

## The Innovation High Ground: How Leading Companies are Using Sustainability-Driven Innovation

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and Davide Vassallo*

In 1999, Arthur D. Little linked up with the World Business Council for Sustainable Development (WBCSD) to investigate how 80 companies were integrating sustainable development into their approach to innovation management, and to learn about the opportunities and barriers they were experiencing<sup>1</sup>. The overall conclusion at the time was that companies were ‘part way there’, but there was still a long way to go. Five years on, we set out to find out what had changed.

During 2004, Arthur D. Little, in collaboration with Hedstrom Associates, conducted a survey of 40 technology companies across Europe, the US and Japan. The survey focused on the business opportunities presented by the integration of sustainability into the innovation process. We call this ‘Sustainability-Driven Innovation’, which we define as the creation of new market space, products and services or processes driven by social, environmental or sustainability issues. An example might be a novel service that provides better environmental information to meet the needs of potential buyers of a particular product, or a new product that meets the social needs of an emerging market that has hitherto been untapped.

There are several potential benefits of pursuing Sustainability-Driven Innovation:

- Identification of new, untapped business opportunities;
- Greater focus on longer-term emerging customer needs;
- Migration into business areas that, by definition, have greater longevity;
- The ability to create a genuine ‘win-win’ for both business and society.

Sustainability-Driven Innovation means the creation of new market space, products and services or processes driven by social, environmental or sustainability issues.

The objective of the survey was to explore the current status of Sustainability-Driven Innovation and to identify key

<sup>1</sup>D. Brown, J. Green, F. Hall, S. Rocchi, Rutter, A. Dearing (2000). “Building a Better Future: Innovation, Technology and Sustainable Development,” WBCSD & Arthur D. Little.

areas of activity and insights into tomorrow's winning strategies. We focused on global companies where technology and innovation are key to business success, including companies from the telecoms, chemicals, health care and energy sectors. We were delighted to have the participation of leading companies such as Sony, Procter & Gamble, Vodafone, HP, Motorola, DuPont and many others.

Our survey found that:

- 95 percent of companies believe that Sustainability-Driven Innovation has the potential to bring business value and almost a quarter believe it will definitely deliver business value;
- 60 percent of companies see potential benefits to their top line and 43 percent see further benefits to the bottom line;
- Most companies still have a long way to go to integrate sustainability into both their business strategy and product/process design - the prerequisite for pursuing Sustainability-Driven Innovation.

We have drawn four main conclusions:

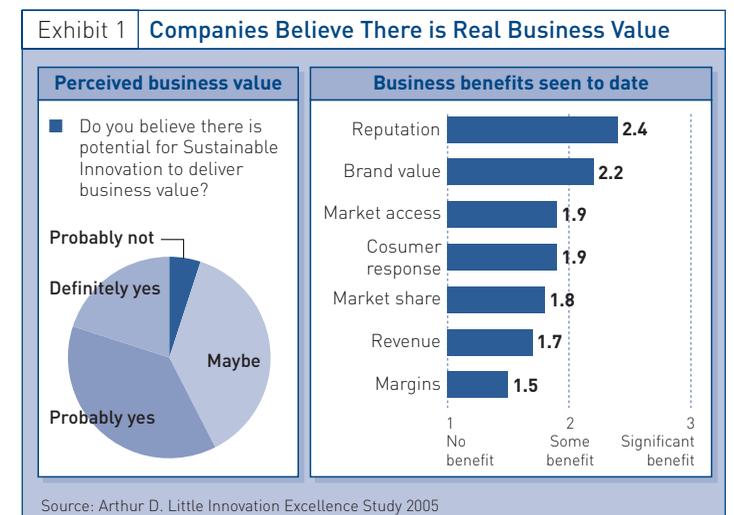
- Sustainability-Driven Innovation is starting to offer real business value, but benefits are still intangible for many and there are still significant barriers to be overcome;
- In stark contrast to the 1999 survey, the leaders are now focusing on winning tomorrow's customers, rather than just managing risks;
- A small minority of companies have integrated sustainability into both their business strategy and product/process design;
- A few leading companies are already exploring exciting breakthrough opportunities in Sustainability-Driven Innovation.

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This report sets out the findings of the survey and presents some insights into the key actions required to derive business value from the Innovation High Ground - where the real benefits of Sustainability-Driven Innovation are to be found.

**Sustainability-Driven Innovation is Starting to Offer Real Business Value, but the Benefits are still Intangible for Many. There are still Significant Barriers to be Overcome.**

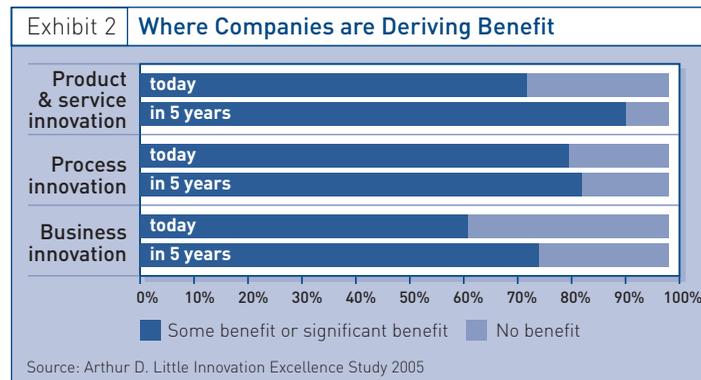
There is almost universal belief - a striking 95 percent of companies - that Sustainability-Driven Innovation has the potential to deliver business value, and almost a quarter believe it definitely will (Exhibit 1).



But, while there is widely shared agreement on the potential, the greatest benefits are still seen as being mainly intangible - reputation and brand value are rated as business benefits by 90 percent and 80 percent respectively of those companies that believe they are already embedding sustainability within their business. However, in contrast to the results in 1999, as many as 60 percent of these companies have also seen improvements to their top line and 43 percent have enjoyed cost reduction benefits.

Perhaps unsurprisingly, of those companies that have not yet embedded sustainability, few see any benefits in terms of market share, revenue or margin.

Finally, of those leading companies that believe they are already applying Sustainability-Driven Innovation as defined in the survey, 72 percent are achieving benefit through new products and services, 80 percent through process innovation and 60 percent by entering new markets or developing new business models (Exhibit 2).



*Many companies either do not yet recognise the potential of Sustainability-Driven Innovation, or else believe that the concept is still too immature to focus significant effort and resources on at the current time.*

When asked where they see the benefits in five years' time, 90 percent of companies said they believe that benefits will accrue from developing new products and services. Three quarters of the companies believe that developing new markets and new business models will also give significant payback.

Despite this, many companies either do not yet recognise the potential of Sustainability-Driven Innovation, or else believe that the concept is still too immature to focus significant effort and resources on at the current time.

Key barriers identified in the survey included:

- A lack of understanding of the significance of sustainability trends and drivers and potential markets and opportunities, particularly with strategic business developers;
- A high degree of internal and external scepticism, often with perceived high levels of uncertainty and risk involved in these activities;
- An absence of suitable business models, particularly for use in emerging markets;

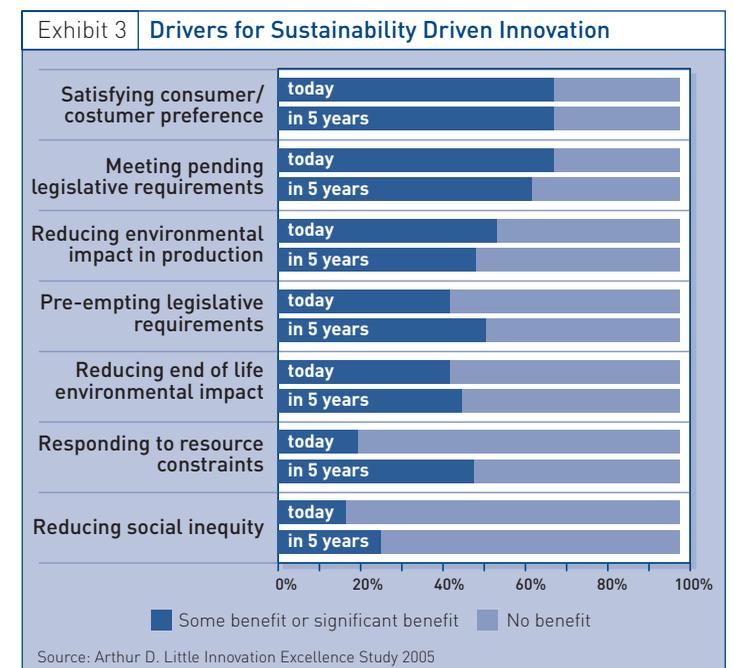
*Satisfying consumer preferences today is the biggest driver for Sustainability Driven Innovation.*

- A tendency to use available capital to grow 'more of the same' in new markets rather than to develop new business models or service offerings that could possibly offer greater long-term benefits in terms of responding better to sustainability drivers;
- An unwillingness to finance new projects, particularly at the bottom of the business cycle.

As with many emerging trends, these barriers are seen as being very significant by the followers but are already in the process of being overcome by the leaders.

**Leaders are now Focusing on Winning Tomorrow's Customers, rather than just Managing Risks**

In the 1999 survey companies were asked whether sustainable development was a key business driver because of pressure from customers. Only 39 percent said 'yes'. The survey also asked which drivers would increase in importance in the next five years, and 70 percent of companies considered that pressure from customers would grow in significance over this period.



Five years on, our research confirms this (Exhibit 3). It finds that 70 percent of companies believe that satisfying consumer preference is very important or critical as a driver for Sustainability-Driven Innovation. Our survey found that potential (i.e. future) customers are also having a major influence on innovation, especially B2B companies, whose customers are increasingly demanding products and services that will help them to meet their own sustainability objectives. Leading companies see sustainability as a key enabler for growing market share by reaching these customers, and it is felt by many to be likely to become increasingly important in procurement decisions in the future.

*Companies rate 'responding to resource constraints' as relatively unimportant today, but this is expected to become much more important in the next five years.*

In 1999, 45 percent of companies viewed regulatory requirements as a key driver and almost 60 percent said this driver would grow in importance. Five years later, companies have placed still greater emphasis on legislation as a driver, with 70 percent believing that meeting legislative requirements is critical. This is perhaps to be expected, given the growth in environmental and social regulation and legislation over the last five years, from emissions control and welfare at work to product safety standards.

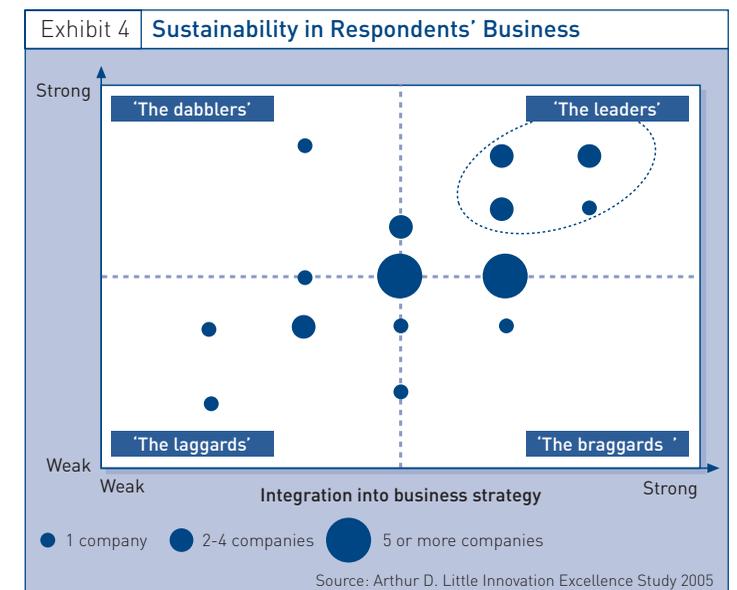
However, interestingly companies see the legislative driver as decreasing in importance in the future - only 63 percent of companies see legislation as being very important or critical in five years' time, perhaps as companies achieve better compliance with regulations. By contrast, new environmental issues are expected to continue to drive the agenda. For example, companies rate 'responding to resource constraints' as relatively unimportant today, but this is expected to become much more important in the next five years. 'Reducing social inequity' is generally not seen as a significant driver for innovation by companies, and this is not expected to change greatly over the next five years.

### A Small Minority of Companies have Successfully Integrated Sustainability into both their Business Strategy and Product/Process Design

Our survey explored how companies are integrating sustainability into their businesses along two dimensions:

- Business strategy;
- Product and process design.

On the first dimension, a few leaders in Sustainability-Driven Innovation have already fully integrated sustainability into strategic planning and decision-making (e.g. future investment and product development). However, most companies are still some way off, with fewer than 35 percent believing that they have achieved this (see Exhibit 4).

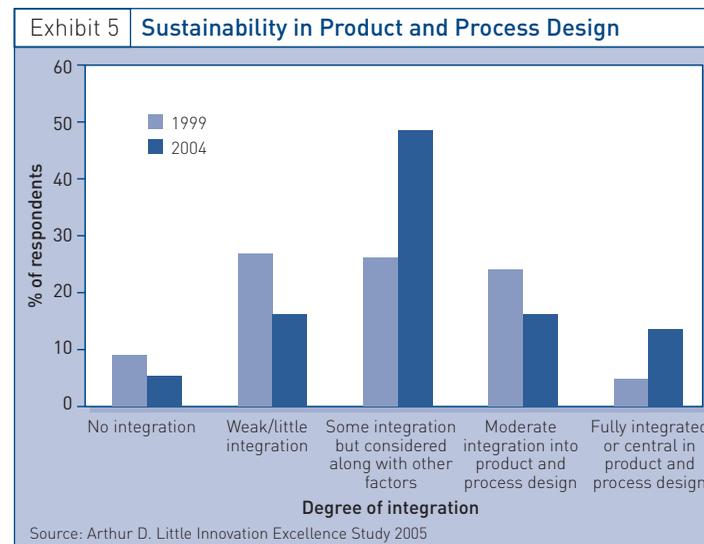


Fewer than 5 percent of companies have successfully achieved integration on both fronts. In some cases, companies have pushed hard to integrate in one area but not the other. Those that have pushed social and environmental issues up the priority list in their product and process design but have yet to strengthen integration in their business strategy might be considered to be 'dabbling'

*We found that the proportion of companies considering sustainability 'along with other factors' in product and process design has almost doubled<sup>2</sup> since 1999 to over 45 percent.*

with sustainability. Conversely, strong integration into business strategy without sustainability manifesting itself in product and process design might suggest 'bragging' with little action. Most companies are achieving a balance between the two, but only a minority have pushed themselves up into a leadership position, with strong integration in business strategy and product and process design.

On the second dimension, we found that the proportion of companies considering sustainability 'along with other factors' in product and process design has almost doubled<sup>2</sup> since 1999 to over 45 percent (Exhibit 5). In 1999, 36 percent of companies in the survey made little or no consideration of sustainable development in product and process design. A few leading companies have moved from incremental reductions in the footprint of their own operations to radical, full life-cycle reductions. However, the proportion of companies moving from moderate to full integration has increased by only 9 percent



<sup>2</sup>We have assumed that <20 percent integration refers to no integration and 20-40 percent refers to weak integration. 40-60 percent integration has been taken to mean that sustainability is considered along with other factors.

**A few Leading Companies are already Exploring Exciting Breakthrough Opportunities in Sustainability-Driven Innovation**

The survey revealed a number of promising Sustainability-Driven Innovation products and services which are coming onto the market. For example, BT Exact has been investigating opportunities to support the elderly by providing monitoring devices in the home to help them remain at home for longer while providing access to emergency response if needed. (Case Study 1). Similarly, France Telecom has been developing devices for distance working in response to growing pressure on transport infrastructure and air quality and an increase in the proportion of employees desiring distance working and demanding better telecommuting technologies (Case Study 2).

**Case Study 1: BT Exact**

Development of an innovative approach to help the elderly live longer at home.

**Social and environmental drivers:** Old or 'frail' people want to remain living in their own homes for as long as possible. By 2026, 30 percent of the UK population will be more than 60 years old.

**Concept:** Sensors placed around the home monitor movement and the use of power and water. The system learns about a person's lifestyle. If something goes wrong, it raises an alarm.

**Business value:** Generation of significant revenues for BT in a growing market (c. >£100m). Relief on NHS services & demand for beds. Could save UK local authorities around £700m a year if fully deployed.<sup>3</sup>

<sup>3</sup>BT (2004).

### Case Study 2: France Telecom

Telepresence wall to improve telecommuting.

**Social and environmental drivers:** There is an increasing demand for telecommuting. Road traffic in 2003 is 19 percent higher than in 1990 and continues to grow. Congestion and pressure on public transport infrastructure is increasing the cost of transport. Furthermore, road and air travel are major contributors to air pollution.

**Concept:** The telepresence wall eliminates the feeling of 'distance' by letting people hundreds of miles from one another communicate as if they were face-to-face, including eye contact and life-like 3D synthetic images of the other person. It provides an open space for discussions filling the role of meetings, special events and informal conversation. The wall is permanently on, removing perceived barriers associated with 'making connection' that are more common with traditional video conferencing.

**Business value:** Reduced travel costs have a direct impact on the bottom line. Increased and improved contact between employees has additional business benefits. Distance and remote working offer significant benefits in reducing congestion and air pollution and help France meet its Kyoto obligations.<sup>4</sup>

Leading-edge companies are moving from incremental reductions in the footprint of their own operations to making bold and radical reductions in the full life-cycle footprint of their activities. This is becoming more widespread and more sophisticated as technology becomes more advanced. One example cited in the survey was Sony's plan to reduce the full life-cycle environmental impact of its products (as a percentage of sales) by half between 2001 and 2011 (See Case Study 3). The programme has helped to improve product performance. By reducing the power consumption of portable products, battery performance has been improved. The miniaturisa-

<sup>4</sup> France Telecom (2004).

tion of products has made products lighter, meaning fewer resources are needed to deliver the same level of performance.

### Case Study 3: Sony

Sony has developed a comprehensive system to integrate environmental responsibility into its business strategy and product design. A Group Environmental Vision sets out the company's long-term aspirations and Green Management 2005 defines the mid-term targets required of each business division.

Divisions must establish and implement annual business plans which incorporate environmental considerations. Explicit targets have been established to reduce product weight and the number of parts used and to increase the proportion of recycled materials within the products. Progress in the implementation of the business plans and environmental activities is regularly reviewed and once a year the divisions are assessed as part of their overall performance evaluations.

To ensure that targets are effectively translated into product design, Sony's group headquarters provides guidelines for business divisions and reviews their progress. In addition, each region has an environmental office responsible for disseminating directives to the divisions and encouraging interregional activities. Enhanced environmental education and awards encourage individuals to conduct effective environmental activities.

Reducing the environmental impact of products requires thorough life-cycle assessment from manufacture of parts and products to transport, use by customers (through methods such as reduced power consumption) and final disposal. Sony has developed a system to clarify the environmental impact of products throughout their life-cycles. This draws on data relating to product information, parts configurations, product transport conditions and other factors. Product design divisions are required to estimate CO2 emissions and energy and resource consumption at each stage of the life-cycle as well as the total figure. This enables Sony to identify products and stages with high environmental impact, clarify improvement priorities and prepare targets. A product environmental data collection system gathers this data and allows Sony to monitor the environmental impact of all its products.

Finally, in order to give customers information about the environmental performance of its products, Sony uses the 'eco info' mark on catalogues and websites to indicate a specific environmental feature of the product. Sony believes that it is critical that customers are able to factor environmental considerations into purchasing decisions<sup>5</sup>.

<sup>5</sup> Arthur D. Little Sustainability-Driven Innovation survey (2005).

Companies are also having greater success in integrating sustainability into process design and operation. This type of innovation is fairly mature, with a significant amount of work and effort to improve the eco-efficiency of processes having taken place in the early and mid-1990s. One example is using technologies to re-use waste materials. For example, ReCellular has developed a precision, computerised process that allows used plastic housings to be painted to a like-new condition, reducing the need for replacement plastics<sup>6</sup>.

There is also a growing number of examples of Sustainability-Driven Innovation in the financial services sector. In Latin America, Bangente was created in 1999 as a private-capital initiative intended to offer a local response to the financing needs of a growing yet unattended segment: low-income entrepreneurs. This is the first and only not-for-profit commercial bank dedicated exclusively to micro-financing in Venezuela (Case Study 4).

#### Case Study 4 : Bangente

Financial credit for micro-entrepreneurs

**Social and environmental drivers:** In a downturn economy, over 50 percent of Venezuela's population lives below the poverty line. As inflation rates have risen, the percentage of the population using banks in Venezuela has declined rapidly from the 1993 index of 62 percent. However, high levels of unemployment and barriers to entering the formal business world have encouraged entrepreneurial micro-initiatives. Today, micro-businesses represent 10 to 12 percent of the country's GDP, but only 31.8 percent of the population use banks. The rest need to use informal moneylenders and usurers for funds. This scenario is very similar throughout the region. According to the United Nations, there are about 10 million micro-businesses across Latin America. These employ over 50 percent of the region's active population, yet only 15 percent of them use banks. Only 4.5 percent have access to financial products in economies such as Brazil, Mexico, Argentina and Venezuela. The remainder are exposed to the high interest rates of informal service providers.

**Concept:** Micro-credits are small loans granted to people who work on their own or in family-type businesses with very few employees. Credits are designed to be payable in the short and medium terms, through sales. Interest rates are low compared to those of informal moneylenders and usurers, but high with respect to banks. Credit decisions are based on information

*In all places new inventions are popping up as a result of Sustainability.*

Finally, there are increasing examples of companies seeking to open new markets through the development of new business models or the application of existing and emerging technologies to new and innovative uses. For example, the Vodafone Group, in association with Safaricom in Kenya, is exploring ways in which mobile communication technology can help banks and micro-finance institutions deepen the provision of financial services in remote areas. This project is part funded by DFID<sup>7</sup>.

Similarly, Procter & Gamble has developed the PUR Purifier of Water for in-home purification of drinking water. This product was recently launched to increase access to safe drinking water by low-income people. Point-of-use water treatment approaches like PUR have shown a 30-50 percent reduction in intestinal infections, with even higher reductions during water-borne epidemics<sup>8</sup>.

gathered on-site rather than on formal business or property information. Often groups of beneficiaries provide joint-warranties for a credit. Required paperwork is low, but sound professional advice is always part of the service. This is provided by employees recruited within the local communities and then trained in micro-enterprise.

To date Bangente has granted over 64,000 credits to almost 38,000 clients. Only 9 percent of these clients have completed higher education. Another 26 percent have completed high school. A further 20 percent have completed elementary school. 5 percent are not literate. Still, Bangente enjoys a recuperation rate of 99 percent and a delay rate of 1.36 percent - a ratio that any regular commercial bank would envy. Bangente also exhibits an AA+ risk qualification. Surveys show that most revenues from these micro-businesses are either reinvested in the business or in the family. This creates positive social impacts in areas such as children's education, home acquisition, building improvement and medical insurance.

For-profit banking institutions in Venezuela are now considering the increasingly large low-income consumer segment seriously as a target for their financial products. They have come to realise that their own sustainability may depend on it. Similar examples within the financial industries sector can be found in the Prodem initiative in Bolivia and the Bandeem initiative in Bangladesh, among others.

Sources: Bangente, El Universal 02-Oct-2004, Arthur D. Little analysis

<sup>6</sup> Arthur D. Little Sustainability-Driven Innovation survey (2005).

<sup>7</sup> Vodafone (2004) pers. com.

<sup>8</sup> Biotech Business Week (2004) NewsRx.com & NewsRx.net.

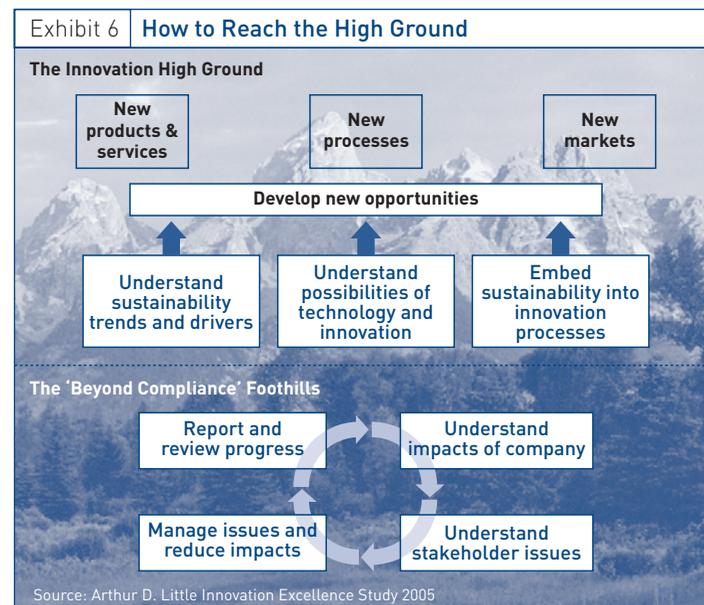
*Sustainability-Driven Innovation is still at an embryonic stage of development. While there has been a shift in emphasis away from just risk management towards meeting customer preference, to date many companies are still largely operating in what we might term the 'Beyond Compliance' regime of five to ten years ago.*

**The Innovation High Ground**

The chief financial officer of a large global financial services firm recently offered this advice: “There will be some very significant business risks and some spectacular opportunities for profitable growth, both driven by global environmental and social issues.”

The results of the survey show clearly that Sustainability-Driven Innovation is still at an embryonic stage of development. While there has been a shift in emphasis away from just risk management towards meeting customer preference, to date many companies are still largely operating in what we might term the ‘Beyond Compliance’ regime of five to ten years ago - focusing mainly on compliance, and going further than this if there are vociferous stakeholders, reputational risks and/or heavy social or environmental footprints to deal with.

But the survey has also shown that a small but growing apex of leading companies have sought to move above this, breaking through to the ‘Innovation High Ground’ where Sustainability-Driven Innovation really starts to make sense - creating new products and services, processes and markets which will respond to the needs of future as well as current customers.



**Insights for the Executive**

Our survey has confirmed that creating business success using Sustainability-Driven Innovation requires companies to do things differently - and that includes leadership, business processes, culture, customer focus and use of partnerships.

**Demonstrate your commitment to innovation and sustainability as mutually reinforcing issues**

CEO commitment and engagement is, of course, essential. Companies that have already made progress tend to be those where the leader has a clear vision, a well articulated set of values and a demonstrated commitment to both innovation and sustainability as being crucial for long-term business success - not mutually balancing but, on the contrary, mutually reinforcing.

**Integrate sustainability further step-by-step into both your strategy and innovation processes**

Sustainability-Driven Innovation requires the explicit consideration of social, environmental and sustainability issues in the business strategy process as well as the innovation process (including product and process design). Leading companies tend to be those that have achieved some progress in both these dimensions, rather than focusing on just one. What we have also seen is that success is usually achieved by being selective: rather than attempt to push Sustainability-Driven Innovation too hard, too far, too soon, it is better to focus on one or two nuggets of opportunity that look promising and demonstrate some tangible benefits. Often, careful engagement of external stakeholders is a great way to identify these opportunities.

**Ensure your culture supports both innovation and sustainability**

Of course, culture is crucial for success in both innovation and sustainability. Leading companies have implemented a number of measures, such as:

- Recruiting individuals with an active interest in sustainability issues;
- Rewarding initiatives that use sustainability to drive innovation;
- Challenging your next-generation leaders to explore the long-term opportunities opened up by changes in societal attitudes and the changing pressures facing your business customers;
- Encouraging a systems perspective and a questioning culture to understand the linkages between sustainability issues and your company.

#### **Focus more on long-term trends in customer and potential customer needs**

Leading companies have strong processes to identify current and potential customers' key social and environmental issues and needs over the next five to ten years, assess full value-chain risks and spot new business opportunities. Examples of good practice include:

- Involving customers in scenario planning and translating customers' full life-cycle risks into new business opportunities;
- Developing initiatives that enable you to better understand the social and environmental challenges facing your customers;
- Exploring the role that technology, new business models, new partnerships and new ways of working might play in meeting them.

#### **Build novel and exciting partnerships**

Leaders have reached out and developed innovative new partnerships with different and often unexpected stakeholder groups. Working with NGOs, government agencies, community-based organisations and universities they find a rich source of new ideas and opportunities. They also find that this requires a high level of trust, especially

where the organisations do not normally work with corporations. Some successful actions include:

- Engaging deeply with a respected NGO whose agenda corresponds with the greatest environmental and social impacts of your business or those of your customers. They will help you to improve your understanding of key drivers and may act as a catalyst for innovation;
- Working with new partners in emerging markets to assess scenarios involving different business models. Partnerships with NGOs, local enterprises and government agencies will be critical to finding new opportunities in high-volume, low-margin environments.

Reaching the Innovation High Ground requires new ways of thinking and creativity, placing sustainability at the heart of strategic decision-making and innovation processes. We have seen that the field is still emerging and developing and the potential benefits are not yet widely recognised. However, a few leaders are already making the running and it makes sense for companies to make sure they are not left behind.

#### **Acknowledgements**

The authors would like to thank all those companies who participated in this survey. Some companies preferred to remain anonymous. However, a number were happy to be acknowledged. These include the following:

Sony, Industrie De Nora, MM02, Vodafone, Dow, DuPont, Diboride, Renishaw Limited, Burnside Telecom, ReCellular, Motorola, Procter & Gamble, Edison, ST Microelectronics, Merloni Elettrodomestici, Endesa Italia SpA, Energia, ERG, HP, Kodak, Intel

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