

Arthur D Little



Arthur D. Little Innovation High Ground Report

**How Leading Companies are Using Sustainability-Driven
Innovation to Win Tomorrow's Customers**

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Introduction

In 1999, Arthur D. Little partnered 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 are experiencing¹. 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 what had changed. During 2004, Arthur D. Little, in collaboration with Hedstrom Associates, conducted a survey of 40 technology companies across Europe, the U.S., and Japan. This time we wanted to focus even more on *the business opportunities* presented by integration of sustainability into the innovation process – we call this 'Sustainability-Driven Innovation', which we define as being the creation of new market space, products & 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 else 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 to avoid creeping obsolescence
- 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 & 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 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, healthcare 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% 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% of companies see potential benefits to their top line and 43% see further benefits to the bottom line

¹ Brown, D., Green, J., Hall, F., Rocchi, S., Rutter, . Dearing, A. (2000) 'Building a Better Future: Innovation, Technology and Sustainable Development,' WBCSD.

- However, 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 five years ago, the leaders are now focussing 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

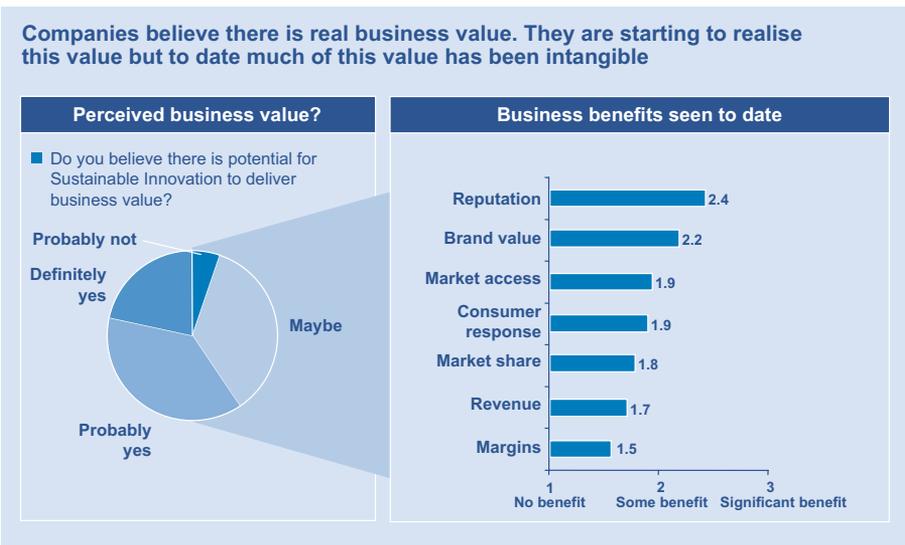
This report sets out the findings of the survey and presents some insights into the key actions required to derive business value from the *Innovation High Ground* – where the real benefits of Sustainability-Driven Innovation are to be found.

Part 1

Sustainability-Driven Innovation is starting to offer real business value, but the benefits are still intangible for many and there are still significant barriers to be overcome

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

Figure 1: Perceived business value of Sustainability-Driven Innovation



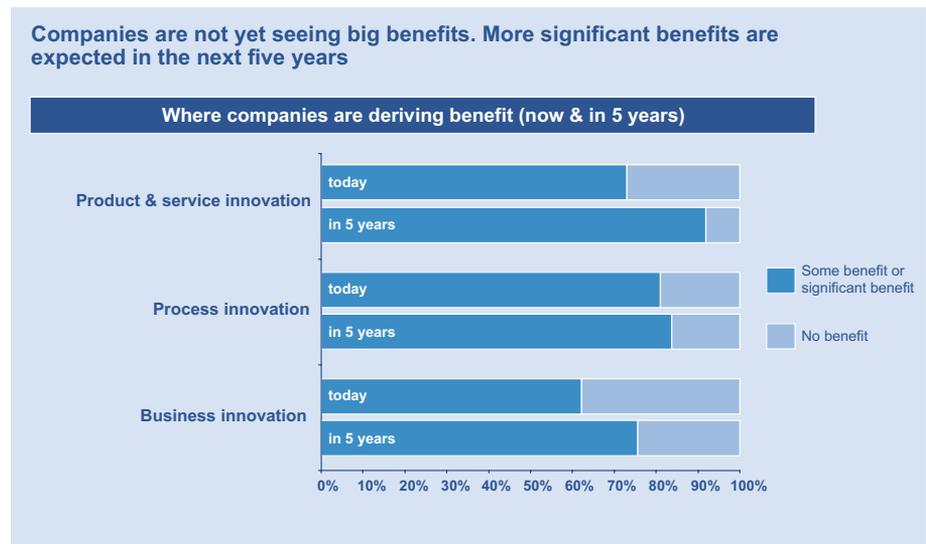
Source: Arthur D. Little

But whilst 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% and 80% respectively of those companies that believe they are already embedding sustainability within their business. However, in contrast to results in 1999, as many as 60% of these companies have also seen improvements to their top line, and 43% 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 and margin.

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

Figure 2: Where companies are deriving business value through Sustainability-Driven Innovation



Source: Arthur D. Little

When asked where they see the benefits in five years time, 90% of companies 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, 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
- 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.

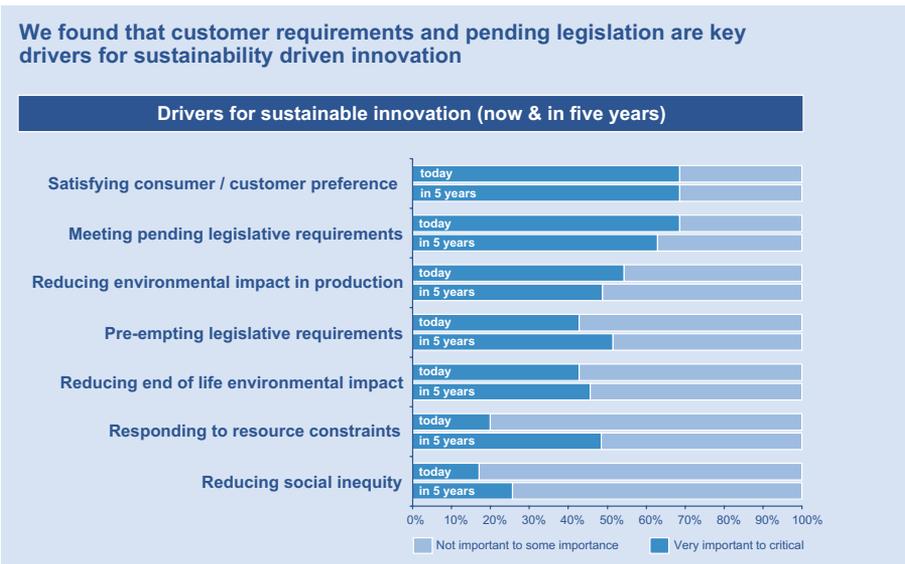
Part 2

In stark contrast to five years ago, the leaders are now focussing 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% of companies said 'yes'. The survey also asked which drivers will increase in importance in the next five years: 70% of companies considered that pressure from customers would grow in significance over this period.

Five years on, our research confirms this (Figure 3). It finds that 70% 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.

Figure 3: Key drivers for Sustainability-Driven Innovation



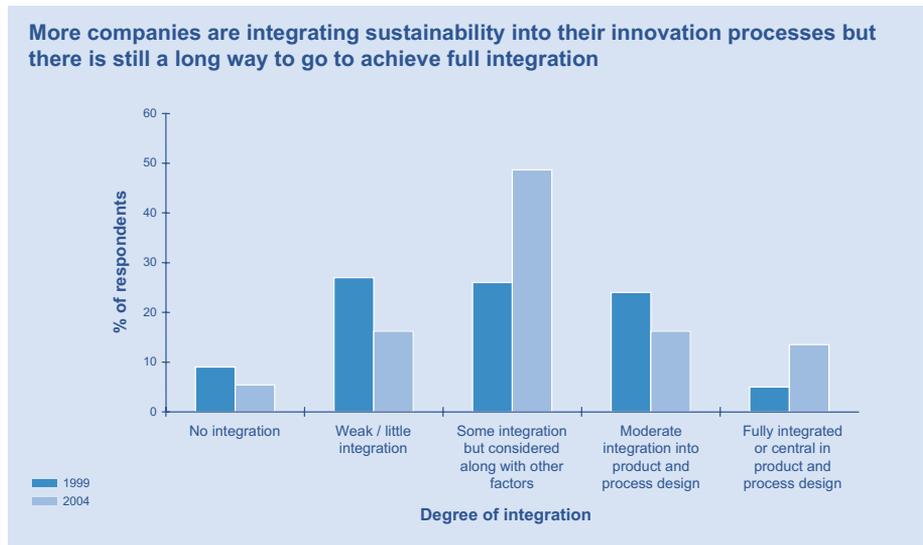
Source: Arthur D. Little

In 1999, 45% of companies viewed regulatory requirements as a key driver and almost 60% of companies said this driver would grow in importance. Five years later, companies have placed still greater emphasis on legislation as a driver, with 70% believing 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 to welfare at work to product safety standards.

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

On the second dimension, we found that the proportion of companies considering sustainability 'along with other factors' in product and process design has almost doubled² since 1999 to over 45% (Figure 5). In 1999, 36% 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%.

Figure 5: Degree of integration into product and process design



Source: Arthur D. Little & WBCSD

² We have assumed that <20% integration refers to no integration and 20–40% refers to weak integration. 40–60% integration has been taken to mean that sustainability is considered along with other factors.

Part 4

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 whilst 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, 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% of UK population will be greater 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 £700 million a year if fully deployed.)³

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% 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 addressing

³ BT (2004)

the needs of meetings/discussions and special events as well as 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 direct impact on 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.⁴

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 plans to reduce the full life-cycle environmental impacts of its products (as a percent of sales) by half between 2001 and 2011 (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 miniaturisation of products has made products lighter, meaning fewer resources are needed to deliver the same level of performance.

Case Study 3: Sony

Reducing product environmental impact. 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 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 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 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 inter-regional 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)

⁴ France Telecom (2004)

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 data. Product design divisions are required to estimate CO₂ emissions, energy consumption 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 impacts of all of 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 decisions⁵.

Companies are also having greater successes 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 in the early- and mid-1990s. One example is using technologies to re-use waste materials. For example, ReCellular have developed a precision, computerized process which allows used plastic housings to be painted to a like-new condition reducing the need for replacement plastics⁶.

There are 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% 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%. 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% of the country's GDP, but only 31.8% of the population use banks. The rest – 67.9% – needs to use informal moneylenders and usurers for funds. This scenario is very similar throughout the whole region: According to the United Nations, there are about 10 million micro businesses across Latin America. These employ over 50% of the region's active population; yet, only 15% of them use banks. Only 4.5% have access

⁵ Arthur D. Little Sustainability-Driven Innovation survey (2005)

⁶ Arthur D. Little Sustainability-Driven Innovation survey (2005)

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, but high with respect to banks. Credit decisions are based on information gathered on-site, rather than on formal business or property information. Often groups of beneficiaries provide joint-warranties. 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 on microenterprise.

Business value: To date Bangente has granted over 64 thousand credits to almost 38 thousand clients. Only 9% of these clients have completed higher education. Another 26% have completed high school. And a further 20% have completed elementary school. Five percent are not literate. Still, Bangente enjoys a recuperation rate of 99%, and a delay rate of 1.36% – 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 reinvested either 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 realize 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

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 the UK Department for International Development⁷.

Similarly, Procter & Gamble has developed the Purifier of Water (PUR) for in-home purification of drinking water. This 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% reduction in intestinal infections, with even higher reductions during water-borne epidemics⁸.

⁷ Vodafone (2004) pers. com.

⁸ Biotech Business Week (2004) NewsRx.com & NewsRx.net

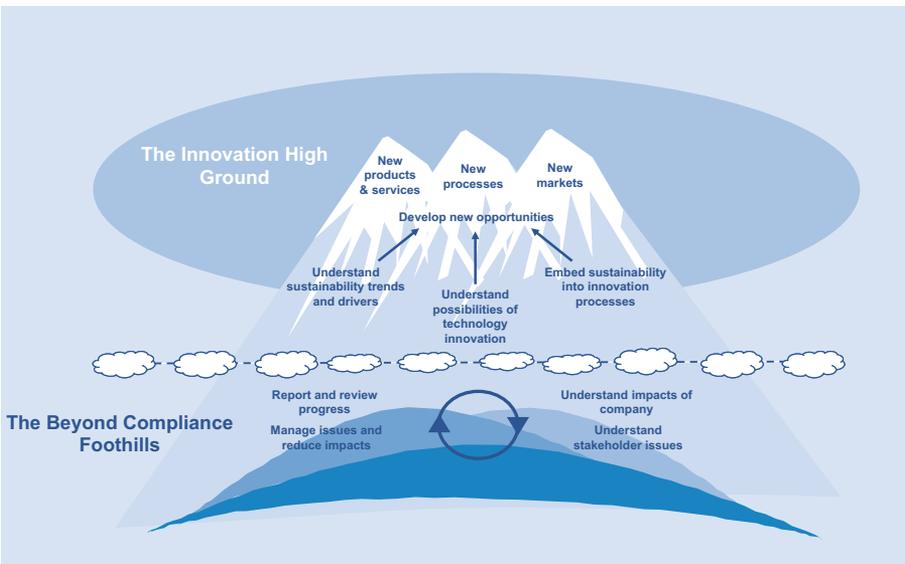
The Innovation High Ground

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. Whilst 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 – focussing mainly on compliance, and going further than this if there are vociferous stakeholders, reputational risks and/or a heavy social or environmental footprint 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 & services, processes and markets which will respond to the needs of future as well as current customers.

Figure 6: The Innovation High Ground



Source: Arthur D. Little

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

Chief Executive Officer commitment and engagement are 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, for example:

- 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 is requiring 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 the rest to make sure they are not left behind.

Arthur D. Little's Sustainability Services

Arthur D. Little offers leading edge sustainability services to companies across the world. We combine our in-depth sector knowledge and expert advice in business strategy and performance, technology and innovation with a strong track record in advising companies on environmental and social responsibility. This combination enables us to offer a unique service which is highly aligned with the business needs of our clients and their strategic objectives. Our services are delivered by an international team of consultants with a breadth of expertise and experience across all major sectors.

We have played a critical role in contributing to institutional thinking on the role of business in sustainable development. We are actively involved with several international bodies in the field of corporate sustainability and have written widely on how social and environmental issues are being used by leading companies as drivers for business advantage.

Our service offerings are tailored to the needs of our clients. Recent assignments include:

- Developing a sustainability strategy for a global food and drinks company
- Supporting a multi-stakeholder working group to develop sustainability reporting guidelines for the international finance sector
- Implementing a sustainability driven innovation strategy for a leading technology company
- Conducting a baseline assessment of socio-economic needs in an emerging market to assist a global technology company strengthen their e-inclusion programme

Hedstrom Associates

Hedstrom Associates provides consulting services at the intersection of governance, strategy and environment. We work with organizations that want to be profitable, to be admired and to thrive as innovative, successful enterprises.

Schooled in finance at GE, Gib Hedstrom worked at Arthur D. Little for over 20 years, helping 'blue chip' clients solve the toughest Chief Executive Officer and board-level environmental challenges of the day. He had the privilege of leading Arthur D. Little's global sustainable development team from 1996 to 2001, following many years leading Arthur D. Little's Environmental, Health and Safety management, strategy, and governance practices.

Since founding Hedstrom Associates, he has teamed with Arthur D. Little on several client assignments and other initiatives, including this survey. He brings 25 years of leadership in environmental auditing and governance, advising global leaders on sustainable development, and providing trusted counsel in dozens of corporate boardrooms.

SAFE: Energy Resources and Environmental Sustainability

The Italian component of this study was conducted with the support of SAFE Energy Resources and Environmental Sustainability, an Italian non-profit association acting in the energy and environmental sector.

SAFE is supported by the most qualified professionals, organises post-graduate activities and promotes scientific research and application of new technologies.

As part of the 5th edition of the post-graduate programme 'Energy Resources Management' a team composed of Riccardo Ballesio, Pierluigi D'Asaro, Laura De Giacomo, Massimo Parissi, Cinzia Turchetti has contributed to this study.

www.safeonline.it

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

DuPont Company, Intel



TM Trademark of the Dow Chemical Company

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