
Siemens AG: Information and Communication Networks/Enterprise Networks

A Primavera Systems Case Study

February 2002

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Executive Summary

Siemens Enterprise Networks is currently completing the largest, most challenging development initiative¹ within the last years—on time and within budget. Just prior to undertaking this initiative, the Global PSO (Project Support Office) implemented Primavera® project portfolio management software in order to handle the inter-dependencies that linked the complex, subsidiary projects that had to work together for this initiative to succeed.

Global PSO's Director, Ron Vaupel, says, "This development effort, as it has been completed, would not have been possible without the use of this tool because this new initiative was so much more demanding than previous, large-scale developments."

The Global PSO is currently using Primavera to manage a global effort covering a multitude of projects, large and small.

¹ The new telecommunications solution, part of Siemens HiPath Strategy enables businesses to evolve toward the convergence of voice and data over Internet Protocol (IP). It is being scheduled for public announcement and release for the international market.

Company Profile

Status Year 2000

Information and Communication Networks

Sales: €11.4 billion (US\$12.7 billion)

EBIT: €692 million (US\$770 million)

Number of Employees: 53,000

Enterprise Networks Sales:

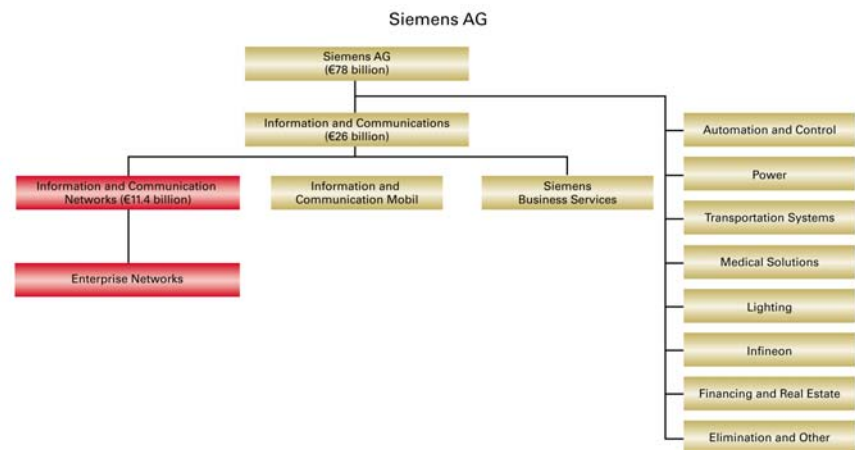
EU €4billion (US \$3.52 billion)

Number of Employees: 20,000

Siemens AG, headquartered in Munich, Germany, is a global leader in electrical engineering and electronics. With annual sales of EU €78 billion (US \$87 billion), Siemens operates in 190 countries with more than 450,000 employees worldwide. The company is organized into nine major segments: Information and Communication, Automation and Control, Power, Transportation, Medical, Lighting, Infineon Technologies AG (a majority owned subsidiary), Financing and Real Estate, and Affiliates (BSH Bosch und Siemens Hausgeräte GmbH).

Information and Communications is the largest segment, contributing €26 billion (US \$29 billion) in revenue. The Information and Communications segment is comprised of three divisions: Information and Communication Networks, Information and Communication Mobile and Siemens Business Services. (Figure 1).

Figure 1:
Organization of Siemens AG



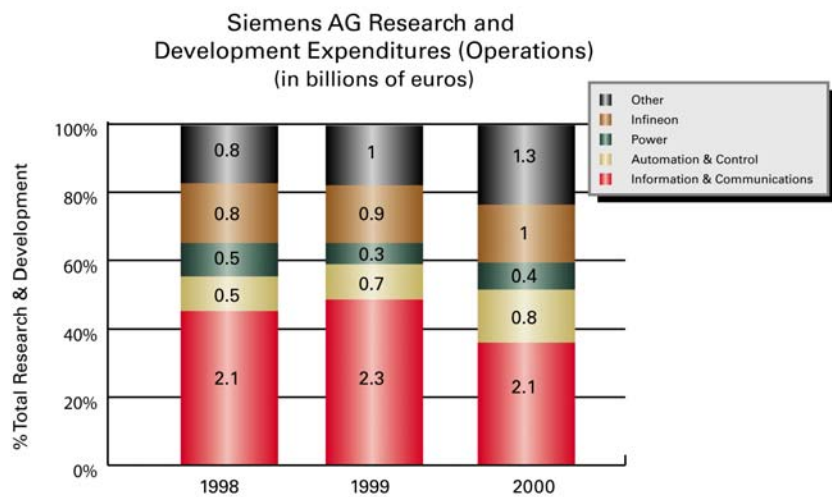
Source: Siemens AG

Within the Information and Communication Networks division, the Enterprise Networks Business Area provides products and applications for enterprise networks, focused on enterprise switching and multimedia network products.

Innovation is central to Siemens' competitive strategy, and the company focuses on the new product development process as a core competency.

Seventy five percent of Siemens' sales are generated from products and services introduced within the last five years². To achieve such a high rate of innovation and new product development, Siemens commits more than €5.6 billion (US \$6.2 billion), or 7% of net sales, to research and development, of which €2.1 billion (US \$2.3 billion) is devoted to R&D for the Information and Communications Segment (8% of Information and Communications net sales) (Figure 2).

Figure 2:
In 2000 Siemens AG devoted €5.6 billion to research and development, of which 37.5% was committed to Information and Technology.



Source: Siemens AG 2000 Annual Report

² Siemens 2000 Annual Report

Project Background

Market Drivers and the Importance of Enterprise Project Management

Siemens Enterprise Networks business area's charge is to lead the fiercely competitive global market for enterprise network products and services by innovation. Siemens efforts in process quality have been recognized by ISO (International Organization for Standardization) certification since 1993.

Enterprise Networks relies on its Global PSO (Project Support Office) to complete complex new product development projects on time and within budget. In addition, the Global PSO is responsible for defining and institutionalizing project management and development best practices.

Increasing pressure for performance improvement in every area of project management led the Global PSO to select and implement Primavera as a replacement for their desktop system (1999-2002 see figure 4 for details).

The Global PSO has responsibility for planning, tracking, and control for all strategic projects across the business area. This means developing and implementing global project management procedures, processes, and tools across Enterprise Networks' multiple sites worldwide. It must manage the innumerable interdependencies linking projects and track hundreds of discrete activities, each drawing upon many of the same skilled resource pools within the business area.

As the Global PSO began to manage the Enterprise Networks' increasingly complex new product development projects, they encountered two major challenges:

1. Speeding time to market
2. Reconsidering project plans in light of changing conditions (i.e., making mid-course corrections)

The Information and Communication Networks- Enterprise Networks business area was known for having a strong project management culture. But its existing project management system was judged by their management team to be incapable of supporting the growing complexity of their scheduling demands.³

Siemens was in the midst of aggressively updating its processes for handling the new project complexities, and it concluded that more sophisticated tools were needed to facilitate this process. Specifically, the organization wanted a system that would offer visibility across the entire range of projects being managed throughout the enterprise and would enable them to manage the complex interdependencies that linked these disparate projects.

The software that the Global PSO had been using depended upon time-consuming manual data input, which required multiple people to gather information from different projects and consolidate. Moreover, the Global PSO needed a system that could handle the larger, more complex projects as well as lots of small projects with interdependencies to each other that were coming to drive an increasing proportion of the business.

The growth of the business and the increasing complexity of technology development projects placed increasing demand on the Global PSO for visibility into projects across the enterprise and for increasing sophistication in the selection process (being able to choose the right projects at precisely the right times).

All these challenges highlighted limitations in the tools that the Global PSO had relied on up to that point in time to control projects. The existing desktop project management solution was ineffectual for realizing needed improvements in scheduling the mix of complex projects. In addition, the desktop solution had no effective way to view important information across multiple projects or multiple sites.

The issue, according to Ron Vaupel, Head of the Global PSO, was *enterprise* project management.

³ The desktop system used was similar to the most common and familiar project management software in corporate environments

Selection Process

Ron Vaupel collaborated with Dick Leight, Manager, Project Management Office (PMO)/Controlling and others in identifying the following selection criteria for their enterprise project management solution:

- Managability of a multitude of complex projects simultaneously
- Ability to manage project interdependencies
- Visibility into a portfolio of projects
- Decision support capability for systematically choosing and timing projects
- Standardization of repeatable project processes
- Capability to incorporate best practices
- Strong performance history

Primavera's reputation, reports Leight, as well as its long history and association with the Project Management Institute (PMI)⁴, made the company a logical choice of software for review.

Against the major criteria areas, Vaupel says, Primavera was the clear choice. Leight described Primavera having "rich features and robust, industrial-strength capabilities." Werner Eckl, a senior member of the Project Management and Control Team, notes that, in addition to meeting Siemens criteria, "Primavera has the state-of-the-art user interface."

Primavera's solution was chosen as part of a larger vision for project management, an extension of the increasingly strong role that the Global PSO was taking in bringing more rigor to its project management and in disseminating best practices.

In the end, Siemens assessed Primavera as possessing "the credibility and stability to give us the highest chance of success," Leight explained.

⁴ PMI (www.pmi.org), founded in 1969, is a major international exponent of professional practices in project management.

The Implementation

The Global PSO began its implementation of Primavera in October, 1999 after an extensive pilot that was designed to include between 10 and 20 projects in order to gain experience with the Primavera software.

At just this time, Enterprise Networks started its largest, most complex development effort within recent years. A new telecommunication solution, part of Siemens HiPath strategy, was being developed to enable business to evolve toward the convergence of voice and data over Internet Protocol (IP). It is currently being scheduled for public announcement and international release.

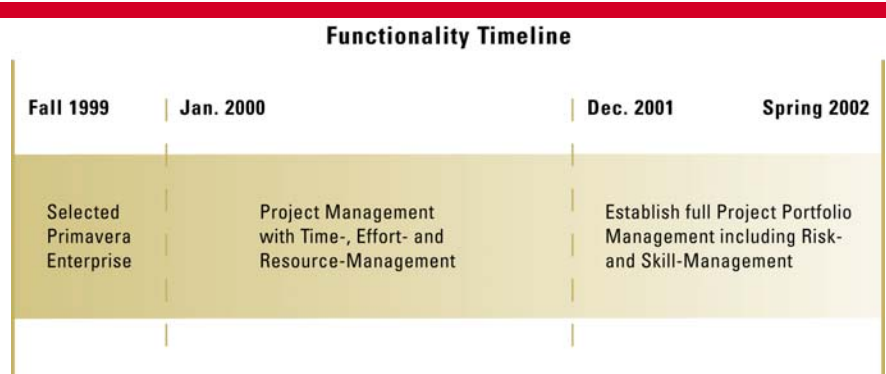
The development of this new product required the synchronization of interdependent efforts of teams around the globe and the coordination of a resource pool of nearly 2,000 individuals.

The Global PSO decided to use Primavera for planning and control of this large project. In conjunction with INTECo GmbH Primavera’s authorized representative based in Germany, the PSO trained 60 project leaders and sub-leaders to use the system.

The Primavera implementation for the entire business area was accelerated to accommodate this massive two-year effort.

The entire Global PSO began using the software’s project planning and scheduling functionality in January, 2000 and Siemens is currently completing a common resource pool and a project portfolio management view. Utilization of portfolio management is now projected for the middle of 2002 (see Figure 4).

Figure 4:



Source: Enterprise Networks Business Area

Benefits Achieved

Tangible Benefits

Management of Large, Complex Projects

The Global PSO relies on its well-established Product Creation Process and corporate culture combined with using the Critical Chain⁶ methodology and Primavera to keep its largest project within a very tight set of deadlines. They have used the software to manage buffer time, focus on decisive project elements, and track performance.

Prior to the implementation, time consuming, manual processes required to gather and analyze data limited the Global PSO's ability to use this methodology. The size and complexity of this large HiPath project, though, meant that without the software, the Global PSO would simply not have been able to manage such a large transnational project.

Using Primavera in combination with the critical chain methodology, Enterprise Networks has been able to reduce project durations by 15-20% by avoiding delays, according to Vaupel.

Werner Eckl emphasizes the support that Primavera offers project managers. He describes one project that, at its start, involved 6,000 activities. While this number was eventually reduced to 3,500, the project still included 7,000 dependencies. Eckl says, "Those directly using Primavera were able to see what was really happening and what was missing in planning." This benefit, he says, grows with the size and complexity of the project.

The Global PSO's Director, Ron Vaupel, says, "This development effort, as it has been completed, would not have been possible without the Primavera solution because this new initiative was so much more demanding than previous, large-scale developments."

⁶ Goldratt, Eliyahu M., (1997) Critical Chain, North River Press, Great Barrington, MA.

Scale of Work and Management of Interdependencies

The common database platform of Primavera software provides for more than the management of a multitude of independent complex projects; it enables management of the associated interdependencies. For Siemens, this enables the Global PSO to take on significantly more projects than their former desktop project management solution allowed.

Today, at any given time, the Global PSO manages approximately 50 to 60 projects involving hundreds of person-years and scores of interdependencies. Vaupel describes the associated resource use as “three to five times better” than before the Primavera implementation as a result of the new multi-project capabilities.

Savings in Planning Effort

Primavera enables the creation of reusable templates, so that project managers can rapidly define/plug in project activities and the associated work, organizational structures, and ancillary information. With these capabilities, according to Vaupel, Enterprise Networks has reduced the amount of effort expended on administering project plans by about 25%.

Through the software’s Project Structure (EPS), project planners are able to view all labor and non-labor resources available for project work within their organization. This visibility enables integrated allocation of staff for specific time periods and specific activities.

Strategic Benefits

Continuous Process Improvement

The Global PSO is advancing its longstanding process improvement strategy by connecting its globally dispersed teams, sharing lessons learned, and building its management of project teams around standardized feedback⁷.

⁷ Customer-focused management by projects / Ronald Vaupel, Gernot Schmolke and Andreas Krüger ; foreword by Hans-Ulrich Küpper. Publisher Houndmills, Basingstoke, Hampshire : Macmillan, 2000. It was originally published in German (1999) by Schaeffer-Poeschel Verlag Stuttgart, as Projektmanagement als kundenorientierte Führungskonzeption

Corporate Culture and Alignment Around the Customer

Project managers, senior executives, and all participants in projects are ideally linked by common objectives.

“A commonly owned and standardized repository of project data,” says Vaupel, “enables the kind of rigor and alignment that scientific research suggests underlay the most effective activity. Primavera will allow us to better operationalize many of the best practices that we have been advocating for years.”

Knowledge Management

Dr. Heinrich V. Pierer, president and chief executive officer of Siemens AG, stated in a letter to shareholders within the 2000 annual report:

“Our first priority—and this will be vital for our future effectiveness—is the electronic networking and management of our internal knowledge to make us even more efficient and bring our customers greater benefits. As part of this drive, we have begun to systematically channel data from projects implemented by our employees worldwide into one easily accessible knowledge base. Our ultimate goal is to ensure that all of our people can access the company’s unequalled pool of knowledge.”

Siemens Enterprise Networks is now to combine Primavera with its knowledge bank.

By capturing lessons learned and management best practices as well as by introducing more common and consistent structures to teams and sub-teams, the Global PSO is further refining its channels for continuous process improvement.

Increased Sales

Siemens Enterprise Networks also has found that Primavera software serves as a differentiator for Siemens’ products and services. Customers’ solution requirements are often complex and require strong project management. They are increasingly demanding that their solution providers operate with the Primavera platform.

Consequently, Enterprise Networks has been able to leverage its use of Primavera as a selling point, and sales representatives are experiencing additional sales as a result. Vaupel believes this will continue to be a selling point. “Customers always ask for Primavera.”

This is the industry standard. Consultants for one of our clients, the Hong Kong Airport, included the use of Primavera as a prerequisite for the sale,” he notes.

Future Benefits

Once Primavera is fully implemented and rolled out to the entire Enterprise Networks business area, the Global PSO expects its ability to perform effective project portfolio management to improve.

While Enterprise Networks already reports benefiting from project portfolio management capabilities of Primavera, significantly more benefits are expected in the near future. The Global PSO intends to closely tie the strategic planning process together with the new product development planning cycle. In this way, Enterprise Networks will have a four-to five-year strategic roadmap, aligning projects to business goals.

Enterprise Networks will be better able to prioritize, select, and alter projects for investment according to changing business needs. This, in turn, will improve the project portfolio return on investment (ROI) and will enable Enterprise Networks to increase its already strong earnings contribution to Information and Communication Networks.

Vaupel says, “We now have small IP and multimedia projects, so we have to start many projects at a time.” With project portfolio management, if a more important or a more feasible project comes onto the radar screen, it will be possible to drop other projects as necessary and regroup around a new project. “This will give us confidence that we will be working on the right projects.”

An important related benefit may also be realized in the form of increased team alignment and improved employee satisfaction. Current plans call for all employees to be aware of the road map and strategies through the visibility Primavera provides.

The Global PSO is in the process of adding all of its employees (including roles and proficiency levels for every resource) into Primavera’s centralized database in order to establish a skill management and improve assignments. With the completion of the Primavera database, the Global PSO anticipates that it will further improve time to market.

By providing visibility into critical resources around the globe, Primavera project portfolio management software will improve Enterprise Networks' product launch planning. Eckl notes, "It gives a top-level view that shows all the interdependencies. It shows the "what-ifs" for budget and resource availability, which dictate when is the best time to start. Project portfolio management is an enabler for correct decision making on which projects to take on and when."

Conclusion

Primavera is currently delivering significant tangible and strategic benefits to Siemens Enterprise Networks business area. Furthermore, it is preparing the entire organization for future benefits as additional functionality is utilized on an enterprise-wide basis.

Using the Primavera solution, Siemens Enterprise Networks is:

- Completing the largest and most complex development effort within the last years
- Reducing costs in project planning
- Saving costs in project operations through better resource allocation and management
- Advancing its continuous improvement strategy
- Better aligning its efforts around the needs of the customer
- Better sharing knowledge
- Increasing sales
- Accelerating product and service time to market

Ongoing training and application of additional Primavera functionality to the expanding role of the Global Project Support Office within the Enterprise Networks business area is preparing the way for additional benefits such as enabling full-scale project management on a portfolio basis.