standards clearly affect your ability to meet these challenges. To facilitate sustainable business practice, you need a digital solution that comprehensively manages regulatory compliance while enabling you to meet your long term sustainability goals.

Product lifecycle management for energy and utilities

Siemens PLM Software's digital platform for the energy and utilities industry delivers a single source of plant, product and process information that can be used to manage the innovation lifecycle across all of its stages.



PLM benefits for energy and utilities



Manage risk

Risk management is key to ensuring that costs remain low. Bringing innovations rapidly to market enables you to establish brand leadership and a higher price point ahead of your competitors.

Our solutions enabled one company to capitalize on its existing know-how by providing the means for storing and then transferring that information to stakeholders who needed it. Our PLM platform helps companies eliminate mistakes and miscommunication.

Increase profitable growth

The key to profitable growth is to keep costs low and accelerating project delivery while meeting project specifications. Our PLM solutions have enabled many of our energy and utility customers to increase productivity by facilitating faster information access, improving security and enabling them to better re-use their intellectual property.

Reduce costs

Concurrent product and production design leads to lower material and operating costs. In addition, rationalizing specifications on a global basis reduces complexity and further decreases cost.

Many of our customers reduce costs by eliminating errors that were caused by incorrect or undelivered information. Eliminating errors improves product quality, thereby reducing the impact of penalties, rework and guarantees.

Extend returns

In an industry where the lifecycle of a product or plant can last for 60 years, it is imperative that owners/operators have a platform to ensure the safe operation and maintenance of their long life assets.

One of our customers now automatically generates its BOM summaries, which has improved work efficiency while providing an accurate and single data source for production.

Re-use best practices

Companies can leverage PLM's digital deployment capabilities to and rapidly replicate successful business processes across their disparate geographies, business units and supply chains.

A company with 100 years experience in energy generation uses one of our archival storage and communications solutions to optimize the management of its documentation, which includes more than one million documents.



Build the right product and build the product right

It is crucial for today's energy and utility companies to have a reliable supply chain that enables them to minimize their overall costs, reduce their risks and ensure a safe and collaborative working environment. But how do you facilitate these overarching objectives while enabling your company to have the operational agility it needs for today's complex market?

Siemens PLM Software's PLM platform and related solutions address these issues by providing total visibility into the workflow and decision making processes that empower every stage of your business lifecycle. Our solutions provide unique opportunities that for your company to:

- Maximize innovation throughout your business lifecycle, which translates into higher revenues, greater market share, faster time-to-market and improved portfolio success rates.

- Transform your decision making processes, which enables you to improve the way you determine what products and projects you should offer and how they should be created.
- Increase the value of your enterprise business knowledge, which can be achieved by managing your intellectual assets on an enterprise basis and leveraging them across multiple programs, projects and revenue-generating initiatives.
- Minimize lifecycle cost, which can be realized by replacing time-consuming manual processes with accelerated, fully automated alternatives.

Transforming your process of innovation

With the energy and utilities industry at a cross roads, the demand for your products is expected to double in just the next 20 years alone. This will place a tremendous pressure on your infrastructure and supply chain resources. Innovation on a scale not previously seen in this industry will be required to meet these needs. Siemens PLM Software believes that successful innovation requires open technologies that enable you to access all your enterprise's knowledge resources, facilitate seamless collaboration both inside and outside your organizational borders and instill discipline across all of your operations. Siemens PLM Software can help you to master the complexities inherent in your business so that you can safely deliver the right product and deliver the product right.

Our solutions for the energy and utilities industry include a complete set of end-to-end applications that accelerate new product and processes that improve productivity, lower operational risks and facilitate environmental and safety compliance. With these solutions, you can connect people and processes – creating, capturing and sharing knowledge across your globally distributed value chain to power innovation and productivity.



Solutions for the energy and utilities value chain

Oil and gas

For oil and gas companies, profitability can be highly variable given realities such as today's economic climate, the need to deliver more sustainable products and that fact that demand is driven by population growth. These variables must be addressed to ensure that the large capital expenditures that drive your innovation initiatives result in an adequate return on investment. As you know, the average annual revenue per employee in this industry is about \$5 million. With this in mind, productivity, innovation, cost control and collaboration are key to creating sustainable revenue.

Siemens PLM Software has been a long time solution provider for the oil and gas industry. We have delivered integrated solutions that have enabled oil and gas companies to manage 3D CAD seismic models, equipment maintenance records (including SCADA integrations), procurement records, digital signatures and change orders. Our solutions provide key capabilities for:

- Integrated equipment design and manufacturing
- Specification and requirements management
- Capital project management
- Supplier relationship management
- Simulation and validation
- Service and sustainment
- Plant information management
- Asset lifecycle management
- Global collaboration

Power generation

Global energy consumption is driving the demand for new power generating equipment and processes, as well as initiatives to build and retrofit new plants. Just as importantly, companies are being mandated to make their power generating operations more productive, safe and sustainable.

Siemens PLM software provides a wide range of solutions for new plant initiatives and existing plant upgrades, including applications for designing the plant's equipment and managing its related supply chain, compliance process, work process, contracting and licensing process, commissioning, maintenance and decommissioning. Our solutions include a secure, single source of plant, equipment and process information that enables you to manage every aspect of a plant's lifecycle from initial planning to end-of-life. This end-to-end approach to plant and equipment management facilitates greater productivity, reduced costs and improved operational efficiency. Our solutions provide key capabilities for:

- Plant information management
- Integrated equipment design and manufacturing
- Configuration management
- Specifications and requirements management
- Integrated RFP, contracting and licensing
- Supplier relationship management
- Plant simulation and validation
- Maintenance, repair and overhaul
- Asset lifecycle management
- Automated process workflow
- Global collaboration





Solutions for the energy and utilities value chain

Utilities and infrastructure

Across the globe, utilities and companies that provide other infrastructure services are trying to find innovative ways to deliver their products. In some countries, deregulation is driving this change and affecting customer relationships by increasing competition. With new competitors entering the market, today's utilities must be prepared to increase the productivity of their workforce, ensure safe, efficient product delivery, and implement new "SMART" technologies to give consumers more control.

Siemens PLM Software provides a wide variety of project management capabilities for managing your operation's products, people, assets and intellectual property, including an integrated and proven solution for asset lifecycle management. This solution enables you to leverage your enterprise's existing information so that you can bring the right products and projects to

market in a safe and reliable manner while facilitating global information exchange and ensuring market sustainability. Our asset lifecycle management solution provides key capabilities for:

- Asset knowledge management
- Integrated asset design and manufacturing
- Strategic investment optimization
- Integrated contract and licensing
- Network simulation and optimization
- Supplier relationship management
- Maintenance, repair and overhaul
- Global collaboration

Solutions for heavy equipment machinery

Architecture, engineering and construction

It is time for a new beginning in architecture, engineering and construction. Advances in 3D technology are driving new collaborative relationships that are much more effective in directly affecting the profitability of energy and utilities companies. By applying PLM technology, you can establish a single integrated environment to track and maintain the relationships between the design data, construction data, project schedules and subcontractor data that define the foundation of your innovation initiatives.

Our PLM-driven solutions enable you to manage changes that evolve across the life of your innovation projects. This allows EPCs to track changes, identify parts or systems that may be impacted by design changes and study the impact of these changes on construction. Our integrated solutions deliver the right information at the right time to the right decision makers so that your company can make the right

decisions about a project and its related scheduling, procurement, supplier and/or engineering issues. Our solutions provide key capabilities for:

- Building information management
- Systems engineering and requirements management
- Virtual site construction
- Process equipment optimization and layout
- 3D data, documentation and work instruction
- Manufacturing BOM management
- Construction process simulation
- Virtual commissioning and scheduling
- As-designed and as-built BOM management
- Process workflow and resource optimization
- Supplier collaboration

Industry advantages with Siemens PLM Software

Scalable

Large global companies need a collaborative platform that can scale to tens of thousands of users in a single software instance without losing performance. Our enterprise PLM platform is designed for massive, scalable use and quick information retrieval regardless of global location.

One of the world's largest energy and utility companies works with Siemens PLM Software to enable users to access a single source of product and process knowledge daily from scores of locations around the globe.

Open

Siemens PLM Software's service oriented architecture (SOA) improves flexibility and helps optimize your existing IT investments. By applying an effective SOA to the PLM process, your company can support more business capabilities, reduce IT complexity and accelerate IT implementation. This approach also enables you to re-use more applications via web services and better align PLM initiatives with other business activities.

For example, with over 300 integrations to SAP, Siemens PLM Software's SOA services provide an open, high-performance, coarse-grained interface for the easy flow of financial, forecast and other transactional data that enhances the PLM process.

Proven

Our PLM solutions are deployed by many of the world's largest companies, including some of the world's most innovative energy and utility companies. These organizations rely on Siemens PLM Software's proven leadership in applying technology to support product and process innovation.

Our PLM platform helps a European energy giant to operate more efficiently, resulting in faster deliveries, lower development costs and improved quality.

Flexible

You can begin to implement our PLM platform at any point in your lifecycle process, establishing a single source for all of your enterprise knowledge. Our PLM platform enables you to flexibly configure any process instead of customizing it, thereby lowering your total cost of ownership. You can use Siemens PLM Software's best practice templates and preconfigured workflows to match the way your company currently conducts its business.

A leader in the power industry is transforming several of its businesses, which were previously operated on an autonomous basis, into a highly collaborative virtual enterprise that takes advantage of our ability to facilitate multi-CAD, multi-site global product development.



Answers for energy and utilities

Siemens PLM Software's provides answers for the energy and utilities industry's most complex problems. We deliver a suite of lifecycle solutions that enable you to master the complexities associated with planning and implementing today's energy initiatives. Our applications accelerate your innovation processes, improve safety and productivity, lower costs and facilitate environmental

protection. These solutions provide a foundation that you can use to create, capture and share vital knowledge across your globally distributed value chain. This foundation is key to driving today's innovation investments and ensuring their effective management.

About Siemens PLM Software

Siemens PLM Software, a business unit of the Siemens Digital Factory Division, is a world-leading provider of product lifecycle management (PLM) software, systems and services with nine million licensed seats and 77,000 customers worldwide. Headquartered in Plano, Texas, Siemens PLM Software helps thousands of companies make great products by optimizing their lifecycle processes, from planning and development through manufacturing and support. Our HD-PLM vision is to give everyone involved in making a product the information they need, when they need it, to make the smartest decisions. For more information on Siemens PLM Software products and services, visit www.siemens.com/plm.

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