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Sustainability in Action: Identifying and Measuring the Key Performance Drivers

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An increasing number of senior managers recognize the importance of formulating a strategy on corporate social responsibility. However they often find it difficult to translate the strategy into action. This article presents a framework that describes the drivers of corporate social performance, the actions that managers can take to affect that performance, and the consequences of those actions on both corporate social and financial performance. By carefully identifying and articulating the drivers of social performance and measuring and managing the broad effects of both good and bad performance on the corporation's various stakeholders, managers can make a significant contribution both to their company and to society. This more careful understanding of both the drivers of social performance and the impacts of that performance on the various corporate stakeholders permits better integration of that information into the day-to-day operational decisions and the institutionalization of social concerns throughout the organization. The framework includes the details of the systems, structures, and measures that are necessary to change organizational culture and processes to improve both social and financial performance. © 2001 Elsevier Science Ltd. All rights reserved.

Introduction

In the last decade, as climate change emerged as a significant public policy issue, Ford Motor Company determined that further progress in the fuel economy performance of its vehicles was necessary. This reinforced the belief of Ford senior management that a comprehensive business- and market-focused strategy to address climate change was critical for long-term corporate success. However, these managers are faced with the difficulty of not only crafting such a strategy, but also determining how

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to implement a strategy aimed at balancing the social, environmental and economic needs of both the company and society.

There is a broad range of possible approaches to reducing greenhouse gases. As Ford formulates and implements its strategy, the company acknowledges numerous questions that must be addressed: "There are many steps we can take to further reduce CO_2 emissions from our products and operations. How do we select our starting points, and how do we strike the balance for our customers between these actions over time? How can our actions to address climate change create value for shareholders as well as society to ensure they support leadership actions?"[1] For companies that are committed to improving their environmental and social performance, the difficulty is no longer whether to implement sustainability, but how. In this article, we present an approach that carefully analyses the drivers of sustainability, the actions that managers can take to improve sustainability, and the likely consequences on both social and financial performance. This can provide managers with substantial assistance in improving the measurement and management of these issues. This framework provides guidance on how managers can translate sustainability strategies into action.

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Leading multinational companies such as BP, Shell, Bristol–Myers Squibb, Unilever, Baxter International and Ford Motor are all exploring ways to understand these issues better. However, defining and implementing a new corporate role is a major challenge for companies. The World Commission on Environment and Development has defined "sustainability" as "economic development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs."[2] However, this macroeconomic definition does not provide much guidance on how this concept should be put into operation at the company level, and managers still question how to implement a strategy to encourage corporate sustainability when there are many competing organizational constraints and numerous barriers to implementation.

There is substantial literature that explain why companies act in socially responsible ways[3–5] and what the financial payoff of those actions might be.[6–9] Nevertheless, managers are increasingly asking how companies can improve sustainability performance, and, more specifically, how they can identify, manage and measure the drivers of improved sustainability performance and the systems and structures that can be created to improve corporate social performance.[10–12] Managers also need to know how social performance impacts on overall long-term corporate profitability and how to communicate the importance of such impacts to general managers and financial managers throughout their organizations in language that is readily understandable. It is only in this way that managers have the information necessary to evaluate properly the day-to-day operating decisions they must make.

From a more general perspective, in recent years there has been increasing attention on the drivers of value in organizations.

To improve performance, managers have recognized that it is necessary to better understand the drivers of both costs and revenues and the actions that they can take to affect them. Popular management frameworks like Balanced Scorecard and Value-based Management (including shareholder value analysis and economic value added) rely on a better understanding of the drivers of value to aid managers in making decisions to improve corporate value creation. Kaplan and Norton have recently built on their previous work on the Balanced Scorecard with both a book on implementation and an article on how companies can develop strategy maps.[13,14] Further, recent work by Epstein and Westbrook[15] has developed an Action-Profit Linkage model that focuses on better understanding the causal relationships and linkages within organizations and the levers that managers can pull to improve both customer and corporate profitability and improve corporate performance. All of these models depend on a careful identification and measurement of the drivers of performance. However, the identification and measurement of social and environmental strategies is particularly difficult as they are usually linked to long time horizons, a high level of uncertainty, and impacts that are often difficult to quantify.

Managers can make a significant contribution to both the company and society

Furthermore, managing corporate sustainability requires the examination of the impacts of social and environmental initiatives on overall corporate profitability. Effectively evaluating the trade-offs that ultimately must be made demands more complete information than is typically available to managers about these relationships and the impact of various functional decisions on overall profitability.[16] Given their functional responsibilities, human resource managers tend to focus on employee satisfaction and marketing managers focus on customer satisfaction – but neither examines the impacts on overall corporate profitability. Undoubtedly, in order to make effective decisions, managers must know the impact of company products, services, processes and other activities on either the external or internal environment (including all of the various corporate stakeholders) or on the company. This requires an understanding of the linkages and causal relationships that exist between the various drivers of performance and an understanding of the levers that are available to managers to influence performance.

Presenting the framework

In this article, we present a framework that describes the drivers of corporate social performance, the actions that managers can take to affect that performance, and the consequences of those actions on both corporate social and financial performance. By carefully identifying and articulating the drivers of social performance and measuring and managing the broad effects of both good and bad performance on the corporation's various stakeholders, managers can make a significant contribution to both the company and society. This more careful understanding of both the drivers of social performance and the impacts of that

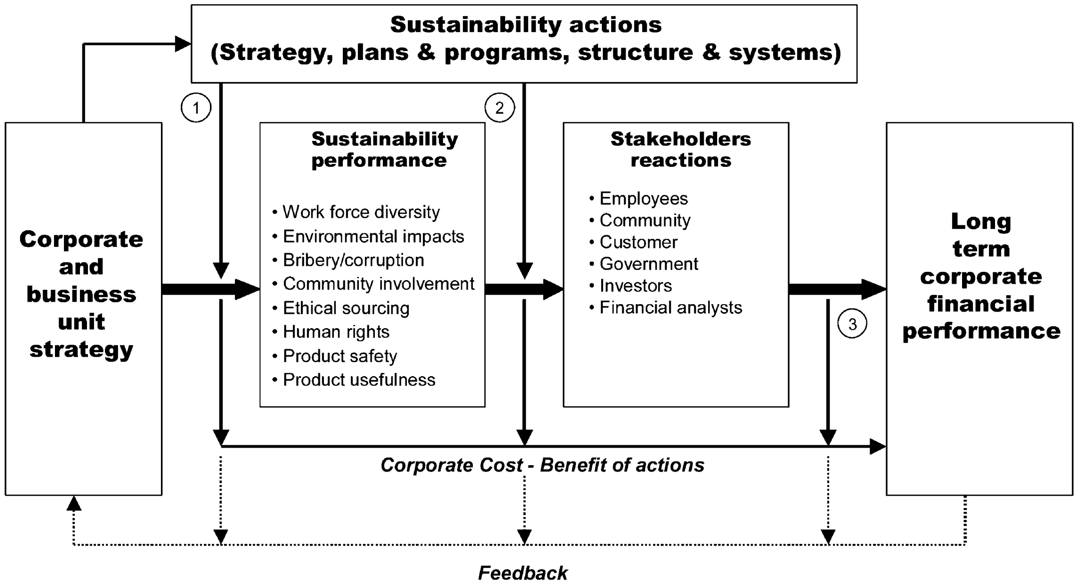

Figure 1. Drivers of sustainability and financial performance

performance on the various corporate stakeholders permits better integration of that information into the day-to-day operational decisions and the institutionalization of social concerns throughout the organization.

The framework includes the details of the systems, structures, and measures that are necessary to change organizational culture and processes to improve both social and financial performance. Frameworks like the Balanced Scorecard and the ISO 14001 environmental management systems (EMS) standard do provide valuable insights into the general implementation process. However, our framework focuses more on establishing relationships between company initiatives and corporate profitability as it relates to social and environmental strategies and narrows attention to specific actions and their payoffs.

The framework is presented in Figure 1 as a sustainability linkage map including both social and financial consequences of company activities. The drivers (boxed) show sustainability actions producing sustainability performance and thus stakeholder reactions and financial performance. Arrows 1 and 2 show different places/times that actions can occur, and arrow 3 shows that reactions can have impacts on corporate financial performance and as feedback to revise corporate strategy. Our extensive research spans a period of more than twenty-five years and includes extensive surveys, field research, and theoretical developments contributed by a large number of researchers.[17–19]

There are five major components of this framework and also significant relationships between these components:

- Corporate and business unit strategy
- Sustainability actions
- Sustainability performance

- Stakeholders' reactions
- Corporate financial performance.

Of course, managers will need to customize this general framework to reflect their particular industry or business context, mapping a corporate performance framework underlying their specific motivation for sustainability performance. A company using this framework begins with corporate and business unit strategy and moves from there to the second component, sustainability actions. Once the company has decided what sustainability actions it wants to explore, it can begin to establish the links from the actions to sustainability performance, stakeholders' reactions, and corporate profitability. The corporate financial performance component of the framework then feeds back into the corporate strategy to both improve and challenge strategies and assumptions.

Managers must quantify how one variable drives another until the link to profit is clear

An appropriate set of measures should be developed to test the foundation of the customized corporate framework. Managers must quantify how one variable drives another until the link to profit is clear. This argues for explicitly linking corporate strategy and sustainability actions to sustainability and financial performance. For example, senior managers might believe that a given set of explicit management actions can lead to improved social and environmental performance, which will enhance the company's public image and encourage customers to increase purchases. These increased purchases should then lead to improved long-term profitability. These relationships can than be tested to provide guidance to future corporate actions to improve both sustainability and financial performance.

A fundamental aspect of our framework is the distinction between intermediate results and financial outcomes. Intermediate results, such as improved environmental and social performance, enhanced public image, and increased market share, must be monitored to determine if management is performing well within the framework. Assumptions about these relationships, and about every other relationship in the framework, are important determinants of both the formulation and implementation of strategy. They allow managers to identify the levers that can be pulled, the actions that can be taken, and the systems, structures, people, and culture that a company can put into place to improve corporate financial and social performance.

Corporate and business unit strategy

Corporate and business unit strategies are the first component of the framework because it is through the development and implementation of these strategies that sustainability performance occurs. As a part of their formulation and revision of corporate and business unit strategies, companies must decide what industry they will operate in and how they will utilize resources and competencies to gain competitive advantage in a given market or industry. These corporate and business unit strategies include both internal and external drivers that set a direction for the actions undertaken that relate to sustainability issues and their impact on corporate social, environmental, and financial performance. Thus, companies that are moving toward sustainability must examine the various elements that relate to their current strategies and assess whether and how their corporate and business unit strategies could have impacts on sustainability issues such as human rights, employee rights, and environmental protection.

To develop the specific framework, companies must first identify their key stakeholders, i.e., the groups or persons who can affect or are affected by corporate actions or the achievement of an organization's purpose.[20] They must also identify particular social and environmental issues associated with specific industries and geographical locations. These elements can be powerful external drivers. Companies that operate in high social and environmental impact industries may exhibit relatively poor performance in terms of sustainability elements such as consumption of natural resources, emissions, and health risk of their products or services compared to companies operating in other industries. Further, companies in different industries are exposed to widely different pressures from political institutions, customers, and community activists.

Social and environmental issues… can be powerful external drivers

These various pressures become important external drivers of corporate sustainability. Issues such as labor practices and environmental management exist in many industries and have been of increasing community concern. For example company and industry codes of conducts are being established widely and rapidly in the apparel, toy, and footwear industries. The appropriate level of wages (living, minimum, or prevailing) and the desirability of the employment of children are issues that have caused significant dismay to Nike, Guess, Disney and many other well-known companies.

Measuring potential social and environmental impacts

Different types of tools and techniques can be used to measure potential social and environmental impacts of a company's business activities. Companies such as Bristol–Meyers Squibb, the multinational pharmaceutical giant, have been conducting product life cycle (PLC) reviews to assess potential environmental impacts of all new and existing products throughout the product life cycle (R&D, sourcing, manufacturing, packaging, marketing, sales, distribution, consumer use, and disposal). Further, as Ford Motor Company began its effort to understand and reduce greenhouse gas emissions, the company tried to quantify those emissions to estimate the magnitude of the company's contribution to climate change. Managers estimated both the yearly greenhouse gas emissions from all Ford vehicles on the road (based on their market share and Intergovernmental Panel on Climate Change figures) and CO_2 emissions from their manufacturing facilities. Ford estimated that approximately 400 million metric tons of CO_2 for both products and facilities and can utilize this information to monitor and manage its emissions more effectively.

Life cycle assessments (LCAs) and social audits are powerful tools to help companies better understand the environmental and social characteristics of their business activities, thus providing valuable information regarding opportunities to improve social and environmental performance. Undoubtedly, the development and implementation of a reliable information system for social and environmental data is essential. Further, benchmarking systems to monitor competitors' social and environmental performance should also be used to help companies identify areas that need improvements. Increasingly, companies like IBM, British Airways, and Cooperative Bank provide information regarding both their social and environmental performance and that of their competitors in their public social reports.

Sustainability actions

The second component of the framework is "sustainability actions" and includes three types of activities:

1 Formulating the sustainability strategy
2 Developing plans and programs
3 Designing appropriate structures and systems.

Formulating the sustainability strategy

Once managers have identified which aspects of business activities have significant impacts on sustainability issues (such as labor practices, energy consumption, and work force diversity), they must formulate a sustainability strategy that includes the company's values, commitment, and goals. The explicit identification of goals and targets is likely to improve corporate sustainability performance as it focuses attention on areas of concern and priority. For example, Grundfos is a leading Danish company that develops and produces high-quality pumps and pumping systems worldwide. Based on results from a LCA conducted to assess its environmental impacts, the company has identified energy consumption as a main challenge and has focused its environmental policy on improving sustainability through increasing the eco-efficiency of its products. Grundfos has also formulated a set of specific environmental targets for its products in terms of energy efficiency, material consumption, and disposal.[21]

Deciding upon a sustainability strategy is a complex undertaking, especially for companies operating globally. These multinational companies must decide whether they will implement a global sustainability strategy or adapt it locally. Companies such as IBM have committed themselves to global company standards. Hewlett–Packard redesigned packaging for its office-machines to meet stringent German requirements and used it to set the standard for the packaging of its products worldwide. While there may be financial risks in developing an unnecessarily constraining sustainability strategy in response to standardized criteria when it is not required by local regulations,[22] avoiding negative press coverage and consumer boycotts, maintaining employee morale, increasing corporate reputation, and resisting other negative market impacts are all important to corporate financial well-being.

Developing plans and programs

The second element of sustainability actions is the development of actual plans and programs to achieve sustainability goals and objectives that have been set. In our framework, we distinguish between programs and plans that aim at improving environmental and social performance (arrow 1) and those that aim at promoting a sustainability performance to stakeholders (arrow 2).

Avoiding negative press coverage and consumer boycotts, maintaining employee morale, increasing corporate reputation … are all important to corporate financial well-being

Improving environmental and social performance

There are many types of plans and programs that can be devised to improve sustainability performance. These can be minor changes of existing routines or radical new ways of doing business. They may include capital investments in new technologies, product or process redesign, or R&D spending. They may also include programs to promote ethical sourcing, work force diversity, or more stringent codes of conducts in terms of labor practices.

All these initiatives, whether proactive or reactive, are aimed at improving the social and environmental performance of a company's activities. Often the examination of product functionality and customer needs have led to radical new product and service strategies providing increased levels of customer satisfaction. Interface Inc., for example, is using this strategy in its core business of floor carpeting. Rather than selling carpets to the customer which are generally discarded after their useful life, Interface leases carpeting, which it then takes back after use and recycles. Customer satisfaction is increased as customers receive high levels of service without concerns about post-consumer waste and the company benefits through higher levels of customer retention and more efficient use of recycled material. And society is improved through lower levels of waste in landfills.[23]

Promoting sustainability performance to stakeholders

Other types of plans and programs (see arrow 2) are directed at promoting a company's sustainability performance to stakeholders. This requires both responsible actions and communication to the stakeholders. These initiatives may include marketing efforts to promote social and environmental product features and lobbying efforts to governmental agencies related to social and environmental issues.

Initiatives to improve stakeholder relations also include community surveys to assess public opinion on the company's social and environmental performance and community advisory panels. For example, Dow Chemical has established such panels in most of the communities in which it has facilities. These panels provide a forum for addressing issues and opportunities affecting Dow and the community. Initiatives such as these offer valuable feedback to the company as it provides a clearer view of how its actions are perceived and how it can improve its community relations and its performance in areas of community concern.

External reporting initiatives to disclose positive environmental and social performance are also ways to promote good sustainability performance to various stakeholders including environmentalists and financial analysts. For example, in the early 1990s the specialty and fine chemical producer Cambrex faced possible liabilities for environmental remediation for prior emissions. Most of Cambrex's shares were held by institutional investors, and the corporation believed them to be concerned about the size of potential liabilities. Keen to diffuse their worst expectations, Cambrex opened its books for a surprisingly full accounting. In this unique approach, continued since 1992, Cambrex disclosed an estimate of the minimum–maximum range for potential liability—in 1997, \$4.5 million at the low end, \$9.9 million at the high. With the disclosures, Cambrex both quelled investors' concern over environmental liabilities and improved these stakeholders' reactions to the company.[24]

Translating a sustainability strategy into action and driving it through a complex organization is a substantial challenge

Designing appropriate structure and management systems

Translating a sustainability strategy into action and driving it through a complex organization is a substantial challenge. Several companies have been using the ISO 14001 Environmental Management Systems (EMS) to provide guidance as they choose, design, and implement their environmental strategy. Indeed, a strong EMS is essential to help companies systematically identify, measure, and appropriately manage their environmental obligations and risks. Without appropriate organizational structure and management systems, corporations may not reap all the benefits associated with sustainability performance. The alignment of strategy, structure, and management systems are essential for companies to both coordinate activities and motivate employees toward implementing a sustainability strategy.

The organizational structure around sustainability issues is critical to success and entails organizing a wide range of activities and resources often spread throughout many locations. Corporations must consider whether key resources and activities should be centralized or decentralized, and decide upon a level of central control versus business unit autonomy. These decisions must be appropriately aligned with corporate culture. Indeed, decentralized companies may wish to respect their subsidiaries' understanding of local factors surrounding social and environmental issues by granting them high levels of autonomy to decide locally on initiatives, standards and actions in this sphere within overall corporate boundaries or codes.

During the 1980s, Environment, Health and Safety staffs in US corporations were often part of a central corporate staff reporting to the corporation's legal department. As professional EH&S staffs grew, it often was deemed necessary and desirable to push primary EH&S responsibility to the business units and many companies reduced the size of their central staff. Now many companies have recognized that both a central staff and EH&S personnel at the facilities are necessary. Substantial advantages can be achieved at the business unit and facility level in product and process design, operational controls, and self-audits to control and reduce waste production and other environmental impacts. Further, a central EH&S staff is necessary to provide overall strategic planning, guidance, and coordination to the corporate environmental function and to the business units and facilities.

To drive a sustainability strategy through an organization, various management systems—such as product costing, capital budgeting, information, and performance evaluation—must be designed and aligned. Many companies have developed performance evaluation systems to help gauge the sustainability performance of business units and company facilities. Indeed, corporate initiatives are usually linked more powerfully to performance through the development of performance measures that are linked to both strategy and rewards.

Thus, the sustainability performance of corporations, business units, facilities, teams, managers, and all other employees should be measured and be part of the way they are evaluated for success. In addition, incentives should be established to encourage excellence, and, if sustainability performance is truly important, evaluations and rewards should highlight that component. Companies that sincerely want to change corporate culture and improve social and environmental performance must make the sustainability performance of divisions, facilities, and individuals an integral part of the performance evaluation. It is difficult to achieve maximum sustainability performance unless management sends a clear message that sustainability performance is critical to the company. If employee performance is evaluated based solely on short-term profit or revenue contributions, employees quickly recognize that trade-offs on the social and environmental issues are acceptable and desired changes in corporate culture become more difficult.

Measuring sustainability actions

Finally, performance indicators must be developed to monitor and assess the value of sustainability actions undertaken. Companies have been using various indicators to help quantify the efforts made to improve sustainability performance. Each element of sustainability actions must be translated into a metric that will eventually be linked to sustainability performance (see Table 1). First, the sustainability strategy must be translated into measurable goals such as a specific reduction level for safety performance. Metrics to describe programs and plans must also be developed and will often include the level of expenditures in social and environmental programs and technology. Measures of

Table 1. Sustainability actions measures

Sustainability strategy (goals)	Plans and programs	Structure and systems
■ Increase the number of facilities with screening procedures against the use of child labor (No. of facilities)	■ Investments in cleaner technologies ($)	■ ISO 14001 certification (No. of facilities)
■ Increase gender diversity (% of work force)	■ Investments in community projects ($)	■ Social performance evaluation systems in place (No. of facilities)
■ Reduce lost workdays (No. of days)	■ Safety training programs (hours)	■ Environmental accounting systems in place (No. of facilities)
■ Reduce emissions (% of reduction)	■ Support programs for minority-owned businesses (% of volume of business)	■ Senior managers with social and environmental responsibilities (No. of senior managers)

leading indicators of performance around sustainability structure and management systems should also be monitored. Metrics such as the number of certified suppliers or the percentage of facilities certified to the ISO 14001 standard are examples of metrics that permit managers to assess the impacts of these initiatives on a specific aspect of sustainability performance.

Sustainability performance

Through their actions, companies can either improve or impair their social and environmental performance. Sustainability goals are often broad and to assess performance, organizations must focus on specific issues or areas of priority. When assessing social performance, companies often measure performance on elements such as philanthropic contributions, diversity data, wages and benefits, health and safety records and human rights issues. To assess the environmental performance of its manufacturing operations, Unilever focuses on five environmental performance parameters: Chemical Oxygen Demand, hazardous and non-hazardous waste, SO_x emissions, energy consumption and water consumption.

Measuring sustainability performance

Every sustainability initiative undertaken should be associated with a specific sustainability performance indicator. As managers implement new programs or invest in new technologies to improve their sustainability performance, they must clearly define goals and targets and compare these to actual performance. For example, companies investing in recycling technologies to reduce hazardous waste should carefully monitor actual reductions in load per ton of production as a leading indicator of waste production. Such investment itself can be seen as an example of a leading indicator of hazardous waste, while changes in the production and recycling of waste should be monitored as leading indicators of financial performance. The subsequent environmental and financial impact measures are lagging indicators of waste production. Leading indicators are generally thought of as input or process indicators that link more closely to operations, while lagging indicators relate more to outcomes achieved through the management of leading indicators. However we would agree with the definition of leading and lagging indicators as a continuum, or as indicators in a complex flow of causes and effects.[25] Thus, for example, the rate of work-related injury (sustainability performance element) is a lagging measure of health and safety program efficiency (sustainability action element), and also a leading indicator of employee satisfaction (stakeholder reaction element).

Companies must identify the key stakeholder groups that are the primary drivers of their strategy

Stakeholders' reactions

Stakeholder reactions are an important component of the framework as they may significantly affect short-term revenues and costs and long-term corporate performance on many levels. Companies are now gaining lasting advantage through stakeholder relationships uniquely structured to provide strategic advantage. Customers provide this advantage through loyalty and a long-term stream of purchases. Employees do the same when they commit to great service, innovation, and reliability. Shareholders provide a lasting advantage when they provide long-term, patient capital. Because gaining advantage through stakeholders has been recognized as a driver of strategic success, companies must identify the key stakeholder groups that are the primary drivers of their strategy including shareholders, customers, suppliers, employees and communities. Companies must customize their approach to address the most relevant company relationships.

Our framework suggests that a company's stakeholders react to both sustainability performance and actions taken to promote that performance. Allstate Insurance developed a strategy to build a workforce that reflects the composition of its customer base. Through its programs, the company aims not only to attract a diverse pool of workers for positions at every level of the company, thus creating a diversified work force, but also to provide ample opportunities for advancement. Allstate began to promote its diversity performance by publishing summary equal employment opportunity data in its annual report showing race and gender composition for all job classifications. Though the information is readily available, only about 10% of large companies release this data publicly, though it can be a way to demonstrate superior performance and influence stakeholder reactions in purchases and employment. According to independent research, Allstate is the largest insurer of African Americans and Hispanics in two of the three major insurance lines.[26] Allstate executives believe the diverse workforce gives the company the skills and expertise to attract and retain additional minority customers. Allstate links this to the bottom line in a similar approach to that used here, maintaining that expanding career and advancement opportunities for women and minorities drives employee satisfaction; employee satisfaction drives customer growth and retention; and customer growth and retention drive profitability.

Other stakeholders such as the financial community also often react positively to sustainability development initiatives, perceiving these initiatives as evidence of forward-looking corporate leadership. Further, an increasing number of investors and social mutual funds currently screen their investments using social criteria. Many believe that managing activities with sensitivity for social concerns can also have a positive impact on stock price.[27]

Measuring stakeholders reactions

As a way to measure stakeholders reactions, the Cooperative Bank has identified seven groups upon whom its continued success is dependant: shareholders, customers, staff and their families, suppliers, local communities, national and international society, and past and future generations of co-operators.[28] The Cooperative Bank has chosen specific indicators to assess whether the bank is improving its relations with each of these stakeholders. For example, to evaluate its performance with employees, the bank measures and tracks indicators such as staff satisfaction with salary, benefits, and job security. In addition, customers have indicated that quality and convenience of service are important issues. Thus, through survey research, the bank can measure its customer satisfaction on quality and convenience of service.

Corporate financial performance: cost and benefits of actions

A central element of the framework is the evaluation of corporate financial performance and the actions that lead to improved performance. Whereas financial measures once constituted the entirety of performance measurement, increasingly they are seen as just one of a set of measures used to assess corporate performance. Non-financial measures are used as the leading indicators to provide additional information and feedback to improve operations. Changes in the competitive marketplace and dissatisfaction with traditional accounting-based measures have caused companies to redefine what constitutes success and the new strategies borne of this realization must be accompanied by new systems to measure success. The growing popularity of strategic management systems such as the Balanced Scorecard and the use of more appropriate performance metrics are the result of an increased focus on the drivers of long-term corporate success.

Increasingly, financial performance has been framed in terms of value creation. Corporate annual reports are more and more replete with references to shareholder wealth creation and shareholder value measures such as economic value added. Critics of the shareholder value approach argue that it neglects other important constituencies such as customers, employees, local communities, and the environment. Although some managers have applied notions of shareholder value too narrowly, a complete analysis of value creation in corporations includes the impacts of its products, services, processes, and activities on its various constituencies. Value creation must be considered broadly and recognize that shareholder value can be increased only by creating value for other corporate stakeholders. Our framework offers a perspective where a broad range of stakeholders is considered and costs and benefits are more broadly identified, measured, and included in decision-making processes.

Corporate costs and benefits

Costs and benefits associated with sustainability strategy must all be evaluated. The impact of sustainability actions and stakeholders reactions should be broadly evaluated, as they may constitute significant cost and revenue drivers. Though these costs and benefits can relate to both societal and corporate impacts, most companies focus (as we do here) primarily on both the short- and long-term impacts on corporate financial performance.

Benefits often come from positive and improved relations with regulators and other stakeholders. For example, regulators may ease the permitting process for companies who have consistently demonstrated a strong sustainability performance record, thus reducing the time and investment required to bring new products and services to market. Better access to capital is another benefit as the financial community pays greater attention to environmental and social performance and gives preference to companies with favorable records.

Sustainability actions can also lead to cost reductions perhaps from material substitution or less packaging. Other cost reductions often include lower energy consumption during the production process, reduced material storage and handling costs and reduced waste disposal. These actions not only generate cost reductions through improved efficiency but also create a positive reaction from customers who may benefit from these savings or product improvements. They may also send a positive message to financial analysts and investors in terms of the company's manufacturing performance. Social and environmental costs and benefits such as these are both easy to identify and to measure. Companies should also include other impacts such as the projected costs for compliance with legislation that is on the horizon but has not yet been enacted. While these costs may not presently affect the bottom line, companies must make current decisions with these future costs in mind. For example, a number of local and national governments set minimum requirements for recycled content or require the take-back of some products. These regulations attach market implications to the social and environmental impacts and make the cost of these impacts clear in the company's bottom line, essentially shifting the boundary between internal and external costs.

Societal costs and benefits

Often companies will manage only those issues that lead to obvious and short-term costs and benefits. Many of the social and environmental impacts are less clear and the measurement and linkage to financial performance more difficult, and thus these items are often excluded from the formal decision making process. Though the broad identification and measurement of stakeholders and impacts is often difficult, it is critical for the improvement of investment decisions.

Ignoring external costs entirely is a poor long-term strategy

Our framework therefore suggests that though some information may not currently affect stakeholders—nor the bottom line—it should still be reported to and considered by top management. Some of these environmental and social impacts may not be currently regulated. For example, some external costs (like those related to global warming) might be difficult to assign to individual polluters and thus are likely to remain external costs, borne by society. For such costs, the threat of future regulation often does not exist and there is little incentive for a company to address these issues at the time.[29]

However, in the long run, few costs can be considered purely external. As the base of scientific research supporting environmental planning expands, permitting more accurate tracing of environmental impacts to sources of pollution, the domain of external costs will continue to shrink. Thus, though actions may not be taken immediately, top management should be aware of potential social and environmental impacts associated with their business processes. To adequately measure social and environmental costs and benefits, estimates of likely future effects are critical. Option assessment, option screening, and scenario forecasting are among techniques that can be used to assist in this analysis.[30] The shifting nature of the boundary between internal and external suggests that ignoring external costs entirely is a poor long-term strategy.

Feedback

The feedback process is an important aspect of the proposed framework. It is likely that this process will both challenge and change strategies and assumptions. Various mechanisms must be in place at different levels in the organization to provide optimal feedback to top management, to promote knowledge sharing and to enhance capabilities for improved sustainability performance. As shown in Figure 1 (dotted portion of arrows 1, 2 and 3), the feedback process does not rely exclusively on the data relating to the financial performance. Indeed, appropriate management control systems should feed back information on potential environmental and social impacts, sustainability performance (at all organizational levels), sustainability initiatives, stakeholder reactions and corporate financial performance.

Companies relying solely on financial results will not have the relevant information to accurately capture the total picture. Traditional financial measures tend to be lagging indicators, measuring current and past performance but not adequately predicting future performance or motivating behavior that will attain future performance goals.[31] To link corporate activities with corporate strategic objectives, performance measures must include leading indicators that give insight into the organization's ability to improve its competitive position in the future and are predictors of future performance.

Furthermore, the potential for learning associated with appropriate information is significant and should not be ignored by firms implementing sustainability actions. These companies must develop mechanisms to access and share good practices and initiatives across the organization. Feedback mechanisms and continuous learning are important parts of any learning organization and in the implementation of systems to improve corporate sustainability. Managers must be constantly using feedback to challenge their assumptions as to the viability of various decisions and their long-term implications for both the company and society.

Implementing the framework

The proposed framework is only a starting point for understanding relationships among key performance metrics. Customizing and implementing it throughout the company is obviously the next phase. As the focus of the framework is not limited to the pursuit of intermediate goals such as improved social and environmental performance, its implementation should involve a wide cross section of the senior management team. The implementation process should include five phases:

- Setting priorities
- Identifying the causal relationships
- Developing appropriate measures
- Collecting and analyzing data
- Reviewing the framework.

Once managers have set priorities underlining specific challenges associated with their particular business context, they can establish links between elements of corporate strategy and sustainability actions to sustainability and financial performance. To establish these links, all the elements included in the framework must be quantified using appropriate metrics.

Figure 2 illustrates the type of metrics that need be monitored to evaluate the performance of sustainability actions, starting with the proper identification of the social and environmental issues companies are facing. These metrics comprise all five components of the framework and include leading and lagging indicators, and are expressed in both financial and non-financial terms.

Once data on indicators has been collected, statistical analysis, such as multiple regression, should be performed to analyze and test the validity of the customized model as hypothesized. As companies evaluate the initial model's performance, it will inevitably add links and drop others which lack evidence of strong relationships. This phase is critical because it is here that a final model emerges and the focus then shifts to applying the model to support decision-making. The reviewing process is the final phase. Internal and external factors may challenge and change assumptions and strategies. Thus, in light of new information, metrics and links must be continuously updated and reassessed.

As we have argued, many companies have not focused on quantifying the link between sustainability actions, sustainability performance and financial gain, and have not focused on making the "business case" for corporate social responsibility. Instead, they act in socially responsible ways because they believe it is "the right thing to do". However, programs put in place solely for this reason are vulnerable because they are subject to the

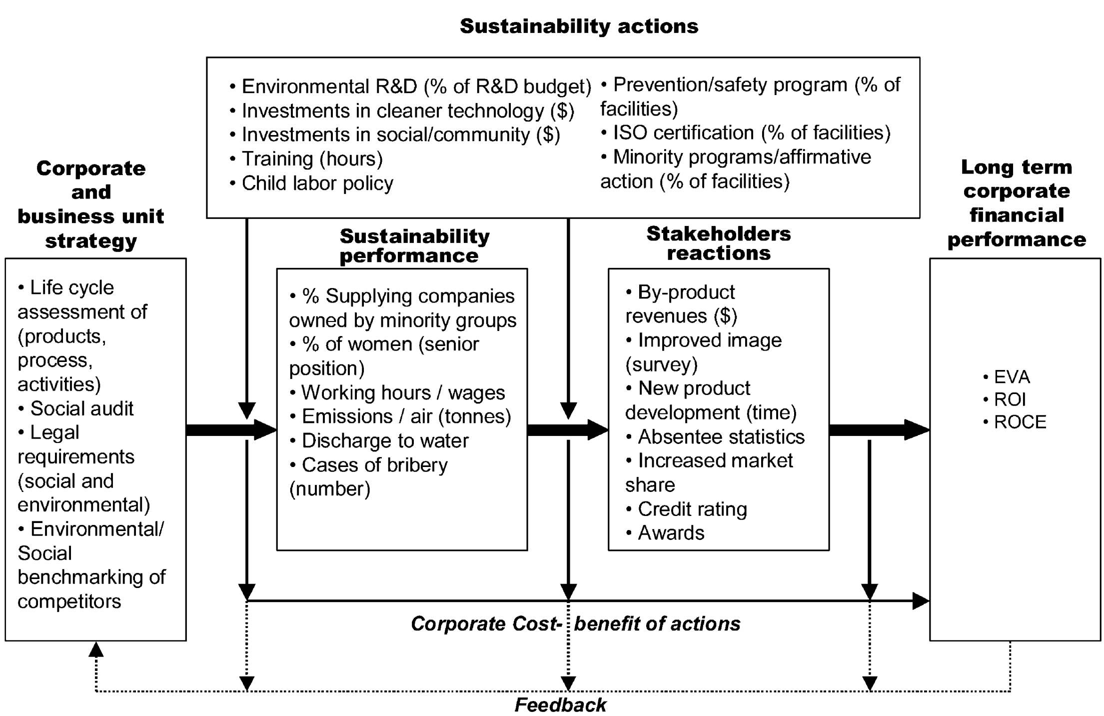

Figure 2. Metrics of sustainability and financial drivers

whim of swaying public priorities, changing corporate leadership and financial cycles. There is evidence to indicate that the development of social accounting and the implementation of corporate social responsibility failed in the 1970s partly due to the lack of institutionalization in industry and academia. Though some managers were committed to increased corporate social responsibility, establishing the structures, systems, and corporate culture and securing their implementation in their organizations proved difficult and, as senior management and corporate direction changed, the concern for social responsibility was often lost.[32]

Conclusion

A clearer understanding of the impacts of the various past, pending and future corporate decisions on both the corporation and society

The results of corporate decisions and strategies are being scrutinized more closely than ever before. Various corporate stakeholders demand increased information about corporate governance and the impact of corporate activities on various constituencies. Concurrently, both managers and investors are examining corporate value creation and the results of operating decisions.

However, to implement strategies generally and sustainability strategies particularly, managers need to understand better both the implications of their decisions and the actions that they can take to produce improved performance. This requires a careful analysis of the key drivers of performance and a measurement of both the drivers and the linkages between them. It also requires a clear understanding of the broad set of effects that are caused by corporate activities and to understand their impacts on a broad set of stakeholders.

Achieving a successful corporate strategy for social responsibility must be viewed over a long time horizon so that both the leading and lagging indicators of performance can be examined. The framework that we have presented here provides a comprehensive approach for examining the drivers of corporate sustainability. Its use by managers can provide a clearer understanding of the impacts of the various past, pending, and future corporate decisions on both the corporation and society. It can aid them in putting a sustainability strategy into operation, and in tying it to the specific actions that will improve both sustainability performance and financial performance. Through a careful identification and measurement of key performance drivers, the strategy implementation process is improved. This framework should provide guidance to both researchers and managers on the analysis and management of these drivers.

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