

MUST GREEN KILL? REASSESSING THE SUCCESS FACTORS OF STRATEGIES FOR SUSTAINABILITY IN LIGHT OF THE MONSANTO EXPERIENCE

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ABSTRACT

This is a participatory session that links theory and practice to form a better understanding of what firms face in today's competitive environment, how they are moving to operationalize sustainability, and the manner in which they might be more successful in the future. Content of the workshop is founded on two papers – a detailed case study of one firm's implementation of a sustainability strategy, and a theoretical framework that can be used by companies to better assess their own internal strategic capabilities. Learnings from the two papers are tied together in order to provide practitioners and academics with a tool for better understanding factors necessary for successful implementation of strategies for sustainability.

Over the past several years, the image of the Monsanto Company has transformed within the public eye from that of visionary leader articulating a compelling strategy for sustainability, to an insular pariah that tramples social and environmental concerns at the expense of economic well-being. The firm is but the latest in a group that has often been revered as an example of sustainability leadership, only to fall from grace later in time—The Body Shop, Ben & Jerry's, Nike, and others. The difficulties encountered by these firms beg the question: Must Green Kill? That is in the long run, are strategies for sustainability necessarily harmful for companies? Does leadership in the fundamental restructuring of companies and industries towards sustainability portend a collapse of legitimacy and competitiveness? We suggest strategies for sustainability need not be perilous. Better attention to internal strategic processes can help managers to avoid pitfalls associated with the risk and uncertainty of such strategies.

Sustainable development has emerged as an important challenge for corporations expanding into new global markets. Managers are faced with the task of developing business models that deliver new products, services, and processes that optimize economic benefit, social equity, and ecological health. But while much managerial effort is being spent attempting to

understand what “sustainability” means for firms, academics have devoted little attention to understanding the internal strategic processes that produce effective strategies for sustainable development. This workshop seeks to address this gap by developing a conceptual model of how internal strategic processes lead to certain types of actions and behaviors by firms, holding specific implications for those companies attempting to pursue strategies for sustainable development. Looking at four strategy making processes—rational, symbolic, transactive, and generative—we propose that balanced, multi-modal strategy-making processes will be the most successful in developing solutions to complex sustainable development challenges. A balanced portfolio of strategy-making processes might enable a firm to operationalize sustainable development through learning, innovation, and vision in a way that is meaningful for their particular operating environment. Building on our research as well as our work with companies grappling with sustainability, we illustrate this multi-modal framework using a series of company examples and propose the manner in which both academics and managers will find the framework helpful for research and practice. Finally, we revisit the case of Monsanto to highlight the degree to which poor internal strategic processes might have significantly contributed to troubles in implementing their strategy for sustainability.

Key words: strategy-making process, strategies for sustainability, Monsanto

1. INTRODUCTION

1.1 The Monsanto Case¹

The agricultural and chemical company, Monsanto, provides a good illustration of firms’ experiences with strategies for sustainability. Founded in 1901 by John Queeny, Monsanto’s initial products included food additives such as saccharin, caffeine, and vanillin. By 1917, the company began producing aspirin, a product for which it was the largest producer until the 1980s. Under the leadership of the founder’s son, Edgar Queeny, the company diversified into rubber additives, plastics, and synthetic resins, the firm’s primary focus until the 1970s. Synthetic products such as Acrilan, AstroTurf, and urethane foam were among its best-known products. However, Monsanto was perhaps most often associated with the development of Agent Orange, a military defoliant associated with significant health problems, as well as its dominant position in the manufacture of polychlorinated biphenyls (PCBs), a highly toxic industrial chemical banned in 1976.

The Agriculture Division in Monsanto was established in 1960. Acquisitions of insecticide and fertilizer manufacturers complemented Monsanto’s internal development of herbicides. In the early 1970s, the company developed the blockbuster herbicide Roundup, a broad-spectrum herbicide with a relatively favorable environmental profile. It quickly became the world’s best-selling herbicide and was granted patents worldwide.

¹ Information for this section was obtained from both a recently written case account of the company’s experiences (Simanis and Hart, 2000) as well as extensive personal, yet informal, discussions between the authors of this paper and various top managers within Monsanto.

During the 1970s and 80s, Monsanto experienced eroding profitability in its petroleum-based chemical products, which spurred the company to rethink its strategy. By 1975, Monsanto had established a biology research program in its Agricultural Division and by 1982, Monsanto scientists had genetically modified a plant cell for the first time in history. Monsanto continued their investment in biotechnology throughout the 1980s and early 1990s, acquiring G.D. Searle, the Chicago-based pharmaceutical company, in their quest to link biotechnology with downstream medical and food products.

As environmental issues became more significant throughout the 1970s and 1980s, the company addressed the challenge “rationally” through a strategy based on compliance and pollution prevention. In the late 1980s, a new law requiring public disclosure of toxic emissions identified Monsanto as one of the top toxic polluters in the US. The negative attention that followed motivated the company to engage vigorously in pollution prevention activities, with aggressive goals for emission reductions through the mid-1990s.

By the mid-1990s, new CEO Robert Shapiro sought to revolutionize Monsanto through the power of his vision of converting the firm from a chemicals manufacturer to a life-sciences company focused on “Food, Health and Hope.” Consistent with this vision, Shapiro spun off several SBUs associated with the organization’s chemicals business heritage, retaining only those closely tied to its life sciences focus.

Sustainable development became a core aspect of Shapiro’s vision, and the strategy making process came to be dominated by the symbolic mode. Shapiro articulated how Monsanto’s biotechnology capability connected to the challenge of global sustainability by increasing yields, reducing pesticide use, and helping to deliver nutrients to the world's chronically undernourished poor (e.g. Magretta, 1997). In 1997, Shapiro also launched a new Sustainable Development Sector, empowering dozens of internal champions to identify and grow the new businesses of the future that would address global social and environmental concerns in an economically profitable manner. In essence, Shapiro was attempting to ignite the generative mode of strategy-making. Between 1995 and 1997, Monsanto enjoyed external legitimacy as their stock price soared amid rosy projections of blockbuster products and rapidly expanding markets for agricultural biotechnology.

Yet, as a result of these developments, Monsanto was thrust into the public eye in a way that few chemical companies had ever been in the past. The highly visible and symbolic nature of Shapiro’s portrayal of biotechnology’s role in the future of agriculture generated unprecedented levels of public attention and scrutiny from groups and organizations that previously knew or cared very little about Monsanto’s activities. This scrutiny resulted in problems for Monsanto as groups cast bright lights on incidents where more traditional company actions did not match the spirit or articulation of Shapiro’s vision.

For example, when Monsanto attempted to launch their genetically modified seeds in Europe, they were met with intense resistance from organic farmers and environmentalists, despite the fact that all the necessary regulatory approvals had been secured. Some Monsanto managers hired private investigators to ensure that customers (farmers) were not illegally saving Monsanto’s genetically modified seed for replanting the following year. These actions, and

others, alienated many who called into question Monsanto's true dedication to sustainable development and environmental stewardship. While Shapiro was able to articulate a compelling vision of the future, he failed to win over many managers and employees who continued to act in a rational manner given the company's chemical heritage.

The failure of employees beyond the top management team—and in some cases, members of the top management team itself—to adopt Shapiro's vision prevented fundamental change from being realized within the company. Instead of becoming a more open, innovative culture, the firm became more defensive and had to back away publicly from several of its biotechnology initiatives. Indeed, in October 1999, Monsanto publicly apologized for their behavior: "Our confidence in this technology (genetic engineering) and our enthusiasm for it has, I think, been widely seen and understandably so, as condescension and indeed arrogance" (Shapiro, 1990). External support for the firm's strategy had eroded and, in late 1999, the company followed through on merger talks with pharmaceutical maker Pharmacia & Upjohn. This move effectively ended the Shapiro era of sustainability-driven corporate strategy at Monsanto.

Monsanto's experience with strategies for sustainability is not unique. Other firms, including ice-cream maker Ben & Jerry's, electric utility Green Mountain Energy, telecom Working Assets, cosmetics firm The Body Shop, and athletic shoe maker Nike have struggled to have their visions of sustainability accepted by wider audiences. Over the past decade, a growing number of companies have set sustainability goals and initiatives, only to retract them under significant pressure from stakeholders who question the firm's true intentions and vision for the future.

The difficulties encountered by these firms beg the question: Must Green Kill? That is in the long run, are strategies for sustainability necessarily harmful for companies? Does leadership in the fundamental restructuring of companies and industries towards sustainability portend a collapse of legitimacy and competitiveness? We suggest strategies for sustainability need not be perilous. Better attention to internal strategic processes can help managers to avoid pitfalls associated with the risk and uncertainty of such strategies.

1.2 The Big Picture

Recently, sustainable development has emerged as an important challenge for corporations expanding into new global markets (Gladwin, Kennelly and Krause, 1995; Hart, 1997; Hawken, Lovins and Lovins, 1999). The concept of "sustainability" has grown out of literature focused more narrowly on environmental management and social responsibility. Over the past decade, researchers have noted that companies have begun to transform their views on environmental issues from a compliance burden into a business opportunity (Hawken, 1992; Schmidheiny et al, 1992; Hart, 1995; Porter and van de Linde, 1995; Shrivastava, 1995). Increasingly, environmental awareness is being factored into core business strategies, and competitive advantage is being sought through such strategies as pollution prevention, product stewardship, life cycle management, industrial ecology, and clean technology development (Reinhardt, 1999). Similarly, the concept of social responsibility has shifted from an ethical stricture that firms avoid certain activities to an

opportunity for value creation through investment in low-income individuals and communities (Porter, 1995; Porter, 1999).

In the academic community, special issues of the Academy of Management Review (1995) and the Academy of Management Journal (1999, 2000) have highlighted streams of empirical and theoretical work dedicated to the emerging connections between environment, sustainability, stakeholders, social responsibility, management, and performance. For the most part, research has addressed these relationships at multiple levels of analysis (Rugman and Verbeke, 1998). At the institutional level, researchers have examined the alignment of attitudes regarding environmental strategies within or among firms (e.g. Jennings and Zandbergen, 1995; Hoffman, 1998; Hoffman, 1999; Sastry et al, 1999). Awards from external stakeholders have been shown to be positively related to shareholder value, while value has fallen due to negative perceptions following environmental crises (Klassen & McLaughlin, 1996). Market structure has been used to explain the manner in which firms realize value through environmental and social strategies (Porter, 1995; Dean & Brown, 1995; Porter, 1999). Additional research has theorized how firm-specific skills and competencies in environmental management can yield competitive advantage (Hart, 1995; Maxwell et al., 1997). Empirical tests have explored the manner in which such skills and competencies are related to superior performance (Sharma and Vredenburg, 1998; Marcus, 1998; Russo and Fouts, 1997; Christmann, 2000).

Yet despite the great advance in our understanding of the kinds of strategies for sustainable development that can lead to competitive advantage for firms, precious little attention has been devoted to the *internal strategic processes* associated with the development of such strategies. This paper addresses this gap by developing a conceptual model of how internal strategic processes lead to certain types of actions and behaviors by firms, holding specific implications for those companies attempting to pursue strategies for sustainable development. We briefly review the literature on strategy-making process, discuss the organizational level challenges associated with sustainable development, and offer a set of propositions regarding the connections between strategy making process, organizational actions, and global sustainability.

2. STRATEGIC PROCESSES

There is a rich literature on strategic process dating back to the 1930s. Scholars such as Barnard (1938), March and Simon (1958), Lindblom (1959), Ansoff (1965), Mintzberg (1973), and Quinn (1978) all broke new conceptual ground on topics ranging from executive leadership, to strategic behavior, to internal entrepreneurship. Over the past twenty years, various authors have developed scores of different strategy-making typologies (e.g. Bourgeois and Brodwin, 1984; Chaffee, 1985; Mintzberg, 1978; Nonaka, 1988). Associated empirical work (e.g. Fredrickson and Mitchell, 1984; Miller and Friesen, 1977; Shrivastava and Grant, 1985; Wooldridge and Floyd, 1990) has covered such a vast range of considerations that little cumulative knowledge has resulted. The net result has been a bewildering array of competing or overlapping conceptual models.

In response to this problem of “model proliferation,” Hart (1992) and Hart and Banbury (1994) developed and empirically tested an integrative framework for strategy-making processes that captured the full range of previously proposed strategy process types. The framework took a systems view of strategy-making by focusing on the role interrelationships between top managers and organizational members in strategy making. Specifying both *who* is involved and in *what manner* provided a useful organizing principle for framework development in line with Westley and Mintzberg’s (1989) observation of strategy as a two-way street, requiring both visionary leaders and empowered followers.

Focusing on the interaction between top managers and organizational members facilitated the identification of different processes or “modes” of strategy-making: Symbolic, Rational, Transactive, and Generative. Hart (1992) noted that each of the strategic process modes differed in the levers available to top managers for formulating and implementing organizational strategy. To be successful, firms must match external challenges with internal strategic processes capable of addressing them. Each mode reflects a pattern of interaction between the roles performed by top managers and organizational members and represents a resource or skill set available to the firm that may be exploited for competitive advantage (Barney, 1991). Together, the four modes embody those patterns of action—routines—that reflect the nature of the strategy-making process (Nelson and Winter, 1982). Each is described briefly below.

2.1 Symbolic Mode

The symbolic mode involves the creation by top management of a compelling vision and clear corporate mission. The corporate vision gives meaning to the company’s activities and provides a sense of identity for employees; it defines the basic philosophy and values of the firm. Strategy-making in the symbolic mode also involves the crafting of a long-term mission for the organization—an articulation of strategic intent. Similar to a coach in athletics, the role of top management in the symbolic mode is to motivate and inspire organizational members. Through speeches, persuasion, slogans, new projects, and recognition, top management provides the necessary focus and momentum to guide the actions of organizational members.

2.2 Rational Mode

The rational mode is both methodical and comprehensive in scope. In the rational mode, there is a high level of information processing—the gathering and use of data. Formal analysis, such as portfolio analysis, and industry and competitive analysis, is often used to aid in strategy formulation. Usually, this process is institutionalized through formal strategic planning, involving written strategic and operating plans. Organizational members participate in a formal system requiring upward sharing of data and information which is evaluated and controlled by top management. The result is a detailed plan of action, including specifics about goals, metrics, rewards and incentives.

2.3 Transactive Mode

The essence of the transactive mode is strategy-making based on interaction and learning rather than the execution of a predetermined plan. Strategy is crafted based upon an ongoing dialogue with key stakeholders—employees, suppliers, customers, regulators, and affected external parties. Lateral communication among organizational members is central to this mode. Feedback and learning necessitate an iterative approach to strategy-making. In this case, top management is concerned with facilitating a process for transacting with key stakeholders and linking the outcomes of those processes together over time to determine strategic direction.

2.4 Generative Mode

The generative mode of strategy-making is dependent upon the autonomous behavior of organizational members. Strategy is made via intrapreneurship—new product ideas emerge upward, and employee initiative shapes the firm's strategic direction. In this case, top managers are primarily involved in selecting and nurturing high-potential proposals that emerge from below. In the generative mode, new strategies are germinated by separating innovating activities from the day-to-day work of the operating organization. Of particular importance are the identification, development, and reward of innovation champions—the people who are able to link new ideas with organizational resources to make them a commercial reality.

Indeed, Hart's (1992) modes of strategy-making were not seen as mutually exclusive. In fact, it was assumed that firms could develop skill in several modes over time, resulting in varying levels of strategy-making capability. Firms are likely to possess different bundles or combinations of strategic processes, based upon their unique history and evolutionary path (Miller and Friesen, 1984). It was therefore hypothesized that different configurations of strategy-making process capability would have differential performance implications, based upon key contingency factors. More importantly, however, firms able to develop skill in multiple modes of strategy-making were expected to outperform their simpler (uni-modal) counterparts in most, if not all, competitive environments.

Hart and Banbury's (1994) empirical test of 285 firms supported many of Hart's propositions. Those studies found that those organizations developing more complex, multi-modal strategy processes outperformed single-mode or less process-capable organizations. Furthermore, they found that high strategy-making process capability is robust—firms demonstrating high capability showed high levels of performance even after controlling for the effects of firm size and competitive environment. Their findings suggested that high levels of strategy-making process capability facilitate superior performance in a wide range of settings and situations. Brews and Hunt (1999) drew similar conclusions after their analysis of responses from 425 executives from more than 19 industries.

3. GLOBAL SUSTAINABILITY

The concept of global sustainability emerged during the 1980s and has developed into an important strategic challenge for corporations expanding into new global markets (Gladwin, Kennelly, and Krause, 1995). A commonly articulated definition holds that “sustainable development” on a global scale is the ability of the current generation to meet its needs without compromising the ability of future generations to meet theirs (World Commission on Environment and Development, 1987). Unfortunately, mounting evidence from a wide range of scientific fields suggests that current levels of human activity may, in fact, be seriously jeopardizing future generations’ ability to meet their needs (Hart, 1997, Hawken, Lovins, and Lovins, 1999).

For example, if the entire world were as materially intensive as North America, it would take three Planet Earths to support the requirements of the present world population of 6 billion, let alone the 10-12 billion projected to inhabit the planet by the middle of the 21st century (Wackernagel and Rees, 1996). Furthermore, ecological strains appear to cause or exacerbate social distress and political conflict (World Commission on Environment and Development, 1987). Significant departure from the current world trajectory may therefore be required to avert significant social and environmental deterioration in the coming years (Hammond, 1998). Global sustainability thus implies a drastic reframing of the current and likely future business environment. For organizations to move toward strategies for sustainability, they must imagine a world where 10 billion people can achieve economic prosperity without externalizing problems onto either nature or the poor. Such reframing provides the vision and organizing principles around which political, technological, and commercial innovation can take place.

Global sustainability thus implies fundamental change in the products and services offered by firms—as well as the processes that they use to produce them (McDonough and Braungart, 1998; Hart and Milstein, 1999). A successful shift toward sustainability will therefore require more than merely a new vision: For companies, it will mean extensive experimentation and innovation, as individuals and organizations search for products and services that optimize economic benefit, social equity, and ecological health (Boston and Ross, 1997; Korten, 1999). Indeed, thousands (or even millions) of small-scale experiments will be required by businesses, governments, non-profits, and cooperatives to create a global incubator of innovation. Through rapid cycles of experimentation and innovation, the sustainable technologies, products, and services of the future will most likely emerge (Fussler, 1996).

Experimentation by itself, however, will not guarantee a shift toward sustainable development. Wide-scale transfers of knowledge and learning are also an integral component of sustainable development. Rapid diffusion and adoption of new, more sustainable practices and technologies hold the keys to organizational learning (McAdams, 1999). Multinational corporations, international institutions, internet communication, and associated “virtual” communities all facilitate rapid transfer of such knowledge across boundaries, displacing outdated or less efficient local practices (Rejeski, 1998; Fairbanks and Lindsay, 1997). Economic globalization can thus serve to contribute positively to the spread of innovations

that enable the vision of global sustainability to become a reality (Dowell, Hart, and Yeung, 2000; Christmann, 2000).

But while global exchange and rapid diffusion of innovations are key to sustainable development, so too is respect for diversity and local context. Human and biological communities are rooted in physical places (Korten, 1999). Communities of place are the foundation of a living society (Kunstler, 1993). Sustainable development is not dependent upon broad concepts such as “national competitiveness.” Instead, the health of social, environmental, and economic systems are dependent upon the idiosyncrasies of distinctive cities, regions, communities, and ecosystems. It is the vitality of these smaller units that determine the competitiveness of the whole (Kanter, 1995). Boundaries are therefore as essential to the maintenance of communities as they are to the maintenance of life itself (Korten, 1999). Respect for diversity and local context thus ensures a more locally customized vision of sustainable development that avoids “one size fits” solutions.

For firms, this means that what works for one business or facility may not work for another. It also means recognizing that business experience in one place (e.g. the developed world) may not apply elsewhere (e.g. the developing world). For example, nearly half of humanity (3 billion people) falls below what is considered to be the “desperation line” (about \$1,500 per year purchasing power parity) (World Bank, 1999). It is unlikely that appropriate business solutions can be imposed on such emerging markets from above. Instead, raising of the bottom of the world income pyramid will require the design of specially customized business models that respect and nurture local conditions (Prahalad and Hart, 1999).

In summary, sustainable development means experimenting and applying innovations guided by a new, more encompassing vision of the external environment. It also means the rapid diffusion and spread of learnings about more sustainable practices, while simultaneously remembering that local context and customization are crucial to success.

Thus, to enact strategies for sustainable development, firms must balance today’s realities against tomorrow’s needs. They must begin by looking to improve today’s products and processes in a way that maintains economic viability, and minimizes social and environmental impacts. At the same time, they must keep an eye toward the future, searching for revolutionary innovations that *optimize* economic, social, and environmental dimensions. Similarly, in developing strategies for sustainability, managers must balance the degree to which they build and enhance internal capabilities against the degree to which they appropriate learning and knowledge from outside the firm’s boundaries.

Reframing implies the development of a vision of the future premised upon the concept of global sustainability. A sustainability vision then holds the key to guiding the experimentation, innovation, and learning that will position the firm for tomorrow. Such experimentation means the internal development of new competencies and technologies that are inherently clean and sustainable. Diffusion implies extensive interaction with external stakeholders such as suppliers, customers, governments, and non-profits. The goal is to improve the stewardship of today’s products and processes and to spread more sustainable practices as widely as possible within the firm’s supply chain and beyond. Finally,

customization for local context means taking local variation into account and respecting the integrity of existing organizations and operations. Through continuous improvement and eco-efficiency, performance in existing operations and locations can be substantially improved without disrupting organizational or cultural integrity.

To accomplish all of these objectives simultaneously would seem to require complex strategic process capability. Delivering on all these dimensions is probably not just a matter of more strategic planning or better metrics, but also of fresh vision, openness and transparency, and a proven ability to leverage learning from both within and without the organization. In the next section, we explore the linkages between strategic process and the challenge of global sustainability.

4. STRATEGIC PROCESS AND GLOBAL SUSTAINABILITY

Global sustainability would appear to present a number of distinct process challenges to the firm. Because each of the process modes provides the context for a set of behaviors and actions within the organization, it might be expected that certain strategy-making process modes would be more effective than others in dealing with the key challenges of global sustainability. Using selected examples from the field for illustrative purposes, we present the four strategy-making processes—symbolic, rational, transactive, and generative—and develop propositions regarding the relationship between each process mode and the key challenges of global sustainability.

The four strategy-making process modes developed by Hart (1992) each carry with them different strengths and weaknesses: The symbolic mode is emotionally compelling, but may lack the necessary “teeth” to ensure implementation. The rational mode provides structure and boundaries but may discourage transfer of learning. The transactive mode encourages cross-fertilization and lateral communication, but may not attend adequately to fundamental innovation. Finally, the generative mode takes maximum advantage of the innovation potential of organizational members, but may abdicate senior management responsibility for the overall direction of the firm.

When the strategy-making modes are juxtaposed with the four principal challenges associated with global sustainability described in the previous section, discernable patterns begin to emerge: certain of the strategy-making modes seem to match the requirements of particular sustainability challenges. We describe these patterns below, along with associated research propositions.

4.1 Symbolic Mode

Given its emphasis on organizational direction and mission, the symbolic mode would seem to be particularly well-suited to the creation of a shared vision of tomorrow built on knowledge and learnings from outside a firm’s boundaries. An example of the symbolic mode in action can be seen in Atlanta-based Interface, Inc. and the vision its CEO, Ray Anderson, has used to motivate and inspire the company’s employees (Anderson, 1998). Anderson has sought to

create a revolution within Interface largely through the power of his vision. Since the early 1990s, Anderson has challenged his company to rethink the firm's business mission.

Sustainable development is at the core of Anderson's vision. His articulation of how sustainability connects to the future development of Interface's business model has become the rallying point for the company: "...led by Chairman and CEO Ray Anderson, we have a new vision: to become a leader in industrial ecology by first becoming a sustainable corporation and eventually a restorative enterprise." (Interface, 1999a).

The highly visible and symbolic nature of Anderson's portrayal of the organization's role in determining the future of the floorcoverings industry has generated much publicity, but it is less clear what achievements have actually been attained in practice. While the company's Seven Steps to Sustainability lay out a broadly defined vision, success is not easily quantified (Interface, 1999b). Indeed, other companies in the industry (e.g. Collins & Aikman Floorcoverings) have demonstrated more rapid improvement in environmental performance than Interface while also maintaining higher levels of profitability.

Ironically then, the emphasis on vision for the future may be detracting from the company's ability to compete effectively today. Indeed, over the past few years, its stock price has steadily declined in value and was trading below book value at the close of 1999. This suggests the following propositions:

Proposition 1a: The Symbolic Mode will be utilized by firms to address the need for a future oriented business vision of global sustainability.

Proposition 1b: Heavy or exclusive reliance on the Symbolic mode will produce excitement and public attention, but may result in problems of inconsistency and drift, since there is little in the way of formal systems or rewards to reinforce the desired new behaviors within the organization.

4.2 Rational Mode

Given the rational Mode's emphasis on formal systems and planning, actions associated with sustainable development are likely to foster incremental improvement of current skills and capabilities. For example, pollution prevention—the systematic reduction of emissions—relies upon a formalized management system composed of goal setting, measurement, and adjustment. Each business or unit customizes its own approach to achieving the targets set by company.

An example of the rational mode in action can be seen at Dow Chemical Company. In the late 1990s, the firm began a systematic corporate strategic planning effort to improve its environmental performance. Largely internal, this initiative sought to set aggressive corporate goals for improvement, identify an entirely new set of internal sustainability metrics, and integrate these considerations into the company's strategic planning and product development processes. Given the strategic significance that this process holds for existing businesses and organizations, there has been very little public discussion of this process outside of Dow. The expectation is, however, that this process should help existing plants, facilities, and businesses

improve their current performance not only financially, but also from a social and environmental perspective.

It remains to be seen, however, how the focus on current products and processes will lead to innovation for the future. Rational planning elevates functions and organizational boundaries over lateral communication and stakeholder involvement, thereby limited the probability of fundamental innovation. This suggests the following propositions:

Proposition 2a: The Rational Mode will be utilized by firms to achieve incremental improvements to current products and processes within existing businesses.

Proposition 2b: Heavy or exclusive reliance on the Rational Mode will foster organizational integrity, but may limit the transfer of learning across organizational boundaries.

4.3 Transactive Mode

Lateral communication and transfer of knowledge across organizational boundaries are actions associated with the transactive mode. Transactive processes depend upon the ability of cross-functional and even cross-business groups to enter into dialogues with each other and external stakeholders to improve products and diffuse innovations. Such a dialogue can begin to deal with perceptions by external stakeholders that trends such as economic globalization and free trade are synonymous with inequality, environmental degradation, and exploitation of the developing nations. The transactive mode provides a process through which the role of the corporate sector can be explored and developed. DuPont offers a useful example of the transactive mode in action. Since assuming the position of CEO in 1998, Chad Holliday has sought to shift DuPont's business portfolio from one heavily dependent on large quantities of toxic materials and energy, to one more geared toward service provision and use of less materials.

As part of this process, each business has been measured regarding its "environmental footprint." Those businesses with the largest footprints (e.g. nylon) were encouraged to alter their strategies to be more in line with the small footprint businesses (e.g. electronic materials). To facilitate this process, Paul Tebo, Corporate V.P. for Health, Safety, and Environment has orchestrated a series of stakeholder workshop sessions that seek to help each business identify and pursue more sustainable—and profitable—strategies by looking for useful learnings that may reside outside of the business. Results of each workshop are communicated to the other businesses, with an eye toward maximizing the transfer of learning across SBUs.

However, while transfers are encouraged, the degree to which such learning is useful in different settings may be questionable. Cross-functional and stakeholder dialogues, while important, have primarily focused on improvement in existing products and processes, rather than the development or acquisition of new competencies or technologies. This suggests the following propositions:

Proposition 3a: The Transactive Mode will be utilized by firms to address the need for product stewardship and improvement through stakeholder involvement and lateral communication.

Proposition 3b: Heavy or exclusive reliance on the Transactive Mode will foster learning transfer, but may limit the firm's ability to achieve more fundamental innovation.

4.4 Generative Mode

The generative mode encourages bottom-up innovation and intrapreneurship, activities that would fundamentally alter the products and services of the firm. Successful innovation depends upon the ability of the firm to conduct radical experiments in designing the inherently sustainable products, processes, and services of the future. An example of the generative mode in action can be seen in Hewlett-Packard. In 1998, a group of employees from areas within the company as diverse as research, technology, marketing, environment, and human resources banded together to bring the challenge of sustainability to the attention of the company.

With the sponsorship of Joel Birnbaum, then corporate VP for technology and head of the HP Research Laboratory, these “intrapreneurs” organized and held a corporate-wide strategy workshop and planning session involving scores of people and executives from across the company, along with outside experts. This session resulted in several new product ideas and research initiatives that were subsequently developed and proposed to HP business general managers. Since the conduct of the workshop, however, HP has undergone significant restructuring at the corporate level, including a de-merger into two separate companies—one focused on measurement instruments, and the other on the computer and peripherals business. It is unclear how the sustainability initiative fits into the larger corporate strategy being pursued by top management. This suggests the following propositions:

Proposition 4a: The Generative Mode will be utilized by firms to address the need for small-scale initiative and experimentation.

Proposition 4b: Heavy or exclusive reliance on the Generative Mode will spur innovative ideas and initiatives among organizational members, but may contribute to a loss of strategic direction and focus.

5. CONFIGURATIONS FOR SUSTAINABILITY

The sections above have looked closely at each strategy process mode individually, but as was noted above, tests have shown that in reality firms use a combination of these process types in strategy making. Figure 1 integrates the four key challenges of global sustainability within the context of a business organization, matching internal process to external sustainability challenges. Given the multidimensional nature of the challenge of global sustainability, it would therefore be expected that more process capable (multi-modal) firms would be more effective at addressing the challenge of global sustainability through the actions associated with each process type:

Firms with high levels of strategic process capability should evidence integration of sustainability in their core missions, strategies, systems, and processes. Vision, together with experimentation, learning transfer and an appreciation for customization and context, can enable a firm to simultaneously meet the challenges associated with improving current processes internally while utilizing external knowledge to develop radical innovations for tomorrow's needs. While acquisition of multi-modal competence in all likelihood develops sequentially over time, failure to manage the strategy process types like a portfolio and develop a well-balanced, multi modal strategic process might have adverse effects on a company's performance with regard to global sustainability.

Proposition 5: The more firms are able to develop skill in multiple strategy-making modes (high strategy-making capability), the more likely that they succeed in adopting successful strategies for global sustainability.

5.1 Monsanto, Revisited

Revisiting Monsanto's experience within the framework presented above, it is reasonable to conclude that at least some of the problems associated with that company's sustainability strategy were related to its inability to develop and deploy a balanced, multi-modal strategy-making process. Figure 2 illustrates the process imbalance found at Monsanto at the end of 1999. A better-balanced portfolio of strategic processes may have helped the company avoid the problems it encountered. An explicit connection between the rational mode (especially planning and reward systems) and the symbolic vision of sustainability might have overcome some of the problems of drift and inconsistency experienced by the company.

However, it may be the virtual lack of the transactive mode that may explain most of the problems encountered by Monsanto. With the exception of Shapiro's outward-looking vision of sustainable development, there was very little in the way of stakeholder dialogue or cross-boundary learning—processes that might have helped the company gain access to important external views and achieve buy-in from constituencies that later became adversaries. Despite efforts by some organizational members to access the voices of outside stakeholders, only a select few individuals at the company (those predisposed to sustainable development) were exposed to these views. For the vast majority of people in the company, Monsanto's strategic process was largely internally focused. Pursuit of vision (symbolic mode) and pollution-prevention activities (rational mode) was emphasized at the expense of activities that could have led to stakeholder engagement, stewardship, learning, and more comprehensive implementation within the organization.

In summary, over-reliance on a single process capability (symbolic mode), misalignment between symbolic, rational, and generative processes, and a virtual lack of competence in the transactive mode appear to have conspired to defeat Monsanto's quest for a corporate strategy aimed at global sustainability. Had the company paid more explicit attention to balancing its portfolio of strategic process capabilities, it may have been able to continue on its quest to become the dominant player in an entirely new industry with virtually unlimited growth potential. Instead, Monsanto's missteps dealt a severe blow to the development of the life science industry in general, and commercialization of genetically modified food in particular.

6. SUMMARY AND CONCLUSIONS

Despite the challenges faced by firms attempting to articulate and pursue strategies for sustainability, one need not conclude that such strategies are so daunting as to threaten an organization's survival. This article provides a framework for developing a better understanding of the relationship between a company's internal processes and the challenge of sustainability. The ability of firms to meet the challenges of sustainable development will be based on their strategy-making process capability. The use of a balanced portfolio of strategy-making processes might enable a firm to apply external information in a practical manner for the company to improve existing products, processes, and services while creating new ones for tomorrow. By taking stock in their firm's strategic process skills, managers should be better equipped to predict which sustainability initiatives are likely to be successful.

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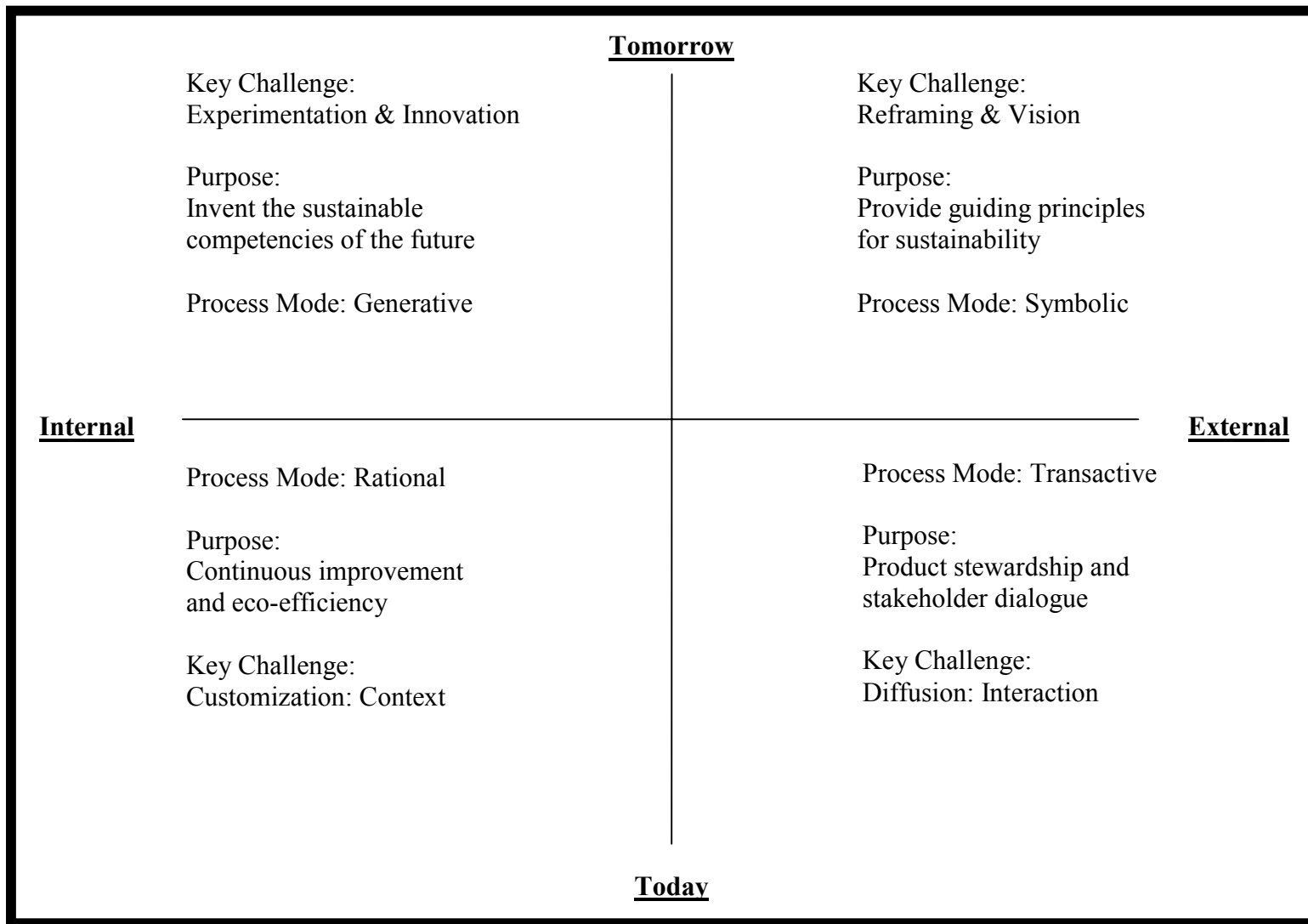


Figure 1. Integrating the Key Challenges of Global Sustainability with Internal Strategy-Making Processes

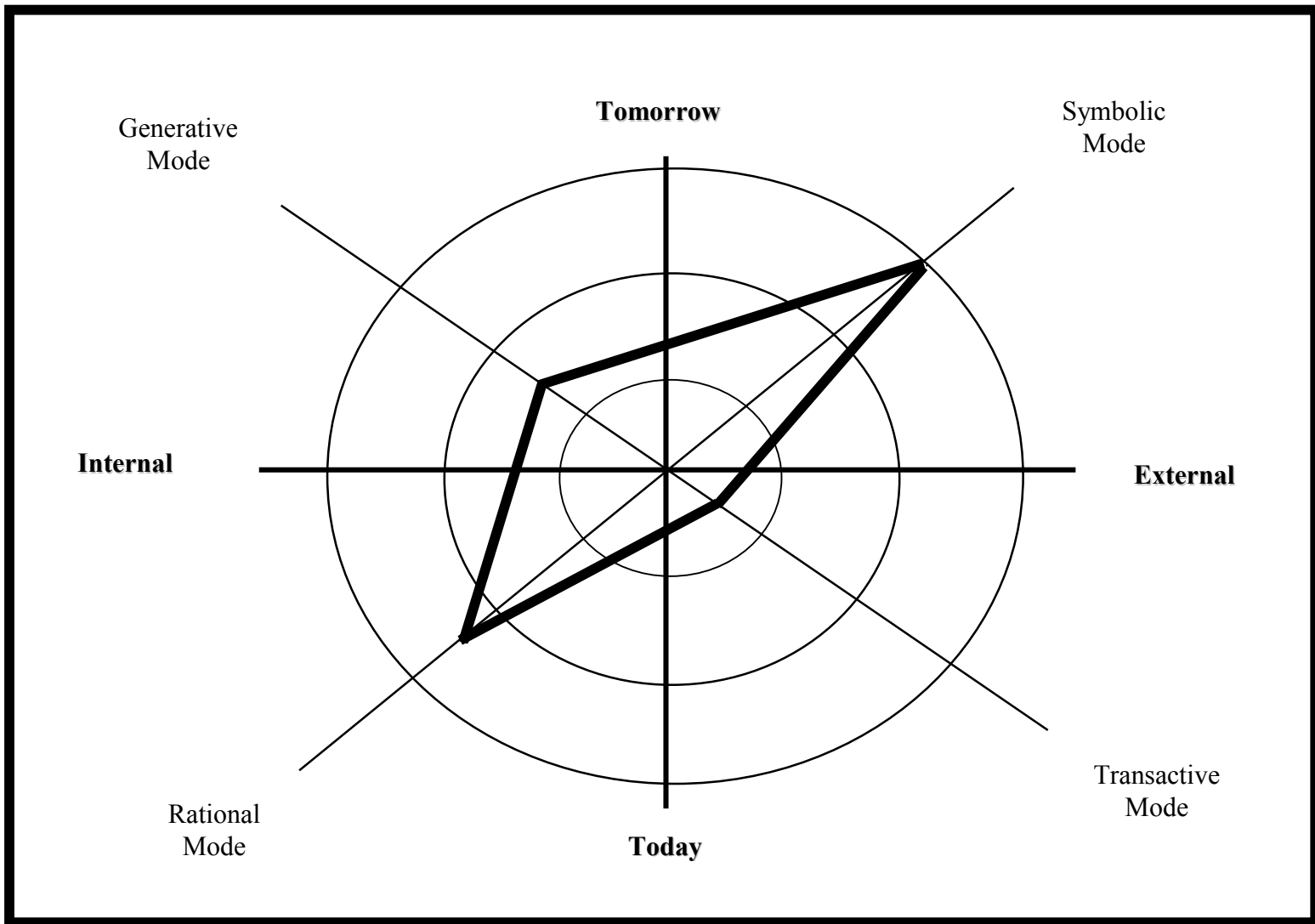


Figure 2. Monsanto's Strategic Process Portfolio