

## Strategic initiatives build **Global Innovation Networks** in the high tech and electronics industry

[www.siemens.com/plm](http://www.siemens.com/plm)

white paper



- ▶ High tech and electronics companies accelerate the process of innovation with strategic investments that transform their businesses.

► **Strategic initiatives build Global Innovation Networks  
in the high tech and electronics industry**

**Table of contents**

<b>Executive summary</b>	<b>1</b>
<b>Globalization of demand and development drives innovation</b>	<b>2</b>
<b>Product lifecycle management provides a foundation for Global Innovation Networks</b>	<b>4</b>
<b>New product development</b>	<b>5</b>
<b>Knowledge and IP management</b>	<b>7</b>
<b>Value chain synchronization</b>	<b>9</b>
<b>Regulatory compliance</b>	<b>10</b>
<b>Production efficiency</b>	<b>12</b>
<b>Summary</b>	<b>13</b>

## **Innovation networks enable profitable growth in a dynamic industry**

*In recent years, the high tech and electronics market has grown phenomenally and has become ubiquitous across product categories – from plasma TVs, disk drives, portable music players and digital cameras to washing machines, smoke alarms, automobiles, cell phones and medical devices. Here, speed and agility are fundamental to success. Moore's Law states that all products depending on microprocessors must renew themselves completely every few months. But speed alone is not enough. Top executives agree it is more important to deliver the right product at the right time. This demands the ability to get closer to market needs by understanding and evaluating ideas.*

*Although overall growth seems assured, the high tech and electronics industry is a diverse segment, ranging from small (under \$50M) to very large (over \$1B) companies serving a wide variety of markets. Many develop and produce both components and systems. Consumer products are subject to seasonal demand changes and are primarily made-to-stock based on market forecasts and replenished to retailer demand. Demand variability and supply unreliability are continuing challenges. Each stage of a product lifecycle requires a different sourcing, production and logistics strategy. Before a product reaches maturity, plans must be underway to replace it with a new, more innovative product.*

*Increasingly, the high tech and electronics segment is moving toward a fables or "no touch" model with, wherever possible, 100 percent outsourcing. Many US and European companies now follow this model and it is expected to spread to other markets – such as China and India – as those markets evolve and mature. Companies that meet or exceed market expectations will succeed. However, success in this market can be remarkably fleeting and is inevitably followed by the pressure to further innovate, reduce costs and increase customer value by delivering new generations of breakthrough products.*

*In response to these and other pressures (such as new regulatory compliance issues), increasing numbers of high tech and electronics executives are seeing the value of adopting innovation-enabling platforms. Product quality and low cost remain important, but innovation – the ability to dominate markets by better managing and executing ideas – has become a top priority. Indeed, emerging markets become more accessible to companies implementing Global Innovation Networks because of their ability to quickly respond to and even anticipate customer needs.*

*Many companies begin the process of transforming their business by implementing product lifecycle management, or PLM, solutions. Because they focus on products, these solutions are especially effective at building a foundation for Global Innovation Networks – supporting collaboration across the extended enterprise and centrally managing product-related data and intellectual property. These networks can be implemented in cost-effective stages that deliver ROI at every step of the way. They also support comprehensive portfolio management to ensure that product and process innovations are realized and capitalized on throughout the product lifecycle.*

*A Global Innovation Network fosters innovation at every stage of the product lifecycle and, when needed, brings in resources and assets from across a value chain that extends enterprise-wide. It's a model that requires a digital environment encompassing key contributors from strategic partners, suppliers and customers around the world. By creating Global Innovation Networks, high tech and electronics manufacturers are able to meet key business requirements that support top-line growth plus cost containment.*

PLM investment initiatives are most effective when they address specific business challenges. According to leading industry experts, the primary business drivers facing high tech and electronics companies are:

- increased competition in emerging markets
- growing consumer demand for innovative products
- stringent requirements for environmental and regulatory compliance

### **Competitors in emerging markets are ramping up price pressures**

Thirty to 75 percent of future growth in the high tech industry will come from emerging markets, especially in China and India. In terms of market size, China is now well in the lead with a high demand for consumer products and wireless communications. According to Gartner, the consumer electronics industry in China, including Hong Kong, will grow from \$54B in 2004 to over \$94B in 2010. [Market trends: Consumer electronics production, China/Hong Kong, 2004-2010. Gartner, 2005.] While China will continue to be the most robust market, India has achieved the highest growth rates in consumer electronics at 30.1 percent in 2005 and 25.6 percent in 2006 [<http://www.reed-electronics.com/moversandshakers/article/CA6277468.html>] Unlike China where manufacturing moved up the value chain and now clearly dominates outsourced semiconductor manufacturing, India is expected to begin with high-end manufacturing and in niche areas that require highly skilled labor, then go downwards. [<http://www.physorg.com/news/11145.html>]

Low-cost competitors in these emerging markets are forcing all high tech and electronics companies to lower costs, applying pressure on already slim operating margins. In order to respond to this pressure, manufacturers need to find ways to reduce operational costs, increase operational efficiency and win the idea war by introducing breakthrough products ahead of the competition.

### **Demands increase for more innovative products**

High tech and electronics companies are under enormous pressure to innovate, innovate, innovate. Innovative products command price premiums and ensure continuous business value. Proof that innovation spells success abounds in the marketplace. Motorola has been able to adapt and innovate in its introduction of exciting new mobile phones including the RAZR and the SLVR. Apple's iPod with digital online music (which now commands an 83 percent market share) is a great example of a company's ability to develop and dominate new markets. Such products command price premiums and continue to drive demand with new features.

The challenge for high tech and electronics companies worldwide is to create and deliver similar category killers. The way to do that is by winning the idea war. But how do companies know which ideas to pursue? Not all ideas are good ones, and even good ideas don't guarantee success. Approximately 86 percent of new product ideas never make it to market and of those 50 to 70 percent fail [PDMA 1995]. Apple's CEO Steve Jobs says that, among other practices, the seed of Apple's innovation, is "saying no to 1,000 things" in order to concentrate on the "really important" creations. [Driving Growth through Innovation, Robert Tucker] The challenge is to turn guesswork into a more exacting science that identifies good ideas by supporting informed decision making across the value chain and throughout the product lifecycle.

## Environmental and regulatory compliance is essential

US regulatory issues such as Sarbanes-Oxley and adherence to OEM standards remain important to high tech and electronics executives, but environmental compliance has recently moved to center stage. The risks of non-compliance in this area can be high. If one small component within a complex high tech product is found to be non-compliant, production could be delayed or stopped altogether. According to AMR Research, high tech industry compliance with regulatory directives could be “as big as Y2K.” [AMR Research report. December 11, 2003]

European Union Directive 2002/95/EC on the Restriction of certain Hazardous Substances (RoHS) and Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE) are now in force across all 25 EU member states, together with Iceland, Liechtenstein and Norway. While RoHS and WEEE directly affect the European Union, environmental compliance is scarcely confined to Europe. Within the next two years, 15 of the world’s largest economies – including China, India and Japan – are expected to have similar legislation in place. Other jurisdictions, including the state of California, are planning additional tough environmental legislation.

RoHS bans electrical and electronic equipment containing more than set levels of hazardous substances. WEEE establishes stringent end-of-life waste management, recovery and recycling requirements and deals with the collection, treatment, recovery and recycling of electrical and electronic waste components. Manufacturers must be in compliance with these new regulations in order to sell and ship their products. Consequently, there is an urgent need for a flexible framework for supporting internal and external compliance initiatives.

To address these and other business challenges, growing numbers of high tech and electronics companies are turning to the concept of the Global Innovation Network, a transformative business model built on collaboration that fosters innovation and informed decision making at every stage of the product lifecycle. The Global Innovation Network model requires a digital environment that encompasses key contributors from strategic partners, suppliers and customers around the world. By creating Global Innovation Networks, manufacturers are able to effectively address the business requirements driving top-line growth:

- **Innovate more** – by increasing the yield on product and process innovation to accelerate top line growth
- **Reduce time-to-market** – through lean processes, a higher yield on designs and faster cycle times
- **Leverage globalization** – through real-time collaboration with global partners and suppliers
- **Optimize resources** – greater efficiency through the product lifecycle and digital product and process validation
- **Ensure compliance** – by incorporating customer and regulatory requirements at all stages of the product lifecycle and by automating the process of documenting compliance

## Product innovation is at the top of the strategic agenda

According to AMR, fundamental forces have combined with rapid change in the structure of the high tech and electronics industry “to place a huge premium on the need to get a handle on innovation processes and, by extension, the innovation infrastructure of engineering, R&D, product development, launch and retirement.”

*[Improving innovation and cash flow in the high tech manufacturing industry. AMR Research, August 19, 2003.]*

According to independent industry analyst firm Forrester Research, Global Innovation Networks represent a new model for product-focused companies that recognize the new paradigm in which Original Equipment Manufacturers (OEMs) focus on core competencies (essentially the intellectual property behind their product lines) while outsourcing design and manufacturing.

For high tech and electronics companies, these networks are reflected in a “no touch” manufacturing model that often includes Original Design Manufacturers (ODMs) and Electronic Manufacturing Services (EMSs) companies – with ODMs focusing primarily on all aspects of design, while EMSs handle assembly, production and testing of electronic components and assemblies. The downside of this “no touch” model is that OEMs may no longer have the desired visibility into product lifecycles.

Global Innovation Networks, Forrester continues, “enable companies to match their global demand for innovation with worldwide sources of talent and capital. Savvy firms make use of Innovation Networks to bring in new ideas and fresh, outside perspectives as a replacement for stale, vertically integrated approaches to innovation. To effectively meet growing innovation demand, firms must join an emerging market model that lets players co-invent with customers, source and market innovations anywhere, and anticipate as well as respond to supply and demand changes.” [Topic Overview: Innovation Networks, December 2005 and Fortune 500 CEOs Embrace Innovation Networks, December 2005. Forrester]

Many high tech and electronics manufacturers have found PLM solutions that focus on product and process innovation to be the ideal platform from which to launch business process improvement initiatives. A comprehensive digital product platform based on PLM offers unprecedented capabilities to global teams by bridging siloed departments and systems and providing a virtual environment for collaboration. PLM enables manufacturers to address their key business initiatives internally, then cost-effectively extend these initiatives to include strategic partners, suppliers and customers in the process of innovation.

High tech and electronics manufacturers should start by addressing those business areas that are most critical to their near term success. As more of these initiatives are undertaken, PLM platform from which they are launched will grow to support a robust Global Innovation Network.

This paper discusses some specific examples of investment initiatives that are critical to high tech and electronics companies:

- **New product development** – Integrate people and processes to rapidly bring innovative products to market that meet market requirements
- **Knowledge and IP management** – Capture, re-use and automate product and process knowledge from across the value chain
- **Value chain synchronization** – Connect all value chain members in order to optimize product value
- **Regulatory compliance** – Manage organizational processes and records to achieve compliance and mitigate risk
- **Production efficiency** – Integrate product design with process design and production information to maximize production flexibility, performance and quality

## ► New product development

Increasing numbers of high tech and electronics companies are reexamining product development's traditional linear flow from design through manufacturing and sales. To accelerate the process and ensure demand-driven innovation, a new product development initiative seeks to create a real-time, global, collaborative environment for product development that fully integrates people, processes and systems. This initiative stresses strategic portfolio management that closely aligns current and future market demands with product development. Key dependencies and leverage points are outlined early in the process so they can be acted upon quickly. Process automation drives stakeholder involvement and enables business decisions by providing the right information to the right people at the right time. As part of normal workflow, the best ideas are tested and validated against real-world market opportunities.

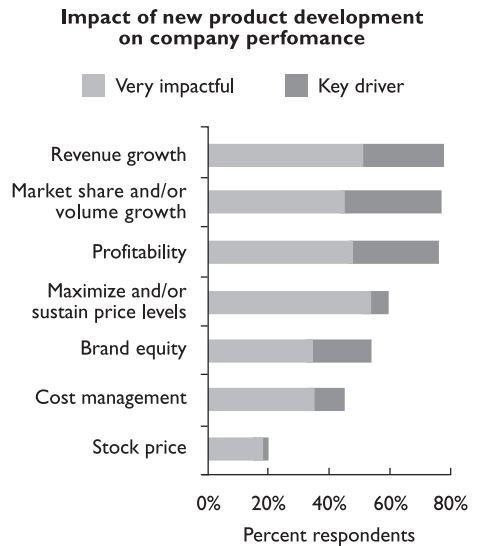
To accelerate the process of bringing successful new products to market, companies need to address the following within a new product development initiative:

### Program planning and control

Organizations need better visibility into product information to support improved business decision making through each phase of the product development process. Visibility also helps drive the development process by integrating resource and schedule management with product and process data, ensuring design compliance with customer and market requirements. PLM strengthens program planning and control by providing capabilities that support:

- *Strategic portfolio management* – Capture and contextualize all relevant product knowledge to better prioritize the investments and direct research and development
- *Program execution management* – Control and manage program development team complexities, and establish performance measurements and milestones to keep projects on track
- *Requirements management* – Capture voice of the customer and enable validation of customer needs

### New product development is a key driver for revenue growth



Source: AberdeenGroup, June 2004

## Strategic product development

Companies need to develop systems and technologies to embed market and customer requirements directly into product architectures. Product concepts must be aligned with strategic requirements that can be simulated and validated as a basis for detailed development. PLM facilitates strategic product development by providing capabilities that support:

- *Lifecycle information management* – Enable comprehensive data management across the product lifecycle, from concept to end-of-life
- *Concept, shape and layout* – Refine and validate design concepts at the beginning of the process, ensuring engineering and manufacturing feasibility
- *Digital simulation and validation* – Reduce the need for physical prototyping and design iterations by providing sophisticated computer simulation and analysis
- *Detailed engineering with options and variants* – Provide visibility into options and variants to ensure optimum re-use of model components

## Manufacturing planning and validation

Companies need to synchronize product manufacturing and sourcing processes with the rest of product development to ensure flawless product launches, smooth ramp-up and compliance. Wherever feasible, the best ideas must be pre-tested and pre-validated against real-world market opportunities.

New product development initiatives using PLM technologies aim to achieve complete lifecycle portfolio management of the whole product from ideation through end-of-life. Enhanced decision support through each phase of product development ensures that the right products are developed and delivered within required timeframes. Complexity is effectively managed by linking functional execution and management of product programs through simulation, design, validation and manufacture.

Gartner's 2006 report "Knowledge Management Enables the High-Performance Workplace" suggests that effective knowledge management initiatives are critical to keeping companies on the road to global innovation. The goal of a knowledge and IP management initiative is to create new value by improving the efficiency and effectiveness of individual and collaborative knowledge work while increasing innovation and sharpening decision making.

To implement better ways to capture, re-use and automate product and process knowledge, companies need to address the following within a knowledge and IP management initiative:

### **Enterprise knowledge and IP management strategy**

To truly embrace new and innovative ideas from multiple sources, high tech and electronics companies must gather and make widely available relevant product and process knowledge from key constituents across the OEM/ODM/EMS infrastructure. Knowledge and IP management empowers decision makers by enabling the exchange of accurate and timely information with the right people – from ideation, engineering and design through specification and requirements, sourcing, manufacturing, production, sales and service.

Effective knowledge management compresses the design cycle by leveraging corporate-wide knowledge and best practices, wherever they are developed in the value chain. PLM solutions provide the mechanisms to document key information relative to innovations, such as who/when/how contributed. This is especially important in a complex distributed organization that includes multiple suppliers. Once knowledge has been identified, contextualized and stored, companies must find ways to share this knowledge internally and externally across the value chain.

### **Global knowledge access**

Without a centralized home to manage information, there is little opportunity for knowledge sharing and re-use, not to mention smart, fully informed decision making. Companies can waste enormous amounts of time in searching for the knowledge they need or in re-inventing the wheel – performing unproductive and repetitive tasks over and over again. To effectively leverage the power of knowledge within and beyond the enterprise, high tech and electronics companies must have a centralized knowledge base that consolidates key product information from strategic partners across the value chain and breaks down siloed information and business practices.

### **Infineon Technologies AG optimizes critical business processes to reduce costs**

Headquartered in Germany, Infineon is a leading innovator in the international semiconductor industry. The company designs, develops, manufactures and markets a broad range of semiconductors and complete system solutions targeted at selected industries. A prolific innovator, Infineon produces approximately 2,800 inventions each year and registers some 1,600 of them for patents. This amounts to seven inventions per day. The company uses PLM to centrally manage all product and project-specific data collected from its world-wide manufacturing sites. As a result, it has synchronized production operations worldwide, ensuring uniform quality standards, transparency of change processes and long-term protection of corporate knowledge. By optimizing collaboration and establishing standard workflows for change management company-wide, Infineon has realized savings of more than 2 million Euros, of which 50 percent is attributed to labor time reductions, 35 percent to lower defective unit costs and 15 percent to additional time and material cost savings.

## Knowledge-driven automation

Data by itself may not improve productivity unless it is turned into what management guru Peter Drucker calls “actionable information” – that is, data that can be used to make strategic decisions. To turn data into actionable knowledge, high tech and electronics companies must implement knowledge management systems that are sophisticated enough to match the right data elements – for example, all of the designs for components that comprise a mobile phone, or the history of all molded plastics required for a line of digital cameras. Key PLM capabilities that enable knowledge re-use include:

- *Context-based information search and retrieval* – Effectively locate information based on attributes and relationships, managing information about the intellectual property
- *Content-based search and retrieval* – Provide decision support tools that quickly find and contextualize relevant product information
- *Enforced consistency* – Enforce best practices, company innovations and brand attributes while simultaneously fostering an environment of innovation

The integration of the knowledge infrastructure layer in a PLM environment significantly enhances the traditional product-oriented focus by replacing it with a knowledge-and-context-oriented view that supports strategic decision making. PLM already is intensely focused on the most likely source of valuable knowledge – high tech and electronics design and manufacturing. The best PLM solutions provide collaborative environments supported by a single source of product and process information. These systems foster a comprehensive, enterprise-level approach to knowledge and IP management.

Value chain synchronization initiatives enable high tech and electronics companies to respond effectively to global demand by optimizing idea exchange and effectively sharing product and process information among all value chain stakeholders. These initiatives help companies gain the needed visibility to collaborate across the value chain. Engineering and procurement are integrated with suppliers. Design data is synchronized with workflow-driven processes. Manufacturing processes are aligned and simulation results are shared with OEMs. The exchange of knowledge and information is enhanced at every link in the value chain so that the best ideas, assemblies, parts and process data are readily shared.

To effectively synchronize product-related information and processes across the value chain, companies need to focus on:

### Supplier relationship management

Research shows that up to 80 percent of a product's cost is committed during design. Of those costs, up to 80 percent are direct material goods. What's more, the cost of a design change rises by a multiple of 10 with every subsequent stage of development. It is clear that there is significant opportunity for improvement when companies synchronize the contributors of that 80 percent (their value chain) with their design processes. High tech and electronics manufacturers can involve their global network of suppliers early in sourcing discussions, assessing change implications and initiating "should cost" discussions by establishing a real-time, digital collaboration environment.

- *Strategic sourcing* – Blend procurement and sourcing processes more tightly with product development. Identify and align the best partners, then involve them early in the product development process to streamline processes, control costs and contribute to innovation and growth goals

### Value chain integration

Manufacturers must establish strong links among external contributors and stakeholders and internal departments by connecting information systems and processes. Ideally, value chain integration should include an integrated development environment, process management, open information exchange, manufacturing integration and service integration.

High tech and electronics companies should adopt a collaborative mindset conducive to "no touch" or fables business models. Outsourced manufacturing should be aggressively managed to optimize production efficiency with visibility into production status at every step of the way. What's more, supplier collaboration should include:

- *Vendor management* – Manage supplier qualification and preference. Provide secure access and collaboration while ensuring parts availability and low cost. Enable access control to limit what vendors can and cannot see
- *Open information exchange* – Synchronize activities across the product lifecycle – from development to manufacturing and service – through standards-based data exchange

While it might sound counterintuitive, the fact is PLM solutions may better support value chain synchronization than traditional Supply Chain Management (SCM) solutions. PLM solutions with Web services or a Service Oriented Architecture (SOA) focus more directly on product and process efficiency improvements. By providing a managed development environment with secure access to the latest product information, PLM ensures that suppliers respond accurately and fully to RFQs. In addition, integrating supplier operations more closely with product development reduces the impact of changes that can quickly erode negotiated pricing and cut into the bottom line.

### Ricoh manages complexity while leveraging global resources

Tokyo-based Ricoh has dramatically reduced cycle times and improved the quality of its digital imaging systems, scanners, printers and cameras by implementing an easy-to-use and flexible PLM solution with 3D design and value chain collaboration capabilities. The system enabled the company to successfully manage complex product lines featuring a large number of leading-edge technologies. All elements of the product were created in parallel and successfully pulled together within a single digital manufacturing environment that significantly lowered cost by leveraging ideas among design groups and pre tested and pre-validated products at the front-end of the design/build process.

In the high tech and electronics sector, compliance with international environmental directives is critical to ensure market availability. RoHS and WEEE directives have already caused products to be removed from the European market. Environmental directives continue to evolve, and the market requirements are becoming more complex with unique country requirements.

Compliance is truly a product lifecycle issue, requiring planning, design and manufacturing support. Successful companies use regulatory compliance as a competitive advantage, providing the ability to quickly respond to evolving market requirements and to be first to market with “green” products.

To turn compliance into an ongoing process that creates market advantage, companies need to address the following:

### **Compliance strategy and planning**

Establish a compliance strategy that allocates requirements to product definition and identifies deliverables and milestones, partner selection and collaboration protocols. Establish processes for collecting compliance data from partners and suppliers.

### **Design for compliance**

Provide visibility into compliance status and availability at the time designers select components for use in designs, in order to integrate regulatory, environmental and OEM compliance into the product-development process from the start. Ensure that compliance extends across all geographic and industry-specific product domains. As product designs mature, enable designers to analyze and grade BOMs to validate qualification and availability. Designers also need to roll up material and substance information from parts to assemblies to products to ensure that products meet target requirements for content.

### **Manufacture for compliance**

Ensure that compliant parts are used in manufacturing and that complete part and product traceability is possible. This requires the ability to compare the as-built BOM to the as-designed, as well as the ability to validate any part substitutions and generate compliance certification documentation.

## Process visibility and integrity

Manufacturers ultimately need to establish a clear and visible process for selecting pre-qualified parts from qualified suppliers, as well as for evaluating material and substance utilization. High tech and electronics companies should attempt to fully automate this process, including complete traceability for compliance verification. Failure to ensure that products – and all the components they contain – are fully compliant with environmental directives could lead to delays or even denied access to markets. PLM solutions support these requirements by enabling:

- *Document retention and disposition* – Establish formal tracking and reporting procedures from component to assembly and final product shipment. Ensure consistent tracking of key performance indicators (KPIs) across product lines and facilitate compliance production control and at the shop floor level
- *Due diligence compliance verification* – Enable process and document verification of compliance. Create signature, authorization, supplier certification and testing traceability

When supported by the right PLM technologies, a design-for-compliance approach ensures rapid delivery of high tech and electronics products. A complete audit trail is generated during normal workflow across all relevant departments. The audit process can be extended to include supplier, partner and customer systems. Since the process is automatic and comprehensive, compliance with RoHS and WEEE environmental mandates, as well as Sarbanes-Oxley, is assured. And PLM enables companies to respond quickly and appropriately to regulatory changes regardless of where or when they occur.

Production efficiency initiatives integrate product design with process design and production information. This enhances the visibility of innovative processes across the enterprise and increases profitability through the optimization of manufacturing resources and capital investments.

These initiatives aim to accelerate every phase of the product lifecycle, ensuring that products are delivered well within the window of market opportunity. Decision support must be provided at all critical phases of the product lifecycle. Since product design, process flow and production information are tightly integrated, high tech and electronics companies gain increased flexibility, performance and quality. This promotes better production standards and significantly contributes to manufacturing best practices.

To quickly ramp up to volume production with desirable yields and the right price points, production efficiency initiatives must enable the following key capabilities:

### **Manufacturing design optimization**

Enable up-front assembly and testability checks at both the board and box level, thereby ensuring that the product is produced and tested against specific manufacturing constraints and rules. PCB assembly and test covers the entire new product introduction (NPI) process and supports single platform and mixed vendor lines. Box-build process design provides an end-to-end solution for designing, optimizing and validating electronic box-build NPI processes.

### **Manufacturing execution**

Provide traceability from the component level to final product shipment. This facilitates compliance initiatives at the shop floor level, as well as production control through total visibility into key performance indicators (KPIs) including work in progress, quality management, repair management and overall equipment efficiency at the plant or enterprise level.

### **Outsourced manufacturing management**

Provide visibility to extended manufacturing operations in order to manage the business relationships, quality and inventory of outsourced operations. Provide executives and managers with graphical displays that monitor production consumption, finished goods, material and component inventories, availability to promise, supply chain cycle times and quality data analysis.

### **Manufacturing for compliance**

Adhere to regulatory compliance mandates throughout the manufacturing process by providing capabilities for BOM and vendor part information management, inventory management, change management, process verification and monitoring and traceability and compliance declaration.

High tech and electronics executives have begun to realize that innovation is a process that should become standard practice. To create a sustainable competitive advantage, they must find better ways to develop new products and solutions that not only satisfy current customer demands, but more importantly define and drive customer expectations in the future.

The “no touch” manufacturing model has made it clear that owning ideas (through patents, trademarks and branding) is far more important than owning plants. A fundamental purpose of PLM-enabled Global Innovation Networks is to drive innovation by supporting better business decisions across the value chain. Because decision makers always have the right information in consistent and contextualized formats, they can harness the power of corporate-wide knowledge to innovate far more effectively than their competitors.

To continue to win in their markets, high tech and electronics companies must:

- Be faster to market through accelerated new product development
- Leverage knowledge and intellectual property wherever it develops to optimize resources and control costs
- Synchronize their value chains
- Ensure regulatory compliance by establishing a compliance strategy with analysis, verification and reporting
- Facilitate production readiness and design for manufacturability with manufacturing process optimization

Open architected PLM technologies provide an ideal framework implementing Global Innovation Networks in cost-effective stages. By establishing an enterprise-wide digital PLM environment for dynamic collaboration, companies can manage their product-related ideas more cost-effectively across the value chain and throughout the product lifecycle, dramatically improving time-to-market. Delivering the right knowledge at the right time to the right decision maker can determine the market success or failure of a product.

Those who partner well with suppliers, strategic partners, customers and PLM vendors who understand the special needs of the high tech and electronics industries – and who are open to non-traditional sources of new ideas – will transform their process of innovation and achieve their business goals.

### **About Siemens PLM Software**

Siemens PLM Software, a division of Siemens Automation and Drives (A&D), is a leading global provider of product lifecycle management (PLM) software and services with 4.3 million licensed seats and 47,000 customers worldwide.

Headquartered in Plano, Texas, Siemens PLM Software's open enterprise solutions enable a world where organizations and their partners collaborate through Global Innovation Networks to deliver world-class products and services.

For more information on Siemens PLM Software products and services, visit [www.siemens.com/plm](http://www.siemens.com/plm).

# SIEMENS

## **Division headquarters**

### **United States**

Granite Park One  
5800 Granite Parkway  
Suite 600  
Plano, TX 75024  
972 987 3000  
Fax 972 987 3398

## **Regions**

### **Americas**

Granite Park One  
5800 Granite Parkway  
Suite 600  
Plano, TX 75024  
800 498 5351  
Fax 972 987 3398

### **Europe**

Norwich House Knoll Road  
Camberley, Surrey  
GU15 3SY  
United Kingdom  
+44 (0) 1276 702000  
Fax +44 (0) 1276 705150

### **Asia-Pacific**

Suites 6804-8, 68/F Central Plaza  
18 Harbour Road, Wan Chai  
Hong Kong  
852 2230 3333  
Fax 852 2230 3210