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Strategies and Practices for Sustainability: Experiences from Firm Level

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Introduction

The four system conditions for sustainability presented in Holmberg's Ph.D. dissertation (1995) provided a foundation for the approach used by the 'Natural Step' both in Sweden and in several other countries (e.g. Holmberg & Robért 2000). In the 1990s Holmberg & Robért developed a 'backcasting' approach to strategy development in companies and was involved in several projects to introduce sustainability defined by these four system conditions. This work had a considerable impact in several firms. Electrolux established an environmental policy and a direct effect of backcasting was a decision to develop the first CFC free refrigerators, which put the company far ahead of their competitors. This is just one example that illustrates how this approach has a potential to stimulate new directions, which would not happen based on a more traditional trend-based analysis.

Although these projects have been showing good results, several firms have lost their focus for working with sustainability after some time. So the question remained – how can sustainability become a natural part of strategy processes and practices in companies? An action research project was initiated in 2004 to focus on this question at three large Swedish corporations. The project aim was to further develop the backcasting approach in the context of sustainable development and to present recommendations for the process of implementation of the approach at companies (Lundqvist et al. 2006).

Purpose

This paper discusses alternative ways of using and integrating the sustainability concept and approaches/practices in firms.

Business strategies for sustainability

Initiated by Carson's (1962) seminal work 'Silent Spring' and more officially since the Brundtland Commission's (1987) report 'Our Common Future', the issue of sustainability has been on the public agenda but not always on the corporate agendas. However, what industrial and service firms do, 'matter' for sustainability. This can be observed in terms of the *direct* impact of their production processes including raw materials use and distribution/transportation of products, as well as the firms' *indirect*

influence on the use and later destruction/recycling of their products in society. In addition, firms as actors in society also impact the social domain including health, child labour and social equity.

Inspired by the Brundtland Commission there have been several attempts to develop approaches to analyze the needs and to envision strategies towards a future sustainable society. Several sustainability approaches focused on societal level, e.g. in the Netherlands where the sustainability demands for technological, cultural and structural changes in society were addressed from different stakeholder perspectives. However, in a paper looking back on 10 years of development, Vergragt (2001) commented that while the involvement of private companies in innovation processes is essential, the bulk of Dutch industrial companies is still in the earlier stages of development towards sustainability (i.e. primarily focusing on cleaning up production processes and not on eco-design of products and services).

However, today there are examples from various countries of industrial firms taking corporate social responsibility and sustainability seriously. For example, based on an empirical study of Canadian firms in the oil, mining and forestry industries, Bansal (2005) found that the commitment to a sustainable development had increased over time fuelled primarily by a greater concern for social equity. Recent natural disasters (e.g. Hurricane Katrina) have contributed to an increased general interest in global warming, in combination with specific efforts to influence the public domain. One such example is former vice president Al Gore's (2006) 'An Inconvenient Truth: The planetary emergency of global warming and what we can do about it', which has had considerable impact reaching many individuals and groups in several countries, through television, seminars and a book. This mass-media exposure has according to Gore, a major purpose of influencing politicians through the general public, but of course also managers in industrial firms develop new insights.

There were fewer approaches that directly addressed the needs for corporations to develop strategies in line with the demands of a future sustainable society. The Natural Step was one such approach that from the early 1990s succeeded in having an impact on the way business firms develop their undertakings (Holmberg & Robert 2000, Nattrass & Altomare 1999). Holmberg (1998) outlines the steps for a backcasting approach to strategy development in business firms based on system conditions for sustainability. Other researchers focused on ecological auditing as a way to develop sustainable businesses (e.g. Callenbach et al. 1993) or on Corporate Social Responsibility (e.g. Garriga & Melé 2004). However, recently the doyen of strategy research, Harvard Business School professor Michael Porter received the 2006 McKinsey Award for the most significant HBR article during the year, where he and his co-author Mark Kramer are arguing for companies to create competitive advantage by integrating social and environmental issues into their core strategy. They state that NGOs, governments, and companies must stop thinking in terms of 'corporate social responsibility' and start thinking in terms of 'corporate social integration' in order to find shared values between society and corporations. To analyze this potential for shared value Porter & Kramer develop a framework based on Porter's tools: mapping the social impact of the 'value chain' and using the 'diamond framework' to analyze the social influences on competitiveness.

However, there are also other strategy development tools that can be used, and which also to some extent have been used, to include sustainability issues into strategy development. Not the least the tools developed to cope with discontinuous or disruptive change can be useful, i.e. to help strategizing when there is a high degree of uncertainty concerning the conditions for the future. System Dynamics has been used to analyze complex interactions in the market and learning processes on different system levels (de Geuss 1988, 1996, Senge 1990). Another starting point has been to focus on disruptive technologies and observing the difficulty previously successful firms have had when there is a major technology shift (Christensen 1997) and developing analysis tools and approaches for firms to analyze such shifts (Christensen et al. 2003, 2004). Because of the difficulty to know what the future has in its hands one approach that has been advocated is to keep strategy alternatives open as long as possible by developing an understanding of the uncertainty and managing a portfolio of real options on the contingent elements of alternative optimal strategies (Raynor 2007).

Scenario Planning is an approach that has been relatively widely used by industrial firms, most notably in the oil industry (Van der Heijden 1996) in order to create pictures of plausible futures for decision makers. There are several variants of scenario planning – the most common way is a deductive approach where four equally possible developments are outlined to form the basis for strategy processes (Van der Heijden 1996). Based on this understanding a strategy which is working and robust under all four scenarios is being developed. It has been argued that "robust strategies tend to result in mediocre, if acceptable, results under most circumstances and standout performance in none."(Raynor 2007, p.231). However, scenarios should be seen as an input for strategic conversation which can both expand and focus the thinking of decision-makers in corporations, and the thought of equally possible developments and robustness has a role in this conversation. While primarily used for corporate strategy development, scenario planning has been used for several other applications and in creative combinations. For example, Carlsson-Kanyama et al. (2003) integrated the participative approach from scenario planning into a back-casting exercise in five European cities, i.e. for society's development.

System conditions for sustainability in combination with scenario planning

In our approach we have used the four system conditions for sustainability (Holmberg 1995) as the guiding frame for strategy development in combination with a scenario planning process in order to make the strategy robust. The four system conditions are timeless in that sense that they are applicable both in a very long term perspective and as a guiding principle for decision-making today. The scenario planning process adds an increased awareness of the multitude of factors that could possibly affect a company's development during a selected time period, usually 10-15 years (see Figure 1).

The strength of the system conditions approach is that instead of providing restrictions in terms of absolute numbers, e.g. for pollution by specific substances, they provide guidelines in a relative and system-related sense. Hence, the first three system conditions provide guidelines concerning ecological sustainability through their focusing on the potential damaging effect of *systematic increases* of substances or *systematic degradation* of the environment. This includes a systematic increase of substances extracted from the lithosphere, a systematic increase of new substances created by society and a systematic degradation by physical means of the resource base, including the bio-diversity. Hence,

these three system conditions provide a set of guidelines within which companies' and other societal actors' activities must be incorporated in order to be sustainable. Based on these guidelines, a fourth (and first-order) principle for the society's internal turnover of resources has been formulated, i.e. that resources should be used *fairly and efficiently* in order to meet basic human needs world-wide (Holmberg & Robért 2000, p.298).

The system conditions' focus on 'systematic increases' means that they can be used as an input for decision-making concerning very specific decisions, such as what material to select for a new product, or for more general strategy questions, such as what markets to target and how. Although, the decisions may concern activities today and in the near future, the system conditions secure that these decisions are made in the more long-term context of a sustainable society.
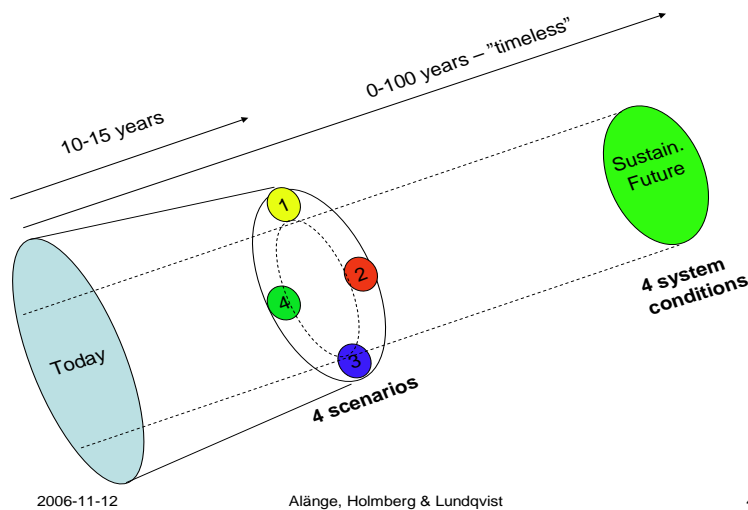

Figure 1: The relationship between the four system conditions and scenario planning

However, while the system conditions provide the frame needed for development towards a sustainable future, they do not directly provide guidance for all factors that could possibly influence a firm's development towards a sustainable future. The scenario planning can be seen as a complementary process aimed at both considering identifiable trends and surfacing less clear and more uncertain factors (critical factors) which may have a considerable impact on a firm's development as well as for its survival.

The two (or 3) most important mutually independent critical factors are being selected as a basis for generating scenarios. First, possible future developments (reasonable end values) along these dimensions (critical factors) are being generated. Second, these critical factors are being used as axes for a matrix, where four (several) equally possible futures or scenarios can be described. If the relevant critical factors have been identified, these four scenarios can provide vivid pictures of equally probable future developments that cover an area of possible developments. (See Figure 1) The circled area in the middle is indicating equally possible developments and the scenarios 1-4 being points describing this area. The scenarios' function is to expand the basis for decision-making to include important but uncertain factors which often remain hidden in traditional strategy processes. The aim is to create a robust strategy which makes it possible for a firm to succeed within "the circled area", regardless which development that in reality will occur.

By thinking through and discussing possible developments there is also a possibility to create "early warning systems" along the alternative development paths, which can provide essential input for modifying the strategy selected.

Design/methodology/approach

The research design was an action learning approach to develop robust sustainable strategies in business units of three major multinational firms. Representatives from the firms participated in workshops to learn together and share experiences from on-going sustainability projects in each company. Interviews were conducted to provide additional understanding of strategy processes within each firm.

The companies participating were: IKEA, the home furnishing giant, which was the first major company to use the first version of the Natural Step Approach, and to develop environmental policies and practices by training a major part of its co-workers and suppliers; SCA, with its absorbing hygiene products business area 'Personal Care', which had previous experience of testing the backcasting approach in a pilot case; and finally ABB, represented by Corporate Research, which is a central support function.

Following an action research approach, we had an opportunity to intervene directly in three firms/business units through our interviews/discussions with company representatives, workshops with participants from all three firms and seminars inside individual firms. However, this intervention is only one influencing factor of many which contributes to the introduction of sustainability ideas and practices in firms. Our workshops started in August 2005 but by then, in each of the firms, there were already on-going processes, i.e. intervention projects always enter into processes which are anchored in company values and on-going practices as well as in an evolving company history. In our case, one member of the research group had even been involved in earlier change efforts inside two of the three companies studied. Hence, our research was designed to both observe and analyze the processes we were part of during the intervention, but also to understand on-going processes and selected initiatives in the past by interviewing present and retired employees of the three companies.

Our intervention

The intervention was designed as a joint learning program consisting of workshops where representatives from all companies participated, and where each step of the backcasting process was lectured about and discussed. The workshops were followed by a homework assignment directly linked to the subject area of the workshop. In order to do the homework the industry participants had to gather representatives from those areas of their company that were needed. During the workshops we used data from the participating firms to train each step, one after the other of the firms were used as training cases. According to the design, each company was supposed to have at least 2 workshop participants committed to participate in all workshops, in order to facilitate implementation inside their organization – however, only one firm regularly had two participants. The group work was then presented back at the next workshop session where the experiences from the homework were discussed and the next step was introduced including a new homework assignment. In addition, special sessions were arranged with the individual companies depending on their needs in order to support on-going processes in each company, e.g. support in developing new vision/mission

statements in accordance with a sustainability approach, seminars to work through specific steps in the analysis with a working group at the firm, feedback seminars on the sustainability strategy process, etc.

Hence, the effect of this designed program was that a number of employees were trained in the full process, while at the same time conducting a pilot project within their own firm. The researchers also interacted with the management team during an introductory seminar at each company before the workshops started, and in succeeding seminars based on request by the company participants. In addition, interviews concerning the strategy process and sustainability were conducted at each firm with a select number of managers and project leaders/participants. The first set of interviews was conducted in order to developing an understanding of present practices and how the backcasting approach could fit, and the follow-up interviews were conducted to analyze on-going processes and results inside the organization. In addition, during these interviews insights were developed concerning earlier and parallel efforts with a similar focus in order to develop a broader understanding of backcasting's potential role in the larger context of developing strategies and practices for sustainability. As in all action science based approaches there are certain effects of these interviews and interactions where the researchers' interest in understanding what has happened and is happening puts a focus on this specific issue. However, for a skilled change manager this possibility of using researchers as a support during a change process, can be seen as another essential tool in accomplishing the objective of including sustainability in strategy and practices.

Ways of approaching sustainability

There were similarities in the way the companies approached sustainability, but also considerable differences, partly depending on history and partly on management focus and the on-going market and development processes at each company.

At IKEA there had been a long learning process where sustainability had become integrated into the IKEA culture and strategy development. Our intervention came into an organization that already had a strong sustainability orientation. The IKEA sustainability approach was built to a large extent on an identical 'knowledge base' as the one our workshops provided (10 yrs ago, Holmberg participated developing the first version of IKEA's internal training program - today in an improved web-based version). However, in our current workshop program one business unit was involved and the individuals participating from this unit had no previous experience of the backcasting approach. The homework was conducted at IKEA involving participants with different competencies and positions, which was seen as valuable because it provided different viewpoints to the benefit of the analysis process. One additional result was a reformulation of the mission statement for the business unit to encompass sustainability as an integrated part.

At ABB, the purpose to participate in the workshops was to develop knowledge and experience of backcasting. The 'system conditions' were found to be a useful communication means within ABB and has been used at several occasions in connection with product development discussions. Corporate Research also interacted with one of the business units concerning backcasting. This unit had an interest in sustainability and the backcasting efforts as it coincided with their efforts in marketing a new product which fit well into a sustainability approach. At this business unit, scenarios for a sustainable

future had been developed 10 years ago and these were still used for stimulating long term thinking in product development. However, this time no backcasting project was conducted at a business unit at ABB, as the goal primarily was to become familiar with the backcasting approach. ABB, hence can be seen as being in an pre-phase of developing sustainability strategies through backcasting, as compared to the two other companies which both had previous experience and in connection with the workshops conducted backcasting projects at business units.

At SCA this was the second time the business unit used the backcasting approach to analyze a business area. The work towards sustainability had been based on initiatives by individual employees and been driven by middle management. The first pilot provided some experience which led to a continued interest and the decision to participate in our intervention project. In this case it was emphasized the importance of including persons with strategy, market and brand responsibilities in the project, as this provided the scenario analysis with more real market input and gave the discussions another kind of depth. In addition, it was found that in order to make sustainability part of the regular strategy process, the initiative had to come from the business and strategy side, not from the support functions. At the SCA business unit sustainability is being integrated into the formal strategy process, step by step, backed by the corporate sustainability vision/policy, which makes the process legitimate in the company culture.

One similarity between the companies was that global warming and sustainability came up on the agenda – managers couldn't avoid being influenced by mass-media. Second, working for sustainability can be motivating for employees, it was expressed as "feeling proud of my company and what I do", but if sustainability is not part of the regular strategy process it is still very vulnerable. "It is," like one manager expressed it, "the first thing that goes if the market is slow." Third, a tool like Life Cycle Analysis (LCA) has become close to a standard procedure at many Swedish firms today – it is something that managers do by routine without being especially environment concerned – it is part of the job when developing a new product. The LCA was something that rapidly was introduced in Swedish firms – people could easily be convinced of the pros – and now it is part of daily management and from the perspective of sustainability it is on its way of becoming more or less invisible. However, LCA is an individual tool, 'a discrete event'. To integrate all aspects of sustainability into the company, into the daily life and into each employee's daily work is harder and takes more time – it is a learning process. In our three case companies the first three system conditions were all pretty much taken care of. The fourth system condition including social equity is a broader issue which more recently has come into focus, which is in line with other observations internationally.

Concluding discussion

Sustainability can impact all parts and all processes in a firm. As a vision it is an organizing metaphor but there are also various accompanying techniques and practices. Firms choose to approach sustainability in different ways. Some view it as a major assignment for the environmental department supported by central policy committees. Others start out from the perspective that sustainability should be part of what everyone does in their normal job. In the latter case, the parallel to quality is obvious – when it really works and becomes totally integrated in the daily work - in product development, supply chain, etc. - then it becomes the paradoxical 'invisible success' (Book et al. 2004,

Book 2006). One general observation is that it takes time to develop a thorough sustainability approach. It can be useful to view the development as a learning process where top management involvement and understanding of the link between competitive advantage and sustainability can facilitate and help speeding up the process.

For strategy driven companies, the starting point is to make sustainability part of the regular strategy process, reaching the status of critical success factor. Then, there is a need for non-traditional strategy tools, such as scenario-planning and backcasting. The specific advantage of using the four system conditions as the conceptualization of sustainability is that they can be used on different levels and in different processes in an organization. First, they can provide input to different strategy processes. Second, they can support individuals' decision-making in their daily work, e.g. choose alternatives that do not systematically increase the number of new substances in the stratosphere.

References

BANSAL, P. 2005. Evolving Sustainability: A Longitudinal Study of Corporate Sustainable Development. *Strategic Management Journal*, 26: pp. 197-218

BOOK, S. 2006. *Naturalizing Quality Management: A problem of organizing in processes of change*. Ph.D. thesis, Division of Quality Sciences, Chalmers University of Technology, Göteborg

BOOK, S., S. ALÄNGE and B. SOLLY 2004. Quality Management from a Company Development Perspective: The complexity of a change process. pp. 57-70 in *Proceedings from the 7th International QMOD Conference*, August 4-6, 2004 in Monterrey, Mexico

BRUNDTLAND COMMISSION 1987. *Our Common Future*. Oxford: Oxford University Press

CARLSSON-KANYAMA, A. et al. 2003. Images of everyday life in the future sustainable city: Experiences of back-casting with stakeholders in five European cities, *FOI Memo*, D.nr. 03-2849, Forskningsgruppen för Miljöstrategiska Studier and Swedish Defence Research Agency

CARSON, R. 1962. *Silent Spring*. (40th anniversary edition in 2002), Boston: Houghton Mifflin Co.

CALLENBACH, E., F. CAPRA, L. GOLDMAN, R. LUTZ and S. MARBURG 1993. *EcoManagement: The Elmwood Guide to Ecological Auditing and Sustainable Business*. San Francisco: Berrett-Koehler

GORE, A. 2006. *An Inconvenient Truth: The planetary emergency of global warming and what we can do about it*. Emmaus, PA: Rodale

HOLMBERG, J. 1995. *Socio-Ecological Principles and Indicators for Sustainability*, Ph.D. thesis, Physical Resource Theory, Chalmers University of Technology and Göteborg University

HOLMBERG, J. 1998. Backcasting – a natural step when making sustainable development operational for companies. *Greener Management International*, **23,** pp. 30-51

HOLMBERG, J. and K.-H. ROBERT 2000. Backcasting – a framework for strategic planning. *International Journal of Sustainable Development and World Ecology*, 7, pp. 291-308

LUNDQVIST, U., S. ALÄNGE and J. HOLMBERG 2006. Strategic Planning Towards Sustain-ability: Experiences of Applying a Method on Firm Level. *CPM Conference*, Nov. 22, Göteborg

NATTRASS, B. and M. ALTOMARE 1999. *The Natural Step for Business: Wealth, Ecology, and the Evolutionary Corporation*. Gabriola Island, BC, Canada: New Society Publishers

PORTER, M.E. and M.R. KRAMER 2006. Strategy & Society: The Link Between Competitive Advantage and Corporate Social Responsibility. *Harvard Business Review*, December 2006

RAYNOR, M.E. 2007. *The Strategy Paradox: Why Committing To Success Leads To Failure (And What to Do About It)*. New York: Currency Book published by Doubleday

VAN DER HEIJDEN, K. 1996. *Scenarios: The Art of Strategic Conversation*. Chichester: John Wiley

VERGRAGT, P.J. 2001. Back-casting for Environmental Sustainability: From STD and SusHouse towards Implementation. Paper for *International Conference:"Towards Environmental Innovation Systems"*27-29 September 2001 Garmisch-Partenkirchen