

Siemens' business excellence model and sustainable development

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Abstract: This study shows that Siemens has assiduously endeavored to achieve business excellence and enhance the company's economic value, and has made considerable efforts to address the issue of sustainable development in various ways. However, the study has also found that much is said than done and there are implementation issues and problems that deserve managers' full attention. A series of recommendations are proposed to broadly address these issues and problems. Managers who have already embarked on, or intend to take, sustainability initiatives will find the study informative and insightful.

Keywords: Business excellence, Sustainable development, Economic value added

Introduction

The value and the importance of sustainable development to long-term business success have been widely recognized by many companies, in particular by larger companies. However, only a few of them have managed to integrate sustainable development effectively into their daily operations and business practices. Most of today's business excellence models focus predominantly on a single bottom line of financial results rather than also attending to the social and environmental impact of businesses (Garvare and Isaksson, 2001; WBCSD, 2003). This study endeavors to address the issue of how to balance economic, social and environmental sustainability.

Siemens AG, a leader in electrical engineering and electronic industries, has developed for years a business excellence model called Top+ program. This is a company-wide program aiming to improve Siemens' business performance and sustainability, and to make Siemens one of the world's best companies. Siemens' top management in Germany initiated the business excellence program, which has been developed into a comprehensive management tool kit. The tool kit contains a number of management tools to support managers and team members to achieve measurable success in increasing both short and long-term profitability, competitiveness and sustainability. Quality, safety and environment, innovation, balanced scorecards and knowledge management are the key management tools in the tool kit.

The aims of this study are to explore the interface between sustainability and business excellence through a case study of Siemens' Top+ program and its tools, and to examine issues associated with the implementation of the business excellence model. The key research questions investigated include:

What are the perceived and realized benefits of the Top+ program to business excellence and sustainability?

What are the major issues and problems raised in the process of the Top+ implementation?

How can organizations address such issues and problems?

What are the managerial implications of Siemens' experiences for sustainable development of organizations in the corporate world?

The study draws upon the data collected by the author from her five-month fieldwork at Siemens (Australia). The paper provides practitioners and academics with a case study of how large and "old" enterprises like Siemens address the challenges of sustainability and business excellence. The paper starts with a brief review of literature on sustainability and the development of quality movement, and is followed by a brief description of the study's research process. After that, key findings are presented and discussed. The paper concludes with recommendations and a brief summary.

3.1.1.1. The concept of sustainability or sustainable development

The concept of sustainability or sustainable development is not a new phenomenon and can be traced back to 1713 when a German forestry worker, Hans Carl von Carlowitz coined the term. His concept was to cut only enough trees that would be able to grow again (Siemens, 2003b). About 30 years ago, Meadows *et al.* (1972) reinforced the idea. The concept has been evolving, from a view of limits to growth (mainly economical and demographical) to that of a balance between economic growth and environmental quality (Sathiendrakumar, 1996). There is no consensus about the definition of sustainable development in literature. However, a commonly accepted definition of sustainable development is the one made by the World Commission on Environment and Development, namely, "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987, p. 43). From the economics' point of view, Pearce and Turner (1990) define sustainable development as activities that maximize the net benefits of economic development while maintaining the services and quality of natural resources over time. Based upon the literature review, this author defines sustainable development in this study as a balance of economic (financial), social, and environmental sustainability, which is consistent with the notion of the triple bottom line (Topfer, 2000).

Like the evolution of sustainable development, the concept of quality management has evolved continuously over several decades. As McDonald *et al.* noticed, the quality management movement has so far undergone four visible trends of changes as follows.

1. Quality, initially conceptualized as a quantitative aspect, gradually emphasizes qualitative factors.
2. The reactive function of inspection has become a preventive function, thus moving from a creative to a proactive vision of quality.
3. The notion of quality gradually ceases to focus on the final product, but on quality of daily tasks and processes.
4. A global perspective of the organization has emerged as a result of the increasing integration of different functional aspects of quality. Social and environmental aspects are now added to the commercial dimensions of organization (McDonald *et al.*, 2002, p. 21).

As part of this evolution, business or organizational excellence has become a recent goal of quality movement. The Malcolm Baldrige National Quality Award (MBNQA), the European Quality Award, and the Australian Quality Award are well-known quality awards which embody principles of business excellence. The principles reflect the above trends of changes and also indicate a link between business excellence and corporate social responsibility. The principles are:



- leadership and constancy of purpose;
- customer focus;
- results orientation;
- management by processes and facts;
- people development and involvement;
- continuous learning, innovation and improvement;
- partnership development; and
- public responsibility.

Based upon the principles, criteria for the quality awards have been established. Society results, along with people results, partnership and resources, and customer results are among the key evaluation criteria. It appears that the quality management movement has extended its scope to include social and environmental responsibility to address the changed demands for today's businesses. According to Garvare and Isaksson (2001), the concept of customer focus in the quality movement has developed into meeting the needs of a broader group of customers including human stakeholders, environmental stakeholders and other interested parties in societal sustainability.

Efforts have been made by researchers to explore the interface between business excellence and sustainability. Edgeman (2000) proposed a *BEST* business excellence model for sustainability which is built on four pillars:

1. *Biophysical/environmental sustainability*;
2. *Economic sustainability*;
3. *Social sustainability*; and
4. *Technical sustainability*.

He maintains that sustainable development and business excellence share the similar objectives in some areas. For example, optimization of the use of resources, both human and natural, is the shared goal of sustainability and business excellence. Garvare and Isaksson (2001) have also attempted to integrate the values of sustainable development into a business excellence model. However, the concept is still in its infancy (Hensler and Edgeman, 2002) and little empirical research is available in the literature.

This study intends to fill this gap and contributes to the achievement of a balance between business excellence and environmental and societal sustainability through a case study of Siemens' practices.

Knowledge sources

Documentary research of Siemens' business reports, newsletters, memos, agenda and minutes of management meetings and other official publications was conducted to provide an overview of Siemens' business directions and operations and to identify the process/system and the level of sustainable development and business excellence practices. Moreover, an official report on Siemens Employee Attitude Survey 2002 was also reviewed. The survey collected 1,146 responses from Siemens, representing a 55 percent response rate. The findings of the survey provided the researcher with valid information about employees' perception and expectations of Siemens performance against seven best practice categories developed from Australian Business Excellence Framework. The survey also collected data about Siemens' sustainable development.

Ten semi-structured in-depth interviews were conducted with senior and middle level managers working in a wide range of business fields at Siemens' Australia site. Through the interviews, the researcher identified the major advantages perceived and issues and problems experienced in Siemens' implementation of the Top+ program. The interviews were also used to explore factors that may contribute to the implementation problems.

To maintain originality and precision, content analysis was employed in this study to process the original texts of company reports, and the transcripts of interviews conducted for this study. Nvivo software (a qualitative data analysis IT tool) was used to enhance the reliability and efficiency in storing, linking and analyzing the data from the interviews and other original documents. To guard against superficial face validity of content analysis, this researcher gave greater weight to the analysis of latent content or meaning conveyed rather than merely an interpretation of the surface or literal contents (Berg, 1995).

5.2. THE TOP+ PROGRAM

5.2.1. THE HISTORY OF THE TOP+ PROGRAM

The Top+ program was initiated in 1993 as a Siemens-wide productivity improvement initiative. The name "Top" originally stood for "time-optimized processes". It soon turned out to be insufficient in addressing changing market needs, as enhancement of productivity alone cannot guarantee business success. In 1995 and 1998, new initiatives were added to the program, which included innovation and growth. The program builds on three binding principles, namely, clear goals, concrete measures and rigorous consequences. To assist Siemens to achieve the best business performance, the program has been developed into a comprehensive management tool kit which contains 11 management tools:

1. Corporate plan/business plan dialogue;
2. Balanced scorecards;
3. Knowledge management;
4. Leadership and co-operation;
5. Benchmarking;
6. E-business;
7. Quality, safety and environment;
8. Innovation;
9. Cost effectiveness;
10. Sales stimulation; and
11. Asset management (Siemens, 2002b).

The program and the tools serve as a guideline only and every business at Siemens is required to individually assemble its own Top+ program with the Top+ tool kit. It is the responsibility of the business to use Top+ program to determine its respective situation, its goal, and the appropriate measures to reach it (*Top+ Intranet*, 2003). This raises the issue of implementation at business level. The implementation rate, therefore, varies in different regions and groups of Siemens.

To encourage the implementation of the Top+ program, Siemens initiated the Top+ award in 1999 as a Siemens company-wide scheme. Economic value added (EVA)[1] is the supreme criterion for the award. The winners are those who have significantly cut their operating costs and increased their sales. In 2001 alone, Siemens cut costs of around €800 million, and increased sales of €2.2 billion, due to the efforts of the winners of the Top+ award (Pierer, 2003).

As a wholly owned subsidiary of Siemens AG, Siemens (Australia) has embarked on two major reforms under the banner of business transformation Top+ program. The program encompasses

the implementation of the outcomes of business process re-engineering (BPR) and the Spiridon SAP R3 Asia Pacific template.

The BPR aims to reduce operating costs; increase operational efficiency; and drive business benefits through simplifying and standardizing core business processes of Siemens (Australia). A recent independent review of the estimated BPR outcomes suggested that cost saving and revenue enhancements of AU\$30 million were achievable through the program.

The implementation of the Spiridon SAP R3 Asia Pacific template focuses on the areas of accounting, planning and controlling, reporting, order management, service management and sourcing. The main benefits are said to be a reduction in IT costs, enabling faster portfolio adjustments and through platform standardization supporting eBusiness transformation processes. However, the "go live" date of the SAP R3 template implementation has been delayed and rescheduled to October 2003 because of the identified uncertainty relating to the cost model Siemens (Australia) would inherit, the uncertainty over the promised functionality in the template, and risks associated with data migration which is far more complex than originally realized (Davidson, 2003).

As shown above, the business transformation Top+ program in Siemens (Australia) is a localized Top+ movement with a clear objective of increasing EVA through cutting costs by streamlining business process and updating IT-platforms. The financial benefits of implementing the business excellent model seem to be significant.

3.2.2 Siemens' Business Strategy

According to the CEO of the company, Siemens is committed to business excellence, environmental stewardship, and corporate citizenship which are viewed as the core values of the company and the source of sustainable business success. It is believed that the ongoing stream of innovations at Siemens provides both economic and environmental benign, resource-conserving, cutting-edge solutions to customers and communities. As a global company, Siemens has participated, together with other 35 international companies, in the World Economic Forum which is claimed to be committed to improving the state of the world. Siemens has also been listed on the Dow Jones sustainability index (DJSI) since September 2000. This indicates Siemens' leadership in sustainability acknowledged by the Dow Jones Institute. Siemens' commitment to corporate social responsibility is evidenced, for example, by raising over US\$6 million for the victims of the 11 September terrorist attack in the USA, and by its support and sponsorship of educational initiatives, particularly in science and engineering education areas, the arts and cultural events and many employee volunteer programs (Siemens, 2003a; Pierer, 2002).

In terms of environmental protection, it is reported that Siemens has committed over AU\$190 million globally on environmental initiatives annually which includes environmental operating expenses and capital spending. Its commitments are reflected by developing environmentally-compatible products and efficient environmental technologies to minimize energy consumption and reduce the impact of toxins, waste and emissions (Siemens, 2002a).

Siemens has seven corporate principles which are said to guide the strategic and operational directions of the company. The seven principles are:

1. Customers govern our actions.
2. Our innovations shape the future.
3. Business success means we win from profits.
4. Excellent leadership fosters top results.
5. Learning is the key to continuous improvement.

6. Our cooperation has no limits.
7. Corporate citizenship is our global commitment (Siemens, 2001).

The official interpretation of the seventh principle is shown below:

Our knowledge and our solutions help create a better world. We are committed to protecting our environment. We are a respected corporate citizen in all countries in which we do business. We safeguard our people's future through training and continuing education. Integrity guides our conduct towards our business partners, colleagues, shareholders and the generic public. Cultural differences enrich our organization. (Siemens, 2001).

In terms of company policies, Siemens is on the right track to sustainable development. It emphasizes environmental protection and the interests of Siemens' employees, external stakeholders and the larger community.

4.2.3.3. Quality Management

Siemens (Australia) has been engaged with quality management for years. Achieving continuous quality improvement through the use of the criteria of the Australian Quality Award is a primary operating strategy (Siemens, 2000). In 1998, Siemens (Australia) won the Australian Quality Council's Award for Business Improvement.

Siemens has taken a multi-perspective and holistic approach to quality management. Quality, environment, and safety, as one of the Top+ tools, combines quality improvement with environmental protection, and occupational health and safety. They have interface in terms of quality management systems at Siemens. For example, Siemens (Australia) is operating under an integrated management system which includes AS/NSS ISO 9001:2000 (Quality Management Systems – requirements), 14001 (Environmental Management Systems – specification with guidance for use), and 4801 (Occupational Health and Safety Management System – specification with guidance for use). Siemens (Australia) has maintained a good record of organizational health and safety for years. Its lower "lost time inquiry rate" was in the top 25 percent of the industry in 2002 (*Siemens Corporate Scorecard 2002*).

Siemens' practice in addressing quality, safety and environment simultaneously reflects its efforts to achieve eco-efficiency. The concept of eco-efficiency combines improvements in company's environmental and economic performance to add more value to products and services and reduce impact on environment (WBCSD, 2003). In this regard, Siemens sets up a good practical example for the corporate world to link the goal of business excellence with sustainable development. It appears that Siemens' practice represents the recent trend of "the increasing integration of different functional aspects of quality" identified by McDonald *et al.* (2002) as discussed in section two of this paper.

4.2.3.4. Top+ Program

As illustrated in the previous sections, the initiatives, purposes and philosophy of the Top+ program and its tools should be able to assist Siemens in achieving business excellence and organizational sustainability if implemented appropriately. However, the present study has found that there are a number of issues and problems associated with the implementation of the program. Table 1 below summarizes the main issues and problems and discusses their underlying causes.

Siemens Corporate Scorecard 2002 shows that only 40 percent of business units at Siemens (Australia) are involved in the Top+ improvement. The problem with the program is said to be "too general, and not specific to our business" and "it's a waste of time, too much documentation procedure". In this researcher's view, the problem also results from a lack of understanding of the program by local managers and other employees and a lack of incentives for implementation in business units.



Table I A summary of implementation issues/problems and causes

<i>Key issues/problems</i>	<i>Main causes*</i>
Limited implementation of Top+ program	<ul style="list-style-type: none">■ Lack of incentives■ Too much paper work and insufficient resources■ Suspicion about its real benefits to businesses
Limited action taken for sustainability development (SD) at operational level	<ul style="list-style-type: none">■ Weak sustainability awareness■ Lack of efforts and commitment to link SD to daily operations
Poor performance in retaining and valuing talented employees	<ul style="list-style-type: none">■ Restructuring and redundancy■ Lack of change management skills■ Lack of supervision/communication skills
Lack of explicit indicators to measure SD performance	<ul style="list-style-type: none">■ Lack of incentive and reward systems for SD■ Overwhelmingly focusing on financial results
Cultural barriers	<ul style="list-style-type: none">■ Preserved and stereotyped culture in some business units (BUs)■ Being reluctant to change
Communication barriers	<ul style="list-style-type: none">■ Weak communication strategy from upper level management to operatives■ Lack of synergies between BUs■ Politics between BUs

* Note: The underlying causes were drawn from responses of the interviews for the present study.

Siemens has considerable room for improvement in optimizing its human resources, and in people development and involvement. A recent employee attitude survey using Australian Quality Council's (AQC) Australian Business Excellence Framework shows that Siemens (Australia) obtained an overall performance score of 601 out of 1,000 points across seven best practice categories[2]. In light of Rodski's[3] national and international benchmark database, Siemens' performance score placed the company in the bottom 25 percent (4th quartile) when compared to other organizations in the database. Of the seven best practice categories, the highest performing best practice categories of Siemens were "business results" and "customer and market focus", and the lowest performing categories were "strategy and planning processes", "people" and "leadership and innovation". The survey revealed general concerns of employees over the company's performance in retaining valued employees and valuing employees in Siemens (Table II). A comment was made which illustrated the issue further.

Siemens has a wealth of both tacit and explicit knowledge that is very haphazardly collected and very poorly organized and managed. Managing and harnessing this valuable resource is the key to innovation. The enormous global pool of knowledge that Siemens possesses very rarely finds its way in our local businesses processes (interview data for the present study).

The results indicated a significant gap between what is important for Siemens and how well Siemens is performing in terms of environmental and social sustainability. In other words, Siemens' performance did not live up to its employees' expectations and priorities.

There is generally a lack of balance in the implementation of Top+ tools because managers focus overwhelmingly on EVA results, paying more "lip service" and taking less action in other areas including sustainable development. By reviewing the company's documentation and listening to Siemens' managers' presentation to their employees, it is easy to find that financial results of the company and every business unit are a dominating subject, and Siemens' managers' top priority in daily operation. For example, Siemens monitors closely and reports its business results quarterly and annually. It only conducts its employee satisfactory survey

Table II Survey results about variables relating to Siemens sustainability development

Variables	Importance (Mean*)	Performance (Mean*)
1. Providing for the health and well-being of employees	6.15	4.18
2. Siemens' environmental impact on the community	5.33	4.11
3. Being satisfied in my job	6.52	4.19
4. Balancing work and life demand	6.24	4.12
5. Providing a safe work environment	6.27	5.36
6. Retaining valued employees	6.39	3.32
7. Valuing employees in Siemens	6.31	3.52
8. Providing incentives and rewards	6.09	3.59

* Note: The survey asked participants to rank the *importance* of the variables and how well Siemens is *performing* in a seven-point scale ranging from one, the lowest level, to four, the medium level, and to seven, the highest level.

biennially. The balanced scorecard of Siemens (one of the ten tools in Top+ program) does not measure Siemens' performance in the areas of community commitment and environmental protection and lacks in explicit social sustainability indicators (*Siemens Corporate Scorecard 2002*). The actual reward of the Top+ award as mentioned in the previous section, are based only upon the level of realization of EVA for Siemens.

Siemens' experience in pursuing business excellence and sustainable development has profound managerial implications for sustainable development in the corporate world. First, the implementation of the Top+ program and the tools at Siemens indicates that sustainable development can be integrated into a business excellence model. Second, to achieve sustainable success, organizations must develop a sense of corporate responsibility and act on it. Siemens has set up a good example in this regard as a successful organization, although it still has much work to do to maintain its profitability and social and environmental responsibility. Finally, effective and efficient human resource management and asset management are crucial to business excellence and sustainable development. Optimization of financial, human and natural resources contributes both to sustainability and business excellence.

Siemens experiences in pursuing business excellence and sustainability raise a number of implementation issues. The following recommendations are proposed as a framework to broadly address the issues. They are related but not limited to the case study.

Recommendation 1 – Developing management's environmental and social awareness and conscience and establishing both strategic and operational links between the fiscal growth of a company and its social and environmental responsibility. Developing an organizational culture that values the concept of sustainable development through making sustainable development relevant and meaningful to daily business operations.

Recommendation 2 – Developing a comprehensive and effective performance management system which measures and monitors all aspects of the organization's business, social, environmental, cultural and community benefit performance. Environmental and social auditing should be in line with financial auditing to ensure sustainability policies are rigorously implemented. Sustainable development indicators and measures should be developed at both corporate and business unit levels and incorporated into the balanced scorecard.

Recommendation 3 – Establishing and promoting an incentive system among business units and employees to reward efforts in optimizing resources, both human and natural, rewarding the best performers against the measures suggested in recommendation 2.

Recommendation 4 – Developing the comprehensive management skills needed for sustainable development which include a combination of skills for business management, environmental management and human capital management, being socially responsible.

Recommendation 5 – Developing effective communication strategies to clearly articulate corporate sustainable development policies and implementation plans to all stakeholders (both internal employees and external stakeholders).

Recommendation 6 – Finally, successful sustainable development requires a systematic management approach which includes strategic planning, organizing and managing, and systematic evaluation. This management process is an ongoing and continuously improving process and should be monitored against a corporate strategy of sustainable growth which balances business excellence and sustainability.

This study investigates and addresses issues of business excellence and sustainable development in a large organization. The researcher considers that much improvement can be made by Siemens in achieving a balance of financial, environmental and social sustainability.

المراجع

- 1 In light of the official interpretation of Siemens, economic value added (EVA) = operating result – cost of capital. Operating result = sales revenues – operating costs (materials, salaries, etc.). Cost of capital = sum of the claims for interest/returns by all capital backers (banks, shareholders) (*Top+ Intranet*, 2003).
- 2 The seven best practice categories of AQC consist of leadership and innovation: strategy and planning processes; data, information and knowledge; people; customer and market focus; processes, products and services; and business results.
- 3 Rodski Behaviour Research Group is a management consulting company in Australia that has been commissioned by Siemens (Australia) to conduct its biannual employee attitude survey since 1996.

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