

Siemens

Management Innovation at the Corporate Level

Case study

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SIEMENS: MANAGEMENT INNOVATION AT THE CORPORATE LEVEL

INTRODUCTION

At the Annual Shareholders' Meeting in February 1998, Siemens announced disappointing overall results for fiscal 1997. While the firm's sales growth met shareholder expectations, net income remained largely stable. During the following weeks and months, Siemens' top management not only faced increased pressure from its shareholders, but also higher environmental uncertainty and stronger global competition than during the early and mid-1990s. The challenge for the top management team was to optimize the business portfolio in a way that promised to add substantial shareholder value over the next years. Hence, the need was to develop and implement a revised and more coherent corporate strategy.

In response to the developments in 1997 and early 1998 and to facilitate the implementation of the corporate strategy, Siemens launched its first comprehensive corporate program in July 1998. A critical part of the so-called Ten-Point Program was the *top⁺* program, which exclusively addressed issues of business excellence and management innovation. How did Siemens design and implement the *top⁺* program and its management innovations? To what extent and how did Siemens benefit from these efforts? These and other related issues will be illustrated in the following.

This case was prepared by Dr. Markus Menz and Professor Dr. Günter Müller-Stewens, Institute of Management, University of St. Gallen, Switzerland. Its objective is to illustrate a corporate-level management innovation program. It is intended to be used as the basis for class discussion rather than to illustrate either effective or ineffective handling of a management situation. Our information sources included interviews with Siemens management as well as publicly available corporate information (annual reports 1993-2008, presentations, press releases, websites of Siemens AG and its subsidiaries) and press articles. We would like to thank Siemens AG for the support. This case was written with the support of a Philip Law Scholarship by the European Case Clearing House (ECCH).

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COMPANY PROFILE OF SIEMENS

Founded in 1847, Siemens developed into one of the leading global electrical engineering and electronics firms over the past 160 years. At the end of fiscal 2007 (September 30, 2007), Siemens employed nearly 400,000 people at 1,698 locations all over the world. From 1998 to 2007, firm revenues and profits increased almost every year, resulting in revenues of 72.448 billion EUR and net income of 4.038 billion EUR. Headquartered in Munich, Germany, Siemens is publicly listed in Germany at the Frankfurt Stock Exchange and in the US at the New York Stock Exchange (NYSE). By the end of fiscal 2007, Siemens' market capitalization had reached 88.147 billion EUR.¹

During the period from 1998 to 2007, the business *portfolio* was frequently adjusted (see Exhibits 1 and 2). Examples include the spin-off of the semiconductor business under the name Infineon Technologies by an initial public offering (IPO) in 1999. At the end of 2007, the firm's portfolio consisted of the following nine operating groups: Automation & Drives (A&D), Industrial Solutions and Services (I&S), Siemens Building Technologies (SBT), Osram, Transportation Systems (TS), Power Generation (PG), Power Transmission and Distribution (PTD), Medical Solutions (Med), and Siemens IT Solutions and Services (SIS). In addition, Siemens Financial Services (SFS) and Siemens Real Estate Services (SRE) were part of the portfolio.

Together with about 180 regional companies in five regions (Germany, Europe other than Germany, Americas, Asia-Pacific, and Africa, Near and Middle and Commonwealth of Independent States), the operating groups were part of a matrix *organizational structure* (see Exhibit 2). Although the operating groups had profit-and-loss responsibility and were largely autonomous regarding their operative business activities, some influence from the central top management and central organizational functions existed. First, the group presidents were frequently also members of the overall firm's managing board. Second, although the central entity primarily exercised financial control over the operating groups, some strategic measures that affected the way the businesses operate also existed. For example, the centrally controlled operational excellence initiatives were mandatory for all operating groups.

The influence on some of the strategic decisions of the firm's businesses was indeed part of Siemens' *corporate strategy*, aiming at superior value creation for the overall firm. During the period from 1998 to 2007, the firm's corporate strategy developed towards a concept of simultaneous vertical and horizontal optimization. First, vertical optimization included active portfolio management and operational excellence in the areas innovation, customer focus, and global competitiveness. Vertical optimization was designed to lead to synergy by leveraging corporate capabilities and tools to individual operating groups. Second, horizontal optimization concerned the exploitation of synergies across the operating groups facilitated by initiatives such as Siemens One. As illustrated in this case study, the firm's corporate strategy was executed with the help of several corporate programs.

The firm's *corporate center* was supposed to contribute to the overall corporate development, including the corporate programs, and to support the operating groups. It consisted of so-called corporate departments, including corporate development, corporate finance, corporate legal and compliance, corporate personnel, and corporate technology. Further, the corporate center comprised five sub-centers: corporate communications and government affairs, corporate information office, corporate supply chain and procurement, global shared services, and management consulting personnel. During the period from 1998 to 2007, the corporate center of Siemens was itself subject to extensive restructuring activities. For example, in 2001 the firm planned to cut corporate center costs by 15 percent in each of the following two years.² In addition to the corporate center functions, Siemens founded the

in-house consultancy Siemens Management Consulting (SMC) in 1996. This internal top management consultancy not only contributed to the implementation of a variety of different corporate projects but also served as talent pool for future management positions at Siemens.

MANAGEMENT INNOVATION ACTIVITY AT SIEMENS

According to Johannes Feldmayer, a former managing board member of Siemens, management innovation means changing the management system of the firm, which involves the principles and rules of structuring and managing the organization. Concerning a change in the “how” rather than in the “what” of management, it has a systemic and sustainable character and is supposed to lead to significant improvements of the firm’s competitive position.³ While Siemens frequently had introduced single management innovations during the past decades, the electrical engineering giant started a more structured and systematic approach to management innovation and business excellence during the early 1990s. In 1993, then CEO von Pierer and his top management team initiated the *top* (time-optimized processes) program. Because of its importance for the overall firm, Siemens management decided to continue the program under the slightly revised name *top+* from 1998 onwards. As we will illustrate in the following for the ten-year period from 1998 to 2007, what started as a productivity improvement initiative developed into a comprehensive management innovation program. Overall, its objective was to improve firm performance by a guided approach to business excellence. Broadly speaking, the main issues of the initiative were innovation, customer focus, and global competitiveness.

Context and Evolution of the *top+* Program

Initiated by von Pierer in 1993, the *top/top+* program was directly supervised by a member of the managing board (see **Exhibit 3** for an overview on the program’s names, responsible managing boards members, and corporate programs from 1993 until 2007). The Siemens operational excellence program *top+* was characterized by a high degree of continuity concerning its supervision by the firm’s top management team. Until September 2000, Günter Wilhelm, Siemens’ head of the Automation and Drives (A&D) and Industrial Solutions and Services (I&S) Groups as well as of the overall Asian and Australian business activities, was responsible for launching and establishing the program. In the following years, Klaus Wucherer was in charge of the firm’s business excellence initiatives. Finally, Erich Reinhardt, then CEO of the Siemens Healthcare Sector, succeeded Wucherer, who resigned from the Siemens managing board by the end of 2007.

Since the program was primarily aiming at a similarly high level of operational excellence across the business portfolio, the program was structured on the firm and group levels. In 2007, *top+* was coordinated in the Siemens corporate center by a team of seven people (excluding the customer focus program Siemens One). The team head was responsible for the firm-wide *top+* efforts and reported directly to the Siemens managing board member overseeing the program. The role of this team was coordinating the *top+* initiatives of the different groups, further development of the overall program and single initiatives, and monitoring the progress of its implementation in the firm’s groups.⁴ For example, each of the three pillars of *top+*, innovation, customer focus, and global competitiveness, was coordinated by one person. In addition to this central unit, several other organizational units were involved in the implementation of *top+*. First, the central *top+* team was supported by the Siemens in-house consultancy, SMC, which employed about 160 consultants at the end of 2007. Involved in *top+* issues from the beginning of the program, typically teams of two to six SMC consultants were assigned to single implementation efforts. Second, in each of the firm’s

divisions and regional companies, one manager was responsible for *top*⁺. Third, for Siemens One as part of the *top*⁺ customer focus program, a dedicated corporate-level unit within the central corporate development department was created.

In the beginning, the *top* program was largely independent from other corporate-level programs. Over the course of its development, however, it became an integral part of the firm's management system and more and more intertwined with other firm programs or initiatives. From July 1998 until the IPO of Siemens at the NYSE in March 2001, *top*⁺ was part of the *Ten-Point Program* aiming at sustainable performance improvements. Besides fostering the firm's business excellence efforts, the Ten-Point Program included activities such as the restructuring of the semiconductor business, reorganizing the business segments, and optimizing the business portfolio.⁵

Because of its prior success and the permanent need for methods of business excellence, Siemens top management decided to continue the *top*⁺ initiative following the IPO. Therefore, in December 2000, the firm's top management team defined margin targets for each group that were to be reached by fiscal 2003. Called *Operation 2003*, the new program was supposed to direct firm-wide attention to five important actions for enhancing firm performance (increase profitability in information and communication groups; integration of recently acquired Dematic and VDO; improve profitability in US business; and asset management (reducing capital employed and improving cash flow)).⁶

At the end of 2003, the top management team emphasized even further the importance of the *top*⁺ program for the success of Siemens. The program was integrated into a novel Siemens Management System (SMS), as then CEO von Pierer noted:

*"Besides implementing Operation 2003 we also conducted a thorough review of our management system, which we wanted to make even more transparent and easier to understand. That's why we expanded our top⁺ business excellence program at the start of fiscal 2004, integrating it into a reorganized Siemens Management System. In the future, we will concentrate on three Company-wide programs - Innovation, Customer focus and Global competitiveness - into which we are incorporating all our existing initiatives and projects. We are gearing our management development and employee learning measures to support and complement these programs."*⁷

In April 2005, *top*⁺ became part of the subsequently launched and more comprehensive Fit4More program (see **Exhibit 4**). Building upon the four pillars of performance and portfolio, people excellence, operational excellence, and corporate responsibility, the program was designed to further strengthen the firm's competitive position and performance. Operational excellence should be achieved with the SMS including *top*⁺. The Fit4More program was planned as a mid-term program, with a pre-defined end date in 2007. Since the firm successfully completed the program by 2007, Siemens' top management decided to continue the program under the slightly different name Fit42010 (see **Exhibit 5**). More precisely, management's intention was to continue to "push innovation by applying our proven *top*⁺ methods and the *top*⁺ toolbox while sharpening our customer focus and enhancing our global competitiveness".⁸

Purpose and Content of the *top*⁺ Program

The overall purpose of the *top*⁺ program was to increase EVA (economic value added) of the different operating groups and thus of the overall firm. The *top*⁺ program comprised several different initiatives, projects, instruments, and tools targeting at profitable firm

growth. The operating groups were supposed to implement the tools in order to exploit synergies.⁹ More precisely, Siemens' top management defined innovation, customer focus, and global competitiveness as targets and sub-programs of *top*⁺. These sub-programs constituted the focal issues of the overall management innovation program. They continuously guided the overall action and were characterized by rather broad firm-level targets. As indicated in **Exhibit 6**, under the umbrella of the three sub-programs, 11 initiatives were defined. First, the *innovation* program included technology platforms and trendsetting technologies:

*"Our company-wide top⁺ Innovation Program is providing new momentum in our drive to fully leverage our synergy potentials. Initial results include cross-product technology platforms for remote services; a uniform controls architecture for applications ranging from power plants and railway systems to industrial controls and communications networks; and systematic best practice sharing of the kind that has long characterized our software initiative. By moving toward technological leadership in all our businesses, we are also strengthening our customer focus and global competitiveness."*¹⁰

Second, *customer focus* was comprised of the customer acquisition and the cross-selling initiative. Third, *global competitiveness* encompassed the software initiative, project management, a global production concept, shared services, and asset management. In addition to the initiatives relating exclusively to one of the sub-programs, the service and the quality initiative concerned all sub-programs. The 11 initiatives, which were characterized by precise planning and relatively clear performance orientation, were mandatory for all Siemens groups. Further, they were managed and monitored by the firm's corporate center and required regular reporting to the Siemens managing board.¹¹

Each of the initiatives comprised one or more projects with a precise task. The group's respective management allocated resources (e.g., budget, human resources) to the projects. The projects were meant to lead to measurable results, and project progress was reported in a decentralized manner. Examples of concrete projects are a novel drive concept in the A&D division as part of the technology platform initiative, or the Bangkok international airport as part of the cross-selling initiative (i.e. Siemens One).¹²

While *top*⁺ itself can be considered a management innovation, it has been also a program for managing the appropriate use of partially new management instruments and tools and thus also enabled management innovation. From the beginning of the *top/top*⁺ program onward, management tools have been an integral part to achieve business excellence. Because management frequently emphasized the importance of tools for the success of *top*⁺, the program has been often referred to as "tool kit". A definition of *top*⁺ in the Siemens Annual Report 2001 illustrates this focus:

*"top⁺ is our company-wide program to achieve sustained growth in profitability. To improve the performance of our businesses, we apply tried and tested methods – e.g. cost reduction, sales stimulation, quality enhancement and asset management. The motto of top⁺ is: Clear goals, concrete measures, rigorous consequences. We continually monitor the effectiveness of our top⁺ activities."*¹³

In 2002, the program contained 11 different management tools: corporate plan/business plan dialogue; balanced scorecards; knowledge management; leadership and co-operation; benchmarking; e-business; quality, safety, and environment; innovation; cost effectiveness;

sales stimulation; asset management.¹⁴ As the names of some of the tools indicate, they were partly identical with the above-mentioned initiatives. Other management instruments and techniques, however, were even more generic and similarly applicable for several initiatives. An example of the latter was the introduction of knowledge management with corresponding tools such as databases, etc. It was used in most of the initiatives, for example, in the project management and the service initiative. On the other hand, the asset management initiative consisted almost exclusively of a new and standardized approach to asset management and thus of a single management innovation. This initiative was concerned with “the process of managing corporate assets in order to enhance operational efficiency while minimizing costs and associated risks”.¹⁵ In sum, Siemens top management emphasized the importance of uniform firm-wide processes and methods that were designed to enhance business success.¹⁶

Interestingly, the focus of the overall program varied not only over time because of the changing organizational and environmental conditions, but also differed from group to group (and from region to region). First, over the course of the initiative, the priorities of the *top*⁺ program shifted from more efficiency-oriented initiatives such as asset management in the late 1990s toward the inclusion of growth-oriented initiatives in the program areas of innovation and customer focus that were facilitated by tools such as benchmarking and knowledge management. In addition, various other aspects were included in the program. For example, since software had become increasingly important for all Siemens businesses, a systematic qualification improvement program for the firm’s software engineers was launched as a new element of *top*⁺. This program enhanced the abilities of the software engineers and included group workshops and personal mentoring.¹⁷

Second, the focus of the *top*⁺ program also varied from group to group (and from region to region). Though the initiatives and management instruments of *top*⁺ were mandatory for all groups, their application was business specific.¹⁸ Groups and countries/regions focused on those initiatives and tools that they considered as most beneficial in the particular circumstances they faced.¹⁹ For example, in 2001 the Siemens VDO Automotive division launched the *top*⁺ WIP (Worldclass Improvement Program), which focused on a Zero Fault quality initiative, leveraging production and procurement synergies, and outsourcing.²⁰ Further, as a wholly-owned Siemens subsidiary, Siemens Australia’s efforts centered on the tool business process reengineering (BPR) in the process initiative and on the implementation of SAP software as part of the software initiative.²¹

Besides considering aspects of the organizational and environmental context, decisions on which instruments or tools to include in the *top*⁺ program depended on extensive internal and external benchmarking. An important requirement was that the tools that became part of *top*⁺ be “generic” enough to be applicable across a diverse business portfolio but also be proven with concrete examples within Siemens. Therefore, the process of including certain tools started in most cases with a pilot project in one of the groups, often a consulting project of SMC. Contingent upon the successful adoption or development of a tool in the pilot project, they became part of the *top*⁺ program and were implemented throughout the firm. Hence, a positive track record of a tool in at least one Siemens group was required:

All the tools we use have already demonstrated their effectiveness for our business. Firmly anchored in all of our activities around the world, this proven approach is driving successful top⁺ programs at every level of the Company.”²²

Further, external benchmarking with direct competitors as well as with best-in-class competitors in certain areas was very important. Hereby, the operating businesses compared their value chains regarding different dimensions (processes, people, organization) and

identified a cost-cap. The measures to close a potential gap compared to competitors included learnings derived from the benchmarking and the respective adaptation to Siemens. *Top*⁺ made benchmarking a mandatory step all operating businesses. Because of the substantial differences between the operating businesses, the benchmarking cycle was based on the product lifecycle of the respective operating business.

In addition, two other mechanisms led to the inclusion of new management tools. First, sometimes new management tools were developed “from scratch” by SMC, facilitated by SMC’s extensive consulting experience. Second, business groups and regions also developed their own business- or country-specific tools without the involvement of the corporate center. If the tools substantially improved the business group or regional company in a particular area, the corporate center analyzed whether they could also be implemented in other business groups and regional companies. An example is “low cost benchmarking”, which was developed by Siemens China and subsequently implemented in other firm businesses. Similarly, solutions for problems in single business groups led to changes for the overall firm, as von Pierer described in 2004:

“In response to the problems at our Transportation Systems Group, quality management has been reorganized throughout the entire Company. In every Group and every Region, we have established quality managers who are authorized to intervene and halt projects and processes if quality problems arise. In such cases, improvements that would entail high costs after project completion can be defined and implemented at an early stage.”²³

Implementation of the *top*⁺ Program

From its launch in 1993 until 2007, Siemens top management considered *top/top*⁺ as a firm-wide program that was obligatory for all groups and regions of Siemens. Many groups and regions, however, initially only implemented parts of the overall program. While management tools were meant to guide the implementation of the *top*⁺ program’s goals, groups and regions were ultimately responsible for assessing their specific situations and for choosing the appropriate measures. This led to varying implementation rates in different groups and regions.²⁴

In the beginning, the implementation of *top* appeared difficult, mainly because of the autonomy and power of the different group presidents and their management teams. Although the implementation was mandatory for all groups, only some groups applied all instruments and tools provided. The main reason for the partial implementation of *top* was the still prevalent Siemens culture in the early and mid-1990s, which was characterized by a lack of firm-wide transparency and a lack of consequences for the management of low-performing groups. In the following years, however, von Pierer was able to change the culture by obliging every single group president to implement the program. This was also facilitated by introducing more transparent and standardized performance measures and clear consequences for managers who did not fulfill the agreed performance targets. Despite these changes, even during the subsequent years, the implementation varied across groups and regions. In 2002, then CFO Heinz-Joachim Neubürger noted:

*“The instruments of *top/top*⁺ itself are good. Yet, we recognize again and again that they are not applied with the necessary consequence and persistence.”²⁵*

Indeed, the *top/top*⁺ program was criticized for being too broad instead of focusing on single pressing issues. The considerable number of diverse instruments, many of which had

different or even conflicting targets such as innovation or productivity, hampered commitment to the program by the firm's groups, particularly in the first years following the launch of *top*⁺.²⁶ To foster the implementation of the *top*⁺ program throughout the firm, two measures were taken. First, management required all groups to undertake extensive external benchmarking every two to three years. If a business failed to achieve its targets, the management team had to propose how it would close the performance gap. Since the standardized tools of the *top*⁺ program already existed, the businesses frequently opted to apply them in order to enhance performance. Hence, although most of the tools of the *top*⁺ program were not mandatory, business groups were indirectly required to apply them. Second, Siemens initiated the *top*⁺ award in 1999. It became the firm's most important award and was given to the best performing teams, divisions, units and subsidiaries. Award criteria included an increase in EVA and the successful implementation of the *top*⁺ philosophy within a certain period of time.²⁷ An SMC project manager described the implementation of the overall program as a "mixture of push and pull efforts".²⁸

Numerous examples of the (successful) implementation of single aspects of *top*⁺ in groups or regions exist. Since 2000, Siemens used *top*⁺ as a framework for achieving performance improvements in their US business. The measures not only targeted the businesses independently, but also included initiatives for synergy realization across businesses. The latter included aspects such as "one face to key customer groups" and "shared services for corporate functions".²⁹ As early as in 2002, the results of implementing elements of the *top*⁺ initiative appeared promising. Interestingly, at that time, Klaus Kleinfeld, one of the initiators of *top*⁺ and SMC and later Siemens President and CEO, served as CEO of the US business. Siemens' CEO von Pierer noted:

*"Launched two years ago, our top⁺ U.S. Business Initiative has begun to show results. Earnings at our American companies have increased significantly."*³⁰

A further example is the strategic reorganization of the group Information and Communication Networks (ICN) in 2001. Following the changing strategic focus, tools of the *top*⁺ program were applied. The group defined concrete measures that were monitored monthly and, if necessary, adjusted. This included "reducing the number of production sites by half, optimizing sales channels and accelerating development activities in promising innovation fields".³¹ A variety of other businesses implemented elements of *top*⁺ in 2001 (e.g., A&D and Siemens Real Estate). For example, A&D in the Automation and Control (A&C) group applied tools such as asset management, quality, and cost reduction.³²

An example of a particular implementation aspect of *top*⁺ and of the challenges firms such as Siemens face when dealing with a diverse business portfolio is the "business excellence leadership training" in the Power Generation division. In 2000, the division's management team decided to implement the *top*⁺ quality initiative, mainly aiming at improvements of the process quality. The power generation business is characterized by large customized orders for single customers. Compared to businesses with large-scale production facilities, relatively small series and individual customer demands lead to a typical project duration of 18 to 24 months. Process improvements by quality management tools such as Six Sigma are difficult to (statistically) measure since the different projects are only partly comparable. Nevertheless, process quality and customer satisfaction needed to be improved. Therefore, management decided to develop a distinct competence aiming at continuous improvement that builds upon elements of Six Sigma.³³

As the in-house consultancy SMC notes, today the *top*⁺ program is implemented in all groups and regions.³⁴ Though *top*⁺ has become the "standard" for operational excellence in

many divisions and regions, the implementation rigor and scope, however, still varies. To successfully implement the *top*⁺ program requires the commitment of the firm's group managers. Familiarizing them with three sub-programs innovation, customer focus, and global competitiveness, and their respective contents appears critical.³⁵ Indeed, Siemens management identified two success factors of the *top*⁺ program. First, top management team commitment is decisive for implementation efforts. Second, communication across all firm levels is key. Both factors are strongly interrelated. For example, the annual winners of the *top*⁺ award are invited to an awards ceremony in Berlin, where they are awarded a prize by the CEO. Further, there are management training programs reflecting the *top*⁺ program and methods. These training programs are targeted at different management levels, ranging from members of the top management to team managers.

Capability Development and the *top*⁺ Program

As indicated above, enabling the development of competences, for example, in quality or process management was a critical aspect of *top*⁺. Indeed, Siemens top management acknowledged the importance of capabilities as well as its fit with the environment for the firm's long-term success. In 2007, then Chief Strategy Officer Horst Kayser remarked:

*"Management Capabilities are decisive for sustainable competitive advantage. We regard a portfolio of experiences and competences and its consistency with the external environment as critical for success."*³⁶

In particular, the *top*⁺ program emphasized different aspects of organizational learning such as experiential learning, knowledge management, and best-practice transfer. First, the program aimed at using accumulated management experience in multiple areas. For example, in 2001 Siemens Dematic and Siemens VDO Automotive launched restructuring and integration programs that explicitly built upon prior experiences with *top*⁺ and were expected to result in productivity gains of about 1 billion EUR for each group.³⁷ Second, knowledge management was a central aspect of *top*⁺ and an integral part of several different initiatives such as the project management initiative and the quality initiative. Third, Siemens top management emphasized the importance of best-practice transfer for the success of the *top*⁺ program. From the relaunch of *top*⁺ in 1998 onwards, *top*⁺ reflected Siemens' corporate principles and built upon best-practice sharing and learning. For example, in 1998 von Pierer remarked:

*"The associated best-practice campaign stresses learning from outstanding models of efficiency both within and beyond the Company. *top*⁺ is driven by the new corporate principles, which were formulated last year."*³⁸

Knowledge management and best-practice transfer both were facilitated by dedicated initiatives, which were also part of *top*⁺. These initiatives aimed at issues such as providing the infrastructure and assistance necessary to effectively store individual experiences via databases, etc. Further, they included a communication strategy for exchanging both experiences and stored knowledge (Davenport & Probst, 2002). Although the application of the *top*⁺ tools was supposed to result in value creation, the sharing of best practices across group boundaries was considered important. As von Pierer noted, the complementary function of knowledge transfer also demanded significant cultural changes within the firm:

"These tools are complemented by the systematic sharing of best practices: each Siemens business learns from the others. We are also continuing to

reshape our corporate culture, particularly in the areas of management and cooperation.”³⁹

Siemens’ *top*⁺ program not only comprised initiatives and tools to build distinct managerial competences, but also was itself intended to lead to a business excellence or management innovation competence. Several aspects facilitated the development of such a corporate-level capability, particularly through experience accumulation. First, from the beginning of the initiative, the firm’s top management created a dedicated function in the corporate center for centrally coordinating and managing the *top*⁺ program. Second, *top*⁺ was characterized by a high degree of management continuity. For example, from 1993 until the beginning of 2007, only two members of the managing board were responsible for the program. In addition, the manager heading the initiative until the end of the investigated period in 2007 held this position for more than five years. Further, *top*⁺ managers were frequently recruited from the in-house consultancy SMC and thus often had prior experience with the program.

Besides accumulating experience, more deliberate learning also occurred. Knowledge management tools such as databases, directories, and manuals were used for storing the knowledge acquired.⁴⁰ Communication of the knowledge acquired was another central element of the *top*⁺ program. For example, from the beginning of the *top*⁺ initiative onward, Siemens centered its efforts on the development of a common language. Facilitated by internal publications such as magazines, intranets, and even a “*top*⁺ book”, a common understanding of the *top*⁺ program and its key learnings was considered critical for the success of the program.

Performance (Measurement) of the *top*⁺ Program

From the (re)launch of the program in 1993 until 2007, increasing firm performance was the primary objective of *top*⁺ (and is still today). Therefore, the firm’s top management team considered performance measurement at all levels as a highly critical task. The *top*⁺ program was not only supposed to result in major improvements, but was also meant to enable common performance measures:

*“When it comes to performance, our proven *top*⁺ processes and procedures ensure that we all speak the same language. We set clear and measurable goals and define and rigorously implement the concrete measures required to achieve them.”*⁴¹

As indicated in Exhibit 7, Siemens management assessed the performance at the firm, operating group, and program levels. First, the overall priority was to achieve an increase in EVA.⁴² Further measures included the growth rate (which should be twice the global gross domestic product (GDP)), return on capital employed (ROCE), the cash conversion rate (CCR) minus the revenue growth rate, and the ratio of adjusted industrial net debt to (adjusted) earnings before interest, taxes, depreciation, and amortization (EBITDA)). Second, operating group-level performance was also assessed with financial measures. Specific target margins ranges were defined individually for each group and periodically revised. For example, management adjusted the margin ranges with the transition from the Fit4More to Fit42010 SMS. Third, the *top*⁺ program management assessed performance with non-financial measures on the program- and sub-program level. The different measures were customized for the specific targets of three sub-programs innovation, customer focus, and global competitiveness. To assess the performance of the *top*⁺ customer focus program, for example,

the quality of the customer relationships in operating businesses was measured by the “Net Promoter Score” (likelihood that customers recommend products/services).⁴³

Overall, the performance impact of *top*⁺ appeared to be very significant. During the period of investigation from 1998 to 2007, Siemens was able to increase sales by 28.7 percent, earnings by 197.3 percent and market capitalization by 213.9 percent (see **Exhibit 8**). A project manager of SMC, for example, noted:

“From my perspective, top⁺ is the major reason why Siemens AG as a diversified entity with different unrelated businesses makes sense and exists to date. top⁺ is the primary lever of corporate-level value creation and to achieve the goal of an integrated technology company.”⁴⁴

Different operating groups of Siemens also confirmed the positive influence of the successful *top*⁺ implementation on performance. At Siemens Building Technologies in the Automation and Control Group, *top*⁺ was considered to substantially contribute to productivity. Indeed, the improved productivity was credited to the application of *top*⁺ tools for enhancing production processes and outsourcing certain areas.⁴⁵ Here, the introduction of a new production-optimization system at a facility resulted in a 20 percent productivity increase. A similar effect was present in other groups. For example, Wolfgang Dehen, then Group President of Siemens VDO Automotive, remarked in 2002:

“The rapid implementation of our top⁺ World Class Improvement Program has been decisive for our success. This initiative has helped us more closely align our development, production and administrative processes to customer needs. We have also increased our efficiency by reorganizing our production capacities worldwide.”⁴⁶

Interestingly, Siemens’ top management categorized the business portfolio according to what extent the predefined margin ranges were met by the operating groups. By the end of fiscal 2004, Automation and Drives, Medical Solutions, Power Generation, Osram, Siemens VDO Automotive, Siemens Financial Services, and Power Transmission and Distribution “met or exceeded the margin targets agreed upon with the Managing Board, proving that sustainable success can be achieved by utilizing all the tools of our *top*⁺ management system”⁴⁷ Unlike the operating groups in the first category, Transportation Systems, the Communications Group, and Siemens Business Services had failed to reach their margin targets by 2004. Siemens top management demanded from them a more rigorous application of the SMS facilitated by the *top*⁺ program. Since the firms’ corporate strategy partly built upon synergy from vertically optimizing the portfolio, Siemens’ management regarded the *top*⁺ program as critical for operational excellence and thus for superior firm performance. As von Pierer noted in 2002, those businesses in which the *top*⁺ program did not lead to substantial future improvements (i.e., reach margin target ranges), would be restructured and potentially divested:

“We remain committed to continuously improving our profitability – even beyond the margin targets we have defined. Where we cannot achieve this with our top⁺ business excellence tools alone, we will further adjust our portfolio.”⁴⁸

A further benefit of the *top*⁺ program was that it strongly facilitated the integration of acquired businesses. As *top*⁺ also provided a platform on how Siemens understands “doing business”, the acquired businesses had the opportunity to openly and continuously reflect its processes and adapt them to Siemens where it appeared to be beneficial. In addition, *top*⁺

offered Siemens the opportunity to assess the processes, tools etc. of the acquired businesses and to adopt suitable best practices from them within the overall firm.⁴⁹

While the implementation of entire sub-programs of *top*⁺ enhanced overall firm performance, the contributions of applying single management tools of the *top*⁺ “tool-kit” were also substantial. For example, in the firm’s 2004 annual report, von Pierer stated the following in reference to the tool asset management:

*“Cash flow development, which has been positive in each of the past four years, was again very gratifying. Net cash from operating and investing activities totaled €3.3 billion. Our managers have learned the art of professional asset management. Strong cash flow is giving us the entrepreneurial leeway we need for targeted strategic moves.”*⁵⁰

THE FUTURE OF MANAGEMENT INNOVATION AT SIEMENS

While technological and product innovation have always played central roles at Siemens, management innovation appears to be critical for future success, too. As this case study illustrates, a distinct form of vertical optimization is management innovation performed with support by the corporate level. Synergy may result not only from leveraging tools to individual operating groups, but also from the development of superior capabilities. Although the firm’s corporate center was repeatedly restructured during the period from 1998 to 2007, the case suggests that corporate development and corporate-level programs aiming at management innovation will always remain important for the firm’s overall value creation. In 2007, Siemens top management team decided to continue the efforts of the *top*⁺ program as part of the updated corporate program Fit42010. Because of its past contribution to operational excellence and thus firm performance and because of the increasing present and future importance of innovative management, *top*⁺ is likely to constitute an integral part of future corporate programs, even beyond 2010. Indeed, current CEO Peter Löscher, an executive with extensive management experience at GE, wants to strengthen the efforts of Siemens in management innovation and operational excellence with the *top*⁺ program.

EXHIBITS

Exhibit 1: Siemens Corporate Structure 1998 (Source: Siemens Annual Report 1998)

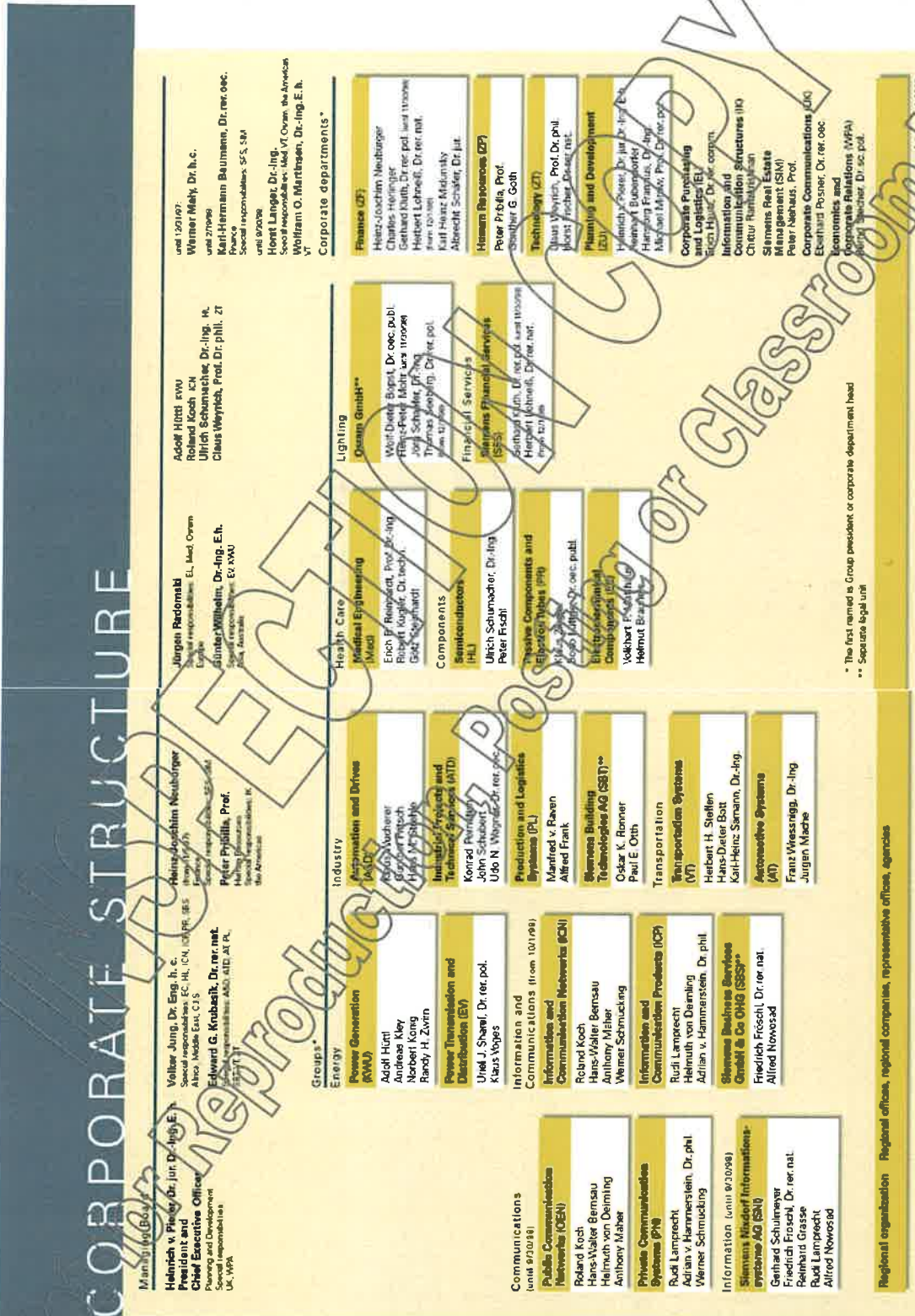


Exhibit 2: Siemens Corporate Structure 2007 (Source: Siemens Annual Report 2007)

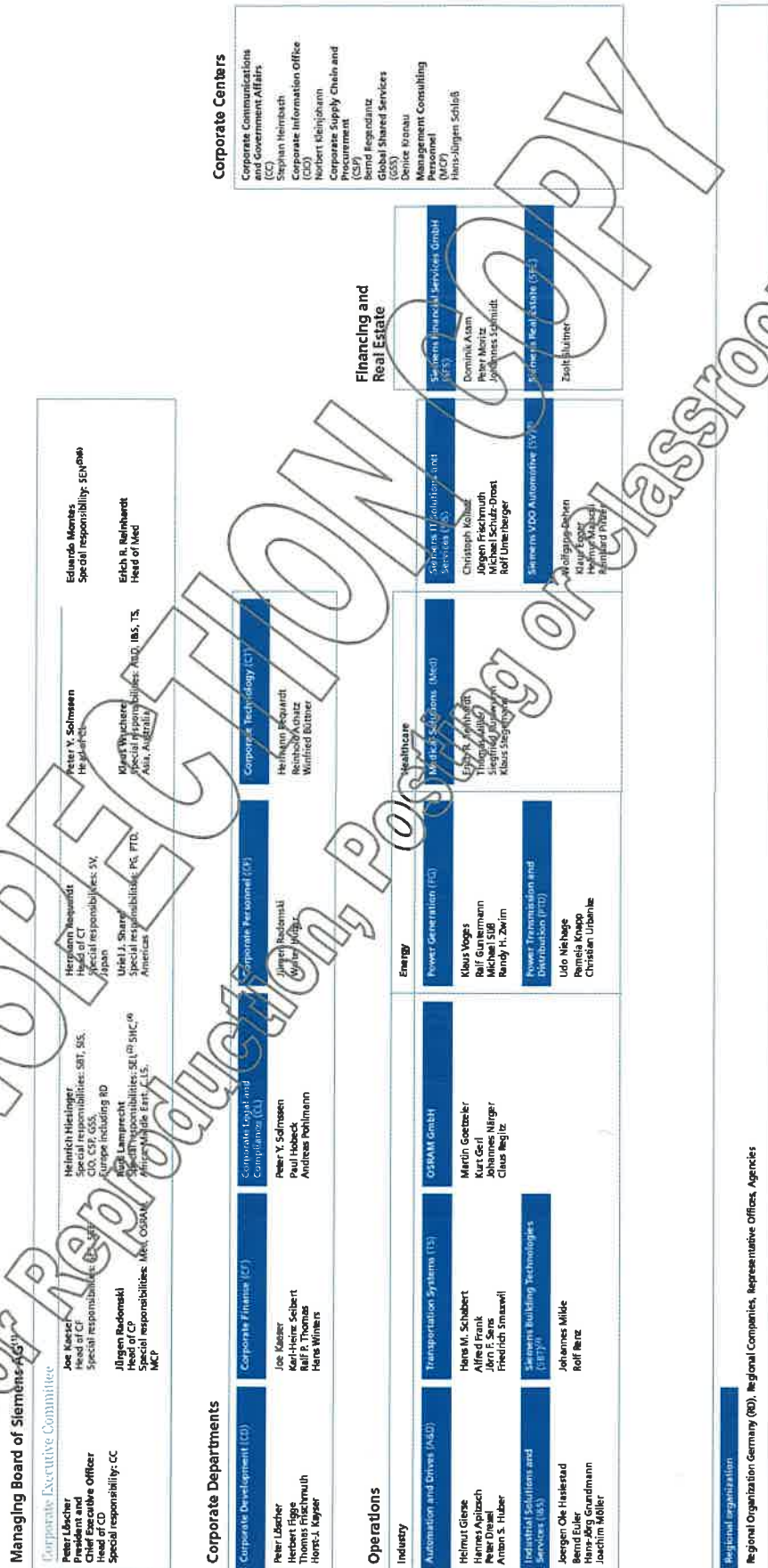


Exhibit 3: Context and Development of Siemens *top*⁺ (Source: Siemens Annual Reports, www.siemens.com)

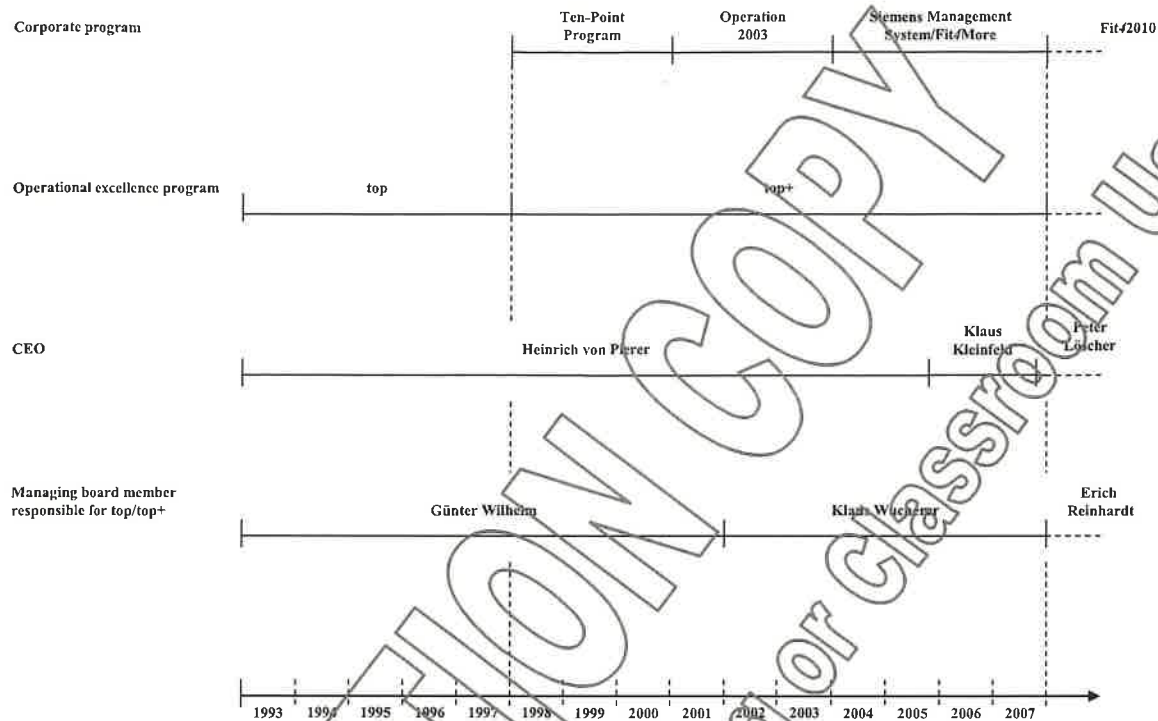


Exhibit 4: Elements of Fit4More (Source: Presentation of Klaus Kleinfeld at EPG Conference, May 2005)



Exhibit 5: Elements of Fit42010 (Source: Siemens Annual Report 2008)

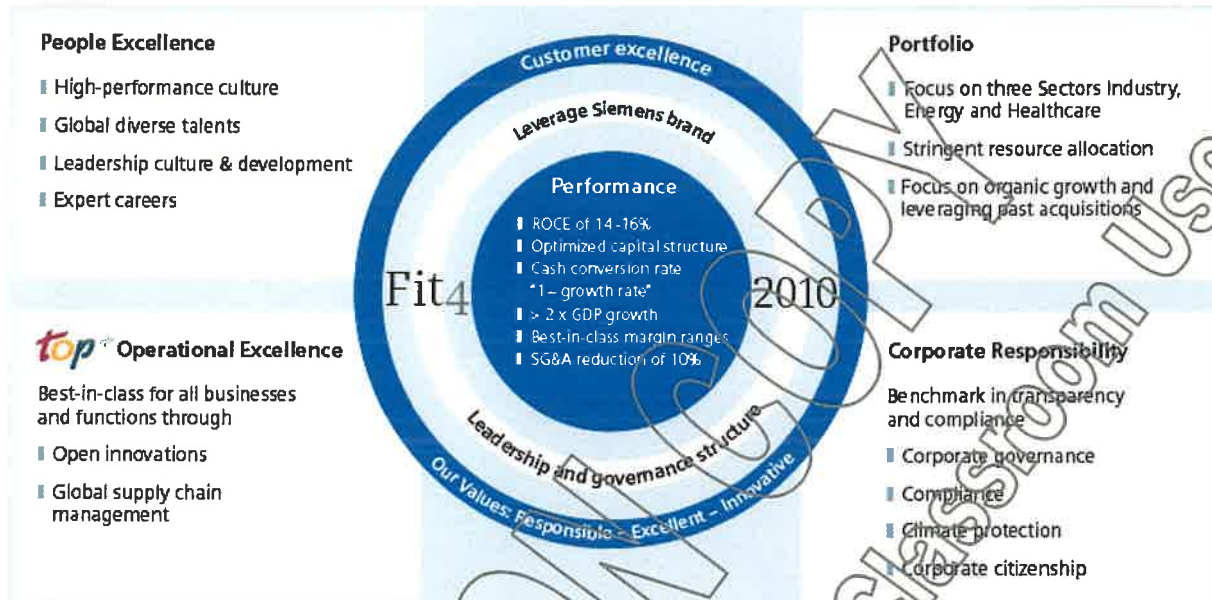


Exhibit 6: Sub-Programs and Initiatives of Siemens top+ (Source: Feldmayer 2006)

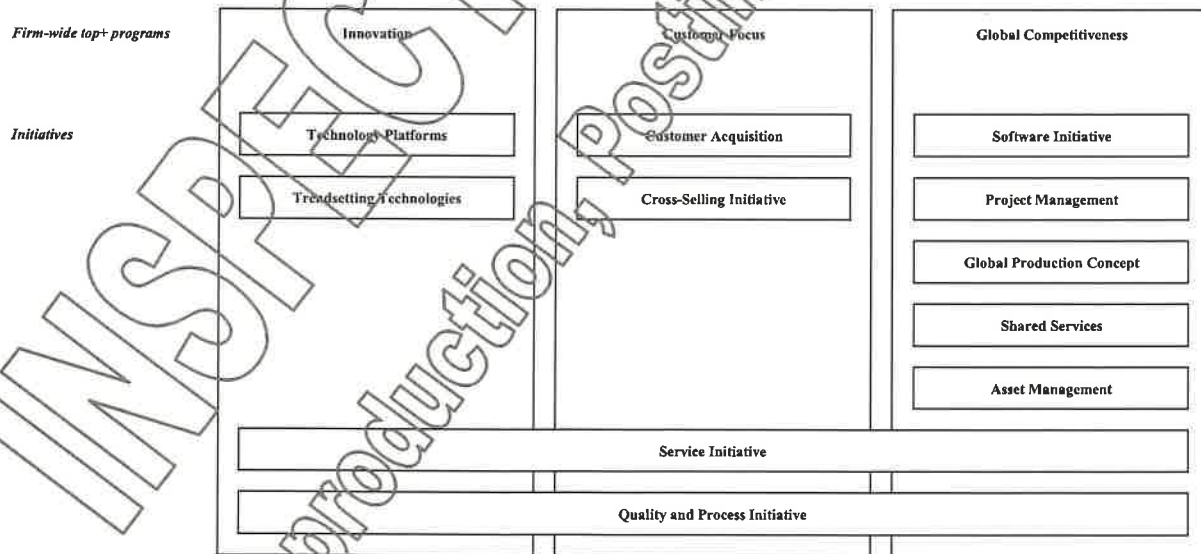


Exhibit 7: Siemens Performance Measures in 2007 (Source: Siemens Annual Report 2007: 160, 194-197; descriptions partly from Siemens Annual Report 2001)

Level of Performance Analysis	Type of Performance Measure	Performance Measure(s)	Description/Details/Targets
Overall Firm	Financial	EVA	EVA equals net operating profit after taxes (NOPAT) less a charge for capital employed in the business (cost of capital).
		Growth	Sales Growth of 2x GDP
		ROCE (return on capital employed)	"Appropriate" ROCE (return on capital employed)
		CCR (cash conversion rate)-revenue growth rate	CCR (cash conversion rate) of 1 minus the revenue growth rate
		Adjusted industrial net debt to (adjusted) EBITDA	Defined ratio of adjusted industrial net debt to (adjusted) EBITDA (see Outlook)
Operating Groups	Financial	Margin ranges	Individual margin ranges for all operating groups
top⁺ Innovation	Non-financial	Benchmarking	Comparison of the products, services, processes and financials within an organization, in relation to "best of practice" in other similar organizations.
		Lead customer feedback	Collection of feedback from key accounts concerning state and improvement of innovation
		"New Generation Business"	Identification and promotion of disruptive innovation topics of significant relevance to our future business
		"Siemens Top Innovators"	Development and expansion of network of top innovators, and intensively applying their experience throughout Siemens
		"Innovator Image"	Expansion of the corporate image as a leader in innovation
top⁺ Customer Focus	Non-financial	Market transparency	Involves setting goals on what percentage of the overall market must be secured in terms of individual customers and specific projects
		Customer relationship management	Systematically collecting and making available sales information from a central source; firm-wide introduction of the "Net promoter score" (a key indicator to measure the willingness of customers to recommend our products and services)
top⁺ Global Competitiveness	Non-financial	Lean production system	Developing lean production system, accelerating its expansion through the reference configuration of a "Siemens Production System (SPS)"

Exhibit 8: Selected Siemens Financial Data 1998-2007 (Source: Thomson Financial)

<i>In EUR million</i>	CAGR	Y2007	Y2006	Y2005	Y2004	Y2003	Y2002	Y2001	Y2000	Y1999	Y1998
Sales	1.87%	72,448	87,325	75,445	75,167	74,233	84,016	87,000	78,396	68,582	60,177
Total Operating Expenses	1.34%	67,827	83,520	71,998	72,152	71,951	82,702	88,662	74,855	67,964	59,365
Selling, General, and Admin. Expenses	0.12%	15,502	20,494	18,839	18,630	18,601	21,274	23,422	19,354	17,663	15,321
Cost Of Goods Sold	1.95%	48,563	60,099	50,213	50,701	50,177	57,873	60,011	51,075	46,071	40,024
EBITD	2.45%	8,901	7,903	7,642	7,504	7,089	7,773	8,737	14,658	6,940	6,988
EBIT	6.61%	5,998	4,976	4,696	4,683	3,916	4,218	3,631	10,377	3,648	3,163
Net Income	11.69%	3,710	3,087	3,058	3,405	2,409	2,597	2,088	7,549	1,615	1,228
Total Assets	2.87%	88,961	85,990	79,884	74,707	73,246	74,253	86,434	93,366	72,741	67,048
Total Current Assets	1.97%	47,932	51,611	46,803	45,946	43,489	44,062	51,013	58,076	41,371	39,436
Total Liabilities	1.41%	59,334	55,982	52,111	47,323	48,897	50,191	58,602	67,728	55,541	51,560
Total Current Liabilities	5.94%	43,894	38,957	39,837	33,372	32,028	34,712	44,524	34,602	28,113	24,643
Total Debt	7.66%	15,497	15,574	12,435	11,219	13,178	12,346	12,610	9,134	7,262	7,406
Total Common Equity	7.09%	28,996	29,306	27,117	26,855	23,715	23,521	23,812	23,225	16,229	14,614
Year End Market Capitalization	12.10%	87,992	61,316	57,163	52,573	45,434	30,227	36,773	85,789	46,126	28,069
Capital Expenditures	0.10%	3,751	3,970	3,544	2,764	2,852	3,894	7,048	5,189	3,816	3,714
Free Cash Flow	N/A	1,116	-190	-1,535	1,338	1,964	782	-1,444	2,372	1,443	-2,116
ROA	N/A	4.17%	3.59%	3.83%	4.56%	3.29%	3.50%	2.42%	8.09%	2.22%	1.83%
ROE	N/A	12.79%	10.53%	11.28%	12.68%	10.16%	11.04%	8.77%	32.50%	9.95%	8.40%
Employees	-0.74%	386,200	475,000	460,800	430,000	417,000	426,000	484,000	446,800	440,200	416,000

Exhibit 9: Profiles of Selected Top Management Team Members (Source: www.siemens.com, www.businessweek.com)

Name	Position	Profile
Heinrich von Pierer	President & CEO (1992-2005)	Dr. Heinrich von Pierer studied law and economics at the Friedrich-Alexander University in Erlangen-Nuremberg, Germany. He joined Siemens in 1969 and began his career working in the company's legal department. In 1977, he moved to the company's power generation subsidiary Kraftwerk Union AG (KWU), where he was involved with major power plant projects throughout the world. Pierer took over as head of business administration at KWU in 1988 and was appointed to the board. The following year, he was named President of KWU and, at the same time, a member of the Managing Board of Siemens AG. He was appointed to the Corporate Executive Committee in 1990, and the next year was named Deputy Chairman of the Managing Board of Siemens AG. Pierer served as President and CEO from October 1992 to January 2005. Pierer was elected to the Supervisory Board at the Annual Shareholders' Meeting on January 2005 and subsequently held the post of Chairman until April 2007.
Klaus Kleinfeld	President & CEO (2005-2007)	Dr. Klaus Kleinfeld held the post of CEO of Siemens AG from January 2005 to June 2007. Kleinfeld worked at Siemens for about 20 years and transformed, among other things, Siemens Management Consulting into an effective partner for the global businesses. Furthermore, he was a member of the Group Executive Management of the Medical Solutions Group. As CEO of Siemens' regional business in the U.S., he contributed significantly to the profitable turnaround of the business there within two years. Kleinfeld started his business career in a consulting firm in Germany. Prior to joining Siemens, he was a strategic product manager at the CIBA-GEIGY Pharmaceuticals Division in Basel, Switzerland. He earned a Master's degree in Business Administration/Economics from the University of Göttingen (Germany) in 1982, followed by a Ph.D. in Strategic Management from the University of Würzburg (Germany) in 1992.
Peter Löscher	President & CEO (2007-present)	Peter H. Löscher has been CEO and President of Siemens AG at Siemens Healthcare since July 2007. He served as President and CEO of GE Healthcare Bio-Sciences since April 2004. He served as President of Global Human Health for Merck & Co. Inc. from May 2006 to July 2007. He served as COO of Amersham PLC since January 2004. He joined Amersham PLC in December 2002 as President of Amersham Health. Prior to Amersham Plc, Mr. Löscher served more than 16 years in senior management roles in the pharmaceutical industry, including a position as Chairman of Aventis Pharma Japan and also as its President and CEO from 1999 to 2002. Mr. Löscher served as Managing Director of Hoechst Roussel Veterinaria A.I.E., Spain, U.S. Vice President, Hoechst Roussel Agri-Vet Company; Head of Corporate Planning, Hoechst AG, Germany and Project Leader for NYSE Listing, Hoechst AG, Germany since 1988. He served as CEO of Hoechst Marion Roussel Limited in the UK since 1997. He served as Senior Management Consultant of Kienbaum Consulting Group since 1985. He is MBA graduate of the Vienna University School of Economics and he also has studied at the Chinese University of Hong Kong and at Harvard Business School.
Günter Wilhelm	Member of the Managing Board; responsible for top/top ⁺ 1993-2001	Dr. Günter Wilhelm served as a Member of the Managing Board of Siemens AG from 1992 to 2001. He studied mechanical engineering at the University of Applied Sciences Friedberg, Germany. Following his studies, he joined Siemens-Schuckert-Werke AG in 1958 as a project engineer. In 1974, he became head of a department in the energy division of Siemens AG. In 1978, he was promoted to area head in the same division. In 1988, he became deputy head of the division "E-Industry" and in 1989 was promoted to chair the managing board of the division "Automation".

Name	Position	Profile
Klaus Wucherer	Member of the Managing Board; responsible for <i>top</i> ⁺ 2001-2007	Prof. Dr-Ing. Wucherer served as an Executive Vice President of Siemens AG and its Member of the Managing Board from October 2000 to December 2007. Wucherer started his career with Siemens AG in the Bremen Regional Office, Germany, in 1970 and has held the following positions Technical Office, Osnabrück, Germany, since 1973. he served as Head of Controlled Three-phase and DC Drives SIMATIC Department, Bremen Regional Office, since 1978, Head of Drives at SIMATIC Process Control Computers Department, Bremen Regional Office, since 1983, Head of Systems Sales and Marketing Department at Siemens S.A., São Paulo, Brazil, from 1986 to 1996, Head of various Subdivisions and Divisions of the Energy and Automation Group in Nuremberg, Germany and Erlangen, Germany: Industrial Communications, Software House, Automation Systems for Machine Tools and Industrial Automation Systems SIMATIC, since 1996, Member of the Group Executive Management at Automation Group, Nuremberg, since 1998, President Automation and Drives Group since January 2003. Wucherer holds Honorary Professorships includes Technical University of Chemnitz (engineering) University of Applied Sciences.
Erich Reinhardt	Member of the Managing Board; responsible for <i>top</i> ⁺ 2007-2008	Prof. Dr. Erich R. Reinhardt was a Member of the Managing Board of Siemens AG since December 2001. He served as the Head of Medical Solutions (Med). Prior to joining Siemens, he served as a Researcher of University of Stuttgart, Institute for Physical Electrical Engineering. In 1983, Reinhardt joined Siemens AG, Medical Engineering Group and his other positions at Siemens are Applications Development in Magnetic Resonance Tomography, Head of Department; since 1986, Magnetic Resonance Tomography Division's Head; since 1990, Siemens Ltd. Bombay, India's Managing Director; since 1994, Member of the Group Executive Management of the Medical Engineering Group; since April 1994, and President of the Medical Engineering Group. Reinhardt holds a degree in Electrical Engineering, a Doctorate, and Honorary Professorship from the University of Stuttgart.

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ENDNOTES

- ¹ Siemens Annual Report 2007; Siemens Company History, Document from the Siemens History Online Archives, www.siemens.com.
- ² Siemens Annual Report 2001: 18.
- ³ Johannes Feldmayer, Presentation "Management-Innovationen" at Fachkonferenz Innovation@Siemens, Berlin, July 10, 2006.
- ⁴ Interview with head of Siemens top+ program, April 2008.
- ⁵ Siemens Annual Report 1998.
- ⁶ Siemens Annual Report 2000: 14; Siemens Annual Report 2001: 16.
- ⁷ Heinrich von Pierer, Siemens Annual Report 2003: 7.
- ⁸ Siemens Annual Report 2007: 33.
- ⁹ Siemens Annual Report 2007: 41
- ¹⁰ Siemens Annual Report 2004: 15.
- ¹¹ Siemens Annual Report 2004.
- ¹² Johannes Feldmayer, Presentation "Management-Innovationen" at Fachkonferenz Innovation@Siemens, Berlin, July 10, 2006.
- ¹³ Siemens Annual Report 2001: 123.
- ¹⁴ Zhao, F. 2004. Siemens' business excellence model and sustainable development. *Measuring Business Excellence*, 8(2): 55-64.
- ¹⁵ Siemens Annual Report 2001: 122.
- ¹⁶ Klaus Wucherer, Siemens Annual Report 2006: 23.
- ¹⁷ Siemens Annual Report 2007: 41.
- ¹⁸ Siemens Annual Report 1999.
- ¹⁹ Siemens Annual Report 2001: 5.
- ²⁰ Siemens Annual Report 2003: 31.
- ²¹ Zhao, F. 2004. Siemens' business excellence model and sustainable development. *Measuring Business Excellence*, 8(2): 55-64.
- ²² Siemens Annual Report 2005: 19.
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- ²⁵ Heinz-Joachim Neubürger, found in and translated from Preissner, A. 2002. *Zwei Männer unter Strom*. *Manager Magazin* 06/2002: 68-78.
- ²⁶ Preissner, A. 2002. *Zwei Männer unter Strom*. *Manager Magazin* 06/2002: 68-78.
- ²⁷ www.siemens.com.
- ²⁸ Interview with project manager of SMC, March 2009.
- ²⁹ Siemens Annual Report 2001: 17-18.
- ³⁰ Siemens Annual Report 2002: 16.
- ³¹ Siemens Annual Report 2001: 17.

³² Siemens Annual Report 2001: 29.

³³ Kleemann, B., Seitz, N., & Wio, H.-J. 2007. Das Führungskräfte-Training für top+ Qualität und Six Sigma bei Siemens Power Generation. In A. Töpfer (Ed.), Six Sigma - Konzeption und Erfolgsbeispiele für praktizierte Null-Fehler-Qualität, 4th ed.: 278-288. Berlin: Springer.

³⁴ Siemens Management Consulting (SMC), www.smc.siemens.com.

³⁵ Siemens Annual Report 2003: 7.

³⁶ Presentation of Horst Kayser at the University of St. Gallen, June 2007.

³⁷ Siemens Annual Report 2001: 17.

³⁸ Heinrich von Pierer, Siemens Annual Report 1998: 6.

³⁹ Heinrich von Pierer, Siemens Annual Report 1999: 9.

⁴⁰ Interview with head of Siemens top+ program, April 2008.

⁴¹ Siemens Annual Report 2007: 41.

⁴² Siemens Annual Report 1998: 6.

⁴³ Siemens Annual Report 2007: 160.

⁴⁴ Interview with project manager of SMC, March 2009.

⁴⁵ Siemens Annual Report 2003: 27.

⁴⁶ Wolfgang Dehen, Siemens Annual Report 2002: 27-28.

⁴⁷ Heinrich von Pierer, Siemens Annual Report 2004: 6.

⁴⁸ Heinrich von Pierer, Siemens Annual Report 2002: 16.

⁴⁹ Correspondence with project manager of SMC, April 2010.

⁵⁰ Heinrich von Pierer, Siemens Annual Report 2004: 5.