RANKED AS 'ONE OF THE BEST TEN PUBLICATIONS ON SUSTAINABLE DEVELOPMENT'
(GlobeScan Survey of Sustainability Experts)

LEADING CHANGE TOWARD Sustainability

A Change-Management Guide for Business, Government and Civil Society

Bob Doppelt

with a Foreword by William McDonough

updated 2nd edition

Leading Change toward Sustainability

Updated Second Edition

Bob Doppelt is Executive Director of The Climate Leadership Initiative, a sustainability and global climate change research and technical assistance programme in the Institute for a Sustainable Environment, University of Oregon, Eugene, OR. In addition, he is an Adjunct Professor in the Department of Planning, Public Policy and Management at the University of Oregon (**bdoppelt@uoregon.edu**). His training and expertise is in systems dynamics and organisational change.

LEADING CHANGE TOWARD
Sustainability

A Change-Management Guide for Business, Government and Civil Society

Bob Doppelt
with a Foreword by William McDonough

updated 2nd edition

Greenleaf PUBLISHING

This book is dedicated to my father who taught me how to pay attention to the truly important things in life . . .

and to future generations of humans as well as the wild creatures of the Earth that have no say in what we do today but will bear the burden of our blunders.

Published by Greenleaf Publishing Limited
Aizlewood's Mill
Nursery Street
Sheffield S3 8GG
UK

Printed in Great Britain on acid-free paper by Antony Rowe Ltd, Chippenham, Wiltshire

British Library Cataloguing in Publication Data:
A catalogue record for this book is available from the British Library.
Hardback: ISBN 9781906093365
Paperback: ISBN 9781906093341
ePub: ISBN 9780955450549

Contents

Foreword

William McDonough

Few forward-thinking business leaders today would deny that the great advances of the industrial revolution brought with them a host of unintended consequences. While most of us owe our high standard of living to the technological innovations developed in the course of the last century—affordable energy; rapid transportation; fast, low-cost automated production; advanced information systems—we have inherited, along with our good fortune, a bevy of environmental and social problems.

A cursory list might include: pollution of air, water and soil from billions of tons of toxic waste; declining biological and cultural diversity from the harvesting of natural resources; regulations that merely limit the poisoning of people and the environment; production and use of materials so dangerous they will require constant, costly vigilance from future generations; prosperity measured by activity not legacy.

These are vexing problems. Some might see them as numbingly so. Yet, thankfully, there are many in the world of business who see today's challenges as opportunities, and, rather than moving blindly ahead, the world be damned, they are striving to make industry more sustainable.

And here's where things get even more challenging. What, exactly, is sustainability? Once you've defined what sustainable business is, how do you effectively pursue this new strategy? How do you transform your organisation from top to bottom so that your vision of sustainability drives everyday decision-making and defines short- and long-term success? In short, how do organisations change and thrive? And what if we could move beyond sustainability, which suggests the maintenance of a damaging system, to a truly beneficial and *sustaining* model for industry that gives our children a delightful prospect, rather than simply a less terrifying one?

These questions are at the heart of Bob Doppelt's *Leading Change toward Sustainability*. They are crucial questions. While some businesses are successfully steering through the difficult transition from conventional to sustainable commerce, many others are not. The course is beset with obstacles, from failures to change ingrained ways of doing business to misunderstanding the problems at hand. But,

as *Leading Change toward Sustainabilit*y clearly illustrates, real change is not only possible, it can be strategically nurtured and implemented by following a path blazed by the 'early adopters' of the sustainable business vision.

Vision and leadership are key. As Doppelt's numerous case studies reveal, 'exemplary organisations are exceptionally clear about their purpose'. Effective leaders set the tone, defining their organisations with the clarity of their vision, conviction and commitment. And their principled activity. That's why, when Michael Braungart and I wrote *The Hannover Principles: Design for Sustainability* in 1992,[1] we focused on creating a framework for effective, principled decision-making. Indeed, an entire company's culture can be transformed when its decision-making framework becomes infused with a strong, lucid sense of purpose. As Doppelt says: 'Vision provides the goal; principles frame the path.'

Clear vision, however, is not so easily achieved. Since the early 1990s many businesses trying to operate more sustainably have defined themselves with strategies aimed at reducing the impacts of industry by minimising waste, pollution and natural resource depletion. While we applaud these efforts, which can ease ecological stress in the short term, minimising environmental degradation is not a strategy for real change, nor does it offer an inspiring vision of success.

Real change comes when industrial processes are designed to be more economically, socially and ecologically beneficial rather than merely less polluting. Long-term prosperity depends not on making a fundamentally destructive system more efficient but on transforming the system so that all of its products and processes are safe, healthful and regenerative.

This sustaining vision of industry is both practical and inspiring. Over the past decade, my colleague Michael Braungart and I have had the opportunity to build its framework and put it into practice with some of the world's most successful corporations, several of which are featured in *Leading Change toward Sustainability*. Through McDonough Braungart Design Chemistry and William McDonough + Partners, we've helped companies worldwide apply specific, ecologically intelligent principles to the design of products, systems, factories, offices and community plans. Modelled on natural systems, these fundamental design principles yield products that are composed of materials that biodegrade and become food for *biological cycles*, or of synthetic materials that stay in closed-loop *technical cycles*, where they continually circulate as valuable nutrients for industry. They yield buildings designed to accrue solar energy, sequester carbon, filter water, create habitat, and provide safe, healthy, delightful places to work. Designs such as these aren't damage-management strategies. They don't seek to retrofit a destructive system. Instead, they aim to eliminate the very concept of waste while providing goods and services that restore and support nature and human society. They are built on the conviction that design can celebrate positive aspirations and create a wholly positive human footprint.

Leading Change toward Sustainability is built on such convictions. Bob Doppelt understands that a clear, positive direction coupled with effective principles is the key to realising sustaining organisations. He understands the relationship between inspired purpose and success.

1 www.mcdonough.com/principles.pdf, accessed 17 November 2009.

Statements such as 'we will be in full compliance with the law' and 'we will minimise our environmental and social impacts' are not visions. They tell people what not to do—what to avoid. These are backward-looking images. They focus on eliminating something. Negative purposes fail to elicit the creative energies or passions of employees. This approach depresses human motivation and underscores the truth of the old biblical proverb that says, 'where there is no vision, the people perish'. Effective visions, in contrast, provide an absorbing, positive image of the future.

Leading Change toward Sustainability is devoted to allowing the people to thrive. While reflecting on the relationship between vision, leadership and change, it also offers a vision of its own, setting down useful guidelines from a careful analysis of the successes and failures of leading corporations striving for sustainability. Like the visions he praises, Doppelt provides a positive image of the future that can empower leaders to inspire creativity and commitment throughout their organisations. After reading *Leading Change toward Sustainability*, those seeking change can't help but have a more clear understanding of what it means to say: 'Our goal is to become a truly *sustaining* organisation.' With the help of this useful book, they just might reach that laudable destination.

William McDonough
Charlottesville, Virginia
July 2003

Foreword

Paul de Jongh

Policy advisor for sustainable development to the Dutch government;
former Deputy Director-General for the Environment, The Netherlands

Johannesburg, September 2002: thousands of diplomats, lobbyists, scientists and hundreds of politicians work on text that will be the common ground for action toward sustainability, worldwide. The problems on the agenda are almost too huge and too complicated to oversee; the challenges for the world community are without precedent.

A village somewhere around the globe: a few people come together because they are worried about the future of their children. Will they inherit businesses that can provide them an income over the longer run? Will they inherit a natural surrounding that allows them to enjoy life as we think life should be enjoyed? Will they have enough water of good quality?

Whatever the terms are for the discussion about sustainable development, in many cases it is not positive. It is relatively easy to paint a future for many parts of the world and for many children that doesn't look bright at all, even with all the efforts in research, education, environmental protection, healthcare, development co-operation, water and housing programmes, investments in infrastructure and so on.

Let us be frank: we are not on the track toward sustainable development. And it is not an easy task to find this track: not in the developed world, nor in the developing world. Our path may be just trial and error, in any case.

If you know that the road ahead is one of trial and error, it is even more important to learn about the experiences of others who are striving for the same type of future. Bob Doppelt has taken up this challenge to learn about experiences in sustainable development; and now he makes us part of his learning process. The result is fascinating and inspiring.

Fascinating, because he provides us with a way out via a thorough analysis of our blunders and through a detailed description of all aspects of change that are necessary for making the journey into sustainability. *Inspiring*, because he describes his

findings for all organisations, regardless whether they are private or public. This prevents us from resorting to the escape clause of 'sustainability is for others'.

This book is first of all a practical guide for those who realise that change is necessary. And there is a clear message: if you want to work on sustainable development, put this goal at the core of your business. You cannot work on sustainable development just as an additional effort apart from your core concerns. You might comply with environmental regulations; you might do good for some aspect of social welfare; you might have a charity programme; but, unless sustainable development is at the core of your business or programme, you won't effect a real change toward sustainable development.

This is not ideology. It is the practical experience of many private and public organisations, so well described here by the author.

The bad news of this book is: it is not easy. The lessons learned are not framed in prescriptions that can be followed and implemented without much thought. In each organisation the lessons of this book should be reframed according to the specifics of that organisation. But the questions the book poses will help you find the specific path for your journey.

The good news is: you don't have to wait for others; you can start today in your own organisation. The organisations that went through the process of change toward sustainable development have become richer organisations: with better market positions in many cases, with better social coherence, with better fulfilment via the products and services they provide, and with a better relationship with our environment.

I sincerely hope this book finds its way into the hands of managers of all kinds of businesses, small and large, to CEOs of the leading multinational enterprises of the world, to directors of government departments in whatever field of public concern they work, to people working for non-governmental organisations, to groups of farmers, to municipalities, to politicians.

Further, I hope that the readers of the book who take the challenge and will work on the process of change in their organisation will be part of the global community of change agents toward sustainable development and will share their experiences with others in due course, as did the people whose experience formed the basis for this book.

Paul de Jongh
June 2003

Introduction to the Second Edition

Leading change towards decarbonisation

'High carbon growth kills itself.' Those were the words of Sir Nicholas Stern, former chief economist with the World Bank, at the International Scientific Congress on Climate Change (ISCCC) held in Copenhagen in March of 2009.[1] Stern's comment succinctly summarised the findings of the 2,000-plus scientists from 80 countries that participated in the meeting. Burning fossil fuels to power our economies has warmed the Earth's climate and placed the entire planet in peril.

Stern's statement underscores the urgency of the most important task facing humanity today. The emission of greenhouse gases must be quickly reduced across the globe if we are to avoid uncontrollable climate change. At the same time every public and private organisation—and each community, state and nation—must prepare for the consequences of a warming planet that no longer can be avoided.

To significantly slash greenhouse gases and prepare for climate change organisations of all sizes and shapes will need to undergo an enormous shift in their thinking, cultures, practices and policies. Making this shift will require the use of proven sustainability-based organisational change interventions.

That is why *Leading Change toward Sustainability* is being re-released at this time. I hope that this book can help change leaders facilitate the transition in their organisations.

An author never knows how a book they sweated and toiled to write will be received until it is released into the public sphere. Since its launch in late 2003, I've been pleased to learn that the book has been used by change leaders around the world to guide their internal global warming and sustainability organisational change initiatives. In 2004, a GlobeScan survey of international sustainability experts ranked the book 'one of the ten most important books in sustainability'. This feedback suggests it provides useful information and guidance.

1 See climatecongress.ku.dk, accessed 5 November 2009.

But the conclusions of the ISCCC increase the urgency of getting effective systems-based change interventions and tools into the hands of leaders that seek to mobilise organisations or all types to respond to the challenges of global warming.

The ISCCC was organised to provide world leaders attending the United Nations Framework Convention on Climate Change meeting to be held in Copenhagen in December of 2009 (COP 15) with the most up-to-date scientific information on climate change. The hope was that the most current data would allow officials to make informed decisions about whether to adopt a replacement for the Kyoto Protocol, with its aim of reducing greenhouse gas emissions.

The six key messages that participants at COP 15 were to be given by the ISCCC are at once unnerving and optimistic.

The first relates to observed climate trends. The ISCCC concluded that the most damaging scenarios of the Intergovernmental Panel on Climate Change 2007 report—or worse—were coming true. New research shows that unless greenhouse gas emissions are rapidly reduced global temperatures would likely rise by 2° Celsius (3.6° Fahrenheit) by the end of this century.

Although Nicholas Stern and a few other luminaries at the science congress said that if society acts quickly temperature increases above 2° Celsius could be prevented, no scientist I spoke with at the meeting shared that confidence. In fact, many said temperatures might rise by 3–5°C (5.4–9°F).

This view was reaffirmed after the conference ended when the *Guardian* newspaper in London polled scientists that attended the congress about their views of the possibility that temperatures would rise no further than 2°C. Nine out of ten of the respondents said they thought temperatures would exceed that level. Most thought temperatures were likely to rise by 3–5°C (5.4–9°F) this century (Adam 2009).

As the Earth warms, droughts, floods, heatwaves and other extreme weather events will occur more frequently. In addition, scientists from the Potsdam Institute for Climate Impact Research shared research showing that sea levels now seem all but certain to rise by at least 1 m (3 feet) by the century's end. And, once the process takes off in earnest, sea levels will continue to rise for centuries. Most disconcerting, the Congress concluded that we face 'an increasing risk of abrupt or irreversible climate shifts'.

Just a few months after the ISCCC issued this finding, researchers at the Massachusetts Institute of Technology released what could be considered the most comprehensive modelling completed yet on how much warmer the Earth's climate will get under a business-as-usual emission path. It reaffirmed—and went further—than the conclusions of the science congress. The projections, published in the American Meteorological Society's *Journal of Climate*, indicate a mean probability of surface warming of 5.2°C (9.3°F) by 2100, with a 90% probability range of 3.5–7.4°C (6.3–13.3°F) (Sokolov *et al.* 2009).

This is scary stuff. Although no one knows where the exact tipping points may be, scientists believe that irreversible climate change becomes increasingly likely if temperatures rise more than 2°C (3.6°F) above historic levels; and there is even about a 30% chance it will occur below that mark.

Even more disconcerting for humanity is the ISCCC's second key conclusion: rising temperatures are already causing and will increasingly produce larger social,

cultural, political and economic disruptions. Millions of people will be forced to flee coastal areas flooded by rising sea levels. Millions more will migrate from drought- and flood-stricken regions of the world. Wildfires and other dislocations will batter yet further numbers of people as the century unfolds.

Closely linked with the ISCCC's second conclusion was the finding that climate change will increasingly have disproportional impacts on the poor and most vulnerable among and within societies. It was these three findings that led Nicholas Stern, who led the British government's review of the global economic consequences of climate change (Stern 2007), to say that high carbon growth kills itself. We now know that burning fossil fuels to power our economies is self-destructive.

To avoid the worst of these impacts, the ISCCC concluded that 'rapid, sustained and effective' reductions in carbon emissions must be achieved. The world must also prepare to withstand and adjust to the impacts of rising temperatures that can no longer be prevented. The science congress concluded that greenhouse gas emissions must be slashed by 80% or more by mid-century. This means we have 40 years at most to do the job. Until recently, the United States and European nations have been the largest emitters of greenhouse gases and thus are the primary contributors to today's climate change. They bear a special responsibility to move quickly toward decarbonisation.

Importantly, because the risks of triggering tipping points in the Earth's climate increase each year, the ISCCC said that emission cuts made in the immediate future—the next 2–5 years—are more important than those made closer to mid-century. Unless we cut emissions now we will lose the opportunity to prevent runaway climate change.

The fifth finding of the ISCCC, in an ironic way, provided an optimistic note. It was aimed directly at citizens, businesses and policy-makers across the world—especially those in industrialised nations—not just the world leaders that would attend the UN COP 15 climate summit: 'There is no excuse for inaction.'

Most of the tools, technologies, and behavioural and change mechanisms needed to decarbonise the economy and prepare for climate change already exist. In addition, decarbonisation and climate preparation will produce benefits such as job growth, improved public health and more resilient built, human, cultural, economic and ecological systems. The science congress concluded that we have the capacity right now to cut emissions and prepare for climate change and that doing so will benefit everyone—there is no excuse for delay.

However, major cognitive, behavioural and institutional obstacles stand in the way of making the shift and capturing the opportunities. This was the sixth, final and—from my perspective—the most important 'key finding' of the scientific congress.

The world is teetering on the precipice of irreversible climate change. At the most fundamental level, this is not a scientific or environmental problem. Rising temperatures are the result of maladaptive beliefs, assumptions and thought patterns that have produced deeply entrenched, dysfunctional behavioural patterns as well as social and economic systems. This means that climate change is not really an energy or technology problem. It is a massive crisis of thought. If society fails to make the changes necessary to stop spoiling our own nest by preventing

runaway climate change, I'm convinced that climate change will prove to be the greatest crisis of thought in human history.

To pull us back from the brink of catastrophe, all levels of society must make explicit efforts to overcome inertia in their thinking, cultures, governance systems and leadership and rapidly decarbonise the economy. We must also prepare for the unstoppable consequences of climate change by increasing the resiliency and adaptability of ecological and human systems.

It is my hope that the reissue of this book can help public and private organisations, and society as a whole, make these deep-seated changes.

Large companies

The good news is that large and small businesses are beginning to make the shift. AstraZeneca, for example, an international pharmaceutical company with over 65,000 employees and research and development offices in Sweden, the UK and the US, has cut its absolute greenhouse gas emissions by 68% compared to 1990 levels. It also has eliminated 99% of its ozone-depleting gases.[2] The company utilised many of the seven key levers of successful change toward sustainability discussed in the book to achieve those reductions.

As you will learn in Chapter 3, the most powerful first lever is to alter the thinking, assumptions and beliefs (the mind-set) that led to the current way the organisation functions. A compelling need to move toward decarbonisation and sustainability is essential to shift the mind-set of executives and line staff.

The second most potent intervention is to alter the way planning and decision-making occurs by getting people with different attributes and views involved. The formation of what I call 'transition teams' composed of employees and stakeholders from all levels, units and functions of the organisation is usually essential for achieving this end.

The third key lever for successful change is to reorient the vision, goals and guiding principles of the organisation toward achieving sustainability. Although senior executives can declare a new vision and purpose, the process becomes much more powerful when these core steering mechanisms emerge from the teams that have been established to explore what decarbonisation and sustainability means for their units and functions.

The fourth crucial change lever is to restructure the strategies the organisation uses to achieve its mission and goals. Strategies form the 'rules of engagement' that shape the design and performance of people and technologies. Redirecting the strategies toward achieving the new vision and goals of decarbonisation and sustainability points the organisation in a new direction.

The fifth vital leverage point for successful change toward sustainability is to shift the flow of information circulating through the organisation in service of the new sustainability-based vision, goals and strategies. Relentless communication is

2 See www.astrazeneca.com, accessed 5 November 2009.

needed to underscore the importance and urgency of the initiative and to make clear that achieving sustainability is a top organisational priority.

The sixth essential lever is to improve the organisation's capacity to learn. A great deal of innovation will be required to decarbonise and steer an organisation toward sustainability. Innovation requires constant learning, and the best learning comes from practice. Because many organisations stifle learning, explicit mechanisms must be established to set a new course.

The final key leverage point for successful change toward sustainability is to embed the new vision, goals and strategies in standard operating procedures and policies. Unless employees and stakeholders see that decarbonising and achieving sustainability is a core element of organisational policy, and are held accountable for meeting those goals, sustainability will always take a back seat to other issues.

Although I have described the seven key levers in a linear fashion, in practice the process is circular. Each intervention affects and is influenced by other interventions. Thus I call the process the 'wheel of change toward sustainability' (see Part II). Because the process is essentially circular, organisations can start anywhere in the wheel that makes the most sense. Many organisations, for example, begin by improving the internal flow of information about sustainability or global warming. They then capitalise on the enhanced awareness this generates to alter the beliefs and ways of thinking that control the organisation, form transition teams, and so on. Others start with a single focus such as reducing energy costs, slowly broaden the effort to address emission reductions, and then follow much the same process.

No matter where you start, eventually each of the seven core intervention points must be sufficiently addressed if progress is to continue. Exemplary leadership and governance are needed to institute these leverage points and keep the organisation moving toward decarbonisation. They are also essential in avoiding the tendency for sustainability initiatives to settle for merely making things a little 'less bad'.

Underlying the key interventions embedded within the wheel of change are three fundamental principles of successful change within any type of social system. The first is that meaningful change requires sufficient tension between a desired state of affairs and current conditions. A basic tenet of systems change is 'no tension, no change'. If a gap large enough to generate a significant sense of tension—or dissonance—between a desired state and existing circumstances fails to materialise, people will feel little need to alter their thinking or behaviour.

The tension that motivated AstraZeneca's initial emission reduction activities was an awareness of growing stakeholder expectations in this area and a desire to manage its reputation and risk proactively, according to Keith Moore, the company's Senior Environmental Advisor.[3] By this he meant that, back in 2001, stakeholders started to tell the firm that it its management of greenhouse gas emissions would be under increasing public scrutiny.

The company initially began with a focus on reducing energy use because it was a factor they felt they could directly control. Their early effort was seen purely as an environmental initiative. The corporate executive team established the overall policy along with initial emission reduction targets. Responsibility was then given

3 Personal conversation, 28 July 2009.

to safety, health and environment (SH&E) staff to help different units identify ways to achieve the targets.

It was not difficult to sell the need for emission reductions to employees. Most of them have a scientific background and are very educated on the topic. 'All levels of the organisation seemed to get the need and focus very quickly,' said Moore.

AstraZeneca also had the benefit of not being bound by a strict command-and-control organisational structure. This is due, in part, to the fact that many of the employees are scientists who need freedom to experiment and devise new cures. The SH&E staff therefore only had 'arm's length' control. Rather than issuing edicts from above, they encouraged each unit of the company to examine its carbon footprint and devise its own vision of success, reduction targets, and strategies for achieving them.

Tension between a desired and current state of affairs, while essential, is not on its own sufficient for deep-seated change. The second fundamental principle of successful sustainability-based organisational change is that the people involved in the process must feel a sufficient level of 'self-efficacy'. This means they must believe that they have the capacity to successfully implement the actions necessary to close the gap between their desired state and current conditions and eliminate the tension. To build efficacy, Moore told me that SH&E 'tried to help staff merge setting visions and targets with practical projects and activities'. They wanted successes that everyone could see.

Constant learning has been a core element of their strategy. In many ways, ongoing learning is built into the fabric of the company. 'Employees know that failed experiments are part and parcel of running a scientific organisation', said Moore. Testing and knowledge creation are how employees develop new products. A good example of how the company responds to failed experiments is their foray into 'combined heat and power' (CHP) energy facilities. Some CHP projects have not proven to be as economically viable as originally thought. However, Moore said, 'There was no looking back, no punishment or regret. Executives understand that they were built with a long-term perspective—a long time horizon—in mind and they were a risk worth taking.'

The focus on real-world successes and continual learning also helped the SH&E staff document the benefits of emission reductions. This is the third fundamental principle of successful organisational change. To make a major shift in thinking and behaviour, people must believe that the benefits of the new approach outweigh the downsides by at least a 2 to 1 ratio. In other words, participants must see two upsides for every downside of the shift. If the pros of a large shift do not substantially outweigh the cons, why would anyone make the effort?

SH&E staff therefore made a special effort to build the business case for emission reductions, based largely on the twin concerns of reducing corporate overhead costs and the rapidly rising price of energy during that period. They documented, for example, that since the company started the effort in 2001 they have saved close to $175 million. In 2008 they saved $59 million in energy costs alone compared with the corporate energy intensity from 2005.

'These savings are actually small potatoes,' said Moore. 'The bigger benefits have been the added value, such as attraction of good people who want to work at the company because of its reputation.' The public attention the firm received from its

emission reduction efforts has significantly increased its brand value. The end result is that the firm's competitive position has improved. This, said Moore, is 'what it's about at the end of the day'.

Although senior executives and the leaders within SH&E did not necessarily use these terms, by utilising many of the key interventions described in this book, by 2003, when a new set of targets was developed, the company's thinking had evolved. People began to realise that emission reduction was much more than an environmental issue that created a business risk. It had implications for corporate social responsibility. This new awareness led to an expansion of the scope of the programme to consider the company's broader carbon footprint.

Today, the understanding of what climate issues mean for the business has expanded even further. 'The "social" has been dropped from CSR', according to Moore, and emission reductions are now seen as a core function of the firm's overall corporate responsibility. In short, it has become embedded in the way the entire company operates.

AstraZeneca made this transition through 'a process that we continue to get better and better at', said Moore. Regular internal communications with employees about the company's climate activities is a priority. They have also engaged in targeted communications with stakeholders in order to keep them informed of the company's activities and to obtain feedback. Moore said, 'Our desire is to keep climate and other environmental issues on the agenda at the highest level as a means of achieving our strategic improvement goals.' Employees also understand that the firm's overall purpose, as stated in its mission statement, is to 'make the most meaningful difference to patient health through great medicines' and that climate change has direct implications on the ability of the company to achieve that end.

One of the interesting aspects about the leadership demonstrated by senior executives at AstraZeneca is their evolving view of what it means to produce a good return on investment. Energy efficiency and other projects that need major capital investments may be approved even if their payback is longer than other aspects of the investment. 'Ultimately,' said Moore, 'if we have been successful in reducing emissions it is not because of a "moral dictate" from SH&E or corporate headquarters. It's been because we focused on finding win–wins that at the end of the day enhance our businesses and provide value.'

The company has not limited its focus to reducing carbon emissions. It is also beginning to consider how to prepare for the consequences of climate change. Moore said they have begun to assess their risks as well as the business opportunities posed by warming because, 'We have a large and complex supply chain with its attendant risks and opportunities and there are issues such as healthcare goals and respiratory diseases that have factored into our thinking.' He went on to say, 'Our efforts on this front are in their infancy but will be updated at alarming speed. We know we must not put ourselves in a position of just responding to events. It is better to help shape how those events unfold.'

The foresight shown by AstraZeneca almost a decade ago has paid off big-time. The company senses that it would be under increasing scrutiny unless it dealt with climate issues proactively and responsibly. Sure enough, along came the Carbon Disclosure Project (CDP), which collects climate change information on behalf of institutional investors and others in order to encourage private and public organi-

sations to measure, manage and reduce their emissions.[4] The company is now an active participant in the CDP.

By responding to stakeholders and instituting an effective series of change interventions, AstraZeneca has positioned itself to thrive in a fast-changing carbon-constrained world.

Mid-size firms

Catalyst Paper is a mid-sized company that has taken emission reductions seriously. With 2008 sales of $1.8 billion and approximately 2,700 employees, mostly in British Columbia, the firm is one of the largest producers of printing papers in western North America. Its paper is used in newsprint, telephone directories, catalogues and other products. In 2008 the company's total carbon emissions had been cut by 73% on an absolute basis compared to 1990 levels.[5]

The Catalyst Paper programme started back in the early 1990s as an energy-saving initiative, according to Drew Kilback, the firm's Director of Risk and Environment.[6] The company is a big energy user and high costs provided the initial 'tension' that mobilised the effort. Middle management started the initiative because they believed opportunities were available for cost-cutting through reduced energy consumption. The managers began the initiative by holding numerous face-to-face meetings with employees to solicit energy-saving ideas. This helped get the workforce on board.

Function and unit specific teams were then set up, led by middle managers, which developed lists of ideas for energy savings. The costs and benefits of the proposals were then calculated and the ideas with the greatest potential were implemented. As they engaged in the energy-saving activities the link with greenhouse gas emissions became obvious. 'The auxiliary fuels we use are typically fossil fuels,' said Kilback. 'We therefore started tracking greenhouse gas emissions back in the early '90s.' Today, the company has a dual focus on energy savings and emission reductions.

A three-part strategy has been used to achieve its energy and emission reduction goals. According to company reports, energy efficiency contributed to an 18% reduction in fuel use in 2007 relative to 2003. A shift from fossil fuels to biomass (wood waste) energy production reduced fossil fuel use by 23%. In addition to the team structure, communications have been essential in saving energy and reducing greenhouse gases, according to Kilback. Daily 'tailgate' meetings are held with each crew at their facility and ways to cut energy use and emissions are often discussed. The company shares information about successes and other relevant data through its internal intranet. Quarterly and annual reports are produced that

4 See www.cdproject.net/about-cdp.asp.
5 See www.catalystpaper.com, accessed 5 November 2009.
6 Personal communication, 22 June 2009.

analyse energy and emission status and trends. Kilback told me, 'I'm sure employees see energy use and greenhouse gas controls as a priority for the company.'

Constant learning is also a priority. Energy and emission reduction ideas continue to be generated by the line workers because 'they know the equipment better than anyone'. Managers and line workers evaluate the proposals and implement those that make sense. The diffusion of energy reduction efforts throughout all levels and units of the company eventually led to a transition from the initial team approach to the formation of 'power watchers' groups within each of the company's facilities. These groups continually search for ways to reduce energy use and slash emissions. Corporate-level employees, on the other hand, led to the development in 2007 of what the company calls Catalyst Cooled™ carbon-neutral paper. They applied the concept of carbon neutrality to their products and became the first company to mass-market the product. The claim of carbon neutrality comes from the fact that 87% of the firm's energy at its British Columbia mills are now derived from renewable sources such as biomass. The self-generated renewable energy is EcoLogo-certified.[7] Catalyst 'offsets' the greenhouse gas emissions produced by the 13% of its energy that remains fossil-fuel-based by investing in reforestation, wind and other verifiable renewable energy projects. The company is investigating the use of additional sources of renewable energy to reduce its use of offsets, according to Kilback.

Much like AstraZeneca, in addition to cost savings, one of the benefits the company experienced from its effort is the high-quality people that are attracted to the company 'due to its commitment to energy savings and climate issues', said Kilback. The company has also become well known for its commitment to climate protection. For instance, in 2007 the company became the only forest products firm on the Conference Board of Canada's Climate Disclosure Leadership Index.

Despite the positive recognition, the company has been disappointed by the market response. 'We had hoped to see a big uptake in the market,' said Kilback. '*Rolling Stone* magazine is now printed on our carbon-neutral product but the economic downturn hurt us. We have not seen a big market response yet.' One hopes this changes as the economy recovers from the recession.

In addition to its emission reduction efforts, the company has begun to prepare for the consequences of climate change. Management systems were adopted aimed at identifying the potential risks to the business. They determined that the firm's fibre supply and access to water might be threatened. Although they are yet to see any real, substantive impacts on the business, according to Kilback, the firm investigated alternative fibre supply scenarios. The risks to its fibre supply and the company's ongoing efforts to reduce water use are constantly monitored. The firm is also keeping an eye on the business impacts of potential regulatory/policy impacts of climate change.[8]

7 EcoLogo is a Canadian government environmental certification programme; see www.ecologo.org/en, accessed 5 November 2009.

8 Personal communication, 8 September 2009.

Small firms

Practical, cost-effective emission reductions are possible in small companies just as they are in mid- and large-sized firms. Cases in point are Autohaus and Euro-Asian Automotive[9] as well as the Market of Choice[10] grocery chain in Oregon. George Rode, President and owner of the two auto repair companies, recently attended a Climate Masters at Work training seminar.[11] The Climate Leadership Initiative at the University of Oregon, which I direct, developed the programme. Climate Masters at Work helps business leaders learn cost-effective ways to shift their thinking and practices in order to reduce their emissions. [12]

Rode has always had a commitment to environmental stewardship. But after he took the training he told me, 'I thought I was doing good until I took your Climate Masters training through the UO. Then I realised there was so much more I could do.'[13] This awareness established the tension needed to spur him to take additional action to reduce his company's emissions. Due to Rode's leadership, prior to attending the Climate Masters training the company had become one of just five local firms to be awarded an Eco-Biz certification by the City of Eugene. This voluntary programme helps auto-related companies adopt practices to keep pollutants out of the stormwater system and airshed, conserve resources by re-using and recycling fluids and solid wastes, and educate employees about good environmental practices. After the company received the certification, Rode installed solar panels at both businesses. The system provides about one-third of the company's annual electrical power. He expects it to pay for itself within 4–5 years.

A few months later Rode installed energy-efficient ductless heat pumps to cool and heat both his office and home. Less energy use means less carbon emissions. But Rode has just begun. 'Climate Masters opened my eyes so much about what to do to lower my businesses and personal carbon footprint.' He calculated the total miles employees drive to and from work and then encouraged them to find ways to reduce their driving. He purchased a bicycle and high-mileage Honda Civic car to use as a loaner fleet at each facility. Some of his future plans include, for example, giving his employees cash incentives to drive more fuel-efficient personal vehicles. He also plans to install more energy-efficient lighting and motion detector light switches in the facilities. Another solar PV system is in the works. And the firm is beginning to 'rethink things' such as how to work with their suppliers to reduce the packaging they receive and how to improve the sorting of what goes into the garbage and what is recycled.

Rode said he thought most of his employees feel good about the effort. 'Some embrace it more than others.' Most importantly, Rode told me he will 'continue to educate people around me to make small changes in their personal habits to lower their carbon footprint'. He now understands that the most important aspect of

9 See www.autohaus.bz, accessed 5 November 2009.
10 See www.marketofchoice.com, accessed 5 November 2009.
11 Some of this section was taken from a column I wrote for the *Register Guard* newspaper on 18 August 2009.
12 For information on the UO Climate Masters at Work programme, see climlead.uoregon.edu/programs/businessclimatemaster.html, accessed 5 November 2009.
13 Personal communication, 17 June 2009.

organisational change is to help his employees alter their thinking and behaviours. All sorts of innovative steps can be taken to reduce emissions when the mind-set of the people involved is oriented toward climate protection, preparedness and sustainability.

Market of Choice's effort to reduce its carbon emissions is not nearly as advanced as Rode's or the larger companies previously discussed, but it is gearing up for big things. Before it took its current form, the company gave little thought to sustainability. But constant pressure from customers generated the internal tension that led the firm to become a leader in the field among Oregon grocery chains. The company recently formed a corporate-level sustainability committee, for example, and 'green teams' are being organised at each of its seven stores in Eugene and Portland, Oregon. According to Michael Scott, the company's new sustainability coordinator, the teams will 'educate and empower employees at each location to maximise energy efficiency and reduce waste.'[14]

Scott attended the first Climate Masters at Work training class offered by my UO programme. Like Rode, he decided to be strategic and tackle the 'low-hanging fruit' first before launching bigger projects. Although he did not consciously think about it this way, he wanted to build self-efficacy by demonstrating to employees that the company had the capacity to engage in successful projects. He also wanted to build the benefits of the new approach in the minds of executives and line staff.

One of his first efforts was to put dumpsters in the south Eugene store to help employees separate food waste from other waste materials. About five tons of green waste a month is now diverted from the landfill, where it would have decomposed and produced methane. On a per molecule basis methane is a much more powerful greenhouse gas than carbon dioxide. Once similar programmes are up and running at all of the stores, Scott said he expects the programme to save the company about $500 a month on handling and tipping fees. That may not seem like much, he said, but in the low-margin grocery business every penny counts and the savings help increase the staff's sense of self-efficacy as well as the benefits of the new approach.

Another way that Scott and his teams are building the sense of benefits is by installing solar panels at the south Eugene store and quantifying the emission reductions they produce. The firm keeps a running count on its website of the energy and emission reductions the panels generate.[15] To reduce energy consumption the firm recently piloted LED (light-emitting diode) lighting in their freezers. It worked and they are now updating all of their freezer doors with LED lights. The company has adopted a policy of purchasing as much of its fruit, vegetables and other products from local sources as possible. A good deal of the packaging they use is made from recycled materials or is biodegradable. And in 2008 they eliminated plastic bags at their checkout stands.

Scott told me that he senses that employees are 'excited and jazzed' about the company's sustainability efforts. 'They want to be part of a company that is doing

14 Personal communication, 16 June 2009.

15 See www.marketofchoice.com/index.php?option=com_content&view=article&id=81:solar-panel-output&catid=71:eco-efforts&Itemid=151, accessed 5 November 2009.

good things for the environment,' he said. 'This will reduce turnover which will save us lots of money, although I don't have statistics yet to prove this.'

At the end of our conversation Scott acknowledged there is much more to do. Not all of the employees feel 100% connected to the company's sustainability efforts, he said, and their internal communication needs improvement. A complete inventory of the company's carbon emissions and many other actions aimed at reducing emissions are on the 'to do' list as well.

Mid-sized city governments and their communities

Cities are responsible for 75% of global greenhouse gas emissions. With the world's population likely to become even more urbanised, a growing number of municipalities have engaged in climate protection. Cities have at least three important roles to play in the climate change field. They can reduce emissions from their own internal government operations. They can adopt policies and implement programmes to minimise emissions from local businesses, non-profits and households. And they can also adopt policies to help households and businesses prepare for the now unpreventable consequences of climate change.

One of the mid-sized communities leading the way on climate protection is Woking, England.[16] It came to my attention when Annabelle Malins, Consul for Science and Innovation with the British Consulate-General, mentioned the town at an Oregon legislative hearing I spoke at.[17] Malins said the town, which is roughly 45 minutes away from London and has a population of about 90,000, is one of Britain's leaders in reducing carbon dioxide emissions. When I was in England a short time later I set out to see for myself.

My first hint that Woking was different were the many solar PV panels I saw as I walked to my meeting with Lara Curran, Senior Policy Officer for Climate Change for Woking Borough Council (the city government). Despite the typical March wet cloudy English weather, solar panels have been installed in the town square and elsewhere, providing energy for local users. The little town of Woking has about 10% of Britain's total installed solar capacity. Curran started my visit with a little history. When their programme started in the early '90s, climate change was not the primary driver. She told me the initial tension—she used the term 'problem'—that motivated the town council to engage was the high costs of energy and the potential to cut costs by improving the energy efficiency of their old government buildings.[18] About £250,000 sterling was initially invested in small-scale efficiency improvements such as insulation, lighting and motion detectors. The projects worked, which built the sense of self-efficacy. Borough staff and the Council began to believe that they had the capacity to successfully cut energy costs.

16 See www.woking.gov.uk, accessed 5 November 2009.
17 Much of this section was taken from a column I wrote for the *Register Guard* newspaper on 10 May 2009.
18 Personal communication, 17 March 2009.

Rather than going back to the general fund, the savings were continually reinvested in larger efficiency improvements, leading to greater cost savings. This increased the Council's awareness of the programme's benefits. It also showed that carbon emissions could be reduced through the same process. This understanding motivated the Council to expand their focus from energy reduction to include emission reductions.

After additional successes the sense of self-efficacy among the Borough Council and staff was high. They realised they had the know-how to cut energy use as well as emissions. Also high was an appreciation of the cost savings and other benefits the initiative produced. This led the Council to decide to set up a joint public–private energy and environmental Services Company (eeSCO) called Thamesway Ltd. This eeSCO built Britain's first 'sustainable community energy system', which provides the local community with power through a combination of renewables and high-efficiency co-generation resources without relying on the national power grid.

Woking's energy system includes the solar PV panels, which in 2008 have a capacity of 523 kW with plans to increase this total by 1 MW, a natural-gas-powered combined heat and power plant which generates energy at 80–90% efficiency, and other sources. It supplies power to the Borough Council's facilities as well as to residential and commercial customers. By 2008 a total of 22 sites were incorporating sustainable energy installations throughout the Borough. A 'private wire' electrical distribution system which operates separately from the public power grid connects the system's customers. The city is now about 90% independent of the national power grid, so when the grid goes down most of Woking still has energy. According to some estimates, the system has saved the Borough Council, its residents and businesses over £10 million since it started, a tidy sum which further enhanced their sense of self-efficacy and expanded their understanding of the benefits of engaging in the activities.

In 2002, the Council adopted its first official climate policy, which Curran said at the time was 'seen as one of the most aggressive in Britain'. The plan included ambitious emission reduction goals. Implementation was broken down into 'bite-size steps'. The cost savings, combined with the clear links staff made between the climate plan and the Council's three key goals of providing affordable housing, maintaining quality of life and protecting the environment, were key to its adoption.

Buildings are the largest source of emissions in the community. Much of the climate plan therefore focuses on improving energy efficiency, expanding the sustainable community energy system, and reducing waste. To improve efficiency, for example, every household in the Borough received a questionnaire asking about their building and practices. After the responses were analysed each household received a document outlining how they could improve their home's energy efficiency and reduce waste. Transportation is the second largest source of emissions, and a much tougher problem to solve. Walking and biking have been emphasised. Woking is now a national 'Cycle Demonstration Town'. As I strolled around the community a continuous stream of people zipped by me on bikes, many in suits and ties. Assisting lower-income residents is another key element of the plan. 'There are two poorer wards,' said Curran. 'We adopted a "fuel poverty" policy that

helps people in these wards pay their energy bills.' This helped increase energy efficiency while also contributing to the Council's affordable housing goal.

Innovation and learning are cornerstones of the Borough's strategy. The Council built a demonstration home, the 'Oak Tree House', which shows visitors how different high-efficiency technologies and building practices can reduce energy and emissions. The Council wants 1,000 homes to adopt the methods. As can be expected with most forms of innovation, some aspects of the plan did not succeed. For example, the Woking Park Fuel Cell demonstration project showed that fuel cells worked, but proved too expensive to maintain. Although the Council remains convinced that the project was worth it, they are now thinking about shutting it down. All told, the Council's efforts have slashed carbon emissions within the borough as a whole by 21% since 1990, the baseline year. Energy use from city government facilities have been slashed by 51% and carbon emissions cut by 81%.

As we closed our discussion I asked Curran what more could be done. I also asked her if she thought Woking could cut emissions by 80%, which is what scientists say will be required to avoid runaway climate change. The Borough's programme has been 'too top-down', she said, meaning it has been driven by the Borough Council and staff. They rely on NGO partners to engage the public. This is a typical English approach and one of the things she would like to change. As for becoming essentially carbon-free, 'I'm not sure,' she said. 'But I'm optimistic. If we can make it easy and accessible to people, if they have the information and tools they need, people can act quickly.'

Although Curran seems optimistic by nature, her confidence is not unwarranted. She has seen first-hand what can be accomplished by using tension to motivate action, building self-efficacy through innovation and real-world successes, continually documenting the benefits of change, and lots of hard work.

Large city governments and their communities

Perhaps mid-sized towns such as Woking *can* significantly slash emissions. But can a major metropolitan area also do it? Portland, Oregon has proven it can. With a population of almost 600,000 residing within its urban boundary, Portland is Oregon's largest city and the 29th biggest in the United States. The Portland metropolitan area holds about two million people, making it among the 25 largest metro areas in the US.[19]

For many years Portland has been considered one of the 'greenest' cities in America. There are different views on why this is. Some people believe it's because much of the population was drawn to the area due to its natural beauty and outdoor amenities that they want to preserve. Skiing and hiking on Mt Hood, an 11,000 ft snowcapped peak, for example, as well as fishing and camping on the gorgeous Oregon coast, are within an hour's drive. Other people believe it has more to do

19 Population Research Center, Portland State University, March 2009.

with an inherent independent streak held by many Oregonians which leads them to demand open government and active involvement in civic affairs.

No matter what the reason, a number of events conspired to produce the 'tension' that got Portland engaged in climate protection. Local residents, for instance, pressured the city to get involved 'due to their environmental values,' said Michael Armstrong, the city's Bureau of Planning and Sustainability's Senior Sustainability Manager.[20] The public had come to expect sound comprehensive long-term planning by government after Oregon's landmark land-use planning system was enacted by the legislature in 1973. 'This led Mike Lindberg [a city councillor in the early 1990s] to examine the emerging science on climate change and decide that having the city develop a plan was the responsible thing to do,' according to Armstrong. It was one leader realising it was his responsibility to act.

The city linked up with a few others around the world that were thinking about similar issues. The networking and information sharing that resulted helped motivate city staff. A broad-based steering committee was then organised which examined the issue and forwarded a suite of proposals for reducing emissions to the City Council. In 1993 Portland became the first municipal government in the US to adopt a global warming strategy. The initial plan focused on emission reductions from both internal city operations and the community as a whole. It addressed issues such as land-use planning, transportation, energy efficiency, solid waste management, urban forestry and renewable energy. In 2001 the Portland City Council told staff that in light of the new science on global warming they wanted to see the 1993 plan updated and expanded. The City then joined with Multnomah County, which encompasses the entire metropolitan area, and launched a process to devise a revised plan called the Local Action Plan on Global Warming. A broad-based public–private steering committee was organised to lead the effort. It was composed of number of technical groups to analyse the issues and propose emission reductions actions for different issues and sectors. The technical groups forwarded their proposals to the steering committee, which vetted them and issued a draft plan for public comment. 'In typical Oregon fashion, we instituted a comprehensive public engagement process,' said Armstrong.

One of the interesting trends at that time was the parochial response to the draft Action Plan. 'We found very strong constituencies for certain parts of the plan. Recyclers were all over the recycling section, transportation people provided detailed comments on that section, and parks people responded to the parks section. But very few people commented on the overall need to reduce emissions or offered a truly integrated perspective.'

The Action Plan that resulted included 150 short- and long-term actions aimed at cutting community-wide emissions to 10% below 1990 levels by 2010. This was seen as a very ambitious goal. The Kyoto Protocol target, which the US failed to ratify, called for only a 7% emission reduction below 1990 levels by 2012.

Even with the siloed responses received during the public engagement phase, city and county government staff, and the general public, embraced the plan. It turned out to be very successful. Local emissions rose in 2000 to 11% over 1990 levels, but then began to drop. Despite substantial population and economic growth,

20 Personal communication, 4 September 2009.

by 2007 emissions had been reduced to 1% below 1990 levels. On a per capita basis, emissions have been reduced by 17% since 1990. These impressive results occurred at the same time that average emission levels throughout the United States increased by 17%.

A mixture of strategies has been used to achieve these outcomes. In 2001, for example, the city replaced incandescent traffic signals with LED lights, cutting 3% of the city's total CO_2 emissions while saving $265,000 annually. In 2002 the city secured 30 Toyota hybrid Prius automobiles which could achieve 50 miles per gallon. All diesel vehicles and equipment that use the city's fuelling stations were required to use a blend of 20% biodiesel and 80% diesel. Through its Energy Challenge, the city reduced its energy bills by almost $15 million: 12% of the its municipal electricity purchases now come from renewable sources and the city government is investigating ways to purchase 100% renewable for its facilities and operations. Since 1996 the city has also planted over 750,000 trees and shrubs and restored local streams and waterways as means of absorbing CO_2.

The success of these and many other actions has helped build the sense of self-efficacy within city and county staff and key community stakeholders. People have seen that it is possible to reduce emissions through cost-effective actions. The self-confidence has built on itself, allowing people to engage in bigger actions. Relentless communications has been a key element of the strategy. Armstrong told me that, 'After we realised that people were mostly interested in the aspects of the plan that affected them, we changed our communications strategy and began to talk about how climate change would affect each group's area of concern. For example, we began to talk about the effects on recycling, transportation and parks.' The city also realised that the impacts of climate change would not be evenly dispersed. 'Some parts of the community are more vulnerable than others and some populations are more concerned about these issues. Equity is a key factor to many people and we communicated our understanding of the importance of this issue.' The targeted communications that resulted helped build public support for, and engagement in, the Action Plan.

A similar approach was used to develop buy-in within government. 'There were some departments that said, 'let the Office of Sustainability deal with it', Armstrong told me. But, by communicating how climate change will affect the resources they are responsible for and how they might benefit by emission reductions, support solidified. 'Now each of the departments and bureaus are writing their own climate action plans. It's been hard to manage but it's been very satisfying.'

The climate action plan has generated a number of benefits for the city and county. At the operational level the city has seen cost savings in some areas and higher costs elsewhere. 'There is a sense that it has not directly helped nor hurt us financially,' according to Armstrong. From a programmatic perspective, the emission reduction efforts have ended up complementing the city's other economic and environmental goals such as reducing air pollution, providing cost-effective energy, reducing energy bills for residents and preventing urban sprawl and traffic congestion. These integrated benefits have been important. Armstrong also believes that 'The overall planning process has contributed to the Portland "Brand".' The city's environmental and sustainability efforts are now well known

throughout the US; it has attracted a number of new companies in the wind power and renewable energy field, and it has also helped to enhance the quality of life of its residents. As a result of the 16-plus years the city has been engaged in emissions reductions, the approach has 'become general operating practice within city government. A lot of it has been institutionalised. Our policies have helped. But its not completely institutionalised. We know there is more to do,' said Armstrong.

Commitment to climate protection and preparation has remained strong among elected officials within the city and county government. In fact, it has grown. In 2007, the Portland City Council and Multnomah County Board of Commissioners adopted resolutions directing staff to design a strategy to reduce locally generated carbon emissions by 80% by 2050. They also directed staff to develop a climate preparedness and adaptation strategy.

As this updated version of the book went to press, a draft plan outlining objectives and actions to meet the 2050 target was out for public review. One of the most interesting outcomes so far has been the reaction of residents. 'We got ten times more comments this time than we did on the 2001 plan. And this time the generalists showed up who want to see a solid overall climate plan. This is very encouraging. We appear to have moved beyond the parochial approach to a more integrated view of things,' concluded Armstrong.

Each of the successful emission reduction examples described above utilised their own unique tailored approach to change. On close examination, however, it becomes clear that, even though they may not have articulated it in quite the same way, each organisation employed most, if not all, of the key leverage points for change described in this book. In doing so they demonstrated that significant cost-effective reductions in climate-damaging carbon emissions *are* possible. If they continue to expand, and if thousands of other public and private organisations and communities throughout the US, Europe and elsewhere scale up as well, we'll have a good shot at preventing runaway climate change and adopting a path toward sustainability.

It is my hope that the information and tools provided in the following pages provide a blueprint that change leaders of all types can use to mobilise their organisations and institutions to make this much-needed shift.

Acknowledgements

First and foremost I want to thank all of the business and government leaders who took the time to discuss their change strategies with me. Many were gracious enough to hold multiple phone interviews and personal meetings with me and to allow me to visit their facilities and speak with line staff. Many also provided access to internal reports and information. They did not have to do so.

Special thanks go to: Ray Anderson, Jim Hartzfeld, Joyce LaValle, John Bradford, Buddy Hay and Claude Ouimet at Interface; John Emrick and Derek Smith at Norm Thompson Outfitters; Anne Stocum at Xerox; Paul Murray and Mark Schurman at Herman Miller; Nick Pudar at General Motors Strategic Initiatives; Arthur DeJong at Whistler Blackcomb Resort; Jim Quinn, Lee Jimerson and Jaime Sanz de Santamaria at The Collins Companies; Nancy Hirschberg at Stonyfield Farm; Sarah Severn, Darcy Winslow and Heidi McCloskey at Nike; George Lundberg at Epson Portland; Albert Kuhn at Swisscom; Dean Kubani from the City of Santa Monica CA; Mayor Pete Clavelle and Assistant to the Mayor Bill Mitchell at Burlington, VT; former Governor John Kitzhaber, Lynn Beaton, Cam Birnie and Julia Doreman at the State of Oregon; Dr Jim Sedell, Diana Graves and the project leaders of the US Forest Service's large-scale watershed programmes; Peter Domini at Stena Metall; Tom Kelly and Julia Spence at Neil Kelly Company; Jan Peter Bergkvist at Scandic Hotels; Dr Michael Bahn and Petra Seddighi at Henkel; Thomas Bergmark at IKEA; Björn Lyngfelt and Bo Sandqvist at SCA in Sweden; Jeff Zalla at Chiquita; Mary Tkach at Aveda; Ben Packard at Starbucks; Jil Zilligen at Patagonia; Paul de Jongh, policy advisory for sustainable development for the Dutch government; Dr Janneke Hoekstra, Ton Bresser and Laurens Beijen at RIVM, Huub Schrijver, W.Th.P. Groen, Kess Vijverberg, Rene Marcelis, Martin Vroon and Dick Brand from the Ministry of Housing, Spatial Planning and the Environment in the Netherlands; Annelise Ravn at the Development and Data Division of the Danish Ministry of Environment and Energy; and Torbjorn Lahti of ESAM and the Swedish EcoMunicipality Programme.

We are all, in part, shaped by our past. I want to acknowledge the systems practitioners who influenced my thinking about organisations and change over the years. My initial education in systems thinking came through my education and training in counselling psychology and group dynamics. The late Will Schutz and Ray Lowe, Laura Perls, Rhada Miller and others were particularly influential in forming my understanding. The work of systems thinking experts Peter Senge,

Russ Ackoff, Robert Fritz, Daniel Kim and others have also greatly influenced my perspective. Finally, the work of organisational change theorists Rosebeth Moss Kanter and John Kotter has been particularly important to me. In fact, there are many similarities between the change strategy promoted by Kotter and my approach. However, there are also a number of important differences. In particular, Kotter does not overtly focus on the need for new forms of governance. The starting point, emphasis and sequence of steps involved with Kotter's approach also differ from mine.

Just as a number of people influenced my thinking about systems and change, I want to acknowledge those who served as my mentors in sustainability. In the late 1960s and early 1970s Nelson Wieters of Man and His Land Expeditions shaped my early understanding of the relationship between humans and nature. My time working with Bob and Claire McConaughy on the R Lazy S Ranch in Moose, Wyoming, furthered this education. I spent about 30 years working on and for river issues. There is nothing quite like working on a ranch, living outdoors and guiding wild rivers to learn how the fortunes of man and the environment are inextricably intertwined. In the mid-'80s and beyond, aquatic ecologists Dr Jim Sedell, Dr Gordon Reeves and Dr James Karr solidified my scientific understanding of the interrelationships between ecological systems and societal activities. More recently, Paul Hawken, Amory Lovins, Bill McDonough, Karl-Henrik Robèrt and others provided whole new ways to approach and talk about these issues.

Special thanks go to the following friends and colleagues for their valuable editorial advice: Larry Chalfan, former CEO of Oki Semiconductor Manufacturing and now director of the Zero Waste Alliance; Susan Burns of Natural Strategies; Craig Shinn at Portland State University; Matt Emlen of the City of Portland Office of Sustainability; Steve Nicholas, director of the Office of Sustainability and the Environment at the City of Seattle; Ernie Niemi, economist with ECONorthwest consultants. I also thank Mike Russo from Lundquist College of Business at the University of Oregon, Bill McDonough and Ken Alston of McDonough Braungart Design Chemistry, LLC, and Paul de Jongh for their editorial suggestions. Appreciation also goes to my good friend Mickey Gawlowski for the use of his cabin at Lake Tahoe where some of the most important writing of the book took place.

I would be remiss for not thanking my mother for all that she's done—and for giving me honest feedback on an early version of the introduction that led to a much-improved text.

Finally, I thank my partner for life, Peggy Bloom, for her unwavering support, love and encouragement—and her sharp editorial eye.

How to use this book

This book can be used in two ways:

- If your organisation is *not currently involved* with sustainability but is thinking about starting an initiative, this book provides a primer on the need, definitions and benefits of sustainable development as well as a theory and methodology for operationalising it. To achieve the greatest benefit, beginners should read the book from cover to cover.
- If your organisation is *already engaged* in sustainability, this book can provide a preventative check-up or a crisis management guide. Practitioners can start with Part II to learn the steps the more advanced organisations have taken to operationalise sustainability or start by completing the assessments found in the appendices to identify your probable weak links. You can then jump to the chapter(s) that discusses how to overcome the problems or obstacles you have identified.

Part I
Why some organisations succeed and others fail

Centuries from now, when our ancestors look back at the Industrial Age, they will undoubtedly conclude that it symbolised both the best and the worst of human history. In less than two hundred years, human beings—particularly those in Western societies—created economic prosperity never before experienced on Earth. Paradoxically, these same achievements so profoundly altered the physical and biochemical make-up of the Earth and produced such unprecedented gaps between rich and poor that the prosperity of future generations was put at risk.

Climate change, ecological degradation and pervasive poverty in developed and developing nations are some of the most troublesome outcomes of the industrial era. Even as these problems persist, the world's population continues to grow exponentially, as does society's technological capacity to extract raw materials, turn them into products and services, and emit pollution and waste. These pressures increasingly strain nature's productive and assimilative capacities. Mounting environmental concerns, in turn, increasingly lead to and are interwoven with problems of inequity and social unrest.

As often occurs when activities escalate without constraint, opposing forces eventually rise up to counteract them. The field of sustainable development is one that has emerged to offset growing environmental degradation, poverty and inequity. Since mid-1980, hundreds of private, public and community-based sustainability initiatives have blossomed across the globe. The Earth Summit in Rio de Janeiro in 1992 and the follow-up World Summit on Sustainable Development in Johannesburg, South Africa, held in 2002, shone the light on these initiatives and arguably made sustainable development a common element of today's public dialogue.

Despite the increasing attention given to the issue, most experts would agree that progress toward sustainability has been, at best, modest. Some sustainable development efforts have made significant progress and generated important economic, social and environmental benefits. Others are just beginning to reach

their potential and in many areas progress has been non-existent. But, far too often, people within and outside of organisations involved with sustainability initiatives complain that change has been slow and disappointing, leading to wasted resources, frustration and cynicism about the sustainability movement.

In my work over the past 20 years, I have witnessed first-hand the struggles that public and private organisations face when trying to operationalise sustainable development. Over and over, I hear the same questions arise: Why have so few organisations successfully adopted more sustainable policies or practices? When they do get launched, why do so many efforts plateau after a short time and fail to ascend to the next level of excellence? What are the fundamentals of organisational change toward sustainability that lie beneath the scientific and technical information provided by frameworks such as The Natural Step, Zero Waste and Eco-efficiency?

Because so few resources are available to answer these questions, I decided to research how the leaders approached them. This book summarises my findings. It seeks to demystify the sustainability-change process by providing a theoretical framework and a methodology that managers can use to successfully transform their organisations to embrace sustainable development.

During my research I found that discussions about *what* to do—for example, which new technologies and policy instruments to apply—dominate the public dialogue on sustainability. Practitioners place comparatively little emphasis on *how* organisations can change their internal thought processes, assumptions and ingrained behaviour to embrace the new tools and techniques. This void accounts for many of the problems organisations face when seeking to operationalise sustainable development.

In most organisations, major operational change requires fundamental shifts in culture. Through my research, I found that sustainability efforts often fail to get off the ground, stall soon after they begin, or eventually collapse unless the cultural beliefs, thinking and behaviour that are inconsistent with sustainability are altered. Few leaders fully grasp the deep-seated paradigm shift inherent in sustainability. Further, most do not know how to stimulate widespread cultural change. These failings combine to limit the ability of most organisations to adopt meaningful sustainability efforts.

Our current economic system is fundamentally linear in nature. It focuses on producing products and services and delivering them to the customer in the fastest and cheapest way possible. Not much else matters. Humans extract resources from the Earth's surface, turn them into goods, and then discharge the massive amounts of often highly toxic waste the system generates back into nature as either air, water and soil pollution or as solid, industrial and hazardous waste. After two hundred years of experience with this straight-line 'take–make–waste' production system, it has become firmly embedded as the dominant economic paradigm in the psyches of most Westerners.

Sustainable development presents an alternative to the traditional economic paradigm. At its core, it seeks to transform the linear model into one that is circular in nature. The circular (or closed-loop) approach utilises environmentally benign energy, raw materials, construction and manufacturing processes, and continually recirculates materials that are now thought of as worthless waste back into the

industrial system as feedstocks for new business activity or back to nature where they become nutrients for renewed growth. Thus, it can be considered a 'borrow–use–return' system. While the linear economic system continually depletes the environment and often harms socioeconomic wellbeing, the circular model maintains and restores the environment and enhances economic and social welfare.

However, it is not just our production models that must change if we are to set a course toward sustainability. The shift to circular production systems also requires whole new organisational designs. Excessively hierarchical, mechanical management schemes have evolved over the years to control the linear production model. Each organisational unit and function focuses on completing its specialised tasks as efficiently as possible and then passes its output on to the next phase of the production system. Because each unit is more often than not focused exclusively on its own task, only those at the top can see how all of the pieces of the system fit together. Senior executives consequently hold most of the power and fragmentation remains the norm.

In contrast, when the intent is to continually recirculate materials and substances within borrow–use–return systems, each unit of the organisation must have intimate knowledge of how every other unit and function operates. If industrial by-products and end-of-life materials are to be continually re-used by industry or reintegrated into nature without harm, the research and development and purchasing departments must select materials, design and plan their operations in concert with the manufacturing, waste management, marketing, transport and other units. Employees at all level of the organisation must therefore be meaningfully engaged in system-wide planning and decision-making. Thus, rather than being managed as separate parts, the shift to sustainability requires that organisations be understood and administered as *integrated whole systems*.

Unfortunately, my research found that within both public and private organisations, the vast majority of executives and line staff fail to grasp the fundamental paradigm shift in production models and organisational designs required of sustainability. Blinded by long-held mental models, most people believe sustainability simply involves better controls, incremental improvements and increased 'efficiencies' to their existing, inherently harmful linear production systems. Because they do not understand that sustainability often entails whole new business models, few organisations institute meaningful cultural change efforts. The inability to plan and achieve far-reaching culture renovation accounts for many of the problems organisations face when seeking to operationalise sustainable development.

In most cases, I found that transforming organisational culture requires changes in two core steering mechanisms. First, the *governance system* of the organisation must be altered. I want to make a clear distinction between governance and government (see, for example, Popovich 1998; Wilson 1989). The term 'governance' refers to the way any organisation, public or private, small or large, distributes power and authority through its information, decision-making and resource allocation mechanisms. An organisation's governance system plays a major role in shaping the way its members view the world, interact with each other and the external environment, and perform their tasks. Whenever people choose to live or work together, some type of governance system evolves. 'Government', in contrast, is an

institutional arrangement established by the individuals of a society to meet their collective needs. The laws, policies, agencies and legislative and judicial components of government are the mechanisms that people establish to deliver these goods and services.

My research found that the key to fundamental change lies in making explicit choices to align the way an organisation governs itself with basic principles of sustainability. The mechanical, hierarchical organisational designs employed by a majority of public and private entities today lead to a patriarchal view of governance. The patriarchal model views the organisation as a collection of disconnected, directionless parts that must be controlled from the top while the bottom carries out the orders. Most private businesses—especially those in the US—also believe that their sole purpose is to generate profit and that the primary motivation of employees is to make money. These beliefs focus managers and workers on the symptoms of organisational health—profitability—not the true drivers, which are its cohesiveness, sense of purpose, ability to learn, and capacity to respond to change. As with any symptom-driven process, the mechanistic, patriarchal approach to governance is unsustainable. It may generate some short-term economic benefits, but usually leads to crisis and failure over the long run.

In contrast to the unsustainable patriarchal style of governance, my investigation found that organisations that have made the most progress toward sustainability understand that the shift to a circular economic model requires the full involvement of all of their internal members, as well as external stakeholders. The leaders seem to understand that each unit and person must be seamlessly integrated with others and function at high levels of performance for their entire system to succeed. Further, the achievement of a purpose much more significant than simply making a profit, such as being the first to develop a sustainable product, providing society with valuable goods and services, or creating jobs for the poor, drives the most successful organisations. Profitability is seen as a natural outcome of organisational health, not its sole purpose. Accordingly, the championship organisations understand that, once a basic threshold for money is met, employees are more concerned with being part of something greater than themselves and maximising their internal potentials than they are with simply getting more cash.

In the leading sustainability organisations, these understandings engender a commitment to new forms of governance that more equitably share power and authority because managers realise that all of the parts of the organisational system must feel valued and be meaningfully involved for these higher purposes to be achieved. This model of governance is much more sustainable over time, which is why a growing stream of research on the financial effects of sustainability measures show that share value in publicly held corporations that employ them have proven to be consistently solid performers. My research found that interventions at seven key leverage points are required to develop these new systems.

The second key I found to cultural change toward sustainability is *leadership*. Organisations that develop effective governance systems typically have good leadership. Skilled leadership is required to transform the production model, organisational design, governance system and culture of an organisation. It has often been said that management is about doing things right while leadership is

about doing the right thing. Effective sustainability leaders have the ability to keep their organisation focused on achieving its higher mission while simultaneously managing numerous, sometimes contradictory, streams of activity. Shrewd leaders can inspire and mobilise employees and stakeholders to embrace change as an exciting opportunity to learn new things. They also understand the key steps involved with guiding their organisation toward sustainability and do their best to ensure that the change process is completed before letting up. In the exemplary organisations, this style of leadership not only pervades top management—it is found throughout the enterprise.

In almost every case examined, I found that, when an organisation lacks an effective governance system or sufficient leadership, its culture will remain frozen around the take–make–waste production model and a mechanical, patriarchal organisational design. The adoption of a more sustainable path will thus be stymied no matter what new technologies are installed, quality-control tools used, or consultants hired. In contrast, should they so choose, awareness of the importance of good governance and leadership seems to provide the platform needed to set an organisation on the road toward sustainability.

The key factors described in this book that facilitate change toward sustainability consistently appear in the successful efforts I examined. In fact, this book is in many ways just a restatement of what the leaders already know and do. Boxes I.1, I.2 and I.3 list the organisations I reviewed during my research.

I started my investigation by seeking the underlying core principles of success. When reviewing each organisation, I tried to determine what was unique about the process it used compared to many others I was familiar with. An iterative

- Norm Thompson Outfitters, a mail-order and retail purveyor of outdoor lifestyle clothing and accessories
- Interface Corp., a global manufacturer of commercial floor coverings
- Herman Miller Inc., a leading manufacturer of office furniture
- Portland Epson, part of the Japanese Seiko Epson group that manufactures electronic products
- Neil Kelly Company, Portland, Oregon's largest home renovation and construction company
- Patagonia, a leading outdoor adventure equipment and accessory firm
- Stonyfield Farm, a producer of organic yoghurt and other food products
- The hydrogen fuel-cell innovations of General Motors
- The Collins Companies, a leading US forest products firm
- Aveda Corporation, a producer of environmental lifestyle products such as cosmetics and consumer services
- Chiquita, one of the world's largest fruit companies
- Xerox, global producer of copiers and document-related services
- Starbucks, international coffee company
- Nike, producer of sports equipment

Box I.1 US-based businesses reviewed

- Henkel, a Germany company that manufacturers a broad range of industrial, commercial and consumer chemical products
- Svenska Cellulosa AB (SCA) of Sweden, a forestry, paper and packing company and the largest private owner of forests in Europe
- Stena Metall AB (recycling group), the largest metal recycler in the Nordic region of Europe
- Swisscom, the leading telecommunications company of Switzerland
- Scandic Hotels, the largest hotel chain in Scandinavia with hotels in other European nations as well
- IKEA, an international furniture company
- Whistler Blackcomb resort of British Columbia, Canada, a major ski and destination resort

Box I.2 **European and Canadian businesses reviewed**

- The Dutch government's National Environmental Policy Plan, arguably the world's leading public sustainability effort
- The US Forest Service's National Community-Based Large-Scale Watershed Restoration Program
- The State of Oregon's efforts to adopt sustainability measures through an Executive Order by the governor and follow-up legislation
- The City of Santa Monica, California, Sustainable Community Program
- The City of Burlington, Vermont, Legacy Project

Box I.3 **Governmental sustainability initiatives reviewed**

process was used to uncover these factors. I continually developed a theory, tested it against the information gathered, revised it and repeated the process. Eventually a framework emerged.

The businesses I reviewed were chosen because they were included in *Portfolio 21*, a sustainability-focused mutual fund, are listed by the US The Natural Step (TNS) organisation as firms that are adopting TNS, or are included in the Dow sustainability indexes. Inclusion in one or more of these indices meant to me that other specialists have examined the companies and deemed them to be among the leaders in the sustainability movement.

I selected some of the governmental efforts because they were deemed to be leaders by the International Council of Local Environmental Initiatives (ICLEI), a UN programme focused on municipal government sustainability programmes, or the International Network of Green Planners, a consortium of governments pursuing sustainability originally organised by the Dutch government. I chose others for review because I knew from personal experience that they were leading attempts to adopt sustainable practices.

None of these organisations or programmes can be considered truly sustainable today. By their own admissions, they have just begun the journey. Many are just

beginning to fully comprehend what the paradigm shift at the core of sustainability means for their organisations. Most still suffer from major inconsistencies. Some, such as Interface, the international manufacturer of commercial floor coverings, have made extraordinary changes in many aspects of their production systems and organisational designs but still use environmentally harmful materials, such as PVCs, and struggle with internal siloing and communication issues.[1] Nike has made impressive progress in the environmental arena but faces troublesome discrepancies in its global labour and public information and communication practices. General Motors is at the forefront of efforts to design and produce fuel cell-powered vehicles while at the same time lobbying to minimise environmental laws and manufacturing gas-guzzling SUVs. Henkel, an international firm with home base in Germany, is one of the leaders in the production of environmentally safe consumer and industrial chemical products. Yet Henkel also owns a 27% interest in Clorox, the US-based maker of household and institutional cleaners that has shown little interest in the environment. Chiquita, the $2 billion global fruit company, has made a remarkable turnaround in many of its environmental and labour practices, but critics say that its existing business model nevertheless harms family farmers and workers in both developing and developed countries. Still others, such as Starbucks, have made progress on environmental and international labour issues, but even with these changes face uphill battles to quell public concern over their globalisation practices. What many Western international corporations see as a natural attempt to expand their business, others see as a conquest of their cultures and as corporate colonialism.

Rather than eliminating organisations from my research because they are not yet fully sustainable, I examined those that are making exemplary efforts to adopt the new path. The challenges faced by the organisations I examined symbolise the hurdles that must be overcome to become more sustainable. They have been criticised and they are responding. Many others will follow.

The organisations reviewed in this book do not constitute an exhaustive list of those pursuing sustainability. Many other commendable public and private efforts could have been assessed. Nevertheless, the organisations I evaluated are among the leaders in the emerging field of sustainability.

My interest in the factors that make it possible for organisations to adopt more sustainable paths began soon after I entered the environmental policy arena some 20 years ago. I was trained in both counselling psychology and environmental science. My first professional job was as a family therapist. As a counsellor I was taught to view families and groups as social systems. Systems-based interventions are required to resolve group dysfunction.

Since leaving the counselling field and settling into the environmental policy arena, I have been continually struck by the lack of attention by government, business and environmental leaders to how organisations change. The major constraint in any transformation process is the ability of people to accommodate change. Few interest groups, however, focus on this fundamental issue when making policy or programme proposals.

1 This was a point raised by employees at Interface Research Corporation when I met with them on 18 February 2003.

There is no one-size-fits-all formula for change. However, the examples provided by the leading organisations suggest that there are a number of key elements of successful transformation—fundamentals that must be adhered to in some fashion for sustainability-change efforts to succeed. The essential elements take on different forms depending on whether the organisation is a private or public entity, if it is publicly traded or privately owned, or if it is large or small. I have tried to highlight these differences when possible. These factors must be tailored to fit the unique nature of each organisation, unit and location.

While many people believe there are major differences between the way government and private-sector organisations implement change, I did not find this to be universally true. The rapid pace of change in environmental, social welfare and economic issues today makes private and public organisations increasingly enmeshed. The private sector, the non-profit sector and private citizens must continually deal with multiple levels of government on sustainability-related issues. Government must deal with these same stakeholders to perform its functions. Although government may have more constraints placed on it by external stakeholders than does the private sector, both struggle in similar ways to mobilise the forces required to adopt sustainable paths.

The most troubling lesson of my research is that a serious crisis of governance and leadership endures in many organisations today. Although they may have excellent skills in most other arenas, when it comes to sustainability, most managers in the public and private sectors do not fully understand the issues and do not know how to devise the governance systems or change strategies needed to adopt a more sustainable path. Worse, people do not seem to recognise their deficiencies in these areas or the effects of these shortcomings on the ability of their organisation to prosper in a rapidly changing world. These findings suggest that the need for a clear understanding of how to lead and maintain organisational change toward sustainability has never been greater.

Although many public and private organisations today are struggling to adopt sustainability measures, a growing number of 'early adopters' are demonstrating that change is possible. Indeed, the leaders are finding that the adoption of sustainability-based thinking, behaviour and practices increasingly generate substantial cost savings and competitive advantage, better labour and community relations, and an improved environment. This means that the barriers to change are not impenetrable. The application of a well-conceived, skilfully applied change strategy can achieve success. This book offers insight into this process.

1

A tale of two companies

John and Jane Emrick, owners of Norm Thompson Outfitters, an Oregon-based catalogue and retail outlet company, spent 1993 living in Europe and Africa. They returned very discouraged about the state of the world and wanted to do something for the environment.

When John returned to daily activities, the company's president asked him to take on a special project: managing the construction of a new corporate headquarters. John and Jane were delighted with the idea, seeing it as an opportunity to make their mark: design an environmentally sound building.

The Emricks found little initial support among Norm Thompson's senior managers and the development team for their idea of constructing a 'green' building. The concept was new to everyone. The Emricks therefore had to drive the process by continually asking how each decision, no matter how small or large, might impact on the environment. The process was slow, but with each success enthusiasm for the concept grew. In the end, the entire design and construction team, including the subcontractors, embraced this new way of thinking.

The building was completed in 1995, within a budget that included some extra costs for green building technologies. It garnered numerous awards including the first Earth Smart certification from Portland General Electric for energy and resource-efficient design, the City of Portland's BEST (Business for an Environmentally Sustainable Tomorrow) award for energy efficiency, and an American Institute of Architects' award for energy efficiency and design. The additional costs of the building's environmental features were recouped in four years due to the more than $25,000 annual energy savings achieved by its design.

With the success of their green building venture, the Emricks were energised about their ability to affect change. Jane soon began to ask the same question about the company as she had asked about the building: How does each decision impact on the environment? This single question proved to be a major turning point at Norm Thompson Outfitters in its approach to the environment.

A short time later after the building was finished, the Emricks and two managers attended a Natural Step workshop. The Natural Step, which is discussed in Chapter 3, is a framework specifically designed to help organisations understand sustainability. John knew that other firms had successfully used The Natural Step to guide

their sustainability efforts and hoped it could help Norm Thompson also. Upon his return from the training, John spoke with the senior management team and employees about the need for a sustainability initiative. When the company's environmental mission statement was being revised, John's persistence paid off.

The management team decided to adopt The Natural Step 'system principles' as their vision to guide the firm's sustainability efforts. These principles were integrated into the long-standing values of the firm and, after a great deal of discussion, a new environmental vision for the company emerged: 'Norm Thompson Outfitters will be a leader in developing business practices that sustain, restore and move in harmony with the natural environment.' This statement changed the company's traditional 'escape from the ordinary' philosophy from a singular focus on the company's products to a broader emphasis on the way it does business.

The Emricks realised that the firm could achieve its new vision only if employees fully integrated sustainability into their daily decisions and activities. The company has three sales divisions: *Norm Thompson*, which produces high-quality clothing for travel, leisure and people on the go; *Early Winters*, which sells rugged clothing and products for those who play outdoors; and *Solutions*, which sells goods that make life easier by providing 'solutions' to challenges throughout the home. All of its products are bought from suppliers. With annual revenues approaching $200 million, Norm Thompson Outfitters has about 600 year-round employees nationwide. They also hire an additional 1,000 temporary employees during their peak holiday sales season to answer customer calls, and package and distribute goods. John and Jane knew it would be a major task to get such a large, changing, geographically dispersed workforce to integrate sustainability into its thinking.

A sustainability-training programme was developed for employees. The sessions included a hands-on exercise that asked participants to evaluate company products based on the principles of The Natural Step. By April 1999, 75% of the firm's employees had completed the training. The vast majority of people came away excited.

Once momentum for sustainability started to build within the company, the senior management team decided to hire a full-time individual to co-ordinate the effort. In a roundabout way, this decision helped solidify management support for the sustainability initiative.

John offered the position to an employee, who, after some investigation and thought, declined. She felt that while John and Jane were fully committed to the sustainability initiative, the other senior managers did not have the same understanding and conviction. The employee therefore concluded that the effort would fail. When John informed the senior managers of the reasons behind the candidate's decision, they initially denied her accusations. However, after some soul-searching they agreed she was right. Ultimately, this event led the management team more fully to embrace sustainability as a core part of the company's mission.

In July 1999, the company hired Derek Smith as the corporate sustainability manager. One of the first things Derek did was to organise a ten-person team. It became known as the 'E-team' (the E representing 'environment'). The E-team included representatives from all units and functions of the company, from senior managers in merchandising and human resources to people who answered the

phone and processed orders. The team was charged to answer one question: 'What will it take to make the cultural changes needed to move the firm toward sustainability?'

The E-team developed lists of potential drivers of the company's sustainability initiative and the potential barriers to its success. It then made two major recommendations. First, the company should develop an action plan that included identifiable, measurable steps to integrate sustainability into the firm's business plan. Second, the plan could not add to the workload of employees. The latter recommendation helped clarify how sustainability would be implemented in the company: it would become 'a thinking filter' for the way employees did their work, not a separate programme or project.

Based on these recommendations, the E-team began to develop an action plan. The plan identified four top environmental issues for the company: global warming, toxic substances and materials, habitat destruction, and waste. Taken from the US EPA's list of emerging environmental issues, these four issues paralleled the four Natural Step 'system conditions'. The action plan linked these issues to five areas in which the company could have the greatest impact: products, packaging, publishing (including catalogue printing), transportation and 'influence' (with suppliers and distributors). The plan enumerated goals, targets and deadlines for every department in these areas. It also established metrics and an evaluation process to measure environmental and economic performance.

The E-team knew it had to make the business case for sustainability. Therefore, to measure the financial outcomes of the sustainability initiative, the action plan set a target that declared that the company would save $500,000 in 2001 and $5 million over a five-year period through various steps.

In April 2000, the company held a half-day 'sustainability celebration' for Portland-area employees and invited guests. While there were other reasons for the event, the primary purpose was to unveil the firm's new 'sustainability action plan'. A few high-profile speakers keynoted the celebration. Each of the division vice-presidents unveiled a departmental sustainability action plan.

Perhaps the most important moment, however, was the closing segment. CEO John Emrick took the podium and asked, 'So, why are we doing this?' Louis Armstrong's 'What a Wonderful World' then began to play in the background. Photos of Norm Thompson employees' children and grandchildren (taken earlier during 'take your child to work day') suddenly flashed across a large movie screen. According to Derek Smith, this final event tied the company's sustainability initiative to a sense of personal responsibility for the future. Derek said the presentation 'left not a dry eye in the house'. By the end of the day, everyone in attendance realised that sustainability was now a central driving force for Norm Thompson Outfitters.

The success of the sustainability celebration generated great momentum that resulted in the achievement of many of the goals laid out in the initial Action Plan. Among the accomplishments, the company has:

- Shifted to a minimum of 10% post-consumer waste paper in its catalogues—the first mainstream catalogue company in the US to do so (the move turned out to be cost-neutral and has been well received by customers).

- Introduced organically grown cotton into selected products in their *Early Winters* product line. The success of this venture led to additional steps to incorporate organic cotton into clothing.
- Reduced the number of mailings it sends through a unique programme called 'ship all together'. In one year, 13% of applicable customers chose this new option. This generated $243,464 in annual savings, saved 30,433 shipping boxes or bags, and reduced the use of filler, tape, labels and inks. It also saved energy and pollution generated from shipping the items.
- Cut solid waste at its headquarters by 41%.

Norm Thompson uses a variety of means to constantly communicate its vision of becoming a sustainable enterprise to employees and stakeholders. The chief financial officer's photo, on the wall above the copier, bears the caption 'Go ahead, make my day. Improve our profitability by using less paper.' Whenever employees implement a great idea they can be nominated for an award. Derek Smith helps the employee document the results of their innovation, focusing on both the environmental and financial savings. CEO John Emrick and company president Becky Jewett personally hand out the awards at monthly associates meetings. Because the awards programme is highly visible, it generates numerous suggestions from employees.

A constant stream of workshops, e-mails and special events educate employees and keep sustainability high on their agendas. The company discusses its sustainability efforts and its results on its website for the public to see.[1] It has also begun to help its suppliers and distributors understand and adopt sustainability measures. For example, Derek Smith sponsors sustainability workshops for product buyers. Suppliers are rewarded through increased sales for producing environmental and socially sound products.

Since achieving its initial goals, Norm Thompson has shifted its focus to the longer-term need to anchor sustainability in its corporate culture. Sustainability performance criteria have been written into employee job descriptions. Sustainability is now a part of the new employee hiring process. In 2000, in a very tight job market, the company filled several key positions with people who specifically wanted to work for the firm because of what it stands for. Derek Smith is convinced that the company is also more productive, though he does not have hard numbers yet to back this up.

In keeping with the company's philosophy of complete honesty about its progress, Derek Smith acknowledges, 'We know the sustainability programme is not quite institutionalised yet.' However, Derek is confident about the future. 'I know we will be successful.'[2] Indeed, Norm Thompson has laid the foundation for a permanent transformation to a more sustainable enterprise.[3]

1 www.normthompson.com
2 Personal communication, May 2001.
3 Personal interviews with John Emrick and Derek Smith, May 2001; review of case study by Owens and Allaway, for the Oregon Natural Step Network 2001; review of company documents.

B&G Power Tools

While Norm Thompson Outfitters was working on its sustainability initiative, B&G Power Tools of Trenton, New Jersey, was feeling quite proud of its new environmental report. (The name, location and some of the details of this story have been changed to protect the identity of the real company.) Released in early 1997 with great fanfare, the document proudly displayed the tenets of the company's new environmental mission statement: 'To be good stewards of the environment through a commitment to sustainable development and meeting all environmental laws.' The report listed the recycling and pollution prevention awards the company had received, summarised its recycling programmes and proudly announced that the firm had met all existing environmental laws in the past fiscal year.

Owned and operated by the Kern family for over 50 years, B&G Power Tools had long been involved with and committed to its community. The company's philanthropic foundation donated thousand of dollars annually to local charities and the arts. Its 650 employees received good wages and the firm took good care of its staff. Adam Kern, the CEO, felt the company's recycling programme and exemplary record of regulatory compliance demonstrated that it cared about the environment.

Since 1995, competition in the power-tool market had increased dramatically. The large retail chain stores that were B&G's major customers had played power-tool firms against each other in a bid to lower prices. Consequently, the company's profit margins were squeezed and it struggled to remain profitable. B&G decided to fight back by installing new equipment to manufacture more of the high-technology power tools that customers increasingly wanted and by flooding the market with new products. CEO Adam Kern felt the firm had to compete aggressively or die.

There were also other issues to be concerned about. State environmental agencies had found significant chemical contamination in the Alder River, into which the company's effluent was discharged. The US Fish and Wildlife Service had recently protected two fish that lived in the waterway under the Endangered Species Act. Though it was in compliance with existing regulations, B&G was still the second-largest contributor of heavy metals, phosphates, nitrogen and biological oxygen demand (BOD) along the entire 150-mile Alder River. B&G was also the community's second-largest consumer of energy and water, the third-largest waste generator and one of the largest sources of hazardous air particulates. The pressures of remaining competitive had diverted the senior management team's attention from these important concerns.

In June 1996, Doug Woll, a supervisor in the manufacturing department, sent a memo to the senior management team outlining concerns about the reliability of the new water pollution control equipment the company had installed. The memo also raised concerns about the age of the backup emergency power system. Woll feared that a power cut could shut down the equipment, causing the release of thousands of gallons of contaminated water into the river. Because the executive team's focus was diverted, they gave Doug's memo only superficial attention. Ken

Jones, director of the company's environmental health and safety (EH&S) department was instructed to look into the matter.

Letting the EH&S department handle the issue was not unusual. EH&S always managed the company's environmental affairs. That way, the other departments remained free to focus on producing and selling products. The firm's new environmental policy had been written by the EH&S department after briefly consulting with the other company units. The department managed the company's recycling programmes and instructed the semi-annual employee EH&S training programmes. They were also responsible for the company's regulatory compliance programmes.

B&G made a point of urging employees to practise sound environmental, health and safety procedures. Posters and training programmes emphasised the importance of these practices. Although no employees other than EH&S staff were trained in environmental management, and environmental achievement was not included in their annual evaluations, staff were encouraged to maintain the record of compliance. They were also encouraged to recycle office paper, bottles, aluminium cans and other items, and to volunteer in local community activities.

At one time in early 1996, before the firm's profit margins shrank and the competition got fierce, Brian McCain, a mid-level manager in the manufacturing division, had proposed to investigate how B&G could produce its products more efficiently, with fewer hazardous materials and less waste and pollution. He even talked about developing an environmental management system.

These were new ideas for B&G. Traditionally, turf battles, interpersonal conflicts and poor communication existed among the different units of the company. Individual departments did not gather data to measure the quantity or costs of the water, energy and hazardous substances they used or the waste they generated. These costs were written off against the overall company budget. Brian thought an environmental management system could resolve these problems and help the company become more integrated.

The firm's chief financial officer, Lois Bohiemer, vetoed the idea. Lois believed in strict management controls to ensure that products were delivered on time within budget. As long as the company met government emissions and discharge requirements, Lois believed it was doing enough. With profit margins down, she felt new investments were better spent on increasing sales, not environmental issues. Fred Ford, chief operating officer, supported Lois's view. Fred had worked for the firm for just one year and was still learning the ropes. He possessed no technical background in environmental management. Fred believed that focusing on these issues would add little value and increase costs. As long as the EH&S department did their job and kept the company in compliance, he was satisfied. When the senior management team made a decision, debate ended. Until recently the company had been very profitable and almost everyone in the firm believed things were fine. One would have been hard pressed to find a reason to question their decisions.

Then, in mid-1997, Doug Woll's worst fear came true. Heavy power usage caused by extremely hot weather led to a temporary suspension of power. The backup power source failed, the company's water pollution control equipment shut down and 300,000 gallons of water laced with highly toxic chemicals spilled into the Alder River. Dead fish floated on the surface of the river as far as 15 miles down-

stream of the plant. Government emergency management authorities immediately closed the river to drinking, swimming and fishing.

The media had a field day. Local television stations provided live news updates every half-hour. Radio talk shows made the event their central theme for several days. The spill made the front page of the local newspaper and remained there for two weeks. Friends of Alder River, a local environmental group, immediately sent out a press release charging that B&G had failed to safeguard the community and the environment. The group claimed the company's only concern was profit and that its environmental report was just 'greenwash'. A local state legislator publicly questioned whether the firm should continue to receive the millions of dollars in pollution tax credits that the state had granted.

After a month or so, the river began to cleanse itself, the media attention faded away and the company slowly returned to a semblance of normality. The EPA ended up levying a hefty fine on the firm for violating the Federal Clean Water Act. EPA also required the company to purchase additional water pollution control equipment, to install an uninterruptible backup power system and to provide more detailed quarterly monitoring reports.

As a result of the events, the senior management team at B&G Power Tools became more defensive. They decided to shelve their glossy environmental report, believing it had not provided the positive public benefits they had hoped. The firm's lawyers were told to do what they could to keep EPA and the state regulators happy. The senior management team instructed the EH&S department to provide greater oversight over the manufacturing division to ensure that future accidents did not occur. This action antagonised the manufacturing department. It also created dissension among other departments, whose managers feared this shift in authority would eventually reduce their power and autonomy.

Once they installed the new pollution control equipment and backup power source, senior management felt their problems were resolved. They put their focus back on remaining competitive and increasing profitability. Even after a crisis of major proportions, little of substance had actually changed at B&G. Some employees noticed the lack of new direction and wondered if it was only a matter of time before another incident occurred.

2

What went wrong?

Why did Norm Thompson Outfitters succeed in beginning to manage its environmental and socioeconomic affairs more effectively and B&G Power Tools fail? One could argue that Norm Thompson's task was easier. It is a catalogue and retail outlet firm, purchases its products from vendors and does not have its own manufacturing facilities. Norm Thompson therefore generates less direct or obvious environmental impacts than a manufacturing firm such as B&G. Undoubtedly, this view holds some truth. Norm Thompson Outfitters will face many challenges as it works with its suppliers and distributors to produce and deliver environmentally and socially sound goods.

Norm Thompson Outfitters also benefited from a senior executive who had a strong personal commitment to the environment. Not all managers feel this way (at least until they understand the need and benefits of sustainability). Consequently, most organisations adopt sustainability measures reactively—in response to new legislation or a crisis, to repair tarnished reputations, or to remain competitive.

The reasons for each organisation's success or failure, however, are more complicated than this. A careful look at the way Norm Thompson and B&G Power Tools chose to generate and use information, make decisions and distribute power, authority and resources through their organisations uncovers the keys to their progress. The divergent approaches to governance were driven, in large part, by the vastly different leadership styles of each organisation. B&G's approach to governance and leadership are very common in organisations that struggle to become more sustainable. These patterns often spawn seven sustainability blunders that poison efforts to reduce and eliminate adverse environmental and socioeconomic impacts.

The seven sustainability blunders

Blunder 1: Patriarchal thinking that leads to a false sense of security

B&G Power Tools thought it was successfully managing its environmental issues by doing what government ordered. This is a patriarchal approach to governance. The patriarchal view holds that there are clear vertical lines of authority in any social system. Information flows upwards to those at the top, who have the sole responsibility for decisions about goals, policy and strategy. Decisions flow downwards from the top to all departments, which implement the directives.

Organisations that use a patriarchal governance model tend to apply it to all situations. They manage their own internal affairs in this way, often through a tightly controlled hierarchical, autocratic power and authority structure. They also tend to manage their external relationships with government in a similar way, handing over responsibility to regulatory agencies to dictate how the organisation manages its environmental, labour and community affairs.

The patriarchal governance model makes perfect sense in some situations. It helps to ensure consistency, control and predictability. These are important issues for a private firm seeking to generate quality products in a timely manner. This type of governance is also helpful to public agencies seeking to enforce laws in a society composed of a large number of people and organisations with diverse values and needs.

Yet, when applied in the extreme to environmental and social welfare issues, the patriarchal model can generate significant unintended negative consequences. Patriarchy is a reactive form of leadership and management. It has evolved into the dominant governance style employed today in large part due to the need to control the highly fragmented linear take–make–waste production system that is the cornerstone of most organisations. Because of its hierarchical multi-levelled nature, patriarchy blocks the inflow of information that can signal trouble ahead. It also sends a message to those in the middle and at the bottom that they are not responsible for their own decisions or actions—their only job is to do what higher authorities tell them to do. This information, decision-making, resource and power distribution model undermines personal responsibility and accountability. It disempowers people, and thus undermines their ability to fully contribute to the organisation.

When environmental or social problems occur, such as the chemical spill and resultant civic strife experienced by B&G, employees within organisations that employ a patriarchal governance model feel little personal responsibility for the damage their operations created. After all, they utilised a long-accepted economic model and did what their internal governance system and the government said to do. Even when such organisations do not employ purely patriarchal governance models, executives and workers alike become complacent about the way they manage their environmental and social welfare affairs. A false sense of security exists. People see no reason to change.

Norm Thompson Outfitters employed a very different approach to governance. The management team and employees adopted a proactive approach that led them

to decide they should take responsibility for all of the firm's environmental impacts, not just those regulated by government. Once the senior executive team embraced the need for change, they did not position themselves as the sole decision-makers. Although senior management maintained their fiduciary responsibilities, information flowed in a circular manner, from employees to top management and back again. The more distributive power and authority model actively engaged employees in planning and decision-making. Meaningful involvement promoted a sense of buy-in and personal responsibility for the environment among employees. This engendered an understanding of the need to transition over time from a straight-line take–make–waste business model to a circular, borrow–use–return approach which will reduce negative impacts on the environment, workers and communities.

The patriarchal governance model also harms government. It generates a tragic misconception that organisations and individuals can generate whatever impacts they desire as long as they do not exceed minimum thresholds set by government for the limited number of issues it regulates. The image of government as the ultimate expert perpetuates a myth that public agencies have all of the information and tools needed to protect the environment and social welfare. Laws and regulations are vital to establish bottom lines. They must be fully enforced and never abandoned. Government, however, will never be able to successfully regulate every potential impact on the environment or socioeconomic wellbeing.

The patriarchal autocratic approach to governance is perhaps the most serious of the seven sustainability blunders because it creates an addiction to the directives of higher authorities and, consequently, to an abdication of personal responsibility. As environmental and social welfare problems grow worse across the globe, the patriarchal governance model will increasingly lead public and private organisations to the brink of self-destruction, as B&G Power Tools found out.

Blunder 2: 'Siloed' approach to environmental and socioeconomic issues

Because their primary frame of reference is the linear take–make–waste economic model, traditional management-training programmes promote a mechanistic approach that views organisations as collections of separate parts that can each be managed independently. Thus, the design and purchasing departments operate more or less independently from the manufacturing, waste management and other divisions. Similarly, the environmental health and safety department handles regulatory compliance, employee health and worker safety issues. In many organisations, sustainability is even handled by a separate unit. The assignment of environmental, labour and human health responsibilities to separate units may provide some control over single-source easy-to-identify problems. The strict partitioning of responsibilities, however, makes it difficult to identify the cause and effect of systemic problems. This is because no single unit can see how the whole system functions and because those who know the organisation's operations best—its employees and stakeholders—are not meaningfully engaged in finding system-wide solutions.

B&G Power Tools fell into this trap. The company created functional stovepipes between departments and isolated environmental management in the EH&S department. This unit handled the issues with little involvement from other departments and functions. B&G also isolated itself from external stakeholders by failing to involve local community groups, suppliers or distributors in discussions about its environmental practices. This approach to operations and governance reinforced the lack of integration that Doug Woll highlighted in his memo.

Norm Thompson Outfitters, in contrast, understood that each unit of the company as well as key stakeholders influenced the way others performed their work. Every unit, therefore, needed to be involved if the company was to become more sustainable. To achieve this, the environment had to become a 'screen' through which all employees view their daily decisions and actions, not a separate programme. A team composed of people from every organisational unit and function helped to develop and implement the company's sustainability action plan. Norm Thompson also realised that success could not be achieved if it isolated itself from external stakeholders. Buyers, environmental non-profit groups and others were therefore also involved. Derek Smith supports and co-ordinates this work. He does not have sole responsibility for it. As a result, achieving sustainability is a company-wide and value chain-wide task.

Most governments are highly fragmented into functional stovepipes and segregate environmental and social welfare issues in separate departments rather than making them everyone's responsibilities. Specialised government environmental agencies regulate the environmental effects of other government departments. For example, US EPA regulates army depots and sewage-treatment facilities. These same agencies oversee environmental issues within the private sector and local communities, which generally have assigned these issues to their own specialised departments. Thus, siloed government agencies interact primarily with the siloed units of business and other government agencies. This segregation anaesthetises society to the environmental and related socioeconomic impacts it generates.

Blunder 3: No clear vision of sustainability

One of the most consistent traits that appear in high-performance organisations is broad-based clarity on what they are striving to achieve. Exemplary organisations are exceptionally clear about their purpose. Purpose is defined by clear visions of the ideal condition they want to achieve in the future. Purpose is also defined by principles that serve as decision-making mechanisms that guide movement toward the vision.

B&G Power Tools failed to establish clarity about what it wanted its environmental programmes to achieve. It also failed to adopt first-order principles to guide decision-making. Key executives viewed the environment as an ancillary issue that just constrained the organisation and generated costs. Consequently, B&G's managers failed to understand that sustainability requires a fundamentally different business model, not just better controls over or incremental improvements to their straight-line take–make–waste production processes. The absence of a clear vision of sustainability led employees to assume that being in compliance with existing laws and regulations was the sole purpose of the company's environmental pro-

grammes. Compliance is a negative, backward-looking vision. It focuses on what *not* to do. Avoiding problems by following government regulations is profoundly different from achieving sustainable development.

Norm Thompson Outfitters chose to adopt a much clearer vision for its environmental efforts than did B&G Power Tools. The more open governance system it employed allowed the company to declare its intention of becoming a sustainable enterprise. It also chose to embrace The Natural Step 'system principles' as the framework it would use to guide decision-making toward that end. These steps provided a forward-looking vision focused on *positive actions* the company would take to move from a linear take–make–waste production system toward a circular borrow–use–return model. This approach would eventually utilise environmentally benign materials, energy sources and production processes, and recirculate waste and end-of-life materials in either closed-loop industrial cycles or back into nature without harming people or the environment. The vision and principles became the driving force—a type of corporate constitution-steering and aligning all organisational activities toward the common goal of becoming sustainable.

The lack of a clear vision is a problem not limited to private companies such as B&G Power Tools. Most governments choose negative, backward-looking visions focused on 'minimising' harm to the environment and social welfare through compliance with minimum standards. Few governments have adopted positive, forward-looking visions or guiding principles that can help their institutions, or society at large, begin to restructure their production models or organisational designs and transition toward sustainability.

Blunder 4: Confusion over cause and effect

A problem cannot be solved if you do not know what it is. Similarly, it is impossible to know if a problem has been solved if you confuse its cause and effect. This is the position many organisations find themselves in today. They believe they know the solutions to their environmental and related social welfare problems, but they don't actually know what causes the problems in the first place. Lacking a sound understanding of the true sources of their problems, organisations resort to treating symptoms.

Because it chose not to generate appropriate data, B&G Power Tools could not identify the actual sources of its environmental problems. Instead, the company focused on trying to control its emissions and discharges, which are just symptoms of more fundamental problems. The real sources of B&G's problems were the way its products were designed and manufactured and the highly toxic materials and chemicals it used. The pollution controls the firm employed temporarily masked these problems and gave a false impression that its environmental risks were being controlled. Thus, managers and employees had the mistaken perception that things were just fine.

Norm Thompson Outfitters took an entirely different direction. It decided to adopt a proactive strategy aimed at generating the data needed to identify and systematically eliminate the sources of all its environmental impacts.

Government regulatory agencies tend to perpetuate the confusion over cause and effect. Most public agencies place the majority of their resources into dictating

the technologies and practices organisations must use to control the symptoms of problems, such as emissions, discharges and habitat impacts. Few place a major emphasis on helping organisations identify and design out the root causes of those problems before they become nuisances.

Blunder 5: Lack of information

Organisations cannot transform themselves unless most employees and even key stakeholders are willing to actively support and participate in the effort. Meaningful involvement often requires changing routines, adding extra duties and making other personal sacrifices. People will resist these changes unless they clearly understand the need, purpose, strategies and expected outcomes of the effort and believe it will succeed and benefit the organisation and themselves. A tremendous amount of clear and easily understood information is needed to generate this type of understanding.

B&G Power Tools did not effectively share information with employees or stakeholders about its environmental programme. The instruments it used, such as the annual environmental report, a few posters and semi-annual EH&S training events were completely inadequate to convey what a commitment to sustainable development involves or why employees should participate.

Norm Thompson Outfitters chose a different way to exchange information. The company's executives continually talk about sustainability. Natural Step-based training, attention-grabbing signs linking sustainability to cost savings, a constant stream of e-mails, talks by various experts, special events and other activities continually reinforce the need, purpose, strategies and benefits of the firm's sustainability initiative and each person's role in it.

Most governments follow the path of B&G Power Tools by vastly under-communicating the need, end goals and payback of sustainable development. Regulatory agencies may occasionally send out notices encouraging energy conservation or recycling. Rarely, however, do governments institute comprehensive communication programmes to educate their employees or the public about sustainability-based thinking and behaviour.

Blunder 6: Insufficient mechanisms for learning

People ultimately learn by doing and by judging results. When employees are given few opportunities to test new ideas, and when few rewards are provided for those who do so, not much learning will occur. A lack of continually expanding knowledge and understanding makes it difficult for organisations to learn how to overcome the many barriers they will face as they transition from a linear to circular production model and from a mechanical to whole-systems-based organisational design.

B&G Power Tools managed only for consistency and control. It did not encourage its employees to continually learn how to be good environmental or social stewards. Innovation was frowned on. The company failed to reward employees who suggested new ideas. In fact, it shunned them. The lack of support for learning

and new ideas prevented B&G from understanding the risks associated with the way its products and process were designed and the chemicals it used. It sought only small incremental changes in its manufacturing process, not major advancements. Consequently, the firm could not foresee, let alone prevent, environmental problems and the resulting community outcry from reaching crisis levels.

By contrast, Norm Thompson Outfitters understood the need to foster continual learning. The company consistently acknowledges and visibly rewards employees who propose new ideas, apply them and learn from the results. New data is turned into useful applied information, which serves to increase knowledge, understanding and wisdom. Senior managers help to remove barriers to success identified by employees through the learning process.

An increasing number of governments reward companies and citizens for good environmental performance with, for example, pollution and waste prevention awards. Few government agencies, however, strongly support constant learning or innovation among their own employees. Even fewer reward the public for testing and learning whole new ways to design out environmental and related social welfare impacts.

Blunder 7: Failure to institutionalise sustainability

The ultimate success of any sustainability initiative is found when sustainability-based thinking, perspectives and behaviour are incorporated into the everyday operating procedures and culture of an organisation. As long as an organisation's policies and procedures remains at odds with sustainability, the risks are high that old thinking and behavioural patterns will eventually rise up and overwhelm efforts to adopt more environmentally and socially responsible paths.

B&G Power Tools failed to align its systems and structures with sustainable development. Its environmental mission statement pointed in one direction, but the firm's vision, goals, structures and strategies stressed another. In fact, by hiring a senior executive with little interest in the environment, B&G reinforced the opposite view—employees clearly understood that sustainable development was not a core element of the company's purpose or values.

Senior management at Norm Thompson Outfitters, on the other hand, made an explicit decision to incorporate sustainability into the company's structure and systems. The firm's vision, goals and strategies are now all working toward the same ends. Measurement tools, employee performance reviews, incentives and other core steering mechanisms explicitly encourage sustainability-based thinking and behaviour and discourage those that are not. People now seek employment at the company because of its values.

Most government agencies follow B&G Power Tools' pattern of neglecting to align their structures and systems with sustainability. Conflicting goals, fragmentation and functional stovepipes remain the norm. Bonuses, job promotions and the hiring of new employees are not dependent on sustainability-oriented performance. Until these and other similar steps are taken, it will be hard to convince government employees or the public at large that government has a solid commitment to the environment or related social welfare issues.

1 Patriarchal thinking that generates a false sense of security
2 'Siloed' approach to environmental and socioeconomic issues
3 No clear vision of sustainability
4 Confusion over cause and effect
5 Lack of information
6 Insufficient mechanisms for learning
7 Failure to institutionalise sustainability

Box 2.1 The seven sustainability blunders

Assessing your sustainability blunders

If you would like to understand the degree to which your organisation or unit suffers from one or more of the sustainability blunders, use the assessment form provided in Appendix A. I have utilised this questionnaire with numerous organisations over the years. It provides a simple means for self-examination. Ask members from different levels and units of the organisation, as well as stakeholders, to answer the questions on the form. Use the information that results as a starting point for a thorough discussion about how the organisation handles its environmental, labour and social responsibilities.

Improved governance systems are vital to sustainability-change efforts

Many organisations believe that to become more sustainable they simply need to improve their pollution prevention, recycling or waste management policies and practices. But the seven sustainability blunders demonstrate how wrong this notion is. If one or more of the blunders exist, spending millions on new technologies or installing new management systems will not, by itself, make an organisation more sustainable. On the contrary, confusion may reign over the purpose and goals of the initiative, new policies and tools are likely to be poorly understood and implemented, employee and stakeholder commitment will be marginal, and thus initial progress is likely to stall shortly after take-off or the effort may simply crumble. In short, the presence of any one of the sustainability blunders may undermine the ability of an organisation to adopt a more sustainable path. Crisis management will remain the norm.

Overcoming the seven sustainability blunders requires making explicit choices to fundamentally change the way an organisation is governed. Flawed information, decision-making and resource allocation systems—the three pillars of governance—make it impossible to build a culture where sustainability is a shared value and norm. When there is a gap between the current culture and the objectives of

sustainability, the old culture will eventually win out. The only way to create alignment between culture and sustainability is to choose new forms of governance that lead to a more equitable distribution of power and authority.

The key to change lies with improved leadership

The ultimate key to transforming the governance system of an organisation so that it embraces sustainability is *leadership*. Although it may be performed differently in the public and private sectors, sound leadership promotes a dialogue that creates change. Many people view the barriers to sustainability as unsolvable mysteries. However, the gods did not decree the barriers to sustainability. They are created by the choices people make. Human choices result from the perceptions of the past that people hold in their heads, their visions of the future, the information they have access to, their ability to influence decisions and shape solutions, and by the ideas they possess about how power, authority and wealth are and should be distributed. Over time, these attitudes and behaviour lead executives and employees to think, solve problems and operate in certain predictable ways. A certain mental framework develops that funnels thinking and perspectives in one direction. In many organisations, the choices that generated these cultural patterns have become ingrained and gone underground. They often hide within the routine of organisational policies and procedures, invisible to the casual observer. But, with strong and committed leadership, the controlling beliefs and mental models can be surfaced and changed.

B&G Power Tools lacked effective leadership. Executives tightly controlled every aspect of the organisation. Senior management put together a narrowly focused symptoms-based environmental plan, delivered it to employees and expected each department to follow it. Due to its governance system, few employees felt empowered to take a leadership role. In contrast, while the senior management team at Norm Thompson Outfitters was effective, even more important was their leadership style that kept the organisation focused on its long-term goal of becoming sustainable while encouraging employees to take it upon themselves to work together diligently toward that end.

Thus, Norm Thompson Outfitters demonstrated that leadership is not just about being on top. In high-performance sustainability-oriented organisations, effective leadership germinates throughout an organisation. Good leaders know this. They also know that a skilful and equitable distribution of power and authority unlocks the doors to deep-seated commitment by employees and stakeholders and is a key to changing outdated and harmful beliefs and assumptions.

Change is possible through different choices

Though the seven sustainability blunders are often difficult to overcome, they can be corrected. The starting point to fixing existing problems and avoiding new ones is to understand that success or failure results from *choices* that people make—not chance. Gaining a clear understanding of what sustainable development involves is the first step in building awareness of choices that can lead to a more sustainable path.

3

A primer on sustainability

> **sus·tain·able** /səˈsteɪnəbᵊl/ *adjective.* Date: circa 1727. **1 :** capable of being sustained. **2 a :** of, relating to, or being a method of harvesting or using a resource so that the resource is not depleted or permanently damaged <~ techniques> <~ agriculture> **b:** of or relating to a lifestyle involving the use of sustainable methods <~ society>.
>
> **sus·tain·abil·i·ty** /səˌsteɪnəˈbɪlətɪ/ *noun*[1]

The previous chapters demonstrate the deleterious effects of a poor understanding of sustainability. Many change efforts fail because they lack clarity about the underlying rationale and purpose. Organisations that are leading the way toward sustainability make extensive efforts to clearly understand the end goals. This requires lucidity about what sustainability involves.

One way to comprehend sustainability is by following the plight of Pacific salmon. Salmon and steelhead are remarkable mysteries of nature. The fish have evolved through thousands of years of struggle to survive in rivers, streams and oceans from northern California to Alaska's Aleutian Islands. Salmon are born in freshwater streams. When they reach juvenile status, the fish migrate, sometimes hundred of miles, to the sea, where they spend from one to four years, depending on the species, feeding on the abundant food that the oceans provide. Adult salmon and steelhead then somehow miraculously return to the very same freshwater streams where they were born, to lay their eggs before they die. The circle of life then begins again, as it has for aeons.

Salmon and steelhead were abundant in the Pacific Northwest through roughly the mid-1880s. They were a prime source of food and had religious and cultural significance for indigenous peoples. Indeed, salmon were the backbone of human society in the Northwest for thousands of years.

The salmon's home—their habitat—is rarely static. The physical make-up of the streams in which they live changes constantly. Landslides occasionally bury a spawning or rearing area with silt and debris, rendering it useless for a time. Fires or drought alter the water levels and modify the basic chemistry of the aquatic

1 *Merriam–Webster Dictionary.*

habitat on which the salmon depend for survival. Floods sometimes rapidly and dramatically rearrange the size and shape of streams while sweeping young salmon smolts away to their death. Ocean conditions also continually change.

Despite these constant trials and tribulations, the Pacific salmon have survived for thousands of years. Why? Because whenever one stream or watershed was destroyed, salmon would quickly migrate to another nearby intact waterway. They found refuge in these aquatic safe havens and began their cycle of life once again. The salmon had options, life-sustaining options that allowed them to withstand the inevitable hardships of life.

In the past 120 years or so, Pacific salmon have lost many of their options. As overfishing occurs and more and more watersheds have been degraded by human activities such as logging, urban development, dams, water pollution and stream-side farming, fewer and fewer aquatic safe havens have remained for the salmon to migrate to when times get tough. As their survival options have shrunk, so have salmon populations. Researchers believe that more than 16 million anadromous salmon returned to the Columbia River Basin of the Pacific Northwest through the mid-1880s. By the 1990s only 2 or 3 million salmon returned (NRC 1996). By 1999, over 90% of all wild native sea-run Pacific salmon were extinct or listed in the US Endangered Species Act as near extinction.

The story of the salmon is the story of sustainability. Sustainability is about *protecting our options*. This requires a new economic paradigm that allows humans to live and work in ways that can be maintained for decades and generations without depleting or causing harm to our environmental, social and economic resources.

Protecting our options

Just as the survival of the Pacific salmon depends on the existence of a diverse array of healthy watersheds and streams, to protect our options we must place as much (or more) emphasis on maintaining and restoring ample, healthy 'stocks' and 'flows' of 'natural capital' as we do on protecting financial capital. *Natural capital* (see Box 3.1) includes all of the environmental resources and ecological processes that sustain life on earth (Hawken *et al.* 1999).

The stocks and flows of natural capital are the very foundation of life. Although some people believe that modern technology can now replicate some of the goods and services provided by nature, ecological systems are far too complicated for humans to ever fully understand. Our technologies will never be able to replace the environmental resources and processes provided by nature. In reality, our economy and communities are completely dependent on natural capital. Protecting our options means that we adjust our economic and community development practices to levels necessary to ensure that the stocks and flows of nature can naturally regenerate themselves over time.

Stocks **of natural capital:**

- Productive, uncontaminated topsoil
- Clean water
- Clean air
- A predictable climate
- Intact ozone layers
- Fertile forests
- Healthy estuaries and oceans
- An abundant array of biological diversity including fish, wildlife, macro-organisms and plant species

Flows **of natural capital:**

- The interactions between the stocks of natural capital generate a flow of ecological processes that clean the air and water, produce healthy soils and forests, and in general provide the ecological basis for the production of healthy stocks of natural capital.

Box 3.1 Natural capital

Definitions of sustainable development

Sustainability—the goal, and *sustainable development*—the behaviour needed to achieve that goal, have emerged as the most common terms used to describe the means for protecting our options. The terminology has been part of local, national and international discussions for well over a decade. First legitimised by the UN World Commission on Environment and Development (the so-called Brundtland Commission) in its 1987 book *Our Common Future* (WCED 1987), sustainable development was defined as 'development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs'. The concepts were made central to international considerations about development, human rights, resource flows, waste and many other matters through the 1992 Earth Summit in Rio.

The Brundtland Commission described some key objectives for sustainable development: 'reviving economic growth, but in a new form (less material- and energy-intensive); meeting essential needs for jobs, food, water, energy, and sanitation while conserving and enhancing the natural resource base; and merging ecological and economic considerations in decision-making' (WCED 1987).

Some governments, communities and private firms have successfully used the Brundtland Commission definition as a starting point for policy development. The Dutch government, for example, decided to *reverse* the Brundtland definition, saying that they did not want to hand over the environmental problems of the current generation to the next generation because they knew what the current problems were (as told by RIVM's *Concern for Tomorrow* [RIVM 2000]) and had a

more or less clear view on what to do in the next 20–25 years.[2] This understanding led the Dutch to declare that it is our generation's responsibility to solve current environmental problems and prevent new ones so that we leave a clean environment to our children.

The Dutch initially defined a 'generation' as 25 years, although the time-frame was later changed to 20 years to match the planning horizon of the government's sustainability-based national environmental policy plan. The Dutch therefore used the Brundtland Commission definition as a springboard for a more precise definition of sustainability development:

> In principle, every generation must leave behind good environmental quality. This means that existing environmental problems must be resolved within the span of one generation (20 to 25 years) while the creation of new problems must be prevented. For the current generation, the environmental legacy from the past must also be reduced to acceptable proportions (VROM 1989: 75).

This definition allows the Dutch to focus policy on a long-term vision of how society would appear in one generation if it were sustainable. The government assesses environmental policies and programmes to determine if they can resolve key environmental problems within the 20–25 year time-frame. If the policies cannot meet this goal, or if it is impossible to measure progress within the 20–25 year planning horizon, they pursue different policies.

The long-term perspective has proven extremely valuable in dealing with the private sector. Paul de Jongh, policy advisor for sustainable development for the Dutch government, says that

> We could share the common idea of solving environmental problems in one generation (nobody could possibly be against the idea) and on that basis we could *negotiate* with the private sectors about *how* we and they could achieve this. In that context it was very important that we were clear about our objectives and goals, and transparent about our strategic thinking and 'logic'. The (organised) private sectors had asked for that clarity again and again and now they got that. Also, our focus was no longer on our policy instruments (regulations, etc.) but on our objectives. This opened up the discussion with private sectors and invited them to think about their own ways of achieving these objectives. On the other hand they forced us to think about achieving their objectives: to stay in business (especially to work on a European level playing field).[3]

The Swedish and Danish governments, the State of Oregon in the US, and other governments worldwide have adopted the Dutch definition and approach to sustainable development in one form or another.

Most organisations, however, have found it very difficult to turn the Brundtland Commission definition of sustainable development into practical policies and programmes. Defining our generation's 'needs', the 'needs' of future generations,

2 Personal communication with Paul de Jongh, policy advisor for sustainable development for the Dutch government, 23 June 2003.

3 *Ibid.*

and whether these 'needs' include economic, social and/or environmental factors is an enormously difficult task. These problems have precipitated numerous attempts to further refine how to protect our options through sustainable development.

Natural capitalism

Paul Hawken and Amory and Hunter Lovins coined the term 'natural capitalism' to describe the process of protecting our options. Natural capitalism includes four elements (Hawken *et al.* 1999):

- *Radically increase productivity in the use of natural resources*. This means using resources more efficiently and effectively. What we gain from one kilowatt of electricity today, for example, is far greater than what has historically been obtained. Continuing such gains is a key tenet of natural capitalism.
- *Shift to biologically inspired production models and materials*. This means reducing wasteful and toxic throughput of materials and substances and, like nature, constantly re-using materials in closed cycles.
- *Move to a 'service-and-flow' business model*. This means shifting from an economy in which the sale of goods is dominant to one based on services and flows (selling performance, quality and utility, not objects).
- *Reinvest in natural capital*. This means sustaining, restoring and expanding the stocks and flows of natural capital.

The Natural Step

Another framework for explaining how to protect our options, and the approach adopted by Norm Thompson Outfitters, is The Natural Step. Founded by Dr Karl-Henrik Robèrt, an oncologist from Sweden, The Natural Step's goal is to discourage people from talking about cause-and-effect relationships, because they are often impossible to identify. Instead, people should just take the natural step of reducing the potential causes of environmental problems.

The Natural Step posits that, to have a sustainable society, the rate at which disorder (i.e. waste—which includes all forms of pollution) is created must be in balance with the rate at which nature can break the waste down and restore order. If this occurs, the biosphere will not degrade. If humans put too much waste into nature or degrade nature's ability to naturally assimilate the waste and generate new order and structure, the biosphere will degrade.

Because matter and energy cannot be destroyed or created, and because they tend to naturally disperse, all materials and substances that are produced by society or that society disperses into nature will continue to exist. Even if this matter is not visible to the human eye, it does not disappear. Sooner or later, it will affect the stocks and flows of natural capital. As this occurs—for example, as toxic materials and substances disperse and find their way into the environment—they

will eventually build up and contaminate the air, water, soil, plants and animals, and our bodies.

Given these understandings, The Natural Step has developed four 'system conditions' that society must follow if it is to be sustainable (see Box 3.2).[4]

1. Nature's functions and diversity must not be systematically subjected to increasing concentrations of substances extracted from the Earth's crust (such as fossil fuels and heavy metals).
2. Nature's functions and diversity must not be systematically subjected to increasing concentrations of substances produced by society (such as synthetic toxic substances and materials).
3. Nature's functions and diversity must not be systematically manipulated, degraded, impoverished, or over-harvested (such as over-cutting forests or driving species to extinction).
4. Resources must be used fairly and efficiently to meet the basic needs of people worldwide (such as producing more products with less resources and distributing them equitably).

Box 3.2 The Natural Step's four systems conditions

The Natural Step framework is being used by an increasing number of organisations in Europe, the US and elsewhere to develop a shared mental model about sustainability. The framework includes a 'funnel' that graphically describes the coming collision between current practices and ecological collapse. It also provides an implementation model. Thus, The Natural Step provides one of the most coherent scientific frameworks for sustainability.

Despite its success, practitioners often say that, although it is one of the best educational vehicles, they sometimes struggle with The Natural Step because its scientific basis makes it seems somewhat linear and because an implementation framework can be difficult to develop. These perceptions perhaps explain why The Natural Step has struggled to be embraced by many organisations in cultures where the basic pattern of thinking and time is more circular than linear, such as those in Asia, Africa and other non-Western nations.[5]

Although Western straight-line thinking has permeated many cultures, the Asian cultures in particular have never abandoned their circular concept of time. The Asian concept posits that, since time is circular, opportunities are never lost because every opportunity will eventually return. There are always opportunities to do better—in our lives or in future times—because time and nature are circular.

4 For more information, see the US and the International Natural Step Network (www.naturalstep.org).

5 Personal communications with Jonas Oldmark, senior advisor, The Natural Step, Stockholm, Sweden, August 1999.

The ZERI approach

The Asian circular-thinking model is one of the foundations for the Zero Emissions Research Initiative (ZERI) approach to protecting our options. ZERI was launched in Japan in 1994 by the rector of the United Nations University. Its goal was to identify key principles for achieving technological breakthroughs that would lead to manufacturing without any form of waste, or zero emissions.

The zero emissions idea is grounded in a simple concept that is well known in business: waste is a measure of inefficiency in the use of resources. Most organisations strive to increase their productivity by striving for zero defects, zero accidents and zero inventories, and by eliminating unneeded steps in production and administrative processes. The ZERI approach simply takes this one step further: All forms of waste should be eliminated, including all liquid, gaseous and solid wastes. All environmental wastes are considered emissions: solid, industrial and hazardous waste as well as discharges into the air, soil or water.

The ZERI approach encourages business to 'do more with less until everything is done without producing waste'. The goal is to transform materials once thought of as worthless (i.e. pollution—which is simply molecular waste—and solid waste) into new products. This leads to more jobs and increased wealth, as industries that were previously considered unrelated cluster together to share by-products. By using all by-products (waste) from one product or process as value-added ingredients for other industries and products, the ZERI approach aims to dramatically increase resource efficiency, generate innovation, increase incomes and create jobs while dramatically reducing pollution and other environmental impacts (Pauli 1998[6]).

Zero emissions pilot projects have been implemented in Japan, Colombia, Brazil, Sweden, Fiji, Namibia, Mauritius and elsewhere. They range from closed-loop farming (e.g. integrated biomass systems) to a zero emissions brewery in Namibia, Africa. Although the ZERI Foundation, formerly located in Switzerland, has recently hit hard times, the zero emissions approach is fairly straightforward, easy to understand and with sound leadership could have significant potential.

Zero waste

A number of programmes in New Zealand, the US and elsewhere use variations of the ZERI theme as the basis for strategies to protect our options. One of the most popular is the 'zero waste' approach. Advocates of zero waste see pollution, waste and other environmental impacts as indicators of inefficiencies within organisations. Inefficiencies almost always generate unneeded costs and lead to social and environmental problems.

As with ZERI, most zero waste advocates focus—at least in theory—on achieving zero solid waste, zero hazardous waste, zero toxics, and zero emissions and discharges. The Zero Waste New Zealand Trust says that zero waste 'encompasses waste elimination at the source through product design and producer responsibility and waste reduction strategies further down the supply chain such as cleaner

6 And personal communication with Gunter Pauli, September 2000.

production, product dismantling, recycling, re-use and composting' (ZWNZT 2002). Some zero waste advocates declare that the goal is to increase efficiency to the point that eventually the entire concept of waste is eliminated. Despite the conceptual focus on eliminating all forms of waste, to date, a majority of the zero waste efforts under way across the globe have predominantly focused on end-of-pipe reductions to solid and hazardous waste in landfills or incinerators.[7]

Ecological footprint

The previous sustainability frameworks place a major focus on the efficiency of environmental management and, to some degree, its effects on social welfare. However, some researchers say that, under our current linear economic model, sustainability requires much more than simply using resources more efficiently: the quantity of the stocks and flows of natural capital humans consume must also be significantly reduced. The Ecological Footprint model developed by Bill Rees and Mathis Wackernagel is an accounting tool that enables companies, communities and governments to estimate their total resource consumption and waste assimilation requirements in terms of a corresponding area of productive land. An ' "ecological footprint" is 'a measure of the "load" imposed by a given [human] population on nature'. The researchers developed a 'consumption–land use matrix' which compares the consumption and waste-assimilation demands of a given population against various types of land that would be required to satisfy those demands (Wackernagel and Rees 1996). One conclusion of the research is that human consumption today is roughly 30% more than the Earth's carrying capacity. Most of the over-consumption occurs in Western nations. For example, Rees and Wackernagel say that the data shows that, if everyone around the globe consumed the way Americans do, three more planets would be necessary to provide the resources needed to sustain them.

To protect our options, Rees and Wackernagel encourage companies and communities to ask, 'What is your ecological footprint?' Specific questions that can be asked with this tool include: How dependent is your organisation or community on resource inputs from 'elsewhere' (imported from outside your local region), and How dependent is your organisation or community on the waste-assimilation capacity of the global commons? Will nature's productivity be adequate to satisfy the rising material expectations of a growing human population in the future? (Wackernagel and Rees 1996). If the answers to these questions indicate your footprint requires more than your fair share of the Earth's resources, steps should be taken to reduce it.

'Cradle-to-cradle' production model through eco-effectiveness

As previously discussed, design experts Bill McDonough and Michael Braungart have developed perhaps the most advanced rationale and implementation strategy

7 ZWA (Zero Waste Alliance, Portland, OR), www.zerowaste.org (2001).

for protecting our options through a model they call 'eco-effectiveness'. These authors call for completely rethinking the way products and processes are designed 'with their future life foremost in mind, rather than as an awkward afterthought' (McDonough and Braungart 2002: 70). Guided by the principle found everywhere in nature that 'waste equals food', eco-effectiveness means designing and manufacturing products and processes that replenish, restore and nourish nature and human society, instead of applying traditional environmental strategies—such as 'reduce, re-use and recycle' and eco-efficiency—which seek to do more with less in order to minimise damage. McDonough and Braungart point out that the traditional approaches only perpetuate the linear take–make–waste manufacturing model, dating to the Industrial Revolution, which generates fantastic quantities of waste and pollution. They call the old paradigm a 'cradle-to-grave' approach. These experts believe that eco-efficiency, pollution prevention, and even zero waste simply seek to make the inherently harmful cradle-to-grave system and the goods and services it produces 'less bad'.

By contrast, eco-effectiveness proposes a 'cradle-to-cradle' production model where products and processes are designed to be ecologically benign and even restorative in nature because after their useful life they will provide nourishment for something else. Eco-effectiveness eliminates the entire concept of waste because in reality there is no such thing. There is no place in the environment to throw things 'away'. Everything humans generate goes somewhere in nature.

McDonough and Braungart describe two distinct global metabolisms: the biosphere, which includes the cycles of nature, and the technosphere, which comprises the cycles of industry and includes the extraction of raw materials from nature. The concept of eco-effectiveness means designing goods and services so that materials produced by society can be safely recirculated back into one or both of these metabolisms. 'Products can either be composed of materials that biodegrade and become food for *biological cycles*, or of technical materials that stay in closed-loop *technical cycles*, where they continually circulate as valuable nutrients for industry' (McDonough and Braungart 2002: 104).

Eco-effectiveness requires eliminating, whenever possible, persistent toxins and bioaccumulative substances from the onset, rather than attempting to filter them out at the end, as traditional environmental programmes seek to do. When no harmful substances are used or generated, there is no need for regulation. If toxic materials and substances must be temporarily used for lack of acceptable substitutes, an eco-effectiveness strategy would ensure that they are completely sequestered, re-used and recycled within industrial cycles and not allowed to dissipate into the biosphere. To achieve this, organisations may become 'material banks' which means they would 'own the molecules' (products) they manufacture. For example, companies would shift from producing and selling goods to leasing them so that they can retain control, take back, and ensure that they are recirculated into either biological or technical cycles.[8] Eco-effectiveness also requires that products and processes be designed to be easily disassembled, that local materials be used and human systems and industries fit local ecological and cultural needs, and that

8 Personal conversation, Ken Alston, 14 April 2003.

renewable energy such as solar and wind be the sources of power when possible. In short, everything in the technosphere should be designed to respect the diversity of nature and human society.[9]

In many cases, the shift to eco-effectiveness requires whole new business models. In addition, eco-effectiveness challenges some of the basic assumptions of the sustainability frameworks previously described in this chapter. For example, rather than a blanket approach of reducing consumption to protect the environment, a strategy based on eco-effectiveness would perhaps *increase* the consumption of services over current levels while decreasing the consumption of physical products. Rather than extending the life of products as long as possible by manufacturing extremely durable goods, eco-effectiveness would possibly *reduce* their durability so that they decompose at a rate that matches their 'defined life-periods': the length of time they are actually needed by a consumer.

McDonough and Braungart say that, because more people are needed to capture, disassemble and recirculate materials into the technosphere and biosphere, eco-effectiveness would enhance economic growth and job creation, not constrain it. However, growth would occur in a fundamentally different way than is currently practised. For example, few people want automobiles that are 30 years old. Given the speed at which technologies are changing, perhaps cars should have a lifespan of two or three years so that people consistently drive state-of-the-art vehicles. This paradigm shift would require that car owners obtain new vehicles every few years and that auto-makers retain control of the autos they manufacture and continually replace them with updated versions. Vehicles older than three or four years would be taken back and their parts and materials re-used and recycled for the same or higher uses. If toxic materials or substances must be used until alternatives are found, they would be carefully sequestered within the technical cycles of the auto industry. The natural materials used in autos would be reassimilated into nature and used for restorative purposes. For example, natural fibres such as kenaf, hemp or flax used in interior door panels would be composted and become fertiliser. This approach, of course, requires that the vehicles themselves and the automobile industry as a whole be redesigned around the 'cradle-to-cradle' production scheme. Each step in the process would create new businesses and jobs.

While natural capitalism, The Natural Step, ecological footprint and the other sustainability frameworks are excellent educational media that build awareness of the flaws in the existing industrial paradigm, eco-effectiveness provides one of the most advanced sets of principles and a practical framework for a new circular (closed-loop) economic model that can sustain nature and human society into perpetuity.

Core elements of sustainability

This discussion makes clear the variety of ways to define and implement sustainability measures to protect our options. There is no single 'best' way. The approach

9 For more information see McDonough and Braungart 2002.

adopted by an organisation should fit its needs, geography and cultural backdrop. Although they may seem to differ on some issues, careful review of each of the approaches finds there is core agreement that, as McDonough and Braungart have so eloquently said, sustainability involves a fundamental shift from a linear take–make–waste production model to a circular borrow–use–return approach. Figure 3.1 describes the traditional unsustainable take–make–waste approach while Figure 3.2 describes the sustainable circular borrow–use–return.

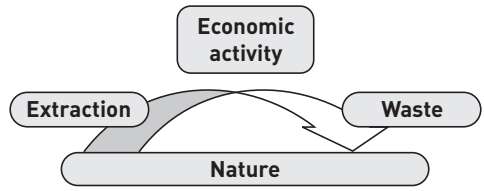


Figure 3.1 The unsustainable linear 'take–make–waste' economic system

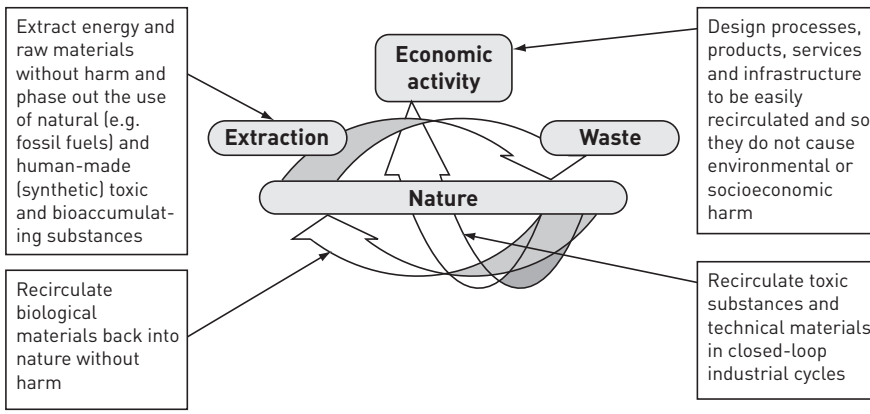


Figure 3.2 The sustainable circular 'borrow–use–return' economic model

Sustainability requires improved social equity

If society is to successfully transition to a circular borrow–use–return model of economic and community development, every human being must have access to an equitable share of the stocks and flows of nature. This is not just about altruism. It's about self-preservation.

An additional 80–90 million people are joining an already-crowded planet each year. The demand for water, shelter, healthcare, education, food and jobs is consequently rising exponentially. If society does not provide basic goods and services in an equitable manner to the world's growing population, unrest will grow. When people have nothing, they have nothing to lose. Feelings of despair contribute to the growth of terrorism. As the 11 September 2001 attacks on the World Trade Center in New York and on the Pentagon demonstrate, increased social upheaval will threaten international trade, travel, food security and the world's economic systems. It also threatens personal safety and personal liberties.

Although many in the West believe that the disparity between rich and poor is narrowing worldwide, the opposite is true. More than 100 nations, totalling over 1.6 billion people, have seen their economies decline in the past decade. The per capita income in 89 nations is lower now than it was a decade ago. Estimates by the International Labour Organisation suggest that one-third of the three billion workers in the world are currently either unemployed or underemployed.

When economic hardship and poverty exist, people will do whatever they believe is necessary to survive. This may include overcutting forests, selling endangered species, over-harvesting fish, draining surface and groundwater for agricultural or residential use, exhausting soils through over-intensive farming and farming on highly erodable marginal lands, manufacturing products and constructing buildings and infrastructure without concern for the environment, and many other damaging activities. Thus, the stocks and flows of natural capital that we *all* rely on for survival will be threatened if society does not equitably share resources and provide basic goods, services, jobs and incomes with the world's growing population.

If we are to reduce social unrest and generate support for the transition to sustainable development, the way in which resources and energy are used and distributed must be significantly improved so that more people have access to the limited supply provided by nature. This can be achieved only by establishing circular borrow–use–return economic systems that protect and enhance workers, communities and cultures and which allow resources to be utilised and distributed more efficiently and effectively.

Sustainability, compliance and pollution prevention

The shift from a linear to a circular production model means that sustainability offers a new and very different paradigm for economic and community development. The new approach challenges business, government and civic leaders to

think and act in new ways. In many ways, sustainability and traditional management approaches are as different as peace and war.

Since the 1960s, most of the West has primarily relied on command-and-control regulation to improve the social and environmental performance of public and private organisations. The environmental regulatory system was initially established to control large, easy-to-identify sources of pollution such as smokestacks and outflow pipes within industries that had not been previously regulated. By setting limits on emissions, discharges and habitat impacts, the regulatory system was successful in securing the first round of reductions of harmful impacts. It should therefore be thought of as Western society's initial attempt to create a protective system for the environment. However, ample experience shows that the regulatory system cannot fully protect the environment or human health because it does not eliminate the sources of problems. It is also not a comprehensive system.

Nearly three decades after its introduction, what has become evident is that, as important as the regulatory system may be, it is but a diminutive floor. The regulatory system simply sets a bottom line for a limited number of the more obvious, egregious environmental and social (mostly public health-related) impacts that are generated by the inherently damaging take–make–waste economic system. It was not designed to support a shift to a circular borrow–use–return approach. Thus, it is not intended, and is ill suited, to steer public or private organisations toward sustainability.

Environmental risk is a function of the *hazard* of the impact (e.g. its toxicity or degree of disturbance to natural habitat) multiplied by the degree and duration of *exposure* to the hazard. (The risk equation for humans also includes the sensitivity of individuals to a given dose of a hazard such as a toxin.) Risk = hazard × exposure (× dose response). The regulatory system predominately focuses on just one part of this equation; it seeks to control risk by controlling *exposure*. For example, regulations set maximum limits on air emissions or discharges to water and land, require that workers use gloves and respirators, or require the use of scrubbers on smokestacks. The regulatory system does not, for the most part, focus on reducing the *hazards* associated with exposure. As B&G Power Tools found, when an organisation primarily focuses on controlling exposure, their scrubbers can break down or other equipment can fail. If your exposure controls fail, the result will be *maximum environmental hazard and impact*.

Regulatory systems also cannot comprehensively address all of the ways in which society affects the environment or social welfare. The systems in the US and most other Western nations are characterised by broad-scale solutions and piecemeal interventions. Regulatory agencies function within the context of a hodgepodge of laws that have been enacted one at a time over many years, usually in response to a crisis. The laws are almost always compromises between industry, environmentalists and others. Few of today's laws or policies therefore address the whole—the interactions among the elements and processes of ecosystems or the interrelationships between ecology, commerce, communities and culture.

Because they don't have the manpower or expertise to tailor unique interventions to every single organisation, regulatory agencies require technologies and so-called 'best management practices' (BMPs) that can be applied across the board.

Most of the required technologies and actions do not cause fundamental changes in the extraction processes, materials and energy selection, process and product design, transport systems, or waste disposal methods that produce environmental and socioeconomic impacts. Consequently, they do not prevent environmental impacts. BMPs simply shift the impacts to other venues or delay them into the future. These practices should be considered 'better-than-nothing', not 'best'.

In sum, the limitations of the regulatory system mean that, although being in compliance with the law is extremely important; compliance alone cannot lead society to sustainability.

Despite its limitations, the regulatory apparatus is often the only tool available to moderate the damage generated by poorly designed and run operations. It is, therefore, an important tool to use during the transition to sustainability. However, compliance with regulations cannot be the end goal. As Bill McDonough and Michael Braungart have so aptly said, the need for regulation connotes a design failure. Regulations are actually 'licences to harm'. Government issues permits so that public and private entities can damage the environment, workers and communities at 'acceptable' levels and rates. Being in compliance simply means that an organisation is 'as bad as the law allows' (McDonough and Braungart 2002: 61). Much more than compliance is needed to set an organisation on a path toward sustainability.

Like the regulatory system, pollution prevention and sustainability can often be very different. The 1990 US Federal Pollution Prevention Act described three key steps to reducing emissions and discharges: reduce, re-use and recycle. The act listed a number of strategies to accomplish this including better internal inventory controls, process controls, in-process recycling and housekeeping (record-keeping) changes. Organisations have made important strides in reducing pollution through these steps. Pollution prevention should remain a valuable instrument in the environmental toolbox. However, many traditional pollution prevention programmes still place the majority of their efforts on reducing the exposure of pollutants, not the hazards associated with them.

For example, organisations may reduce their emissions and discharges per unit of product or process, but they may still use highly toxic chemicals and materials and thereby generate persistent, bioaccumulating toxic emissions and discharges. Most pollution prevention programmes do not focus on limiting the total quantity of pollutants. It might be possible, therefore, to achieve a 30% reduction in emissions per unit of product, but that would not prevent the total amount of emissions from growing as more units are manufactured (which is a common trend today). Organisations that have applied traditional pollution prevention measures may also use energy and raw materials that have been extracted from nature in ways that degrade the stocks and flows of natural capital. In addition, they may use material- and energy-intensive feedstocks and generate solid and hazardous wastes that damage the environment and human health.

Although they are extremely important and should never be abandoned, because of these and other limitations the regulatory system and pollution prevention ultimately cannot fully protect workers, communities or the environment. These approaches simply make organisations 'less bad' (McDonough and Braungart 2002: 61).

Sustainability is the next step

In addition to concerns over poverty and social equity, the field of sustainability has emerged because of the constraints of the regulatory system and the limits of pollution prevention. Sustainability seeks to eliminate environmental hazards as well as the exposure to those hazards in a way that improves social and economic wellbeing. Sustainability focuses on becoming thoroughly good, *not* less bad. It does through an interlinked five-step process that builds on the traditional three steps of pollution prevention. In practice, the five steps include redesign, replace, reduce, refine and recirculate.

Principles of sustainability suggest that the first priority for public and private organisations should be to *redesign* products, processes, services and physical spaces (buildings, infrastructure) to conform to the principles of a borrow–use–return (eco-efficiency) approach. In the long run, this is where the greatest opportunities lie. The key long-term solution to sustainability is to redesign our economic systems so that the energy and raw materials are extracted from nature without environmental or socioeconomic harm and do not contain toxic or bioaccumulating substances, so that our manufacturing, transport, energy and infrastructure systems are environmentally benign, and so that industrial by-products and end-of-life materials are either fully sequestered and recirculated within technical cycles for continued use by industry or within biological cycles for reintroduction into nature.

Although a complete redesign is the most desirable solution, it is not always feasible. Many of today's products (such as housing stocks, etc.) and industrial processes will be in use for decades to come. It will be a long time before products and processes fully designed around the common themes of sustainability become the norm. While the transition to sustainable design unfolds, it is important to make significant improvements to existing products and services. The first step to improving existing processes and goods is to *replace* environmentally harmful materials, substances and energy sources with those that are safe for the environment and people. This may involve, for example, shifting to citrus-based non-toxic cleaning substances and phasing out those with hazardous materials.

Once safer materials and energy sources are in use, the next step is to identify ways to *reduce* the amount of those feedstocks that are used and consumed, as much as possible. This can be accomplished by eliminating excess inputs. For example, purchasing policies can be changed to provide more exact specifications for raw materials delivered by suppliers and to eliminate packaging or require suppliers to take back packaging materials.

- Redesign
- Replace
- Reduce
- Refine
- Recirculate

Box 3.3 The '5 R' hierarchy of sustainability

After the quantity of materials and energy inputs is reduced, significant *refinements* should be made in production processes and delivery systems to greatly increase the efficiency by which the remaining feedstocks are used. This can be accomplished by, for example, improving energy and water efficiency.

Finally, methods should be adopted to *recirculate* all of the by-products and materials once considered waste into new processes or products (the technosphere) or back into nature (the biosphere) with no harm to the environment or humans.

Ideally, these steps should be completed simultaneously using a systems-based approach. Even if a fully integrated approach is not employed, the hierarchy serves a useful reminder of the actions organisations can take to become more sustainable. Adopting this approach requires that sustainability-based thinking become integrated into the everyday choices made by employees and stakeholders, just as financial concerns are integrated into daily decision-making.

Sustainability at work: the Interface example

The sustainability action plan adopted by Interface Corp., one of the world's largest producers of commercial floor coverings and a global leader in the sustainability movement, demonstrates how the hierarchy of steps can be translated into action. The company's goal is to become the world's first truly sustainable company. To achieve this vision, Interface has adopted a seven-part strategy:

1. Achieve *zero waste*. The company launched an effort called QUEST (quality utilising employee suggestions and teamwork) to squeeze out all waste, including wasted steps and 'anything we don't do right the first time'. The QUEST programme helped the firm cut solid waste to landfills (per unit of production) by 70% from 1996 to 2001. Water use, an important indicator of environmental impacts related to consumption and waste-water, has been reduced by 26% per unit of product in that same time-period. This was accomplished through water conservation efforts, process enhancements (e.g. re-using dyebath water) and process eliminations (e.g. eliminating printing process). The most significant improvement has come in the modular carpet business, where water consumption per unit of product has been reduced by 68% during that time-period. The fabrics businesses reduced their consumption of water per unit of production by almost 35%. Through the use of renewable energy, rematerialisation (replacing petroleum-based materials with non-petroleum-based matter) and dematerialisation (creating products with less 'stuff'), petroleum-based materials have been reduced by 33% from 1994 through 2001. In 2001, Interface increased its use of non-petroleum-based materials in its products to 24%.
2. Generate *benign emissions*. Worldwide, Interface has actively worked to eliminate air emissions (or stacks) and effluent components (or discharge

points). The company inventoried every outlet pipe in its facilities to see what was being released and the amount of each emission. By 1998 the company had reduced the number of stacks from 247 to 185. When the investigation began, there were 18 process-effluent pipes. Today there are 10. In all, 71 stacks and pipes have been closed off, and emissions of all types have been reduced to the toughest standards. Using 1996 as the baseline, globally Interface reduced carbon dioxide emissions by 25.6% through 2001.

3. Shift to *renewable energy*. This means slowly shifting to solar and other forms of renewable energy. By 2001, Interface had reduced its use of non-renewable energy by over 18% since 1996. The company has also pursued many renewable energy projects, such as the application of photovoltaic power at its Intek factory in Aberdeen, North Carolina, and its Bentley Prince Street factory in southern California.

4. *Close the loop.* This line of attack introduced closed-loop recycling. Two cycles have been established: a natural, organic cycle which recycles natural raw materials and compostable products (which they call 'dust to dust') and a technical cycle, which recycles man-made materials and precious organic molecules over and over again. In 2001, 74% of the waste generated by manufacturing facilities worldwide was recycled into other products or used to generate power in environmentally efficient energy facilities.

5. Use *resource-efficient transportation*. This is an area the company feels is the most difficult area to resolve. Although the company has purchased hybrid gas–electric cars, increased its use of video-conferencing, eliminated unnecessary trips, sponsored the planting of more than 31,000 trees to sequester more than 10,000 tons of CO_2 over their lifespan, and taken other steps, it has not yet determined how to contact customers and deliver its products in a truly sustainable manner.

6. Expand the *sensitivity hookup*. This track focuses on the human and social elements of sustainability. It includes service to the community through involvement and investments (such as in education) and developing closer relationships between employees, suppliers and customers. Interface employees are continually educated and sensitised to their stewardship responsibility for 'the treasure of life in all its forms, as well as Earth's life-support systems'.

7. *Redesign commerce*. To Interface this means shifting emphasis from selling products to providing services. As a result of this new way of thinking, the firm created the 'evergreen service agreement' whereby carpet is no longer sold outright to customers, but leased. As carpet squares wear out, Interface replaces them with new carpet and recycles much of the used materials into new carpets. Although available, the Evergreen lease is not yet a big seller, though product take-back is increasing dramatically.

While Interface has perhaps gone farther than most other organisations toward sustainability, senior executives readily admit they have a long way to go to achieve their vision of becoming the world's first truly sustainable company. They acknowledge, for example, the need for help from their suppliers, distributors and customers to break through the next level of barriers to success. They also acknowledge the need to design a number of new breakthrough technologies. Company founder, chairman and former CEO Ray Anderson believes new laws such as shifting taxes from labour to waste and pollution are also needed to help his firm achieve its goals (Anderson 1989[10]).

Although the people at Interface acknowledge they have just begun the journey to sustainability, they have achieved some impressive results already. One outcome is significant economic returns. This suggests that, if skilfully applied, sustainable development could become a major economic driver.

10 And personal communication with Ray Anderson, September and November 2001.

4

Socioeconomic implications of sustainable development

Interface's sustainability action plan generated cumulative savings from global waste elimination of over $200 million from 1995 through 2002.[1] Chairman and former CEO Ray Anderson believes the sustainability initiative has also helped to increase sales by $200 million over that time-period with practically no additional input of extracted materials and no harm to the biosphere. These notable outcomes suggest that, when sustainability measures are applied in a comprehensive and systematic manner, they can save significant dollars, become a source of competitive advantage and thus create value.[2] When planning a sustainability initiative, these benefits should be identified and consistently highlighted.

Not all organisations believe that sustainability can add value. Most direct their environmental capital expenditures toward downstream end-of-pipe pollution controls or clean-up technologies. Because end-of-pipe technologies do not change the processes or products that cause environmental impacts in the first place, the costs of these technologies get added on to the existing cost of doing business. They can therefore seem expensive. This is why many non-sustainability-focused organisations view environmental management as simply a cost centre and seek to minimise the expenses of complying with regulations.

Interface's experience, however, along with a growing stream of data from other sources, strongly suggests that the adoption of sustainability measures can be cost-neutral or may even turn environment management into a profit centre.

For example, a study I co-authored in 1999 entitled *Saving Salmon, Saving Money: Innovative Business Leadership in the Pacific Northwest* assessed the costs and benefits of sustainability measures implemented by 375 organisations in the states of Oregon and Washington (Goodstein *et al.* 1999). Data on cost savings were available from 137 of the businesses, which reported a combined *minimum* gross savings

1 Personal communication with Buddy Hay, vice-president sustainable operations, Interface research operations, 22 January 2003.

2 Interface *Corporate Report*, and personal communication with Ray Anderson, November 2001.

of over $42 million from 1992 to 1999, with most of the savings coming in the last three years.

A follow-up study I produced with one of my graduate students entitled *It's Just Plain Good Business: The Economic and Environmental Benefits of Sustainability as Exemplified by 160 Case Examples* found that 108 manufacturing, retail and service-sector organisations in Oregon and Washington generated a total annual savings of over $55 million through the application of energy efficiency, renewable energy, hazardous and solid waste reduction, re-use, recycling and other sustainability measures. Available data indicated that the projects paid for themselves in an average of less than two years (Doppelt and Watson 2000).

Few of the organisations we examined in *Saving Salmon, Saving Money* or *It's Just Plain Good Business* had instituted comprehensive sustainability programmes. Most just focus on one or two elements, such as energy efficiency or recycling, but not on complete programmes such as Norm Thompson Outfitters or Interface have initiated. It is highly probable that the firms we looked at would have saved substantially more money had they adopted comprehensive sustainability efforts.

Further, in *Saving Salmon, Saving Money* we estimated that at best 6% of the firms in Oregon and Washington are actively applying sustainability measures. In the majority of sectors, the total is probably below 1%. The low level of involvement suggests tremendous opportunities to improve environmental quality while saving millions of dollars at the same time.

In addition to cost savings, by adopting sustainability measures the organisations described in *It's Just Plain Good Business* took major steps to reduce their environmental effects. Box 4.1 summarises some of these benefits. These direct environmental savings generated multiple indirect but important benefits as well. Box 4.2 summarises the indirect benefits.

- 1 billion gallons of water saved annually
- 1 million kilowatt-hours, 175,200 million BTUs, and 5.4 million therms of energy saved per year
- 183,000 gallons of gasoline and diesel fuel saved annually
- 21,000 tons of reduced carbon dioxide emissions saved annually
- 14,225 tons of solid waste, including steel, aluminium and plastic saved annually
- 714,000 pounds of food, 560,000 pounds of paper/packaging, and hundreds of thousands of moving boxes saved per year
- 194,600 polystyrene cups and bowls, 600 pounds of polystyrene peanuts, and 157,000 pounds of hazardous/toxic waste diverted from the waste-stream

Box 4.1 **Environmental savings made by 160 organisations studied in *It's Just Plain Good Business***

Source: Doppelt and Watson 2000

In sum, our studies suggest that, while initial investment costs may be (but are not always) required, the return on sustainability-oriented investments can often be rapid and large. This conclusion corresponds to the economic benefits docu-

- Improved water efficiency leaves more water in stream for Pacific salmon and other aquatic organisms.
- Energy use is reduced since less water needs to be treated before use, pumped to sources and re-treated after use.
- Energy efficiency reduces the need for power from hydroelectric dams, allowing more water to be spilled to promote fish passage.
- Becoming more energy-efficient also reduces carbon dioxide emissions.
- Reducing the use and discharge of hazardous substances and toxic materials reduces the contamination of surface water and groundwater, soils, and the atmosphere. This saves businesses and taxpayers the cost of future clean-up.
- Reducing, re-using and recycling waste reduces the need for virgin feedstocks, relieves pressure on landfills, and reduces the leaching of toxic substances from landfills into streams and groundwater.
- Constructing buildings with environmentally sustainable practices and materials preserves land and provides numerous other environmental benefits.

Box 4.2 **Indirect environmental benefits achieved by 160 organisations studied in *It's Just Plain Good Business***

Source: Doppelt and Watson 2000

mented by leading companies across the globe that have adopted sustainability measures. Box 4.3 summarises some of these cost savings.

Not just large corporations can save money through the adoption of sustainability measures. Small and mid-sized firms can also benefit. Box 4.4 describes some of the savings local businesses achieved in the small rural community of Hood River, Oregon, during a sustainability initiative called the 'Green Smart' programme that my students and I helped organise.

The savings found by the firms described in Box 4.3 correlate to many other studies that strongly suggest the adoption of sustainability measures can be cost-neutral or generate substantial economic benefits.

ECONorthwest, an economic consulting firm based in the Pacific Northwest, synthesised numerous studies for my organisation that assessed the relationship between corporate financial and environmental performance and found they almost universally came to similar conclusions (ECONorthwest 2003):

> Two categories of studies bear most directly on questions about the relationship between overall corporate financial and environmental performance. One looks at a cross-section of firms within a single industry and across industries to see if there is any correlation between their environmental performance and their shareholder value over a period of several years. The other looks at the financial performance of portfolios of investments favoring firms with good environmental records to see how these portfolios fare relative to those without such preferences.
>
> **Cross-Section Studies.** These summaries illustrate the general scope and findings of the cross-sectional studies:

- Interface, one of the world's largest producers of commercial floor covering, saved over $200 million from 1996 to 2002 through its sustainability efforts.
- SCA AB, a European-based integrated paper company, saved between $7 million and $8 million by reducing waste by 18%.
- Hewlett-Packard in Roseville, California, reduced its waste by 95% and saved $870,564 in 1998.
- STMicroelectronics, a Switzerland-based technology manufacturer, reported that its sustainability policies are projected to save $900 million between 1994 and 2010. In 2000, the company saved $38 million in energy and $8 million in water costs.
- Many IKEA retail furniture outlets are saving $5,000 per month due to waste reduction, re-use and recycling programmes, and retail prices have been reduced by about 2.5% annually due to sustainability efforts.
- Whistler Blackcomb ski resort in British Columbia, Canada, is saving $110,000 a year through waste reduction efforts related to its sustainability plan.
- Deutsche Telekom, the German telephone company, reduced energy consumption by DM141 million from 1995 to 2000 while reducing CO_2 emissions by almost one million tons per year. The company also saved between DM4 and 5 million by recycling and re-using raw materials in its cabling sector.
- DuPont slashed its energy use by one-third at its New Jersey Chamber Works facility and saved over $17 million per year on power while reducing greenhouse gas pollution per pound of product by nearly one-half. In 2000, the company saved almost $400 million due to resource and productivity improvement efforts.
- Baxter International, a Deerfield, Illinois-based medical products maker saved $12 million out of a net income of $740 million in 2000, or 1.5% of the company's net income, from its sustainability efforts. The company is saving $35,000 a year at its Vienna, Austria, facility due to new recycling operations.
- NNT, Japan's largest single purchaser of electric power, believes it will generate ¥100 billion in savings over 10 years through energy conservation.
- The Collins Companies, a US forest products firm, saved over $1 million through a sustainability initiative at is Oregon hardboard and plywood plants.
- Herman Miller, a $2 billion-per-year manufacturer of office furniture, conservatively estimates it has saved millions from energy and packaging waste reductions.
- Scandic Hotels saved over $1.5 million from 1996 to 2001 reducing energy, water and waste while spending $150,000, a tenfold return on investment.
- Xerox Corporation achieved several billion dollars in costs saved or avoided through its 'waste-free' product and factory initiatives while decreasing municipal, hazardous and chemical waste and water discharges by 90%.

Box 4.3 **Cost savings made by leading large private firms**

- Duckwell-Pooley Fruit Co. changed to a tighter bin-stacking arrangement and made energy-efficient upgrades saving $46,000 annually in energy with a seven-year pay-off.
- Columbia Gorge Veterinary Clinic cut energy costs by 25–30% by upgrading ventilation that reduced the need for air conditioning.
- Accent Painting reduced the amount and costs of water and thinner used for clean-up and saved money by re-using plastic-coated curtains as drop cloths.
- Gorge Publishing Company installed a ground-source heat pump that reduced heating bills by 50%.
- Hood River Chamber of Commerce reduced costs by installing efficient lighting, heating fixtures, occupancy sensors and low-flush toilets. They also reduced paper use and costs by 40%.
- Hood River Sports Club installed energy- and water-efficient fixtures in a building expansion and saved $25,000 with a 1.5 year pay-off.
- Luhr Jensen & Sons Inc. replaced a degreasing system and probable ozone-depleting chemicals with an aqueous-based system saving $4,600 per month.

Box 4.4 **Cost savings achieved by small businesses in a rural Oregon community: the Hood River 'Green Smart' programme**

- An analysis of firms in industries with substantial emissions were tested to see if a correlation exited between their environmental efficiency, measured as emissions per unit of production, and their financial performance, measured as returns on sales, assets, and equity. The authors concluded that firms that reduced emissions tended to exhibit improved financial performance in subsequent years (Hart and Ahuja 1996).
- An analysis of 243 firms conducted statistical tests to see if there was a significant relationship between their financial performance, measured as return on assets, and their environmental performance and their ratings by an independent organization, covering levels of emissions, rates of reduction of wastes and emissions, compliance with environmental regulations, environmental liabilities, and adoption of technologies and systems to prevent pollution. The authors concluded that financial returns were positively correlated with environmental ratings. This study was published in the *Academy of Management Journal* after a rigorous peer-review process and won a prestigious Moskowitz award. The lead author, Mike Russo of the University of Oregon Lundquist School of Business, concluded that, contrary to the mistaken belief that environmentally responsible practices represent costs without benefits, 'When you actually crunch the numbers, it turns out that good environmental citizenship is great for the bottom line' (Russo and Fouts 1997).
- An analysis of 89 multinational corporations based in the US examined the extent to which they benefited during the period 1994–97 by taking advantage of lax environmental standards in developing countries. The authors concluded higher market val-

ues were enjoyed by the firms that applied to all operations a single, environmental standard that was higher than those in developing countries (Dowell *et al.* 2000).

Portfolio Studies. The portfolio studies step back from the characteristics of individual firms and compare the financial performance of green portfolios against the performance of those that reflect the market as a whole. A recent summary of the literature lists studies that have made the comparisons looking at different industries, time periods, determinants of which firms are included in green portfolios, and indicators of financial performance (Goodman *et al.* 2002). The summary states that three of the most prominent studies produced these key findings:

- '[T]here was no significant cost to social and environmental screening, even when controlling for beta (risk), dividend yield, growth, and corporation size. Because the authors ran the environmental data separately, the results also show in particular that there is no significant cost to screening out just the worst environmental actors in a large portfolio of stocks' [Stone *et al.* forthcoming].
- 'Overall, the authors concluded that "investors who choose the environmental leaders in an industry-balance portfolio were found to do as well, and sometimes better, than those choosing the environmental laggards in each industry" ' [Cohen *et al.* 1995].
- '[E]quity portfolios composed of stocks with good environmental ratings are likely to outperform the stock market while controlling for some macroeconomic trends' [Blank and Carty 2002].

Taken together, these and similar studies, at a minimum, clearly counter the common belief that firms' financial performance must suffer if they take actions to reduce their environmental impacts. Indeed, they go considerably further to state, with all the caution appropriate for such research, that firms with good environmental records do as well financially as, and often better than, firms with poorer records.

Furthermore, the portfolio-comparison studies indicate investors can have considerable confidence that well-managed portfolios favouring firms showing environmental leadership will not underperform the rest of the market and may outperform it.

Thus, growing evidence suggests that, when sustainability measures are adopted through a wise and efficient process, they may be cost-neutral or even reduce costs and become a major source of value.

Sustainability is risk avoidance

Just as sustainability measures can cut costs and increase shareholder value, environmental and social liabilities can reduce shareholder value. Environmental liabilities such as climate change, hazardous wastes and emissions, and contaminated properties are bottom-line issues for companies and investors. Consequently, it is neither prudent nor responsible for corporate directors, CEOs and others with fiduciary responsibilities to ignore potential environmental liabilities or to neglect steps to reduce company exposure to these risks. Growing evidence suggests that the more that directors and CEOs fail to assess, report and proactively address environmental and social risks, the greater the potential for shareholder suits over breach of fiduciary duty.

Shareholder value can decrease due to violations of environmental laws. For example, Smithfield Foods, the world's largest pork producer, based in Smithfield, Virginia, in 1997 violated federal environmental laws by dumping hog waste into a tributary of Chesapeake Bay. The company was subsequently sued by the federal government, and was fined $12.6 million in 1997, decreasing earnings by $0.32 per share.

At its Detroit, Michigan, facility in 1999, US Liquids was found allegedly to be illegally dumping cancer-causing hazardous waste into the sewer system. This revelation caused a 58% drop in US Liquids stock prices in one week and a 111% drop in annual income. This prompted a securities class action suit and a derivatives action by shareholders against the company (RFCE 2002).

Shareholder value can also decrease due to lack of preparation for environmental regulations. Organisations must constantly be aware of and plan for new regulations. Although many fiduciaries and analysts assume that regulations will affect every company in an economic sector in the same way, this is not the case. Companies with forward-looking environmental management programmes often save money and generate competitive advantage by being prepared to meet or exceed new regulations. Those with a reactive or anti-environmental focus are often negatively effective. Thus, shareholder value can be reduced in companies that fail to forecast and proactively plan for environmental regulations.

Shareholder value can be reduced due to inadequate disclosure of environmental liabilities. When companies understate or fail to acknowledge environmental liabilities, investors have a difficult time assessing future earnings growth and shareholder value. When liabilities eventually come to light, their costs can drive down corporate value. Just as importantly, the eventual disclosure of liabilities reduces investor trust, thus making it more difficult to attract capital.

The US EPA's Office of Enforcement and Compliance Assurance in 1998 found that 74% of companies did not report environmental legal proceedings contemplated and/or initiated by government agencies that are likely to result in monetary penalties of over $100,000 despite the clear disclosure rules of the Securities and Exchange Commission (SEC) Regulation. Another study found that publicly traded companies in the automobile, insurance, oil, gas, petroleum and utility industries failed to report material environmental liabilities such as the risks related to climate change in their SEC filings. The study found that only 26% of the companies surveyed provided climate change information and most of these were

European, Japanese and Canadian-based firms. Only 15% of US firms filed accurate SEC reports.[3]

Companies that leave environment and labour problems off the books are hiding potential major financial costs and committing clear violations of the law. The failure to disclose these liabilities also makes it impossible for analysts and investors to accurately assess a company's assets and liabilities. Just as Enron and WorldCom eventually collapsed due to fraudulent accounting, organisations that fail to honestly and openly account for environmental and social liabilities are certain to face legal problems in the future.

In sum, the adoption of sustainability measures can prevent the loss of shareholder value. Firms that fail to proactively reduce their risks are likely at some point in the future to be punished by the market, investors and regulators.

Build the business case for sustainability

Change sponsors and agents can utilise this information and similar data to build the business case for sustainability within your organisation. Leaders can compile data on cost savings, increased market share, sales, customer loyalty and risk avoidance found by similar firms in your sector or in analogous sectors. Proponents can also calculate the cost savings or potential cost avoidance that can be achieved through the application of energy, water, raw material and waste reduction measures within your organisation. Case studies of similar organisations can be produced documenting these benefits and how they compare with your current mode of operating. The more that you plan for, capture and highlight the economic benefits of sustainability measures, the more likely that employees and stakeholders will support the effort.

Economic benefits in the public sector

It's not just the private sector that can benefit economically from the adoption of sustainability measures. Government can also save money. For example, in 1998 the State of North Carolina initiated a pollution-prevention-oriented sustainability programme. The state purchased 1,000 alternative-fuel vehicles and began to rebuild vehicles rather than purchase new ones, saving over $2 million annually. The Brown Creek Correctional Institution reduced its waste by 60%, from 28 tons to 9 tons, by composting food, shredded paper, dryer lint, and even hair from the barbershop. The Correction Enterprise saves $325,000 per year in its paint plant by re-using steel drums 60 times. About 200 million pieces of paper and $7 million in printing costs are saved each year at its duplicating plant by sending print jobs digitally to state agencies, also saving trees, money, time and waste. The installation of utility-monitoring systems and review of utility contracts resulted in cost

3 For more information, see RFCE 2002 ; Innovest 2002.

savings of $460,434 in 1998. The National Guard is even involved, reducing hazardous waste.[4]

Oregon governor John Kitzhaber signed an Executive Order in May 2000 that required state government agencies to adopt sustainability measures. The order also set in motion efforts to develop partnerships between state government, local communities and the private sector to foster sustainability. One result was that, within just eight months, state government saved about $1.6 million by reducing energy use by roughly 10% in public buildings.[5]

Since the early 1990s the Dutch government has compared changes in gross domestic product against the reductions in environmental impacts generated through its sustainability-focused National Environmental Policy Plan. The Dutch seek to grow their economy while simultaneously reducing the environmental effects of economic growth. They call this process 'decoupling' economic growth from environmental impacts. Figure 4.1 shows the findings, which indicate that, along with impressive improvements in many areas of environmental quality, the economy has continued to prosper. The Dutch government concluded that 'The pressure on the environment exerted by acidification, eutrophication, desiccation and waste disposal has eased when the gross domestic product has been growing steadily' (RIVM 2002). This indicates that, even at a national scale, sustainability programmes can certainly not hinder, and may even benefit, the economy.

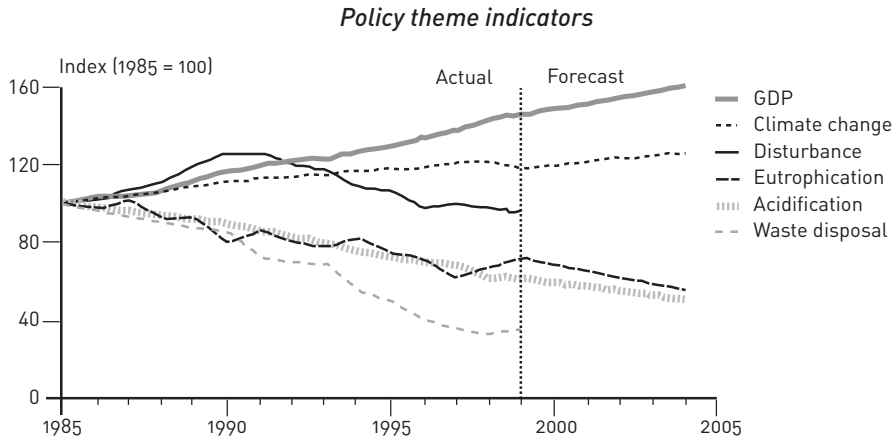


Figure 4.1 **Comparison of economic growth and reduction of environmental impacts in the Netherlands**

Source: RIVM

4 Personal communication with Sharon Rodgers, Governor's Office, State of North Carolina, April 2001, and review of printed reports.

5 State of Oregon Division of Administrative Service, tpps.das.state.or.us, accessed 17 February 2003.

Sustainability measures benefit workers, communities and indigenous cultures

In addition to providing competitive advantage, the evidence suggests that the application of sustainability measures benefit employees, community wellbeing and native cultures. A report produced for my organisation found that sustainable practices in the workplace can improve the health and productivity of workers directly, by making the worksite a healthier and better place to work, or indirectly, by making the larger community a healthier place to live.

> Eliminating the use of toxic materials, for example, can cut the costs of handling the substances and reduce illness and lost time from work that results from workers being exposed to them. Increased health and productivity can also occur by making worksites healthier and more pleasant places to work. Efficient lighting can help people's vision, which reduces mistakes, increases work quality and boosts production. Optimal heating and cooling systems can increase worker comfort and output.
>
> In two model sites, the US Green Building Council estimates that paying attention to environmental quality in worksite features increased worker productivity between 6% and 16%. Even small productivity gains can justify an investment in sustainable techniques. For example, consider a typical, 10,000 ft² office space renting for $20 per square foot including energy costs of $1.80 per square foot. If 25 workers occupy the office, and each earns an average annual salary of $50,000, the workers cost $125 per square foot—or 70 times more than energy. In this example, a 1% increase in worker productivity would pay for the company's entire energy bill for eight months (US EPA 1997).
>
> Improvements in health and productivity are especially important to individuals who have health problems or who have such low earnings that they cannot afford illness-related absences from work. Thus, these benefits are especially important to low-income and economically and socially distressed rural communities and urban neighborhoods (ECONorthwest 2001).

Sustainability measures also help to protect workers, communities and native cultures by addressing issues related to human rights. The prominent sociologist Irving Louis Horowitz points out that human rights in the West are more often thought of as the right of individual justice before the law. Human rights in developing nations are usually associated more with the rights of individuals to equitable working conditions and standards of living (Said Abdul 1978: vii-viii). For these and other reasons, Western nations seem to have greater concern about political freedom than about economic abuses, while those in developing nations often take the opposite approach. Citizens of the US, for example, may be much more concerned about police wiretaps than they are about economic practices that exacerbate poverty, while residents of poor developing nations are more concerned with living-wage jobs, sufficient food and clean drinking water than they are with political rights.

Although the emphasis may vary, few of us would deny that human rights are a universal concern. Many economic writers point out that one of the major drivers

of globalisation is excess capacity (e.g. Greider 1997). The world's existing technological capacity to produce goods and services far outstrips the numbers of consumers. There are simply too many factories turning out automobiles, television sets, steel, semiconductors and other products, and too few buyers. For example, the existing demand for automobiles is around 50 million vehicles while production capacity is now about 70 million vehicles. Surplus capacity has created intense competition among companies in the US and Europe and forced many to cut costs by moving their manufacturing facilities to regions where workers are paid low wages. While this strategy may seem to resolve the over-supply problem for a short time, in the long run it offers no solution at all. Poorly paid workers in Eastern Europe, Asia, Africa, Central and South America cannot consume what they produce, and consumers in Europe and the US are not able to purchase more goods because their jobs have been cut or their incomes have stagnated or are falling. This is a recipe for disaster.

The adoption of sustainability policies and practices offers three avenues out of this self-reinforcing conundrum. First, paying equitable living wages, providing good working conditions, abiding by fair trade agreements and adopting other environmental and human rights practices can improve the living conditions and incomes of workers in developing nations. As Henry Ford pointed out at the turn of the century, putting more money in the hands of your employees generates more consumers for your products. This approach will also ensure that businesses in the West and their contractors in developing nations become positive influences on local economies and communities rather than harming livelihoods and cultures.

Second, as demonstrated by the savings achieved by the companies mentioned in this chapter, reducing the use of natural resources, energy and toxic materials, and the production of waste provides a new and very promising way to cut operating costs. Rather than eliminating jobs in Europe and the US to save money, the adoption of sustainability measures allows companies to reduce costs by dramatically increasing their environmental productivity.

Third, as discussed below, the adoption of sustainability policies and practices can generate new products—and even whole new industries. Companies that introduce innovative sustainable products into the marketplace will, at least for a while, compete in markets uncrowded with competitors.

To be sustainable, true social equity means that the way one nation, industry or community makes its livelihood must not undermine options for others to make theirs. These three options—increase wages and living conditions abroad while cutting costs and producing innovative new products and services at home—provide perhaps the only sane solutions to the race to the bottom that the current approach to globalisation has generated.

Sustainable production methods can create new industries and jobs

In addition to protecting workers and native cultures, sustainable production methods can create jobs in a wide array of industries, occupations and locations.

Box 4.5 lists some of the sustainable industries and production methods that already generate jobs in the Pacific Northwest. As environmental pressures grow along with the need to reduce operating costs, smart entrepreneurs will find ways to produce goods and services to meet the world's growing need for environmentally and socially responsible products. The business and job opportunities that sustainability offers are endless—restrained only by our lack of imagination and factors such as poor governance and leadership.

- Retrofitting buildings with energy-efficiency technologies
- Producing biofuels such as ethanol from agricultural waste
- Redesigning urban neighbourhoods to absorb and treat storm-water locally
- Producing non-toxic aqueous cleaning processes to replace toxic solvents
- Installing 'eco-roofs' that naturally absorb storm-water run-off while providing increased insulation
- Cleaning up polluted, 'brownfield' sites so they can be redeveloped for commercial and other uses
- Offering services to support products rather than just selling products, such as car-sharing businesses, floor coverings and copy equipment leasing
- Production of environmentally certified food, forest and fisheries products
- Paving roads and driveways with pervious, non-toxic road materials
- Designing, building, and operating wind-powered electricity generators
- Producing construction materials, polymers (for plastics) and other key raw materials from plant materials (shifting to a 'carbohydrate economy')
- Implementing pest control systems that use multiple approaches or organics rather than relying solely on synthetic pesticides
- Manufacturing products from reclaimed by-products and waste from other processes and products
- Deconstruction of buildings to recover and re-use raw materials
- Designing and constructing 'green' buildings
- Manufacturing of photovoltaic and hydrogen fuel-cell devices
- Designing, installing, and maintaining water conservation systems for farms and urban landscapes
- Remanufacturing of worn products, such as toner cartridges for copiers and appliance remanufacturing

Box 4.5 **Sample of sustainable industries creating jobs in the Pacific Northwest**

Again, potential sponsors and agents of change can utilise this information to build the case for sustainability within their organisations.

Why don't more organisations adopt sustainability measures?

The core elements of sustainability and the economic data summarised in this chapter suggest that a number of pervasive forces provide ample evidence of the need and benefits of adopting sustainable development measures. However, other than a few early adopters, comparatively few organisations in Western societies have successfully adopted these measures. This leads to an important question: If the need to adopt sustainability measures is so urgent and the benefits potentially so great, why don't more organisations and institutions adopt them? While a number of reasons exist for the lack of progress, the starting point to answering this question is to understand why organisations resist change and what can be done to overcome these factors.

5

Sustainability, governance and organisational change

Pieter Winsemius had a dilemma. On taking the helm as the Secretary of the new Dutch Ministry of the Environment,[1] Winsemius found that his agency's environmental regulatory system was not getting the job done. The Dutch system has been organised in the 1960s around the belief that controlling pollution from a small number of point sources could protect the environment. Complex bureaucratic structures and procedures had evolved to support the command-and-control system.

By the time Minister Winsemius took office 20 years later, however, numerous point and non-point sources were generating pollution. Because Winsemius's agency had not adapted its mind-set or methods to the new conditions, the Netherlands had, by its own definition, become one of the most polluted nations on Earth. The new minister realised that major changes were needed to solve his nation's environmental problems and place it on a more sustainable path. Transforming an agency with deeply ingrained beliefs, values and behavioural patterns was a daunting proposition (de Jongh and Captain 1999).

The Dutch minister's challenges are not atypical. It is very difficult to transform compliance-based organisations which are usually dependent on a linear take–make–waste economic paradigm to sustainability-focused enterprises. Because it is so tough for organisations to change, it is imperative that a credible guiding framework be used. A sound theoretical basis and an effective change model are especially important because the use of flawed or incomplete strategies causes many change efforts to fail.

Total quality management (TQM), strategic planning, re-engineering and downsizing are four of the most popular approaches to organisational change. Research has found that as many as three-quarters of these programmes achieve no success (Cameron 1997). The consulting firm of Rath & Strong surveyed *Fortune* 500 firms and found that only 20% reported having achieved the objectives of the TQM efforts. More than 40% said their quality improvement programmes were total

1 The Ministry of Ministry of Housing, Land Use Planning and the Environment (VROM)

failures.[2] An evaluation of re-engineering programmes found that 85% of the firms that attempted to completely redesign their processes and procedures found little to no improvements resulting from their efforts. Many even experienced unintended negative effects that put the actual survival of the organisation at risk (*Economist* 1994).

Sustainability leaders must understand why these change efforts fail and institute transformation strategies that explicitly overcome these flaws.

Sustainability-change efforts must focus on cultural change

The primary reason why TQM, strategic planning, re-engineering and downsizing programmes fail to achieve their goals is that they fail to change the underlying thought patterns, outlooks and behaviour of employees. Failure to modify thinking and perspectives permits old decision-making and activity patterns to remain intact. Said differently, to succeed, re-engineering and other change programmes must be meshed with efforts to change the culture of the organisation.

As with re-engineering, sustainability-change initiatives that fail to alter unsustainable cultural traits will have little long-term success. Unsuccessful attempts to introduce sustainability measures often produce frustration and cynicism and reduce employee morale. Organisations may become worse off than they were before the change effort started.

To avoid the boomerang effects of failed change initiatives, sustainability initiatives must explicitly focus on altering the culture of the organisation. Indeed, when re-engineering and TQM efforts were embedded in a much larger cultural change scheme, they were much more successful (*Economist* 1994: 9).

Systems and organisations

How does a sustainability-change effort transform organisational culture? A first step is to understand the nature of organisations and their cultures. As far back as 1938, Chester Barnard, former head of AT&T, described an organisation as 'a *system* [emphasis added] of consciously coordinated activities or forces of two or more persons'. Dee Hock, founding CEO of Visa, added a different twist to this definition. Hock says organisations are 'merely embodiments of a very old, very basic idea—the idea of *community* [emphasis added]' (Waldrop 1996). These definitions underscore two of the key aspects of organisations: they are systems of community.

Because organisations are communities and communities involve people, they are extremely complex. External forces as well as internal cognitive and emotional drivers shape organisational behaviour. The employees of an organisation play a major role in shaping the way it operates. People are driven by personal aspirations

2 Rath & Strong survey.

such as the desire for money, status, power, praise, companionship and love. Every human being is shaped by his or her family history, genetic make-up, schooling and past and current physical surroundings. The behaviour of humans is also shaped by the information they receive, the communication they are exposed to, the support they receive for involvement, the power and authority they have to act, and the resources available to make things happen.

The way people and structures interact shape the performance of an organisation. This is because organisations are *social systems*. It is not hard for people to identify certain types of systems (for example, school systems). However, few define organisations in this way. Yet we must if we are to comprehend how organisations function, why they produce poor environmental and socioeconomic outcomes, and how those problems can be treated.

A system is 'a whole consisting of two or more parts' (Ackoff 1999: 4). All of the parts of a system are interrelated and interdependent in some way. The human body is the personification of a system. The heart is a system of numerous valves and vessels that work together to distribute blood throughout the body. The heart system is part of a much larger circulatory system that distributes oxygen and other key nutrients throughout the body. The entire circulatory system works with all of the organs, muscles, nerves and other components to produce a healthy body. Aircraft, washing machines and cars are examples of human-made systems. Each has numerous parts that must work together to produce a specific outcome.

The parts of a system can be material and tangible, such the parts of an aircraft or washing machine. The parts can also be non-substantive and hard to see or touch, such as the relationships, unspoken but accepted procedures, interpersonal interactions and internal frames of mind that exist within an organisation.

The manufacturing department of a business is a system of people, information, equipment and processes that interact together to achieve a specific purpose—generating products. The manufacturing system is embedded in a larger system. The processes and feedstocks used by the manufacturing system are delivered by the research and development (R&D) and purchasing units, which themselves are systems composed of people, information, processes and equipment. Similarly, the manufacturing system delivers its products to the marketing and sales systems, which are therefore dependent on the manufacturing system to achieve their goals. In short, all of the systems of a business must work together to achieve their unique purpose: the delivery of goods and services.

Smaller systems are usually connected to larger systems in explicit and sometimes implicit ways. For example, the business described above is interdependent with even larger systems such as the community, the economy and its supply chain. Thus, when a systems perspective is taken, it becomes apparent that everything is connected to everything else.

Systems can be defined by five key traits (adapted from Kim 1999; Anderson and Johnson 1997), listed below.

1. Systems have specific purposes. Every system has a central purpose that defines it as a discrete entity in relationship to the larger system in which it operates. For example, the purpose of a private company is to generate and distribute specific goods and services. The purpose of a government is also, in part, to provide goods (e.g. drinking and irrigation water, power) and services (e.g. education, public

safety) that the electorate have deemed important. The purpose of a system is defined by the system as a whole, not by any one of its parts. For example, the wings, engines, or any other part alone cannot accomplish the purpose of an aircraft.

2. Systems must have all of their parts present to achieve their purposes. If key pieces of a system can be removed without undermining its overall functioning, the pieces are part of a collection, not a system. For example, the wings, engines, electronics and fuel of an aircraft are all essential for flight. Leave out just one of these and the plane won't fly.

3. The way the parts of a system are arranged determines its performance. If the parts of something can be arranged in any arbitrary order, they are a collection, not a system. There is no real need for the silverware in the drawer to be stacked in a particular order (unless you prefer it that way). In contrast, the way the parts of a system are arranged determine if and how it can achieve its purpose. Unless the core parts of an aircraft are arranged in a specific order, it cannot fly. All of the systems (units) of an organisation must fulfil their roles effectively and efficiently for it to achieve optimal performance.

4. Each of the core elements of a system is dependent on the other core elements. It follows from the above that the core components of a system form an interlinked set. For example, the way the lungs perform depends on the way the heart, bloodstream, brain and other elements are performing. The effect of the marketing and sales departments in an organisation depends on the performance of the R&D, purchasing, production and transportation units. In essence, the interactions among the parts are controlled by *rules* that define how the system operates.

5. Systems seek to maintain stability through feedback. Left on its own, a system will seek to maintain equilibrium (the status quo) by retrieving and incorporating information from the external environment that allows it to make adjustments aimed at achieving its purpose. The human body, for example, has all sorts of feedback mechanisms. Jogging increases the heart rate and raises body temperatures beyond the normal 98.6°F. Overheating triggers the body's feedback system, causing the sweat glands to produce perspiration long enough to cool the system down to the normal temperature. Information on sales and market demand provides critical feedback to the production systems of an organisation about the quantity and type of products to produce. Without this feedback, the company may over- or under-produce, or manufacture poor-quality products, and thus lose customers, money, or both.

In sum, organisations are complex social systems. Just as every organ of the human body is inextricably connected to every other, the core processes, units, values, norms, behaviour and individuals of an organisation affect and are affected by every other. It is almost impossible in most organisations to change one core element without generating ripple effects throughout many, if not all, of the others. *The key point to note is that the performance of an organisation is the product of the interaction of its parts* (Ackoff 1999: 33).

The essence of culture

Because organisations are social systems, over time, as people respond to changes in their environment, feedback is received that establishes and continually reinforces a dominant set of thought patterns, perspectives, values, management styles, problem-solving approaches and behaviour that are unique to the group. These traits constitute the culture of an organisation. Every culture reflects widely held beliefs about the nature of reality. These shared world-views hold a culture together. Culture synchronises thought patterns, perspectives and behaviour within a social system.

Cultures can be understood by their values and norms. Values reflect beliefs about what is truly important. A dominant value today at Norm Thompson Outfitters and Interface is protection of the environment. Norms are the widely held and shared social expectations about appropriate attitudes and behaviour. Conformity with the norms of an organisation is viewed as proper while non-compliance is usually frowned upon. At Interface, a widely shared norm is innovation. Employees know the importance of generating new ideas to reduce environmental effects. Customer service is a dominant norm at Norm Thompson. Workers know that paying attention to the needs of customers is a priority. The prevailing norms and values are consistently reinforced by the feedback systems at play within an organisation.

Recall that each unit of an organisation is a discrete system embedded within larger systems. Because norms and values reflect common agreements about what is important and acceptable, they often vary across units and functions. Norms in the R&D unit may be markedly different from those in the manufacturing or EH&S divisions. Norms and values will also differ by location. Those held by Interface employees in northern Europe, for example, will be different from those of workers in southern USA.

Cultures are storehouses of organisational information and knowledge than can assist or thwart sustainability efforts. Values and norms provide the cognitive framework through which people interpret what they observe and experience; they shape the way people communicate and interact with each other (Wilkins and Ouchi 1983). To reiterate, the explicit and implicit feedback systems embedded in the organisation continually reinforce the prevailing values and norms.

Because culture is a product of and embedded in a social system, it is often invisible to the naked eye and hard to describe. Because culture is difficult to recognise, it can go unchallenged for years. Many times the only time people recognise the culture of their organisation is when they describe 'the way things are around here'.

Because cultures are so hard to discern and are deeply rooted, change can be very difficult. Simply changing technologies or improving management systems is not likely to alter culture. Successful change toward sustainability requires the transformation of norms and values related to the environment and socioeconomic wellbeing. Change is achieved when managers and employees begin to value new things—such as care for the environment, workers and communities—and believe that thinking and behaviour that are inconsistent with those values are no longer appropriate.

True change, therefore, is not just a shift in intention, better recycling or pollution controls, or the creation of websites that display sustainability goals and programmes. Real change toward sustainability produces altered values and norms that lead to choices affecting every aspect of the organisation that are different from those generated by the status quo. These choices generate environmental, social and economic outcomes that are tangibly superior to those created by previous decisions (Beer and Nohria 2000).

Resistance to change

Resistance can be expected whenever the possibility of a change in culture appears. Resistance can be understood as a natural outcome of an organisation's feedback mechanisms that seek to maintain homeostasis—the status quo. A change in world-view threatens to produce profound alterations in the way people view and respond to the world around them. Resistance is therefore a natural reaction, a safety response, to this type of interruption to the status quo. Resistance need not be a problem—in fact, it can be very helpful to achieving sustainability—if it is properly understood and managed. When poorly directed, however, resistance can be deadly.

Cultural resistance to change can appear in many ways. When a proposed change first appears, resistance usually arises due to perceived threats to current beliefs and established behaviour. These values and norms are often embedded in the existing governance systems of the organisation. Peter Senge, one of the leaders of the systems thinking movement, succinctly describes these dynamics. Resistance, says Senge,

> is neither capricious nor mysterious. It almost always arises from threats to traditional norms and ways of doing things. Often these norms are woven into the fabric of established power relationships. The norm is entrenched because the distribution of authority and control is entrenched (Senge 1990: 88).

In short, resistance appears when people fear that their power and authority, which is embedded in the organisation's existing patterns of governance, may be at risk.

The problems faced by the DuPont Corporation are illustrative of how the culture of an organisation can resist change. Dupont has been in business for 200 years. For the last century DuPont was able to grow via the strategy of developing new products and building new production facilities worldwide. The reverence for traditional growth strategies, however, has made it difficult for those in middle management to adjust to DuPont's new focus on reducing waste, emissions and reliance on depletable resources.

DuPont's traditional mind-set led one of its subsidiaries, Pioneer Hi-Bred, to license technology from Monsanto for products such as BT corn and Roundup Ready Soybeans. However, opposition erupted to genetically engineered foods by non-profit organisations, consumers and government agencies in Europe and the US. Because the culture of DuPont's subsidiary had locked it in to a certain path, the company made a major error—it failed to understand the strong opposition to

biotechnology. The negative public reaction to genetically modified foods caused significant economic and public relations problems.

To its credit, DuPont responded to these concerns by establishing a biotechnology advisory panel composed of leading scientists. The panel has developed a set of principles and provided important feedback to company officials. Rick McConnell, President of Pioneer Hi-Bred said:

> The panel members have openly shared their expertise and have discussed with passion the benefits and risks of products from genetic engineering. Because of their questions and insights, I have gained a renewed appreciation for having a dialog with stakeholders about biotechnology, especially with stakeholders in locales where biotech crops are grown and processed.[3]

Time will tell how the increased sensitivity to public concern will modify the culture and practices of DuPont and its subsidiaries. However, the panel appears to be a step in the right direction.

Another pertinent example of how culture can generate resistance is found in the State of Oregon's efforts to adopt sustainability measures. In 1999, a group of stakeholders asked former governor John Kitzhaber to sign an Executive Order to initiate a sustainability effort. The governor was personally very sympathetic to the proposal. However, the culture in the governor's office at that time emphasised the status quo and internal control. The governor's staff spoke well about the sustainability plan in public, but most major new initiatives were rebuffed and all new projects had to be initiated by staff, not outsiders. As often happens within democratic governments, eventually the news of the staff's opposition leaked out and a great deal of public pressure came to bear on the governor's office. The governor never wavered in his commitment despite the opposition from some of his staff, and issued the Executive Order in May 2000 (while his staff proclaimed they were always supportive).

The DuPont and State of Oregon examples demonstrate how a community of people who have developed a dominant set of values and norms will resist the introduction of a new set of ideas or values, much like the body can reject a transplanted organ.

Resistance occurs not only when new threats appear to the status quo. It can also emerge after a change has been launched if people become overpowered by feelings of ambiguity or loss of control. Most people do not respond well to situations they cannot control. When change moves too fast for people to assimilate, or when they fear they do not have the capacity to successfully adjust to or prosper in the new order, resistance will occur. These problems are also usually related to perceived threats to established power and authority relationships—patterns that are enmeshed in the existing governance system. For example, middle managers may drag their feet or openly block change if they think a change initiative may undermine their authority or future career opportunities.

Resistance can occur for other reasons as well. Decisions that are sprung willy-nilly on people, a lack of involvement of those who will be most affected, changes

3 DuPont Corporation, *Biotechnology Advisory Panel Report*: cover letter, August 2002.

that make people fear they will appear stupid for past decisions, a legacy of distrust and resentments due to a history of broken promises, and other factors, can all generate resistance.

Resistance can take many forms. Sometimes it is covert, hidden below the surface. Clandestine resistance can persist for quite a while, unseen by change leaders. When left to germinate over long periods, stealth resistance will usually sink a sustainability initiative. The unwillingness to share information, work in teams, meet deadlines, attend meetings or openly communicate may be signs of hidden resistance. These problems commonly result from lack of involvement and low trust levels. When people feel they have no say in what is to be accomplished or how the organisation will achieve its goals, they may feel disenfranchised and attempt to sabotage the effort.

Resistance can also be explicit. Overt complaining, expressed doubts about the seriousness of environmental or social welfare problems, blatant struggles over resources, and a manager's expressed unwillingness to commit time or quality personnel to a sustainability-change effort are examples of open resistance. Explicit resistance is usually much easier to address than covert types precisely because it can be seen and discussed. In fact, many of the organisations that are leading the way toward sustainability encourage overt unambiguous resistance in the form of extensive questioning and challenges. Not only does this prevent the insidious effects of covert resistance from occurring, it brings to the surface many new ideas that help improve their sustainability effort.

It should be noted that a different form of cultural resistance often occurs related to efforts to change technologies or production methods. This form of resistance can be called 'path dependency'. The term refers to the ways in which particular product or process designs and problem-solving approaches come to dominate an industry or society and end up constraining the development of more efficient and effective alternative approaches. As individual firms, sectors or whole economies lock into certain views about the nature of problems and ways to solve them (such as end-of-pipe pollution controls) and sink capital into those solutions, the risks, time and capital required to move to a new approach can become a significant deterrent to change. The result is a situation where organisations and economies become locked into just one of a number of possible paths they could follow. Path dependency often generates overwhelming resistance to change, even when the potential cost-savings and socioeconomic benefits of alternative approaches are huge. (For more information, see Goodstein 1999.)

The culture of governmental institutions will scheme to resist change for reasons similar to those found in the private sector. The public sector has the added influence of the constraints of the political process, which limit an agency's ability to establish its own mission and goals and define the way they will be achieved. The compromises inherent in the legislative process, the presence of interest groups within and outside of the organisation that closely monitor its operations, and other issues, also shape the way a public agency responds to changing circumstances. One or more of these factors can lead to significant inertia or outright opposition to change within government institutions (Osborne 1998).

Culture change and governance

To overcome resistance and transform organisational culture, sustainability-change leaders must find the key leverage points. These are points in a system where a small shift in one thing will eventually generate big changes in everything else. Think of a spaceship hurtling toward the moon a million miles from Earth. If the ship's direction is off-kilter by even the slightest margin, it may miss its destination by thousands of miles. A slight change in direction of one degree or less, however, may shift the direction of the ship and guide it to safe harbour. That slight change is the leverage point.

Finding the key change levers is not always easy. Complex systems such as human organisations make it difficult to identify them. Often, the leverage points are counter-intuitive. Because they are difficult to find, managers often focus on the wrong things and push on the wrong levers. For example, all too often executives believe that better responses to compliance issues will lead to major change. Bigger pollution control devices are installed on smokestacks to reduce emissions. Better sorting of hazardous waste is introduced to reduce contamination. While these actions can be important as transition steps, they are reactive and consequently not effective levers of change. They do not trigger fundamental change to intrinsically flawed linear production systems or mechanical organisational designs. Thus, they cannot activate a transformation to sustainability.

My research suggests that changes in governance provide the greatest overall leverage for transformation toward sustainability. What is a governance system? One respected international academic journal on organisational governance says that 'Governance . . . includes the modes of allocating decisions, control, and rewarding rights within and between economic organizations.'[4] In other words, governance systems are three-legged stools that shape the way information is gathered and shared, decisions are made and enforced, and resources and wealth are distributed. These factors shape the way people perceive the world around them, the way they are motivated, and their power and authority. These are the drive shaft and steering mechanisms of an organisation.

Because organisations are social systems, each of the three factors of governance influences the others. For example, the information an individual or group has access to shapes their ability to make informed decisions. The roles and responsibilities people have in decision-making influences the type of information they desire and the way resources may be allocated. The way that resources and wealth are distributed often determines the levels of commitment people have to the organisation and affects the type of information they want and role they are willing to play in decision-making. In short, each factor influences how power and authority are distributed within an organisation.

The three key pillars of governance do not play out randomly. Patterns of governance are determined by the core purpose of the social system in which they operate. The goals and guiding principles of an organisation mould its system of governance. For this reason, the introduction of sustainability-based goals and

4 'Aims and Scope', *Journal of Management and Governance*, Kluwer Academic Publishers, 2001.

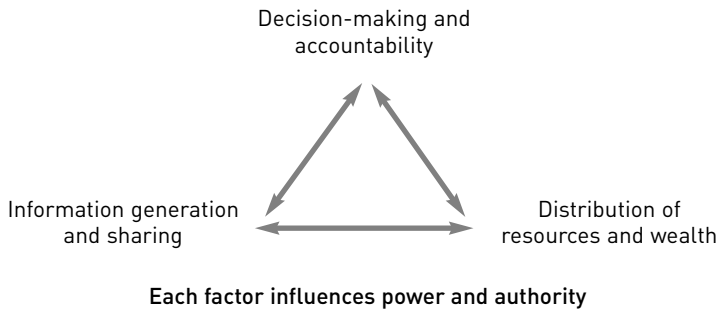


Figure 5.1 Governance systems: a three-part interactive process

principles may initiate a chain of events that leads to the break-up of old patterns of governance and the introduction of new ones.

Governance involves more than formal authority

When people typically think about governance, they associate it with the decision-making role played by top executives, boards of directors, legislative bodies and other formal authorities. This view is too narrow. Issues of power and authority are more often than not the most dominant influence on organisational effectiveness, and power in any organisation is a function of much more than formal authority. Power is generated by the information one has access to, the resources at one's disposal (financial, human, technical), the level of support one receives from others within and external to the organisation, the nature of the informal networks and coalitions people belong to and influence, *and* by official position (Kanter *et al.* 1992).

Organisations are not single-focused monoliths. They consist of individuals and groups with constantly changing interests, needs and allegiances. CEOs, boards of directors, governors and other 'official' leaders must continually jostle for power with the various internal sources of formal and informal power as well as power brokers external to the organisation (such as regulators, unions, stockholders, non-governmental organisations, customers, suppliers and communities). These entities hold different but often equally influential forms of clout.

Power may be temporarily concentrated in one individual or one network of people. However, unless many other power brokers agree with the direction set by these players, overt or covert power struggles may erupt. The jockeying for control often leads to dramatic reallocations of resources or changes in organisational direction as one entity temporarily exerts control only to be overthrown by another. For this reason, the true governance system of an organisation should be thought of as the formal and informal, acknowledged and unspoken mechanisms that determine how power and authorities are exercised.

Because so many fundamental changes are needed, and because the transformation requires many years, it is nearly impossible to set an organisation on a path toward sustainability without long-term buy-in and support from a majority of the power brokers that influence an organisation.

Sustainability requires new forms of governance

The need to create allies among the various internal and external sources of power that influence the direction of an organisation is one of the primary reasons why governance systems must often be adjusted when striving for sustainability. A second reason why governance systems must often change is the need to construct feedback mechanisms that allow information about the organisation's environmental and socioeconomic effects to reach the often-insulated top-level executives. Providing employees and stakeholders with credible information will expand understanding and better equip them to resolve problems. Meaningfully involving them in decision-making will generate ownership and personal responsibility. Equitably distributing resources and wealth will increase motivation and commitment. These are the keys to overcoming resistance and unleashing the potential of people to work toward sustainability. The failure to change the way organisations govern their affairs is a primary reason why re-engineering and other quality improvement programmes have failed to transform culture and thus failed to achieve their goals (see *Economist* 1994; Caldwell 1994; Gross *et al.* 1993; Kotter and Heskett 1992; Hall *et al.* 1993; Beer *et al.* 1990; Spector and Beer 1994).

Finally, governance systems must often be altered when shifting toward sustainability because information, decision-making and resource and wealth allocation mechanisms in sustainability-focused organisations must be fundamentally different from those employed in the old industrial model. The traditional linear cradle-to-grave production scheme makes it more or less irrelevant for every unit and function of an organisation to be completely knowledgeable about how every other unit operates. Even with dramatic efficiency improvements, the take–make–waste production model is essentially a 'batch and flow' system where each unit does its job and then passes its output down the line to the next unit or function in the process. This is as true in the public sector as it is in private businesses. Because each unit operates for all intents and purposes independently from every other unit (in fact, in cradle-to-grave organisations, units often compete against each other to demonstrate superiority or gain advantage), senior executives are the only ones with the broad perspective that allows them to see how the whole operates. Thus, patriarchal governance patterns emerge which are focused primarily on *vertical* relationships. The emphasis is on who has authority over whom and who reports to whom.

Circular cradle-to-cradle-oriented organisations, on the other hand, by their very nature, require an emphasis on *horizontal* relationships. In order to design and construct processes, products and services that can be continually recirculated while causing no environmental or socioeconomic harm, those at the beginning of the economic value chain must have intimate knowledge and understanding of the operational procedures and needs of those in the middle and end of the value chain. In short, organisations structured around a borrow–use–return economic model require the seamless integration of all units and functions in planning and

decision-making. Patriarchal, vertically focused organisations have a very difficult time producing this type of close assimilation. Only whole-systems-based governance schemes can emphasise the horizontal as much or more than the vertical.

Structure and governance

The structure of an organisation profoundly affects information flows, decision-making and resource distribution. In many ways, structure drives behaviour (an old axiom of systems thinking). For this reason, I consider structure a key element of governance.

Despite years of talk about flattening structures and integrating functions, the majority of public and private organisations today remain essentially hierarchical. Most managers believe that power is exercised through a sequence of authority levels, each of which has more clout than, and can therefore overrule, those below it. This assumption concentrates power at the top and shapes information flows and resource distribution patterns to benefit those at the pinnacle of the hierarchy. The Enron, WorldCom and other corporate financial scandals of 2002 in the US dramatically show how a rigid hierarchical structure can concentrate power and wealth at the top while leaving those at the bottom powerless and in ruins.

The belief that power is connected to position can also lead to internally focused governance. In reality, few organisations permit, let alone encourage, external forces such as stakeholders to have much influence on their operations. Allowing external forces to shape decisions would undermine the power and authority of those at the top. Although private firms must follow the law and satisfy shareholders when they exist, and although public agencies implement policies enacted by legislative bodies, most of the basic policies that drive organisations are crafted internally, typically by those at or near the upper echelons. Supervision remains the job of successive layers of management.

When an organisation is too internally focused, it screens out or ignores information provided by its feedback mechanisms that could prove important to its health and to the welfare of its stakeholders. The organisation becomes insulated and does not realise that it has blocked or ignored important feedback from external sources. Insufficient or flawed information leads to poor decisions that usually generate unexpected problems and perpetuate a crisis-response atmosphere.

Some type of hierarchy makes sense in most situations. Excessively rigid and bureaucratic hierarchies, however, can lead to numerous problems. High-performance organisations continually modify their governance structures to make sure they are congruent with the information retrieved by their feedback systems about changes occurring in their external environment (Burton and Obel 1995; Lawrence 1993). Too often organisations that developed hierarchical governance structures when they were first established fail to adjust those structures as conditions change. Numerous researchers have documented the necessity of transforming structures so that organisational visions, strategies, production processes, service delivery systems and administrative structures work together seamlessly (Miles and Snow 1978; Doty and Glick 1994). This often requires significant updating and modernisation.

Success results from a coherent theory of change

How can the governance system of an organisation be transformed to generate cultural change in support of sustainability? My research found that the organisations that are leading the way in the field employ a carefully constructed theory detailing how success will be achieved. Although they don't necessarily start their sustainability initiatives with a detailed change strategy in mind, the leaders learn by doing and spend considerable time thinking through how they will transform their social systems. The cream of the crop of sustainability efforts tend to view all of the people, units and processes within their organisations, as well as its many stakeholders, as interconnected elements in their system of success. They take great care to understand how each step in the change process will interact with the others to form a natural reinforcing loop that leads to long-term transformation.

Derek Smith from Norm Thompson Outfitters succinctly describes how the leaders approach change:

> From the beginning we understood this as a change-management process, not just environmental management. We have always pursued this methodologically with an eye on cultural change. We definitely base our efforts on a comprehensive theory of how we can achieve cultural change.[5]

In contrast, the less successful organisations do not seem to have a theory of success, or if one exists it is based on fundamental misperceptions about the nature of their social systems and the types of changes required to become more sustainable. Mirroring the fragmented management style inherent in the linear take–make–waste production model, those struggling to improve their environmental and socioeconomic performance tend to view the key factors of success in isolation rather than seeing them as parts of a whole.

For example, when I asked the director of environmental management at B&G Power Tools (the fictitious name given to the company described in Chapter 1) to share his theory of success, he responded with a litany of actions that had been taken to improve the firm's environmental programmes. When I then asked how all of the actions would add up to long-term success, he suddenly went silent, looked at the floor, then eventually said: 'That is a good question and I don't really have an answer for you right now.' I also found this to be a common problem within the US Forest Services Large-Scale Watershed Program described in Part II of this book. Few of the project leaders could describe how their many activities and projects would eventually add up to success.

Without a coherent theory of success, organisations usually end up pursuing a scattered array of activities and projects that lead to marginal improvements, dead ends or outright failure. An effective theory of change, however, provides the means to regularly examine proposed immediate and longer-term actions to determine if they will have a positive or negative effect and cumulatively lead to the desired outcomes. A sound theory of change is particularly helpful in identifying and preventing steps that may inadvertently undermine the entire change effort.

5 Personal communication, 21 October 2002.

Through my research I found that the leading organisations use uniquely tailored versions of a theory of change that is based on the belief that a sequence of interventions provide the greatest leverage for change in a social system. When researching what the leaders do, I found many similarities between their actions and the key leverage points for change once described by late Donella Meadows, one of the early pioneers of the systems thinking movement. However, Meadows's framework was aimed more at large-scale political change than at organisational change. I found that the sequence and emphasis of her interventions did not quite fit for the organisations I reviewed. For this reason, the framework I offer is a modification of the sequence proposed by Meadows (1997).

Although the leading organisations may not describe it quite this way, their activities demonstrate an implicit or explicit understanding of these key leverage points.

Leverage points for organisational transformation toward sustainability

The greatest leverage point for transforming a social system so that it embraces sustainability is to change the dominant *controlling mind-set* or *mental paradigm* out of which the current system arose. The biggest bang for the buck comes from changing the organisation's (or unit's) overall frame of reference. The stated and unstated ideas held by the majority of people of an enterprise about the way the world works and their places in it shape everything they do. If you can alter the dominant mental paradigm of the organisation, you can change the entire way it is governed and operates. How do you change the controlling mind-set? By continually pointing out the failures of the old mental paradigm while simultaneously loudly and repeatedly describing a new one that is better for everyone. This leverage point was extremely well described by Donnella Meadows (e.g. Meadows 1997) and is also a key tenet of John Kotter's work on leadership and change (e.g. Kotter 1996).

The second-greatest leverage for change toward sustainability in a social system is to *rearrange its parts*. Recall that the way the parts of a system are arranged determines how it functions. If you can reconstitute the core elements of an organisation you can change how it operates. How do you rearrange the parts? By engaging new people with different perspectives and skills and reshaping the way these people interact to accomplish their work. When the core components of the system are reshuffled, many new ways of operating and governing appear.[6]

The third-greatest leverage for change in a social system in support of sustainability is to *alter its goals* (Meadows 1997). The goals of an organisation focus the attention and energy of its members. Goals that ignore or give minimal attention

6 Meadows stated that the second-greatest leverage point for change is to change the goals of a system. I find, however, that it is not possible to make a permanent and meaningful shift in goals unless new people with fresh ideas and all of the key power brokers are involved in the decision-making process. For this reason, I believe that the second-greatest lever for change is to involve the right people—i.e. to rearrange the parts of the system.

to the environment, employee or community welfare will lead to decisions that generate harmful outcomes, while those aimed at achieving sustainability will lead to responsible choices and governance patterns. How do you change the goals? By establishing the unambiguous purpose of attaining sustainability at a specific time in the future, as well as first-order principles to guide decision-making toward that end.

The fourth-greatest leverage point for altering a social system to support sustainability is to *restructure the rules of engagement*.[7] Power over how the work gets done is real power. Change the rules that determine how the various units of an organisation interact to achieve their purpose and how information is produced, decisions made and resources are distributed to support the new workflow, and very different types of outcomes will result. How do you change the rules of engagement? By developing new operational and governance strategies.

The fifth-greatest lever of change toward sustainability in a social system is to *shift the information flows*. (Information in this context focuses on communication and should not be confused with the information generated through improved feedback systems.) The information that is available to people shapes their understanding and their ability to make good decisions. The more that sustainability-focused information becomes dominant throughout an organisation, the more likely are people to grasp its meaning and commit to change. How do you change the information flows? By tirelessly communicating the need, purpose, strategies and benefits of sustainability internally with employees and externally among stakeholders.

The sixth-greatest leverage for modifying a social system toward sustainability comes by *correcting its feedback mechanisms*.[8] Feedback allows people to understand the effects of their choices and actions and to make appropriate adjustments. The lack of consistent and credible feedback leads to poor understanding and thus to flawed decisions. How do you change feedback mechanisms? By fostering and rewarding learning and innovation to continually increase individual, team and organisational understanding, knowledge and wisdom.

Finally, the seventh-greatest leverage for change toward sustainability in a social system is to *adjust the parameters*.[9] In the organisational context, changing the

7 Meadows stated that the fourth greatest leverage point for change is to change the rules of the system. By this, she meant the incentives, punishments, constraints, etc. However, because the issue is so new, a good deal of time and experience is needed before an organisation can identify thinking and behaviour that are consistent with good sustainability practices. Therefore, I find that it is not possible to change policies and procedures at this stage. Instead, at this stage the rules that govern how the parts of an organisation interact to achieve their goals must be changed.

8 Meadows said positive and negative feedback loops are key levers of change. In the organisational context, I find that improving feedback systems can generate both types of feedback.

9 Meadows talks about changing the numbers (by which she means subsidies, taxes, standards) as the last of the greatest leverage points for change. In the organisational context related to sustainability, changing the parameters and changing the rules are very similar and usually occur only after each of the other interventions have been implemented.

parameters means aligning the organisational chart, employee performance criteria, incentive and reward systems, internal measurement systems and other systems, structures, policies and procedures that influence the behaviour of employees and stakeholders with sustainability. By itself, this is the least effective intervention because if the core elements of the old governance system remain intact, such as the controlling mental model, teams, goals, information flows and the like, changing the parameters will have very little effect on decision-making or behaviour. However, when linked with interventions at the six other key leverage points, adjusting the parameters can help embed sustainability in the organisation's standard operating procedures and culture.

1 Change the dominant mind-set out of which the current system arose
2 Rearrange the parts of the system
3 Alter the goals of the system
4 Restructure the rules of engagement of the system
5 Shift the flows of information and communication of the system
6 Correct the feedback loops of the system
7 Adjust the parameters of the system

Box 5.1 **Greatest leverage points for change toward sustainability in a social system**

The following section of the book outlines the sequence of actions taken by the leading sustainability organisations to intervene at these key leverage points.

Part II

The wheel of change toward sustainability

In the previous section I discussed the key leverage points for changing a social system. This section of the book describes how the leading sustainability organisations intervene at these leverage points to resolve the blunders that harm their efforts to become more sustainable and prevent new problems from emerging. Because they serve to fix flaws in organisational design and operations, I call the interventions 'solutions'. Table II.1 describes the seven solutions and the blunders they address.

For ease of explanation, I describe the seven solutions in a linear fashion. In reality, organisational change toward sustainability is not linear. Change is messy and usually involves movement backwards, forward, up and down. Although they may not describe it quite this way, because the leaders think of their organisations as systems, not as collections of disconnected parts, they conceptualise the key interventions as elements of *a system of change*. I call this system the 'wheel of change toward sustainability'.

No one solution on its own can generate successful change. Each intervention is a key girder supporting all of the others in the change process. Each affects and is affected by every other solution. Weak interventions at any point may constrain the entire change process or cause it to fail. Each must therefore be sufficiently strong for the wheel of change to continually roll forward efficiently and effectively. Figure II.1 describes the interconnectedness of each of the seven solutions of the wheel of change.

The solutions form a natural progression

Although change is not linear, the interventions of this model form a natural progression. Each action provides a fundamental building block for the next.

Blunder		Solution
Patriarchal thinking that leads to a false sense of security	→	*Change the dominant mind-set* that created the system through the imperative of achieving sustainability
'Siloed' approach to environmental and socioeconomic issues	→	*Rearrange the parts* of the system by organising deep, wide and powerful transition teams
No clear vision of sustainability	→	*Alter the goals* of the system by crafting an ideal vision and guiding principles of sustainability
Confusion over cause and effect	→	*Restructure the rules of engagement* of the system by adopting source-based operational and governance-change strategies
Lack of information	→	*Shift the information flows* of the system by tirelessly communicating the need, vision and strategies for achieving sustainability
Insufficient mechanisms for learning	→	*Correct the feedback loops* of the system by encouraging and rewarding learning and innovation
Failure to institutionalise sustainability	→	*Adjust the parameters* of the system by aligning systems, structures, policies and procedures with sustainability

Table II.1 Seven sustainability blunders and solutions

Change results from cumulatively progressing through the three overall change modules embedded in the process as well as from the sequential completion of each separate intervention.

For example, the first three solutions (change the dominant mind-set, organise deep and wide teams, and adopt sustainability visions and principles) combine to create a new organisational mental model and organising framework. The fourth and fifth solutions (develop operational and governance change strategies and relentlessly communicate them) establish the means to design and test new ways of thinking and operating. The last two steps (foster learning and embed sustainability in standard operating procedures) provide the means to make sustainability grow and stick over the long term.

For each change module to provide a foundation for the next, each of the individual interventions must be satisfactorily completed. For example, only after a sufficiently compelling case for change has been established will the right people be willing to participate in the development of sustainability plans. Only after powerful transition teams are organised can an inspiring new purpose and vision

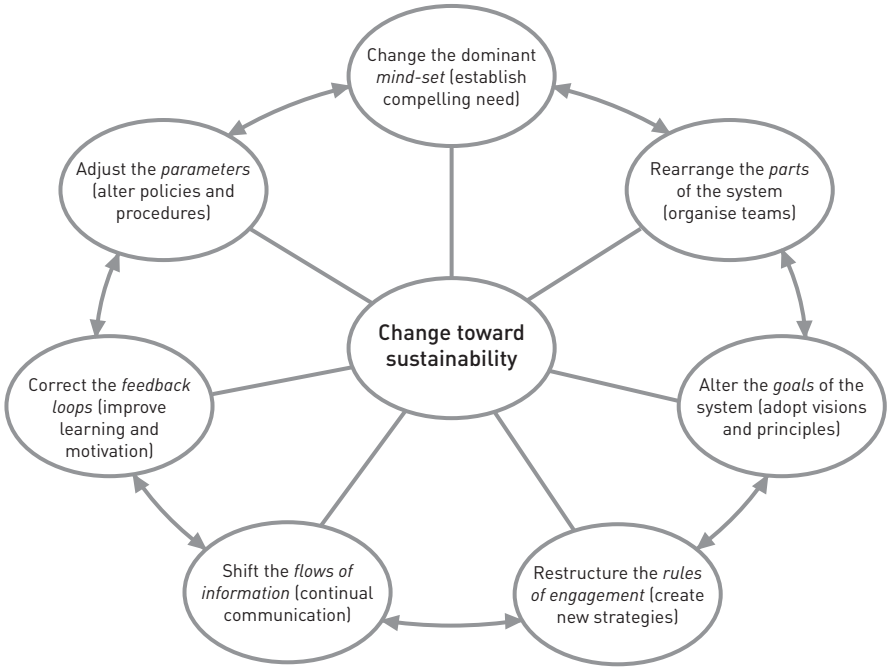


Figure II.1 **The wheel of change toward sustainability**

for the organisation be adopted. Only after people become clear about what they are striving to achieve and how this differs from their previous purpose can effective sustainability strategies be developed. And so on.

Because the seven interventions compose a continuous system of change, many of the organisations that are furthest advanced in the pursuit of sustainability find that they often come full circle and need to revisit the solutions of the wheel of change. For example, after they begin to institutionalise sustainability policies and practices, members realise they must re-commit to change, meaningfully engage more people, further clarify their purpose and vision and revisit the other elements of the wheel of change before they can generate the energy and support needed to institutionalise new patterns of governance.

Change can start anywhere

Because the process of change is circular, organisations can start anywhere on the wheel. For example, senior executives can establish a compelling need for change and provide the resources and support required to engage employees in the effort.

Alternatively, workers may initiate a sustainability effort at the grass-roots level and seek to build momentum upward and outward. No matter where change begins, eventually all of the seven interventions of the change process must be sufficiently completed or the effort will eventually stall or fail outright.

For example, an organisation may initially fail to craft a clear ideal vision of what it will look like and how it will function in the future once it becomes sustainable. The lack of clarity about the new destination may confuse people and temporarily take the wind out of the sails of the organisation's sustainability effort. However, the rapid adoption of operational and governance-change strategies and/or the production of some highly visible successes may help people gain clarity about what they are striving to achieve. These actions can re-energise employees.

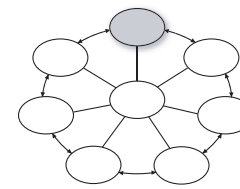
If, however, effective leadership does not exist or a business-as-usual mentality has not been sufficiently undermined, it is highly unlikely that a sufficient number of skilled, credible and politically powerful people can be engaged in the change effort. Without broad-based involvement, it will be impossible to develop a shared understanding of a new vision or purpose. In this case, no amount of strategy development or short-term successes can help clarify a new direction or re-energise employees.

Timing is therefore everything in any process of becoming more sustainable. Careful orchestration is vital. This is why good leadership is so important. Sustainability change initiatives can falter if you move too rapidly to a new phase before sufficient groundwork has been laid in the previous stage, or if you linger too long on one component when progress on a subsequent step could help inform the previous stage and thus keep people excited and engaged. Understanding 'when to hold and when to fold' is critical to sustainability-change initiatives. Only good leadership can provide this.

The following chapters describe my understanding of the processes used by the leaders to apply these interventions in their own unique ways and set their organisation on a path toward sustainability.

6

Change the dominant mind-set that created the system through the imperative of achieving sustainability



A month before he was to speak to an international environmental taskforce of senior company executives, Ray Anderson, the CEO of Interface, realised he had nothing to say. The meeting had been convened as a result of increasing consumer inquiries regarding the company's environmental practices. For the first 21 years of its existence, the environmental policy at Interface was simply to 'comply, comply, comply' with government regulations.[1] But it was clear that customers now wanted more, and staff looked to their CEO for guidance on how they should respond to these pressures. Yet Anderson had no vision of what to say.

Luckily, chance met opportunity. As he was preparing for the meeting someone handed Anderson a copy of Paul Hawken's book, *The Ecology of Commerce* (Hawken 1993). He read it voraciously. Anderson immediately gained a personal sense of purpose about the environment as well as a new vision for his company. His speech to the executives proclaimed that Interface was damaging the environment and that the company needed to adopt an entirely new way of doing business. Anderson's epiphany astounded his staff. The poignant message and personal conviction of his speech left many managers in tears. Thus began Anderson's effort to convince his employees of the need to transform Interface into a sustainable enterprise.[2]

The first step in any successful sustainability-change initiative is to alter the dominant mind-set that created the current system. People must become convinced that their unquestioned faith in the traditional take–make–waste economic model is no longer acceptable. The false sense of security that people hold when they are in compliance with the law must be undermined before employees and stakeholders will be open to sustainability-based borrow–use–return thinking and

1 Personal communication with Ray Anderson, 9 October 2001.
2 *Ibid.*

behaving. (Numerous researchers have pointed out the need for creating tension and anxiety between the current approach and an organisation's desired strategic direction. See, for example, Schein 1987; Kotter 1996.)

Business-as-usual can be torpedoed only through the compelling message that safety from legal challenges, social protest, financial meltdowns and environmental or community crisis can be achieved only by transitioning to a circular borrow–use–return model so that they no longer negatively effect nature or humans. Undermining an organisation's controlling mental model is the first—and most important—step toward the development of new forms of governance and operations. Little change will occur if this step is unsuccessful.

Generating a commitment to change is a tough task in any organisation. It is especially difficult if executives and workers feel safe and secure because they have complied with government regulations. If nothing seems broken, why would anyone change? One study found that leaders who tried to impose change on employees who did not feel 'ready' usually failed (Spector 1989). This information underscores the need to promulgate discontent with the prevailing mind-set if change efforts are to succeed.

My research found that many sustainability initiatives fail in this initial stage. They never really get off the launch pad. Many efforts fizzle because senior executives vastly underestimate the importance of taking explicit steps to undermine the prevailing belief systems that support business-as-usual. Often, managers are unaware of their controlling mental models, can't figure out how to break the shackles of contentment, or believe that the desire for change will grow naturally once people become engaged in the transition. These assumptions are false. People become motivated only when explicit steps are taken to surface the controlling mind-sets and make a compelling case for change toward sustainability.

A recent initiative of the United States Forest Service offers a good example of the disastrous effects of instigating a major change programme without first clearly establishing a compelling need for change. The Forest Service launched an ambitious effort in 1999 to transform the way it managed and sustained watershed and aquatic resources. The goal was to test and implement new ways of doing business that would move the agency from its internally focused, single-issue approach (e.g. management of water quality is separated from forestry and wildlife habitat) to a collaborative integrated ecological restoration framework. The agency chose 15 large-scale watersheds from across the US as demonstration sites, ranging from the White River in Vermont to the Chattanooga River in Georgia and the Upper Pit River Watershed in California. Over $60 million of public and private money was invested in the initiative, and local stakeholders contributed thousands of hours of volunteer time.

A review I led of the watershed programme completed for the Forest Service three years after it started found that, while numerous restoration projects were implemented (such as tree plantings) and while many people were excited about the new approach, little within the Forest Service itself had actually changed. The primary reason was that many of the agency's top leaders and mid-level managers did not see their traditional way of thinking and operating as being dysfunctional. Four years into the effort, many of the watershed projects were struggling and some were close to failing (Doppelt *et al.* 2002a).

Executive- and staff-led approaches

There are two primary ways to undermine business-as-usual and focus an organisation on the imperative of becoming more sustainable. Senior management can initiate change or the shift can be stimulated from the bottom up.

Proactive leadership from top executives usually occurs when the CEO, top elected official, or other senior managers gain personal convictions about sustainability. John Emrick at Norm Thompson Outfitters, Ray Anderson of Interface and former Oregon governor John Kitzhaber each initiated change efforts because they became personally committed to sustainability. Emrick was always sympathetic and became an activist after his sabbatical abroad. Anderson became a missionary after reading *The Ecology of Commerce*. Kitzhaber became a disciple of sustainability after seeing information showing that environmental impacts were growing in Oregon despite the existing laws and regulations, and because he saw a growing constituency for the new direction.

The urgency for change can also occur when a serious crisis awakens executives. Senior executives at IKEA, a global furniture manufacturer, became committed to sustainability after a series of environmental and labour crises. The environmental crisis arose from the company's packaging wastes, use of PVC plastic and formaldehyde. The company actually had two formaldehyde crises. The first occurred in the mid-1980s when the Danish government adopted emissions standards for formaldehyde that many IKEA products, which were made from particleboard, exceeded. The scandal attracted much attention in the Danish media and IKEA was fined. Worse, however, was the damage caused by the ill will and lost sales. The crisis generated a major investigation to identify the source of the problem, which eventually led the entire European furniture and particleboard industries to change their glues and additives to reduce formaldehyde.

The second crisis occurred in 1992 when tests conducted by investigative journalists from a large German newspaper and television station found that release of formaldehyde vapour from IKEA's 'Billy' bookshelf was higher than the law allowed. On this occasion the source of the vapour was the lacquer the company used on the bookshelf, not the particleboard.

Bad publicity from the second incident affected IKEA operations around the globe and the company had to stop all production and sales of the 'Billy' bookshelf. The raw cost to track down all of the bookshelves and correct the problem was estimated to be between US$6 and US$7 million (in 1992 dollars). Additional costs were incurred related to diverted manpower, lost sales, cost and time to convince customers to return to IKEA, and other actions. These crises awoken senior executives to the need to change the way the company addressed environmental issues.[3]

Then, in 1994, a major labour crisis erupted. This time, Swedish television broadcast dramatic pictures of children weaving carpets in miserable working conditions in Pakistan. Although the pictures were not actually shot at an IKEA supplier, many of their suppliers used child labour. This crisis brought social issues to the forefront. Thomas Bergmark, manager for social and environmental affairs at IKEA,

3 Personal communication, Thomas Bergmark, IKEA social responsibility manager, 11 November 2002.

said: 'This was a big alarm bell for us and began to change attitudes and made us more aware and develop deeper insights into our responsibilities.'[4]

As environmental and social concerns escalate around the globe, an increasing number of organisations will face crises similar to those that hit IKEA unless they proactively take action to prevent them.

Early leadership by upper management is the most rapid and direct way to create a compelling case for change. Those at the top are invested with the ultimate responsibility for their organisation, they hold or greatly influence the financial purse strings, and their approach to managing for the future will greatly influence success or failure.

Lacking pioneering leadership by management, usually line staff and mid-level managers can catalyse change. In fact, the grass-roots approach is the most common way that interest in change is generated. Staff can generate data, share it with key people, and slowly build a coalition within the organisation from the ground up to make the case for change to senior executives.

No matter what approach is used, people must come to believe that danger exists today or that serious risk looms in the not too distant future unless the organisation adopts a more sustainable path. In private firms, for example, employees must begin to fear that the company itself, or their jobs in particular, may be at risk. In government, trepidation must grow that, without change, federal or state regulatory agencies may usurp an agency's authority, legislative bodies may cut their budgets, or voters may demand major agency reorganisation.

I have seen a few effective sustainability efforts that were initiated without first convincing people that the status quo was an accident waiting to happen. Communities with a long history of community activism, public organisations with a history of strong inclusive democratic practices, and small family-oriented companies are the most likely places for this to occur. The State of Oregon's sustainability initiative is a good example of a public-sector effort that began without a compelling case to change the status quo. Citizen activists, including this author, simply made a credible proposal to the governor describing the needs and benefits of sustainability. Because the governor was sympathetic to the issues, he initiated the programme.

Norm Thompson Outfitters and the Neil Kelly Company, an $18-million-a-year home remodelling and construction firm in Portland, Oregon, provide good examples of private-sector initiatives that began without an initial major campaign. The Neil Kelly Company was not beset by crisis. Tom Kelly, president of the firm, simply sat down with his staff and talked about The Natural Step sustainability principles. Kelly then asked employees if they would like to learn more and try to apply the principles to the company. The workers agreed. Neil Kelly Company went on to manufacture the nation's first Forest Stewardship Council sustainably certified interior cabinets. The company also received the first LEED certification[5] in the Northwest from the US Green Building Council for Viridian Place, its new Lake Oswego showroom complex.

4 Personal communication, 26 November 2002.

5 Leadership in Energy and Environmental Design certification system of the US Green Building Council.

Most organisations, however, will not find it as easy as did the Neil Kelly Company. To initiate sustainability efforts without some type of compelling case, organisations must have a close family feel, a history of participatory distributive governance, and excellent trust and communication between management and staff.

Change triggers for senior executives

Senior executives, elected officials, or high-level managers of public agencies are the key to sabotaging the business-as-usual mentality. These leaders must institute a careful strategy aimed at systematically building the case for change. The approach should include a combination of threats *and* the assurance that by working together the organisation can overcome the problems and become better off.

Research on stress management suggests that people usually need to see an issue as a threat before they will respond with some type of action (McKenzie-Mohr and Smith 1999: 91). Further, research has shown that messages that emphasise the risk of inaction are much more persuasive than those emphasising the positive benefits of taking action (McKenzie-Mohr and Smith 1999: 90). This information underscores the need to include some type of threat when seeking to undermine business-as-usual.

However, people may not necessarily respond positively to threats. People usually respond with either 'problem-focused' or 'emotion-focused' coping mechanisms. Problem-focused mechanisms involve taking direct action to alleviate the threat. Direct action in response to threats related to an organisation's existing environmental and socioeconomic performance would include an employee's willingness to actively participate in the development of new solutions. However, if people feel overwhelmed by the threat or believe there is little they can personally do about the problem, they may respond with emotion-focused mechanisms. This could include ignoring the problem, changing the subject and other denial mechanisms (McKenzie-Mohr and Smith 1999: 91).

Whether people choose problem-focused or emotion-focused behaviour depends on the degree of control they believe they have to resolve the problem. Thus, while threatening messages are essential to undermine the status quo, to ensure that the threats do not become counterproductive they must be coupled with assurance that, if everyone helps, the problems can be overcome. In addition, because the presence of continued threats could cause people to eventually tune them out, once the threats have generated initial change, it is best to mostly focus on positive solutions and reintroduce the threats related to inaction only if complacency again sets in (McKenzie-Mohr and Smith 1999: 92).

Senior executives should use this information to generate a case for change that employs a combination of written communication, staff and stakeholder meetings, speeches, and the symbolic acts discussed later in this chapter. Senior managers must generate just enough heat and discomfort to convince people to open themselves to new ways of thinking and behaving while also providing assurance that, if everyone helps, the problems can be resolved and everyone will be better off.

The plea for change cannot be a one-time event. Pressure must build up over time for people to understand that executives are serious. Ray Anderson's initial speech to the Interface global environmental team was not enough to motivate his employees to immediately change their way of operating. After the meeting, for example, the European division once again became preoccupied with everyday business. They were not convinced that Anderson was serious about sustainability. It took a stream of memos and phone calls followed by a personal meeting in London about a year after the original taskforce meeting for Anderson to convince the Europeans that he was serious about changing the way the company did business.[6]

Senior managers can use a number of strategies to undermine business-as-usual. For example:

- As previously discussed, one of the best and most frequently used approaches is to use an existing crisis as evidence of the need for a new approach. In the private sector lawsuits, fines, budget deficits, negative publicity, customer complaints and other crises can be used as urgent signs of the need for change. In the public sector, growing environmental problems such as endangered species or social problems such as protests over poor land management, budget shortfalls, voter demands for increased government efficiency, and other issues can be used as signals of the need for a new approach to business.
- Managers of private firms can show how the company may lose customers and market share to firms with better social or environmental track records. Point out, for example, the effects of growing consumer demand for environmentally certified products and services or the problems companies have experienced when targeted by activists for poor social or environmental performance.
- Executives in both the public and private sectors can estimate the money their organisation currently throws away due to inefficient energy or water use practices, waste generation, or regulatory compliance issues. Underscore to employees that investors, legislative bodies or taxpayers will eventually punish the organisation for its wasteful practices.
- Company directors and executives with fiduciary responsibility for an organisation can point to the increasing concerns voiced by insurance companies and banks—especially in Europe—about social and environmental performance. Fiduciaries can also describe the potential legal liability they may face if they fail to respond with preventative and adaptive measures to environmental concerns such as global warming, pollution and habitat impacts, and social issues such as poor labour practices. Growing evidence suggests that multi-billion dollars in financial losses are possible, if not probable, for companies and their shareholders if preventative measures are not taken to identify and reduce organisational involvement with and exposure to those issues. Directors, pension fund

6 Personal communication with Ray Anderson, 9 October 2001.

> trustees and institutional investors may all risk breach of fiduciary duty unless they assess these risks and take appropriate action. (For more information on this topic, see Innovest 2002; Goodman *et al.* 2002.)

Executives at SCA, a Swedish-based integrated paper company, became convinced that future shareholder value would be determined by their performance on sustainability issues. The firm produces and sells absorbent hygiene products, packaging solutions and forest products, and has net sales of more than SEK82 billion annually. SCA owns approximately 1.6 million hectares (approximately 5.7 million acres) of forestland in Sweden as well as pulp and paper mills in Europe. It has approximately 40,000 employees in 40 countries. The company says that:

> Shareholder value is inextricably linked to corporate, social and environmental responsibility. This fact is mirrored through the success and growth of investment funds worldwide, which base their investing decisions on principles, which take into account corporate environmental and social performance and company ethics. SCA is convinced that environmental management and social issues are key elements in maintaining long-term, sustained profitability and growth.[7]

Although the company has not resolved all of its problems, executives at SCA have acted on their convictions through a concerted effort to reduce the firm's environmental impacts. All of the company's forests are certified to ISO 14001 and Forest Stewardship Council (FSC) standards. Approximately 60% of the company's raw wood is supplied from FSC-certified forests. Most of its mills are certified to ISO 14000 standards and all of the mills will become certified in the near future. Several of its paper mills achieved certification according to FSC's chain-of-custody standards. This enables SCA to guarantee the origins of the raw material throughout the entire production chain and thus provides the ability to market products with a credible environmental label. The company is one of the leaders in the use of recycled fibre in packaging, which reduces the need for virgin wood, transportation needs and waste. Bo Sandqvist, vice-president for public and environmental affairs at SCA, says these actions have been economically beneficial. 'If you do good environmental care and good social care, it adds value to the company. For example, we saved between $7 and $8 million on landfill and transport costs by reducing our waste by 18%.'[8]

Investors, insurance companies and banks are increasingly concerned about the risks associated with poor environmental and social performance. Swisscom, the leading telecommunications company in Switzerland, became convinced of the need to engage in sustainability because of these concerns. 'The ratings agencies, such as banks and insurance companies, started to ask about our environmental and social aspects. We needed to respond to these pressures. The banks were most important because of investor concerns,' says Albert Kuhn, head of group environmental management. These pressures led the company to realise that 'Environ-

7 SCA, *Environmental Report 2001* (www.sca.se/contact/environment.asp, accessed 17 February 2003): 8.

8 Personal communication with Bo Sandqvist, 21 August 2002, and SCA *Environmental Report 2001*.

mental management alone was not enough. This was new for our company,' says Kuhn. 'We realised we needed to focus on internal and external environmental and social aspects.'[9]

Swisscom responded to these pressures by expanding its long-established environmental management efforts into external environmental and social issues. In 1998 Swisscom became the first European telecommunications firm to achieve company-wide certification in both ISO 9001/2 and 14001. Thanks to its EMS (environmental management system), Swisscom reduced energy consumption within its networks, has programmes designed to take environmental issues into account when evaluating suppliers and materials, and has made efforts to incorporate ecological considerations into new buildings. Although it has not yet developed complete cradle-to-cradle systems, by taking these steps, Swisscom has demonstrated a solid commitment to reducing its environmental and social impacts.

It should be noted that, although an EMS can improve efficiency and generate improvements by tackling often-neglected easier projects (such as improved energy or water efficiency), most are designed simply to better control existing cradle-to-grave production systems. These efforts usually plateau after a short time because, after the low-hanging fruit has been picked, new projects become difficult to find due to the fact that the basic linear design of the system and underlying beliefs and thought patterns of employees have not changed. EMSs are effective tools for the transition to sustainability only when they provide a framework for transitioning to borrow–use–return production models and for transforming organisational culture.

Utilise the power of symbolic acts

While senior executives can share their concerns about the status quo verbally and in writing, often a symbolic act captures the most attention. Symbolic acts demonstrate the seriousness of the situation through action. They can range from the high-profile hiring of a new senior executive with an exemplary reputation in social welfare or environmental affairs to transferring or firing managers who have failed to take these issues seriously. To highlight the importance of changing the status quo, managers can leapfrog the traditional human resources system and give financial rewards or major promotions to mid- and lower-level employees who have excelled in the sustainability arena.

Executives can also demonstrably make their point by symbolic actions such as trading in gas-guzzling SUVs (sport utility vehicles) for more energy-efficient vehicles, installing skylights in buildings to underscore a new commitment to employee wellbeing, or physically removing walls or other barriers that separate organisational units, to emphasise integration. People within and outside the organisation may grasp the meaning of these metaphorical acts much more quickly than they will speeches and memos alone.

9 Personal communication, 11 October 2002.

Establish a performance gap

If senior executives lack information to make the case that the status quo is unacceptable, data can be generated to demonstrate the presence of a sustainability performance gap. Seek information that compares your organisation's current environmental and socioeconomic performance with the desired goals and expectations of employees, stakeholders, or legislative bodies and voters.

Your performance gap identifies real-time immediate problems. Shrewd leaders can also turn a performance gap into a major opportunity. For example, closing the gap may provide employees with financial benefits or increased job security and may provide the organisation as a whole with market or public relations benefits. Defining an issue as a problem or as an opportunity will usually produce vastly different types of solutions.

Actions such as the following can establish a performance (or opportunity) gap:

- Complete a sustainability audit of the organisation's internal operations. The audit can identify all of the ways in which the organisation affects the environment, workers and community wellbeing (locally and globally). Compare the findings of the audit to the expectations and desires of your employees, customers or constituents. Examples of internal audits are discussed later in this chapter.

- In additional to internal audits, public-sector leaders can complete external audits. These assess the current conditions, trends and risks to environmental and socioeconomic wellbeing at the community, state or regional levels. External assessments can graphically depict existing or potential problems that may cause significant harm if left unresolved. *Concern for Tomorrow*, the national environmental assessment completed by the Dutch government, and the Oregon Progress Board's *State of the Environment Report*, are examples of external audits. Both assessments had clear and powerful messages about environmental problems that few could ignore. These types of audits will be discussed in greater depth in Chapter 9.

- Private and public executives can complement an audit by asking employees (as well as key stakeholders or constituents) for their views about the organisation's socioeconomic and environmental performance. Compare the feedback with the perceptions held by senior executives. Point out that wide discrepancies between the views held by management, employees or stakeholders usually mean that institutional or cultural barriers exist that are screening out information that may indicate trouble ahead.

- Document how greater energy, water and materials efficiency, less waste, or reduced toxicity in the workplace can cut costs and therefore help prevent job cuts, increase employee profit-sharing, or enhance community support.

- Benchmark organisations in your sector to determine the technologies and practices being used to address interlinked social, economic and

environmental issues. Highlight the risks of lagging behind the leaders (but don't just mimic their practices).

- Develop scenarios to predict how trends in environmental and social policy occurring in Europe (such as product 'take-back policies' that require producers to maintain responsibility for the products they manufacture throughout their entire life-cycle), the international community (such as global warming accords), or other states and regions (such as rising energy costs or living-wage campaigns) may affect the organisation. Estimate the potential implications of failing to respond to these trends in a timely and effective manner.

General Motors used a scenario-building process to generate a compelling need to develop more environmentally sustainable vehicles. In 1995, GM staff developed four future scenarios for their 'presidents council', which, at that time, was composed of the company's highest-level executives (it is now called the Automotive Strategy Board). The purpose was to identify and plan for future trends that could potentially affect the firm. One scenario was called 'environmental domination'. According to Nick Pudar, director of GM strategic initiatives,

> The general premise of this scenario was that environmental concerns would be a dominating factor in consumer, enterprise and societal decision-making. As such, product attributes, consumer adoption patterns, laws and regulations, and social norms would place higher priority on environmental issues.[10]

The executives looked at the strength of their business strategies in the context of the environmental dominance scenario and the others. Most of the executives questioned the likelihood of the environmental scenario actually occurring. However, one executive took a different view. He continually asked, 'What if this scenario did occur? What would it mean for GM and for the auto industry as a whole?'

As he began to understand the potential significance of this scenario for the firm, the executive was able to convince his colleagues to dedicate a significant amount of resources to prepare GM for the possibility that concern for the environment could become dominant. They made this decision because they believed they had a fiduciary responsibility to GM shareholders as well as a responsibility to be good corporate citizens. This led to a decision to design and produce alternative-propulsion solutions that eventually included hydrogen-fuel-cell-powered vehicles.

Royal Dutch/Shell and the Dutch government are two of the early pioneers in scenario building and each found substantial benefits from the process.

The Collins Companies, the forest products firm headquartered in Portland, Oregon, began its sustainability initiative in the early 1990s due to a desire to avoid being consumed by the timber wars that were raging across the nation. Then-CEO Jim Quinn understood that good public relations were not sufficient to prevent lawsuits and other challenges from the environmental community. Environmentally sound management was needed. He therefore decided to seek third-party

10 Personal communication, 29 October 2002.

environmental certification for all aspects of the company's operations. The Collins Companies subsequently became the first forest products company in the US to have its timberlands certified by the Forest Stewardship Council, a non-profit organisation. The company also instituted sustainability practices in its plywood, particleboard and dimension lumber manufacturing facilities.[11]

Whistler Blackcomb ski resort in British Columbia, Canada, used a combination of an existing crisis and the potential of a future catastrophe to generate employee support for changing its approach to the environment. In 1992 an 800-gallon fuel spill poured diesel oil into a fish-bearing stream on resort lands. This caused a major public outcry. 'I had often dealt with conflict, but I never had so many problems as what occurred after this spill,' said Arthur DeJong, manager of mountain planning and environmental resources at Whistler Blackcomb. 'The spill was human-caused. I found out we had lots of due diligence for guest safety, but no due diligence regarding the environment. I realised how neglectful we were. That was our wake-up call.'[12]

Senior management at Whistler Blackcomb quickly agreed to Arthur's proposal to develop an extensive environmental management system for ski operations at the resort. As a front-line manager, Arthur had seen the diesel spill as the catalyst needed to develop an environmental programme. But senior management had another reason for agreeing to Arthur's idea as well. The executives had watched the forest industry begin to collapse under the weight of environmental challenges. They made a strategic decision similar to the one made by The Collins Companies: to take the lead on environment issues and thus control their own destiny, rather than sit back and run the risk that public-interest groups or regulators would do so. The combination of an immediate crisis and the potential of a significant future threat spurred Whistler Blackcomb executives to approve the development of an environmental management system and other steps, to resolve its problems.[13]

An eco-audit was used at Stonyfield Farm to make the case for its environmental programme. Based in Londonderry, New Hampshire, the company produces organic yoghurt, frozen yoghurt and ice cream, and had $92 million in sales in 2002. Stonyfield Farm was founded in 1983 with the goal of demonstrating that it was possible to produce quality products, generate a profit and care for the environment. Given the firm's original purpose, it would seem that making the case for an environmental programme should have been a simple task. But, as with any new start-up, the first years of operation were focused primarily on getting the company up and running. Employees had precious little time available to focus on the company's environmental footprint. The eco-audit was completed in 1994 to focus employee attention on the areas where the firm was not living up to its initial aspirations and goals.

'We wanted to determine our environmental impact and to prioritise what to work on first,' said Nancy Hirshberg, vice-president for natural resources. 'The eco-

11 Personal communication, December 2001.
12 Personal communication, July 2002.
13 *Ibid.*

audit allowed us to get employee enthusiasm up. Solid waste, for example, is something everyone can see and feel good about reducing. Energy reductions can also give you good dollar savings, which allowed us to get the attention of the higher-ups. The audit got people's attention. It was a great way to get going.'[14]

The same types of strategies can be used within the public sector. Senior executives in the Dutch Ministry of the Environment used the convergence of the public release of *Concern for Tomorrow* (the first-time national assessment of environmental conditions [RIVM 2000]), the Queen's Christmas Day speech declaring that the environment was at risk, the active involvement of Prime Minister Ruud Lubbers, and subsequent increased media attention to the issues as vehicles to drive home the urgent need for their proposed sustainability-based National Environmental Policy Plan.[15]

Change triggers for line staff and mid-level managers

If an organisation lacks senior leaders who are committed to the need for change, mid-level managers and line staff can employ a bottom-up approach. In sustainability change-management classes and workshops that I teach, I am often asked if lower-level staff can catalyse change. My response is always the same: building support from the grass-roots upward is often the way change begins because dissatisfaction with business-as-usual usually appears first at the lower levels of an organisation. Those at the top tend to be insulated from the poor social or environmental performance of their organisation. Senior executives become aware of problems only through the efforts of mid- and lower-level staff, or when a major crisis strikes.

A bottom-up approach to change can involve the following actions:

- Mid- and junior-level staff can gather environmental, social welfare and financial data similar to that previously described to demonstrate that a serious crisis already exists, that significant opportunities are being lost, or that major turmoil is pending. Organise the data in a straightforward manner to make your case.
- Create a persuasive written and/or audiovisual presentation outlining the problems. Talking about the issues with fellow staff members or senior managers is usually not sufficient. You need to develop a top-quality presentation that succinctly documents the risks as well as the opportunities. Emphasise the need for the involvement of senior leaders to

14 Personal communication, 5 July 2002.
15 Personal communication with Paul de Jongh, policy advisor for sustainable development for the Dutch government, 23 June 2003.

resolve the issues. Underscore the positive benefits that upper management may receive from taking the lead.

- Share the presentation with fellow employees and then slowly work your way up the line to top executives. Systematically expand the circle of those who understand and support the need for change. Many times your fellow employees do not know that a problem or opportunity exists. The people you apprise will be thankful that you took the time to share the information with them. They will then champion your efforts when you present the information to senior leaders and the executives ask others for their opinions.
- Start with people who are likely to be sympathetic. Move on to those who have the ear of senior management. Make the case in the same manner that you would to senior executives. This will help you refine the presentation and identify the holes in your arguments.
- Prior to making your final pitch to senior managers, publish articles about the issues in organisational newsletters, bring in outside speakers and hold special events. The more you can generate a feeling that a growing consensus exists about major problems—and potential solutions—the more likely you are to capture the attention of senior executives.
- When the time arrives to give your presentation to the top managers, ask supportive mid-level managers and people respected by the executive team to join you. Demonstrate the breadth of support for changing business-as-usual.

Employees at Herman Miller, a global manufacturer of commercial office furniture, used a variation of this approach (which can also be called a 'middle out' effort) to launch the company's environmental sustainability efforts. In the late 1980s, Bob Johnson, a mid-level programme manager, and Bill Foley, Manager of Colors, Materials and Finishes, began to raise concerns about the use of rosewood veneer—an endangered tropical wood—in Ottoman cushioned chairs, which at that time were the company's signature piece. Soon another employee, Paul Murray, joined Johnson and Foley in voicing concerns. These individuals carried their message to senior executives who eventually decided that using rosewood was indeed not the right thing to do.

The decision to refrain from using rosewood triggered the development of a more formal environmental programme. With management's encouragement, Johnson and Murray recruited employees from throughout the organisation to form a steering committee to oversee environmental issues. An informal group called the Environmental Quality Action Team (EQAT) had been organised a few years earlier to address environmental issues because no formal programme existed at Herman Miller. The EQAT sprang to life around the rosewood issue and grew to become the driving force behind environmental policies and programmes at Herman Miller.[16]

16 Personal communications with Mark Schurman, Director of External Communications, 30 April 2003, and Paul Murray, Director of Environmental Affairs, 20 May 2003.

It should be noted that this success was possible only because Herman Miller employs an open governance system that encourages employees to openly voice concerns to senior management. 'It was a bottom-up effort, but it succeeded only because employees are empowered within the company', said Mark Schurman, Director of External Communication at Herman Miller.[17]

Stena Metall AB is a major European industrial recycling, trading and shipping company. Based in Sweden, the Stena Metall Group generates gross revenues of over SEK275 million. The firm began to pursue sustainability in the early 1990s after seeing interest grow within the steelworks and smelting industries as well as electronics. Peter Domini, head of business development at Stena Metall, urged the company to become a leader in the environmental field. In 1992, Domini contacted Dr Karl-Henrik Robèrt of The Natural Step because he 'needed a simple tool to educate everyone within the organisation'. Using TNS as the basic educational vehicle, the company started to build understanding among employees from the bottom up. The effort began 'with a helicopter view of global problems and then took it down to the level of each employee's experiences and application'.

As understanding grew, so did an understanding of the need and opportunities that sustainability presented the company. Domini says that:

> Some people felt bad because they realised they did bad things in the past. But we focused on doing things in a better way. We said there are only two types of environmental problems: ignorance and those who don't care. Now that we know, we said we can do better in the future.[18]

This broad-scale educational effort led to widespread understanding and commitment to the pursuit of sustainability. As a result, although no environmental department existed just six years ago, today Stena Metall not only has a major department, the company is also actively marketing its environmental services.[19]

Prepare for the policy window

Employees should keep in mind the concept of the 'policy window' when utilising a bottom-up approach. Senior executives may not be ready to hear about social welfare or environmental concerns. Other issues may seem more pressing. Staff concerned about sustainability should carefully gather information, build internal support and prepare the ground, so you are ready to move quickly when a crisis or other type of opportunity suddenly makes senior executives willing to consider the issues. This opening is the policy window.

The same dynamic plays out in the public sector. Policy windows open, for example, when extensive media coverage of a sustainability-related crisis converges with the presence of a sympathetic elected official and the proper legislative vehicle to suddenly make progress possible. Public employees and stakeholders

17 Personal communication with Mark Schurman, Director of External Communications, 30 April 2003.
18 Personal communication, 7 October 2002.
19 *Ibid.*

must be prepared to jump on these opportunities when they occur, as they don't appear that often.

Maintain constant pressure as sustainability is a long-distance race

Challenging the dominant beliefs and perspectives that created the existing social system cannot be a one-time event. The journey to sustainability will not be quick. Layer upon layer of the organisational onion must be peeled away to discover the many dysfunctional thought processes, values, norms and practices embedded in its culture and operations. Employees will run into major barriers that will seem insurmountable. The sustainability effort will continually be forced to compete with many other demands for the attention of senior executives. Persistent effort will therefore be required over many years to achieve sustainability. Efforts to undermine complacency must therefore also be unrelenting. Leaders cannot allow the pressure for change to dissipate.

All too often I find that organisations make a little progress and then begin to feel smug and content. As a result, they hit a plateau and the sustainability effort stalls. The State of Oregon struggled with this problem. A year and a half into their sustainability effort, the governor and his key senior staff members thought the sustainability effort was launched and put their attention elsewhere. While a few of the more committed agencies continued forward, the sustainability ship quickly began to take on water within much of state government (CWCH 2002). The Oregon example underscores the importance of exerting constant pressure for change.

Analysing change-readiness in your organisation

Whether senior executives generate support for change, or it is built from the bottom up, it is helpful to understand your starting point. If the organisation is naturally sympathetic to sustainability, a major campaign to undermine business-as-usual may not be needed. People may respond to education and training about sustainability and to continued encouragement from senior executives (although, as discussed in Chapter 11, education alone is rarely sufficient to generate long-term change). On the other hand, if the values and norms of the organisation are neutral or antithetical to environmental or social welfare issues, an extensive effort may be required to destabilise the status quo.

Senior managers can ask the following questions of employees and stakeholders to determine the change-readiness within the organisation:

- Do you believe that environmental and social welfare issues should have equal priority with profitability and shareholder value?
- If you said yes to the question above, to what extent do you believe the organisation is doing all it can to protect the environment and social welfare?

- If you said no to the first question, do you see any risk to the organisation from not making these issues a priority?
- To what extent are environmental and social welfare issues a priority in your private or family lives?

Questions for human resources staff include:

- What issues elicit the most frequent complaints from employees? What are these complaints about?
- When people praise the organisation, or their unit, what specific aspects do they rave about?

If the response to the first set of questions indicates that environmental and social welfare issues should be top priorities and/or that people would like to see a greater commitment to them, sustainability will probably be a relatively easy sell. This conclusion can be reaffirmed if the responses to the second set of questions indicate that environmental or social welfare issues are the sources of frequent complaints or praise. On the other hand, if people do not believe sustainability should be a top priority and/or do not voice unhappiness with or praise for the way the organisation currently manages the issues, a major sustained effort will likely be required to undermine the dominant paradigm the supports business-as-usual.

Analysing your efforts to undermine business-as-usual

After senior executives have acted to undermine the status quo, you can determine the effectiveness of the efforts by asking the following questions of employees. It is also helpful to ask some of the same questions of stakeholders such as customers, vendors, suppliers, stakeholders and constituents (for public agencies).

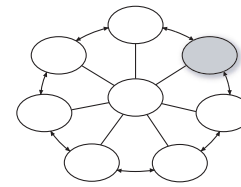
1. Can you describe the reasons for our sustainability initiative? What problem or issue do you think the initiative is striving to resolve?
2. Do you believe that the organisation's existing production processes, products and services generate little to no impact on the environment, workers or communities, or are you concerned that they may cause harm?
3. Is compliance with environmental and labour laws and regulations sufficient for the organisation, or should more be done to protect the environment, workers or communities?
4. How important do you think the initiative is to the CEO, the governor, mayor (or other senior elected officials) and your department director?
5. How important is the sustainability initiative to you?

6. How do you rank sustainability compared to the other tasks in your workload (high, middle, low)?
7. Have you dropped other tasks or stayed late to work on the sustainability initiative?
8. At staff meetings, how often is the sustainability initiative discussed? Is there a sense of great importance given to it?

Unless the responses to these questions suggest that people feel a compelling need to invest themselves in sustainability efforts, complacency exists. If people say that sustainability is important, but give a million reasons why they can't work on the issue, business-as-usual dominates. If people point to the progress they have achieved and say that things are now fine, self-satisfaction prevails. When these signs of distress appear, your sustainability initiative is usually in deep trouble. Increased effort should be made to undermine the status quo and refocus people on the imperative of achieving sustainability.

7

Rearrange the parts of the system by organising deep, wide and powerful sustainability transition teams



After being appointed CEO of Herman Miller Inc., a global manufacturer of office furniture, one of the first steps Dick Rupp took was to encourage the organisation of the Environmental Quality Action Team (EQAT). The team's mission was to 'help the corporation through the muddy waters of environmentalism'. Headquartered in Zeeland, Michigan, the company had a long tradition of concern for the environment and extensive employee involvement. Prior to the EQAT, however, no formal mechanism existed to engage its 9,000 employees in environmental issues. Concerns raised by mid-level employees about the company's use of rosewood, an endangered tropical hardwood, further crystallised for Rupp the need for a more systematic way to handle environmental issues. Senior executives recognised that every employee and every unit must be involved if the firm was to improve its environmental management. The EQAT was therefore organised as a cross-functional team composed of senior and middle management and line staff from almost every unit within the organisation.[1]

Once the EQAT was clear on its mission, it proceeded to form nine subcommittees. Over 200 people participate on the subcommittees, all on a volunteer basis over and above their regular job responsibilities. The 20-person 'design for the environment' (DfE) team, for example, was established to formulate sustainable products. The Ergon 3 office chair is one outcome of this group's efforts. This ergonomically sound chair is made with 60% recycled content, and 95% of its materials can be recycled and re-used. The energy subcommittee saves the company $720,000 annually by implementing energy-efficient lighting and other steps which produce a 33% return on investment. Herman Miller officials say that

1 Personal communication with Paul Murray, Herman Miller sustainability manager, 28 April 2002.

efforts to reduce energy use and waste in packaging alone have 'conservatively saved the company millions of dollars'.[2]

Herman Miller achieves these successes because it fully involves employees in the process of integrating environmental thinking into its operations. 'We take a holistic approach,' notes Paul Murray, the company's sustainability manager. 'We try to make the environment part of everyone's job.'

The Herman Miller story demonstrates that once business-as-usual thinking has been shattered, the next-greatest leverage point for change in a social system is to rearrange its parts. This requires the involvement of new people from throughout the organisation—and eventually stakeholders—in sustainability efforts.

Often, the people who control planning and decision-making become stuck in their ways. They surround themselves with like-minded people, become too close to the issues, do not trust the unknown and therefore are unwilling to consider alternatives, or may feel threatened by change. Every problem is consequently handled in the same way time after time. Changing the composition of people that set goals and devise strategies brings new perspectives and fresh ideas to the table. People from previously uninvolved internal units and external organisations can often readily identify problems that the old guard couldn't see. They can also suggest innovative solutions because they are unconstrained by the dominant culture. Fresh eyes and ears improve thinking and decision-making and lead to whole new possibilities.

Because social welfare and environmental issues are so often separated from other units and because cultural change is so difficult to achieve, no single individual—not a CEO nor a governor—can transform an organisation into a sustainable enterprise. Similarly, neither the environmental health and safety department nor a special sustainability unit can unilaterally perform all the functions required to set an organisation on a path toward sustainability. While senior leadership must play a key role in breaking the chains of organisational complacency, my research found that, in both the public and private sectors, powerful broad-based transition teams must be empowered to plan and direct the change initiative. I call these 'transition' teams because the groupings are usually not permanent. Initial teams often give way to a changing array of team structures as people drill deeper and deeper into the fabric of the organisation to flesh out problems, redesign processes and products around the cradle-to-cradle model and align it with sustainability. Teams may take many forms: cross-functional, facility, product development, continuous improvement, innovation, learning, and monitoring and evaluation groups.

The first step: get the right people on board

The most important initial step when organising transition teams is to get the right people involved. In fact, having the right people on board is a key to success in *every*

2 *Ibid.*

phase of the change process. Engaging the right people requires clarity over the types of teams needed to set a course toward sustainability. It also requires understanding of the key roles that need to be filled on those teams.

Many times, even when a compelling need has been established, organisations think that the most important initial step in a sustainability effort is to clarify what they want to achieve. Managers believe that, once a destination is determined, almost anyone can be engaged to figure out how to get there. The organisations leading the way toward sustainability take the opposite approach. They get the right people on board first, and then ask these people to clarify the purpose and vision and map out a path to achieve them. This method is based on a belief that shrewd, intelligent and committed people can see their way through the forest and get to the clearing on the other side. People without these traits will tend to get caught among the branches and leaves, no matter how willing or energetic they may be.

John Bradford, vice-president of manufacturing and operations at Interface Flooring, describes his firm's commitment to getting the right people on board:

> If you truly believe in the quest toward sustainability and if you believe our company can be the firm that starts the next industrial revolution, you will wholeheartedly join us. If you don't believe in or live up to this—if you are not a minister for sustainability—you probably don't belong here.[3]

Stena Metall, the northern European industrial recycling, trading and shipping company, found that the adoption of a sustainability focus required getting new people with a different perspective on board. Peter Domini, head of business development, says that:

> It's been a big switch for us. The change has come mostly by changing people from the old scrap-metal, industrial-minded people that once dominated the company, to people with better education and new thinking. We realised the old scrap-metal model was changing rapidly and we needed people that could understand and adopt better to these changes.[4]

The Whistler Blackcomb ski resort in British Columbia, Canada, experienced major trouble when it involved the wrong people in its sustainability team. Rather than carefully selecting people with a diverse set of skills, authority, credibility and power, departments assigned staff to the committee who were interested in the issues. 'This was not all that effective,' said Arthur DeJong of Whistler Blackcomb. 'Only the converts showed up at meetings but they were not able to go back to their departments and help people learn.'

Well-conceived teams can overcome the many barriers to sustainability that exists in organisational governance systems, structure and culture. Poorly constructed teams rarely have the horsepower or know-how needed to overcome the hurdles. This point underscores that the most critical aspects of a sustainability-change process are the human factors—not the technical, financial or political.

3 Personal communication with John Bradford, 20 August 2002.
4 Personal communication, 7 October 2002.

It is important to remember that it will be difficult, if not impossible, to engage the right people to fill important roles on transition teams unless a sufficiently compelling case for change has been established. Unless the controlling mind-set that created the existing system has been sufficiently eroded and a clear need is felt, people will find numerous reasons to avoid the process or give it little time and energy. Thus, the building block for the development of transition teams is a compelling need for change.

Be clear about goals, roles and rules

The '80–20 rule' says that by focusing on 20% of the issues, 80% of your problems can be prevented. The 20% of the issues that should be the focus when developing sustainability transition teams is clarity over goals, roles and rules.

Clarity over *goals* means that the team's purpose and goals are carefully articulated. Lucidity over *roles* requires that team members know their functions and responsibilities. To avoid confusion over *rules*, the governance system used by the team must be made explicit.

Clarity over *goals* requires that transition teams answer seven questions

To gain clarity about goals, transition teams must answer seven questions as they apply within their specific unit or area of focus (adapted from Kim 2002). The questions form a hierarchy of decisions that transition teams must make (summarised in Table 7.1). In descending order, the decisions are:

1. *Why do we exist?* This is the most basic question that must be answered. It relates to the team's purpose. Clarity of purpose provides the fundamental building block for answering all other questions. Teams must decide, for example, whether their reason for being is simply to make recommendations to senior executives, or to design and lead the sustainability effort? Is it to design closed-loop borrow–use–return production systems and products that can eliminate environmental and socioeconomic problems or simply to better manage emissions, discharges and other issues within our existing linear take–make–waste systems?

   To answer questions of purpose, teams must also decide what they stand for. For example, will profit be our primary indicator of success, or will impacts on the environment or communities be equally important? Are honesty and openness core values we will adhere to? To accomplish our purpose, do we need to be a high-performance team or will a more informal structure suffice?

	Key questions		Task
Sequence of decision-making ↓	*Why* do we exist?	→	Decide on your purpose and core values
	What are we striving to achieve?	→	Create an inspiring vision of the ideal desired state of sustainability
	How will we achieve our vision?	→	Develop operational and governance change strategies to achieve the ideal state
	Which actions will we take?	→	Identify the tactics used to implement the strategies
	When, where, should the actions take place?	→	Describe the rationale and sequence of actions used to implement the tactics
	From what will we learn?	→	Outline how the organisation or team will deepen its understanding of how to achieve its vision
	Where will we make the new approach stick?	→	Depict how the new approach will be embedded in SOPs and policies

Sequence of decision-making ↓

Table 7.1 Hierarchy of choices to guide sustainability transition teams

Source: adapted from Kim 2002

If the question of 'why we exist' is not crystal clear, teams are certain to struggle with every subsequent question.

2. *What are we striving to achieve?* This question focuses on vision. It seeks to determine what the team desires to produce. What outcome are we striving for? Many teams answer this question by setting goals to slightly improve their environmental and socioeconomic performance. Many of the leading sustainability teams, however, approach the question more broadly and from the other direction. They develop an inspiring picture of the ideal way their operational and governance systems will appear and function when they are completely sustainable. The ideal vision of sustainability is the desired outcome.

   It is very difficult for teams to get clear about what they are striving to achieve if confusions exists about purpose and core values. When teams get stuck at this level, they should backtrack and spend more time clarifying why they exist.

   Means to answer this question are discussed in the next chapter.

3. *How will we achieve our vision?* This question pertains to strategy. It seeks to describe the overall approach the organisation will take to achieve its ideal vision of sustainable operations and governance. There is an old

saying: 'Any path will get you there if you don't know where you are going.' Strategy development becomes very difficult if the destination is unclear. Teams often skip ahead to tactics when they cannot agree on strategy. Rather than going forward, when teams cannot agree on strategy, they should go back and re-clarify their purpose and vision. Methods to answer this and the subsequent two questions are discussed in Chapter 9.

4. *Which actions will we take?* This question centres on tactics. It seeks to describe the types of activities that will be pursued to implement the strategy. The proper tactics are difficult to ascertain if the overall strategy is not clear. Many transition teams function almost exclusively at this and the subsequent level (implementation). Without the fundamental building blocks of clarity over why they exist (purpose), what they are striving to achieve (vision), and how they will accomplish their mission (strategies), teams often devote most of their time engaging in tactics (projects).

5. *When and where should the actions take place?* This question addresses implementation. It seeks to describe the rationale and sequencing of steps that will be put in motion to employ the tactics. Numerous choices occur at this level related to lines of responsibility, funding, time-lines and other logistical issues. Effective implementation requires clarity over purpose, vision, strategy and tactics. When strategy and tactics are not based on clear underpinnings, teams often become transfixed with questions of implementation. Yet, in the absence of clarity over purpose, vision and strategy, tactics and implementation plans will have little leverage in creating long-lasting change. Chapter 9 discusses how to answer this question.

6. *From what will we learn?* This question deals with the creation of knowledge and wisdom. It seeks to outline the model that will be used to help individuals and the organisation as a whole deepen its understanding of what is required to achieve the ideal vision of sustainability. The management of existing knowledge as well as the generation of new knowledge stemming from original research, capacity building and practice are the issues in question. As with the previous issue, effective knowledge creation requires clarity about the other questions.

7. *Where will we make the new approach stick?* This question has to do with embedding sustainability in standard operating procedures and policies. It seeks to describe the places and means by which sustainability will be written into the financial, human resource and other policies of the organisation. Embeddedness can occur only after sufficient time has been devoted to learning what is required to achieve sustainability. It therefore is the last question that must be answered. However, because it takes so long to achieve, integration should be built into the overall change plan from the start and should begin as early as possible.

The framing of these questions specifies that transition teams have two primary and interconnected tasks. They must understand and initiate changes in product and process designs, technologies and management practices (i.e. operations). Transition teams must also simultaneously understand and transform the governance systems and culture of the organisation (or unit) so that they foster and support the operational changes. In short, teams must manage two major streams of activities concurrently: one focused on changing the organisation's physical interactions with the environment, workers and communities, and the other focused on transforming the human elements of the organisation.

All too often I find that sustainability transition teams focus solely on technical or policy issues. This approach usually bogs down and plateaus after a short time because efforts to change operations soon run headlong into impenetrable governance and cultural barriers. Transition teams focused on operational methods alone fail because they neglect the human dynamics of social systems that generate resistance and inertia.

Similarly, within both areas of focus, teams face the challenge of linking incremental improvement with major restructuring. Some aspects of operations, such as re-use and recycling, may require minor changes to achieve significant improvements in environmental and socioeconomic performance, while others, such as the way products are designed and manufactured, may require significant change. Certain elements of an organisation's governance systems, such as employee compensation policies, may need minor tweaking while others, such as information systems or employee involvement mechanisms, may demand a complete overhaul. Linking together small and large modifications into a seamless set of strategies and plans is one of the greatest challenges of sustainability-change initiatives.

Clarity over *roles* requires skilful team structuring

As with goals, a number of important questions must be answered related to the roles that must be fulfilled in a transition team. One of the first questions relates to how the teams will be organised. One approach is to use a set of interconnected groups. For example, a *core leadership team* composed of high-level senior executives can be formed to oversee the overall sustainability-change process. The core team can, in turn, be linked with a set of *departmental, interdepartmental* and *product- or service-related teams* that focus on the many different tasks required to adopt a more sustainable path. The most effective teams are composed of representatives from all levels and functions of the organisation or unit required to accomplish the team's mission. They also include key stakeholders.

At Interface, QUEST teams (quality utilising employee suggestions and teamwork) were organised in company operations throughout the globe to lead the 'war on waste'. Teams have also been established at facilities, in product units and within various functions at Interface. This approached proved very effective in engaging workers at all levels of the company in sustainability activities. In con-

trast, the Oregon governor's office established a team to oversee the state's sustainability initiative that came to be called the 'rump group'. The team was composed primarily of individuals from a select group of agencies who were personally interested in sustainability. Due to its limited breadth and scope, the team had little to no effect on sustainability efforts in many state agencies.

After harsh criticism from non-governmental organisations, Chiquita, one of the world's largest fruit producers, started to rethink its environmental and social practices. In the early 1990s, it began working with the Rainforest Alliance, an environmental conservation organisation, and in the late 1990s it formed a corporate responsibility steering committee to examine the company's social and ethical performance. The committee, along with senior executives, worked for ten months to define the firm's values. The committee's effort led to a new code of conduct, ambitious new corporate goals, and eventually to adoption of environmental and labour practice certification programmes.

Understanding key roles

No matter how the teams are organised, careful thought should be given to ensure that the right people fill key roles. Transition teams in both the public and private sectors require sponsors, advocates, agents and recipients.

Sponsors are people in high positions of authority who recognise the importance of aiming their enterprise toward sustainability and put the issue at the top of the organisational agenda. Sponsors have the power to lead the break from business-as-usual, legitimise the sustainability-change initiative and provide its general statement of purpose. Although the case for change may be generated from the bottom up, senior executives must serve as the originating sponsors of sustainability-change efforts. People rarely respond favourably to arguments for major change unless the leadership originates from superiors, who hold the power to determine the consequences of employee behaviour. For this reason, if senior executives are not willing to sponsor a sustainability initiative, success is unlikely.

The originating sponsor is usually not involved with the day-to-day details of the transition teams. Instead, they often play three key roles: to visibly support and continually reinforce the need to change the status quo and aim toward sustainability, to clarify and highlight the end goals of the initiative, and to protect the process from interference from internal and external forces that seek to discredit or undermine it. In short, originating sponsors are responsible for creating an environment whereby new ideas and practices can be pursued in the face of internal resistance and numerous external obstacles.

Originating sponsors often give way to sustaining sponsors. Sustaining sponsors may not be as senior as the originating sponsor, but they retain sufficient eminence within the organisation to keep the sustainability initiative focused and moving forward.

John and Jane Emrick were the originating sponsors of Norm Thompson Outfitter's sustainability effort, as was Ray Anderson at Interface. A number of senior managers within each firm took up the mantle from Emrick and Anderson and became sustaining sponsors at different stages of the change processes. Mike Domback, Chief of the US Forest Service (USFS), was the originating sponsor of his

agency's large-scale watershed initiative. Dr Jim Sedell, Inter-Deputy Water Co-ordinator with the USFS, became the programme's sustaining sponsor after Domback resigned his position. Her Majesty the Queen served as an originating sponsor for a brief but critical phase in the development of the Dutch government's sustainability initiative by giving a Christmas speech that drew attention to the National Environmental Policy Plan (de Jongh and Captain 1999: 121). The Prime Minister and numerous agency heads subsequently served as originating sponsors through the balance of the policy development process. The Minster of the Environment and other Ministry directors served as sustaining sponsors.

Former Oregon governor John Kitzhaber was the originating sponsor for the State of Oregon's sustainability initiative. However, Kitzhaber and his staff failed to cultivate a senior executive or legislator to serve as a sustaining sponsor. As a result, when the governor's term in office came to a close there was no one of authority to carry the torch. Many state agencies halted their work while they waited to see if the next governor would make the initiative as a priority (he did due to the support that existed).

Advocates are the deputies of the sponsor. They are usually senior or mid-level executives who lead the daily operations of the transition teams. Advocates are the driving force. Their job is to continually hammer home the need for change and to embed the vision and goals of the sustainability initiative throughout the organisation. Advocates often use a variety of methods to disseminate information and enrol people in the effort. They help people keep their focus on the ultimate purpose and goals of the sustainability effort.

The active involvement of sponsors and advocates is vital to the success of every transition team. Nothing undermines progress and destroys morale faster than the lack of active involvement by senior executives. Not only do they give transition teams credibility, the involvement of sponsors and advocates provide other important benefits.

Steering an organisation toward sustainability is hard work. There is no roadmap to follow. The questions that must be answered for public and private organisations to operate in a more sustainable manner have rarely been posed before. The work requires a significant expenditure of mental energy and often involves personal sacrifices such as extra work hours. At least initially, most organisations do not reward this work. In lieu of formal compensation or incentives, the active involvement of senior executives on transition teams provides employees with assurance that the initiative is a top organisational priority. Rubbing shoulders with the senior executives also gives workers a sense of importance. In addition, the involvement of upper management helps to keep transition teams focused. Because no roadmap exists, teams can easily lose their way and divert onto numerous tangents. Constant interaction with senior executives reduces the number of unproductive journeys.

Agents are the facilitators of change. They work for the advocate and play numerous roles. Every transition team needs at least one agent who plays the role of process manager. Their job is to watch over the change process itself, not its content. Process managers must be skilled brokers and politicians. They should monitor the interests and reactions of the people involved and find ways to negotiate disputes, develop agreements and overcome resistance. Other agents

must play the role of counsellor. Counsellors keep the transition team honest by delivering credible scientific, economic or policy information. Counsellors should not be vested in any particular outcome. Their job is to ensure the integrity and timeliness of information.

Skilled agents provide much of the intellectual horsepower for transition teams. They must continually rework theories, revise drafts of documents and provide new ideas. Agents also devise strategies and tactics to retain the attention of sponsors. The failure to recruit skilled process managers, counsellors and other change agents can fatally wound the efforts of sustainability transition teams.

Recipients include all of the people who must adopt new ways of thinking or behaving. Due to the profound nature of the changes required to achieve sustainability, in most cases everyone in the organisation—and all stakeholders—are recipients of the change effort. Many times even the sponsors and advocates are recipients until they take on supportive roles.

It is neither practical nor desirable to engage every employee in every transition team. As previously discussed, different types of teams are needed to perform various functions within different levels and units of the organisation. No matter what role a transition team plays or the level at which it operates within the organisation, it needs people who:

- Have key technical skills
- Hold pivotal positions of authority
- Have widespread credibility

Role	Responsibilities
Authorising sponsor	Visibly support and reinforce need for change Continually emphasise the end goals Protect the process from negative external forces
Sustaining sponsor	Similar to authorising sponsor with added task of keeping the process focused and moving forward
Advocates	Lead daily operations Continually drive home need for change Embed vision and goals throughout organisation
Agents	Oversee the process of change (not content) Provide timely, credible, objective information Provide new ideas Devise strategies to keep sponsors engaged
Support staff	Provide administrative and organisational support for sponsors, advocates and agents
Recipients	Adopt new thought processes, perspectives and behaviours

Table 7.2 Key roles of transition teams

- Provide outstanding personal qualities
- Represent all of the key units or functions needed to accomplish the team's mission
- Have outstanding leadership skills

In short, teams should be composed of people from a cross-section of the organisation or unit, who collectively represent the breadth and complexity of the issues that must be resolved for the enterprise to become more sustainable. Transition teams also need people with enough authority and credibility to give it political, economic and technical clout. Teams composed primarily of new staff or junior-level employees, no matter how intelligent, skilled or eager they may be, almost always fail. Second- or third-tier teams can often make progress for a short time-period, but the shrewd politicians within the enterprise will eventually decide that, without the key organisational power brokers involved, the process has little chance of ultimate success. People within and external to the organisation will not take a transition team seriously—or the sustainability initiative in general—unless people with sufficient power, skills and credibility are directly involved.

'When we organised the sustainability initiative in the footwear division, I made sure people from each function—engineers, designers and people from each business unit—were included,' said Darcy Winslow, former general manager for environmental business opportunities for footwear at Nike, who organised the division's initial sustainability efforts. 'We wanted people with credibility. Getting key drivers and other key people on the team was the key.'[5]

Don't forget the support staff

In addition to the roles described above, every team needs *support people* who organise and disseminate documents, set up meetings and perform the administrative functions. These people usually have more junior status, but they are absolutely essential. Far too often sustainability efforts operate without support staff, which only harms the process.

Plan for the transient nature of the players

Just as originating sponsors often give way to sustaining sponsors, the people who fill each of the key roles on transition teams will evolve over time. People may also occupy multiple roles. Mid-level managers may see a need or opportunity and step forward to become sustaining sponsors in their areas of responsibility. A sponsor may become interested in product or policy development and take on the role of change agent. External stakeholders can even become change agents if they become convinced of the importance of the initiatives and see a way to resolve a key problem. This often occurs in the public sector where non-profit organisations or business trade associations propose solutions to problems they see within

5 Personal communication, 10 July 2001.

government agencies. Because those involved with the initiative will change over time, it is vital to develop apprenticeships so that new people are prepared to take the helm when needed.

Understanding the key roles helps when forming teams

Although the players may change over time, recognising the roles that are important to the success or failure of a transition team can help managers avoid problems and, when they do occur, to resolve them. It is not unusual, for example, for one or more of the key roles on a transition team to be vacant for a time. When a CEO steps down or a governor leaves office, the sponsor's chair may be empty. Key change agents may move on, leaving the team devoid of a good process manager or a credible counsellor. When these types of changes inevitably occur, a clear understanding of the key roles can help to explain why progress may have stalled. Recognition of the important attributes and skills needed for each of the pivotal roles is also important for selecting the right people to refill the positions and to get the process back on track.

Size is as important as scope

Transition teams should be sufficiently large so as to represent all of the key units and functions within the organisation needed to achieve success, yet small enough to ensure that the team can accomplish its work efficiently. The number of people must be enough to 'tip' the weight of the organisation or unit toward sustainability.

'You need to get enough of the right people on board till you get to the tipping point where the momentum is greater than the inertia,' said Darcy Winslow of Nike. 'About 20% or so of the department is the tipping point for our design unit, and about 20% of our production people is enough to tip the scale there. I methodically went through and approached each function within Footwear until I had enough people for my team.'[6]

Examples of transition teams

'The shift to organic cotton really changed the way we did business,' said Jil Zilligen, vice-president for environmental initiatives at Patagonia, the outdoor adventure gear company. With roughly $223 million in sales in 2001, Patagonia has about 1,000 employees and operates in six countries. Since its inception, the company has been committed to the environment. However, only in the past few years have its employees understood the profound implications of a true focus on sustainability.

6 Personal communication, 10 July 2001.

Before Patagonia made the switch to organics, the company purchased cotton from a broker. Departments went about their everyday business without much concern about how to the cotton was produced. Once they decided to switch to organic cotton, however, Patagonia had to initiate an exhaustive review of the production process that led back through the broker to the distributors, cotton ginners and eventually to the farmers themselves. This required the involvement of numerous departments and functions. The result was the creation of the 'cotton education team'. Many units were involved with the team. The purpose of the team was to educate every department and individual within the company about what the shift to organics meant—from why the changes were being made to what the implications were for the business. Almost every unit, including fabric, production, accounting, sales and marketing eventually altered their operations because the shift to organics required all sorts of changes, including new pricing structures and marketing strategies. 'The shift to organic cotton took representatives from every aspect of the company,' said Zilligen.[7]

Stonyfield Farm, the natural food company based in New Hampshire, understands the need to involve multiple levels of the organisation in sustainability activities. 'All company functions are represented on our new product development team, including marketing, research and development and others,' said Nancy Hirschberg, vice-president for natural resources at Stonyfield Farm. 'We started this team because there were communication and co-ordination problems.'[8]

The Collins Companies, the US-based forest products firm, started sustainability efforts at its Klamath Falls plant by first organising a facility-wide steering committee to oversee the effort and then organising sub-groups focused on energy, waste, water and other issues. The initiative came to be called 'journey to sustainability'.

Locate teams in a proper location

In addition to structuring teams properly, careful thought must be given to where they are located. Housing the team in the wrong place at the outset can dig a hole that becomes difficult to climb out from later. The goal should be to find a home that bridges many departments and functions and avoids the siloing problem.

A poignant example of the need to house teams in the proper location can be found in Santa Monica, California, site of one the leading local government sustainability efforts in the US. Despite impressive accomplishments, the initiative still struggles with issues related to integration and accountability because it was initially housed in the public works department.

According to Dean Kubani, co-ordinator of City's Sustainable City programme:

> In a perfect world, if we could go back and do it over, our programme would be housed in the City Manager's office and we would co-ordinate a steering committee comprised of people from every department.

7 Personal communication, 3 July 2002.
8 Personal communication, 5 July 2002.

> Our programme started in the environment and public works department and has remained there. Our goal is to have sustainability be part of everyone's job. But the existing make-up has caused all sorts of implementation problems because one department is seen as trying to tell another what to do. Managers from other departments say 'let them do it', or say the opposite, 'just tell us what to do'. A different structure would help city staff and department heads to take ownership.[9]

Train and operate as a professional team, not neighbourhood groups

(I first heard this analogy from Daniel Kim, co-founder of Pegasus Communications and one of the leading systems thinking writers and practitioners.) The most successful transition teams realise that being a team requires much more than simply showing up for occasional meetings. Professional basketball and soccer teams, astronauts or other high-performance teams, don't operate this way. Members of these teams participate in extensive training prior to their actual events to

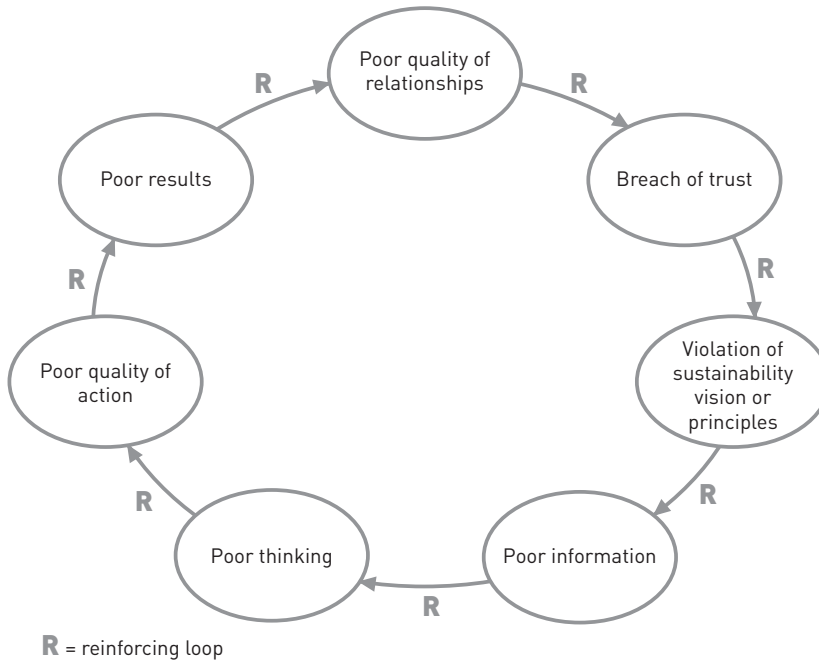


Figure 7.1 **What could undermine your success?**

Adapted from Kim 2001: 78

9 Personal communication, 8 August 2002.

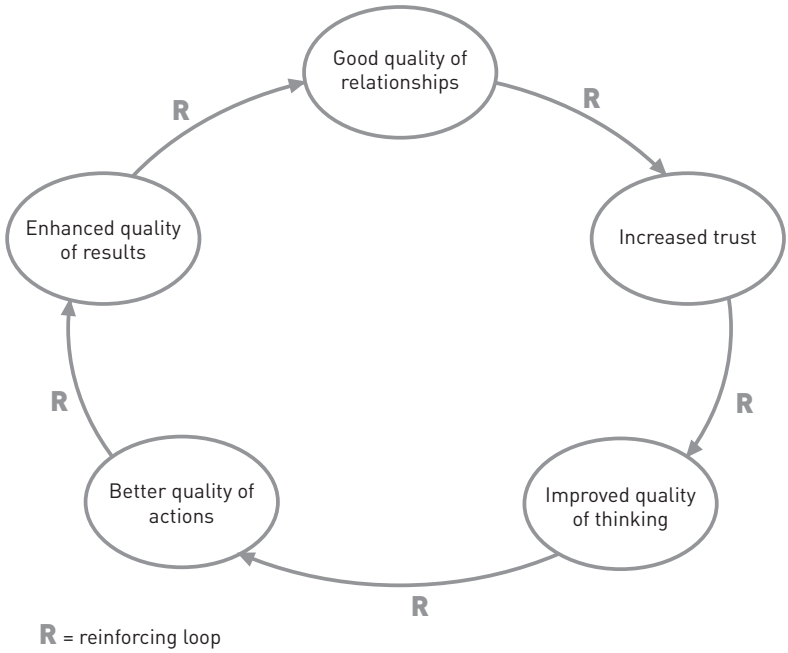


Figure 7.2 **What can improve your success?**

Source: Adapted from Kim 2001: 78

improve their own individual performances and that of the team as a whole. Yet many transition teams don't take this approach. They operate more like Saturday morning neighbourhood sports pick-up teams than as professional teams. People show up when they want, whoever attends meetings make the decisions, and little to no individual training, education or group practice occurs. This is a recipe for mediocrity. Teams must take explicit steps to ensure that they function at high levels.

To function at high levels, trust must be built between team members. Sound relationships deepen a team's ability to think critically, resolve problems and innovate. Relationship building is a key to high performance. Figure 7.1 shows how poor relationships can undermine the effectiveness of your team while Figure 7.2 illustrates that good-quality relationships improve the chances of success.

Clarity over *rules* requires agreement on team governance

The decision-making process employed by a transition team will significantly influence the degree of member commitment and participation. Daniel Kim, one

of the leaders in the systems-thinking field, says that, to be effective, a decision-making process must have clarity on two key issues: the type of decision being made and the role each person plays in making the decision (Kim 1995).

Clarifying the *type* of decision allows each participant to understand their level of involvement in the decision-making process (see Box 7.1). Deciding on the specific roles each participant plays in the process clarifies the level of influence they will have. It is always best to identify the type of decision being made early on. To do so, team members should ask these questions:

1. Is this a decision I (the individual or team) need to make alone—due perhaps to the sensitive nature of it or tight time-lines? This would be a type I decision.
2. Should I make the decision with the benefit of some information gathered from conversations with team members or others? This would be a type II decision.
3. Is this a decision that requires a consensus among all of the team members to ensure long-term buy-in and support and smooth implementation? This would be a type III decision.
4. Is this a decision that may be second-guessed or overridden by higher-ups—for legal, financial or other reasons—and therefore the team can offer recommendations but may ultimately not be involved in the final decision? This would be a type IV decision.

Determining the type of decision you are making leads to clarity over the second aspect of good decision-making—clarity over *who* should make the decision. In

Type I: Decide and inform

Decision-maker(s) makes the decision alone by using available information or by making requests of others without sharing context or reason why information is needed.

Type II: Consult and decide

Decision-maker(s) shares the problem or situation with others in order to gain their suggestions and input. The individual then makes a decision that may or may not coincide with the information received.

Type III: Decide by consensus

Decision-maker(s) discusses the situation with others, all of whom assist in generating and evaluating alternatives. The individual accepts the decisions made by the consensus of the group (of which they are an *equal* member).

Type IV: Delegate decision

Decision-maker(s) determines that the decision should be made by some other individual or group, and gets agreement that they will own the decision.

Box 7.1 Decision types

Source: Kim 2000

effect, by clarifying the decision types you are also identifying whom the decision manager or managers should be. As originally described by Paul Konnersman and expanded upon by Daniel Kim, there are four dominant decision roles (see Box 7.2) (Kim 1995).

1. *Decision manager(s):* the entity that takes overall responsibility for deciding and implementing a decision. This could be the sponsor, advocate, a designated change agent, or the whole team.
2. *Consulted participant:* individuals or groups that provide expertise required to make good decisions or commit resources needed for its successful implementation. This could be any team member and stakeholders.
3. *Informed participant:* organisational units or stakeholders that make subsequent decisions and perform subsequent tasks in a manner that is consistent with the original decision.
4. *Approver:* a unit manager, senior executive, board of directors or legislative body that holds the power to override the decision of a team in order to prevent the organisation from making an intolerable mistake.

Kim says that the four types of decision roles correspond nicely with the four decision types. In type I and type II decisions, the team manager(s) is the decision-maker. In type III decisions, the decision manager includes the original decision-maker and all other team members who are included in a consensus decision.

Clarify the role each person plays so they do not misinterpret the level of influence they have on any given decision

Decision manager(s)

Manages the decision process and takes overall responsibility for implementation of the decision.

Consultant participant

Provides expertise required to make good decisions or commits resources needed for its successful implementation.

Informant participant

Makes subsequent decisions and performs subsequent tasks in a manner that is consistent with the original decision.

Approver

Prevents organisationally intolerable outcomes that might result from a decision made without the benefit of expertise that is not otherwise available to the decision-manager or group. Also assures that the decision is not unduly influenced by the parochial interests of the decision manager or others to the detriment of other parts of the organisation.

Box 7.2 Decision roles

Source: Kim 2000

Type III decisions—that is, consensus—are by far the most effective type of decision-making for transition teams. Consensus, not majority rule, is best. Tyrannies are often the result of majority rule. Even when they are not tyrannical, majority rule tends to disenfranchise minorities. When people have strong views but are consistently outvoted, their interest and energy levels often dissipate. Consensus decision-making avoids these possibilities.

The 'approver' role is a key in team decision-making. This role can improve the decision-making process and ensure timely decisions. However, if abused, the approver can destroy a sustainability transition team. The existence of an approver role must be clear from the start or team members will feel that higher authorities are 'lurking' all along in the background, waiting to see if the group's decision matches what they want. If the team's decision matches what the higher authority desires, then the approver can say that the group has been delegated power and authority. If the decision does not match what the higher-ups want, then the approver role can be invoked to make the 'proper' decision. When this occurs, team members feel they don't actually have the power or authority to make decisions. This will reduce commitment and interest and make it difficult to meaningfully engage people in transition teams in the future. The arbitrary use of an outside approver is certain to diminish the quality of thinking, decisions and outcomes—and often leads to calamity.

The key point is that clarity should be attained in advance about if, when and how an approver can be used and who that person (or unit) may be. Clear criteria should be established for decisions that are subject to an approver. For example, teams may decide that approvers can be allowed to intervene if decisions must be made more rapidly than a group can do it, if decisions involve substantial financial risk, or if they have major market or political implications for the organisation. Although the goal of an effective transition team should be to make as many decisions by consensus as possible, this must be balanced against the reality that sometimes the team is not in a position to make the best decisions. Sometimes, due to the breadth of responsibilities or the high-level vision a person or unit has, others at different levels of the organisation may need to step in and make decisions. However, this needs to be agreed upon prior to engaging in the process (Kim 1995).

Meaningfully involve stakeholders and other key actors

In addition to performing their key tasks, transition teams must be prepared to interact with and involve powerful external individuals and groups. *Stakeholders* are one of the central groups. Stakeholders do not make policy, but they will have a strong interest in and often can significantly influence the outcome of a sustainability initiative. For this reason, at a minimum they must be kept fully informed of the process. Better yet, every effort should be made to formally involve stakeholders on transition teams. Not only can stakeholders provide important

insights and information that team members may not have access to, their direct involvement can generate much-needed support when a new approach is rolled out. This is as true in the private sector as it is within government.

Stakeholders include all those directly affected by the workings of the organisation. Stakeholders for private firms include bankers, investors, customers, suppliers, distributors, government regulators, non-governmental organisations and local communities. Certain units within an organisation can even become stakeholders rather than recipients if they are not meaningfully engaged in the sustainability initiative yet are required to implement pieces of a new plan that results.

Legislative bodies, other units of government, non-profit organisations, citizen groups and trade associations are important stakeholders for public-sector sustainability programmes. Each group will keep a close eye on the process and make its views known at various times in the process.

Almost every sustainability transition team also has *antagonists*. These are people or organisations that are not just unco-operative; they are determined to kill the entire effort. Antagonists usually fear that they will be harmed in some way by the outcome of the sustainability initiative. Antagonists within an organisation often fear injury to their authority, power, career advancement or prestige. Antagonists outside the organisation may fear that their economic interests will be harmed, that they may lose political power, or that the process is just a waste of time and resources. Both internal and external antagonists may be so stuck in certain ways of thinking and viewing the world that they see any new perspectives as threats that must be eliminated. Keeping antagonists apprised of the purpose, goals and progress of transition teams can often help to neutralise their opposition.

Keep in mind that stakeholders who raise questions or advocate certain positions are not necessarily antagonists. Heated debate and strong advocacy are often vital to uncovering the best information and producing the most innovative solutions. Unfortunately, all too often people become confused between sincere questioning and obstructionism. When this misinterpretation occurs, stakeholders can become antagonists.

Stakeholders want assurance that their ideas and concerns will be heard and meaningfully addressed. When this does not occur, stakeholders may feel threatened, become angry and suddenly turn into antagonists. Because outside interests had bypassed staff and gone directly to the Oregon governor Kitzhaber to advocate for the sustainability effort, the governor's senior staff excluded some of the stakeholders when implementation began. This turned individuals who should have been the strongest supporters of the initiative into antagonists. It also deprived the governor's staff of creative ideas that could have helped them overcome key obstacles.

In addition to stakeholders and antagonists, almost every sustainability-change initiative must deal with the media and spectators. The increased public concern for socioeconomic welfare and environmental issues has turned the *media* into a major force in sustainability-change efforts. The media includes all of those that disseminate information about the workings of private firms and government (including television, newspapers, radio, financial news, the Internet and other

special-interest sources). The media will often closely monitor any major sustainability effort. At times the coverage can be positive, such as when environmental benefits or cost savings are highlighted. Yet many times the media points out discrepancies between the stated intent of a sustainability initiative and the organisation's past or current practices. It will not be possible to avoid the media. The best approach is to proactively develop a strategy to deal with them in good times and bad.

The media is often the primary source of information for those watching sustainability efforts from afar. *Spectators* may not be directly involved with implementation or policy discussions. However, they can ultimately play a critical role in the success or failure of a transition team. The public, influenced by media coverage, can become customers or can turn against an organisation based on their perception of the sincerity and outcomes of its sustainability efforts. The media heavily influences voters also. The electorate can decide to approve or reject sustainability funding or policy proposals and to elect or turn out of office public officials who support the effort. For this reason, it is important to make every effort to keep the media and spectators on your side.

Good leadership is the key to success

The ultimate key to success for any transition team is *leadership.* Far too often teams employ old dysfunctional information, decision-making, resource distribution and personnel management mechanisms to design their sustainability plans. Although teams often don't make the connection between their struggles and poor governance systems, flaws in these core steering mechanisms are often at the heart of environmental and socioeconomic problems. Defective governance systems are part of the problem and cannot be used to devise solutions to the problems of sustainability.

Exemplary leadership is needed to mobilise and support efforts to devise new forms of governance. Traditional management styles manage only for consistency and control and therefore can suffocate efforts to adopt new governance systems.

Darcy Winslow said she had four roles to play as a leader of the environmental sustainability team at Nike Footwear. She needed to be a 'driver' to keep people focused, excited and moving forward. She needed to be a 'connector' to identify the gaps between issues and connect people at the right time in the right way. She needed to be a 'translator' to turn principles of sustainability into a language that everyone on her team could understand. Darcy also believes she needed to be a 'choreographer', by which she meant staying four to eight steps in front of the team all the time so she can predict what needs to be done in the future. This is an excellent summary of what good leaders do.[10]

10 Personal communication, 10 July 2001.

Analysing transition teams in your organisation

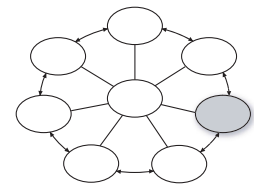
To determine the degree to which your transition teams are sufficiently structured and staffed, senior executives and others can ask the following questions of employees and stakeholders:

1. Can you describe the originating sponsor of our sustainability initiative? Can you describe the sustaining sponsor? Do you think these people provide sufficient leadership, support and protection for your transition team?
2. Has your organisation, department, or unit formed a team to lead the sustainability effort? If so, how would you describe the attributes of this team? Do you think it has sufficient commitment, political power, expertise and credibility to achieve success?
3. Does your team include someone with the job of making sure the process is flowing smoothly? Someone who provides credible information? Someone who keeps in contact with other teams and stakeholders? Someone who provides administrative support functions?
4. What is your sense of the leadership on your team? Is it sufficient to help the team achieve its goals?
5. What do you think the chances of success are for your transition team? Would you rank the chances differently if other people were leading the effort, or if different people were included on the team?

If the answers to these questions suggest deep concern about the structure, composition or leadership capacity of your transition teams, it may be in your best interest to reconfigure them promptly.

8

Change the goals of the system by crafting an ideal vision and guiding principles of sustainability



'It's the vision thing' was a much-publicised retort by former President George Bush during his 1992 US presidential race with Bill Clinton. It was obvious to many at the time that Mr Bush did not understand 'the vision thing'. This is not surprising. Many people misjudge the need and purpose of clear vision. This is especially true for organisations that traditionally view their responsibility to the environment or social welfare as limited simply to meeting minimum government regulations.

Having motivation to break free from the status quo and engaging all those affected by the organisation are necessary conditions, but not sufficient by themselves, for adopting a path toward sustainability. Successful efforts require a blend of 'push' and 'pull' components. The next key leverage point for changing a social system to support sustainability is therefore to alter its goals. This requires a clear depiction of the new ends the organisation seeks to achieve *and* guidelines for how decisions should be made to achieve them. An exciting vision of the organisation as a sustainable enterprise clarifies the goals. The adoption of first-order principles of sustainability provides a roadmap for decision-making. Clarifying the future vision and principles answers the question: 'What are we striving to achieve?'

Changing the goals of the system is the third-greatest leverage for change in a social system because it reorients the purpose—the intentions—of an organisation. The goals of an organisation (stated and unstated) concentrate the attention and energy of its members and influence the way it operates and is governed. Change the goals, and different types of decisions and outcomes will result. It is not possible to change the goals, however, unless people with sufficient power, authority and new ideas are involved in the goal-setting process.

The importance of vision

My research found that the public and private organisations that are making the most rapid progress toward sustainability do not necessarily have a leading-edge product or service. Many have stumbled badly along the way, still suffer from sharp inconsistencies and operate in unsustainable ways. What sets the leaders apart is not necessarily their technical expertise or economic prowess; it is their overriding commitment to achieving sustainability.

Conviction starts with clarity of purpose. Knowing what you want to achieve requires clear vision. Vision describes intent. It is a simple, lucid and compelling picture of a future condition that people feel committed to achieve. A good vision elucidates the organisation's overall purpose and reflects the aspirations of its members.

It is difficult, if not impossible, to transform the culture of an organisation without a clearly expressed vision of how it should look and function when it is sustainable. If members do not have a solid understanding of the goal and rationale behind a change initiative, they won't understand what they are striving for. When this occurs, teams often end up engaged in a flurry of disconnected activities, reacting to one event after another. Lacking a sense of how to measure progress because they do not have a clear destination, people eventually become discouraged and give up.

Clarity of purpose requires the formation of a set of beliefs and mental images that draw clear distinctions between the previous aspirations of the organisation and its new desires. Effective visions simultaneously abolish old perspectives that steer an organisation away from sustainability while forming new perspectives and thought patterns that align people with the desired state of sustainability. With a clear new sense of purpose and direction, people can feel secure that everyone in the organisation is marching to the same tune, even as they engage in multiple streams of activities. Some units may seek to completely redesign products or processes while others strive for incremental improvements. Simple, direct visions and a set of core principles can steer those engaged in both activities toward true north.

Statements such as 'we will be in full compliance with the law' and 'we will minimise our environmental and social impacts' are not visions. They tell people what *not* to do—what to avoid. These are backward-looking images. They focus on eliminating something. Negative purposes fail to elicit the creative energies or passions of employees. This approach depresses human motivation and underscores the truth of the old biblical proverb that says, 'Where there is no vision, the people perish.'

Effective visions, in contrast, provide an absorbing positive image of the future. True visions are images such as 'Our goal is to become a truly sustainable organisation' and 'We seek to generate profits while protecting the environment and culture.' These are forward-looking commitments. They focus on something new and important that people can create. Thus, they are positive images that capture the imagination, expand possibilities and motivate people.

Vision provides the goal; principles frame the path

While vision describes purpose and intent, sustainability principles provide a framework for decision-making. Recall that a system can be defined by its fundamental principles. The adoption of a set of tenets such as The Natural Step's four 'system conditions', or the principles espoused by eco-effectiveness can provide a universal language for those associated with an organisation. Principles are clear statements of criteria that shape how an organisation will conduct itself as it pursues its purpose and vision. They provide sideboards that help to frame thinking, inform judgement and direct people in the right direction. Organisations that adopt sound principles of sustainability discover that they help guide and simplify all types of decision-making.

By clarifying purpose and providing a framework for decision-making, preeminent visions and principles help avoid the crisis-response atmosphere that pervades so many compliance-based organisations. Visions and principles provide a sieve through which responses to emerging dilemmas can be filtered so that they enhance progress toward sustainability, rather than divert the organisation into culs-de-sac. Organisations can avoid endless debate about which projects to fund because people at all levels of the organisation can sort through potential actions and pick those that best match its desired ends. The all-too-common tendency of renaming long-standing programmes as 'sustainability' projects, while changing little of substance, can also be avoided because people understand the difference between old directions and the new. Once an unambiguous vision of the future and clear principles have been set out, a sequenced set of strategies, priorities and tactics can be established to attain them.

Leaders must model the vision and principles

If the sustainability vision and principles are clearly articulated, and if upper management takes a leadership role and models the behaviour needed to achieve them, the thinking, perspectives and actions of employees can be modified. When the vision or guiding tenets are muddled, or senior executives fail to serve as role models, change is unlikely. Ambiguous visions or the failure of the executive team to lead by example usually results in cynicism and poor morale. 'Walking the talk and being consistent is crucial,' Claude Ouimet, former vice-president of manufacturing at Interface, once told me as we debriefed after a tour of his firm's manufacturing plants in rural LaGrange, Georgia. 'If people think you are not serious, they will lose respect and interest real quick.'[1]

Transition teams must embrace and expand on the vision of the leaders

Senior leaders must establish the initial vision of sustainability for their organisations. The executive's arguments for altering business-as-usual must be complemented by a picture of a new state of affairs that will be better for everyone. People

1 Personal communication, 9 November 2001.

need both a reason to change *and* assurance that success can be achieved through a team effort and that everyone will benefit.

However, the initial vision provided by senior executives is often big-picture, fuzzy, and hard for employees to relate to. Transition teams must therefore clarify and tailor the broad-scale vision provided by senior executives to their specific missions and areas of focus. The global visions must be customised to fit the needs and roles of various departments and functions. Each team must also translate the basic principles of the sustainability initiative into terms they understand.

Elements of good visions

First-rate sustainability visions and principles have certain defining characteristics. They describe, in simple, straightforward terms, an ideal state of sustainability that the organisation wants to achieve or become at some time in the future. People need to visualise an ideal future condition (for the organisation as a whole, process, product or service) in their minds before they commit their hearts and minds to it. Good visions and principles also explain the basic purpose behind achieving sustainability in a manner that many different interest groups can relate to. Employees and stakeholders need to understand the logic behind the new purpose, and see tangible benefits in it for themselves, before they will agree to help create it.

Perhaps most importantly, winning sustainability visions motivate people to create something bigger and better than their current state. Good visions emotionally engage and bond people by generating the feeling that they are involved with a vitally important mission.

Most organisations today—especially those in the US—have no greater purpose than making money. Due to what has become standard business school doctrine, private companies believe their sole purpose is to maximise shareholder value and profits. Public officials believe the primary purpose of government is to provide the infrastructure and other mechanisms necessary to support the quest for more money. In keeping with these views, many senior executives and public officials also believe that employees are primarily motivated by the desire for more money.

Research on organisations that have consistently excelled over the long term, however, strongly suggests that organisations that focus exclusively on profits rarely achieve greatness. They also do not last long. For example, Arie de Geus, who spent 38 years directing Royal Dutch/Shell's group planning efforts and now serves as a visiting fellow at the London Business School, led a research team that found that the average lifespan of a company in Western nations today is less than 12 years. The average lifespan of a *Fortune* 500 company or its international equivalent is only 40–50 years. One-third of the *Fortune* 500 companies listed in 1970 have already vanished due to acquisitions, mergers, sales or outright failure. De Geus concluded from this and other information that 'profitability of a company was a *symptom* of corporate health, but not a *predictor* or *determinant*' (de Geus 1997).

De Geus says the data suggests that the ability of an organisation to learn, its cohesiveness and sense of identity, the ability to tolerate the messiness and uncertainty that accompanies innovation and change, and conservative use of financial resources, are the real keys to long-term success. These traits are derived from organisational values that honour diversity, mutual trust and the sharing of information, power and authority (de Geus 1997).

This view was reinforced by the research of James Collins and Jerry Porras, who sought to determine what makes truly exceptional companies different from others. These researchers used long-term quantitative data to examine companies in direct comparison with a competitor. Collins and Porras conclude that, among other traits, great companies are not necessarily driven by charismatic visionary leaders, do not hold 'maximising shareholder value' or 'profit maximisation' as the primary objectives, do not play it safe by setting modest goals, and do not focus primarily on 'beating the competition'. On the contrary, exceptional companies are led by executives who empowered all of the members of their organisation, 'pursue a cluster of objectives, of which making money is only one—and not necessarily the primary one', make bold commitments to 'big hairy audacious goals', and focus primarily on beating (improving) themselves (Collins and Porras 1994; Collins 2001).

Research by Jason Jennings and his team on the factors that contribute to the most efficient and productive companies reached similar conclusions. Jennings says that his data shows that 'In companies without a culture, *money* frequently becomes the culture by default. It's everyone for himself . . . the hell with co-workers, the product, the customer or the company.' By contrast, workers in highly productive companies thrive in their jobs for reasons other than just money: 'They are part of group based work. They're not really working but playing a game because everything is scored. They're respected and heard by management. And, they feel they're making a difference and that their work matters' (Jennings 2000: 159-160.2).

In other words, high-performance companies create cohesion and a sense of identity by engaging employees and stakeholders in a higher mission. Making money is the means to accomplish the mission, not the end in itself. By continually establishing challenging goals aimed at becoming the best they can be, by including everyone in the process, and through innovation and change, people feel empowered to achieve outcomes that are viewed as valuable by the company or society at large. Profitability and shareholder value are seen more as indicators that a shared purpose and cohesion have been successfully established than as the primary reason for being. An important assumption of the high-performance organisations is that, once a basic threshold for money is met, people are more concerned with maximising their internal potentials and skills and in being involved with a higher mission than they are in simply getting a larger pay cheque.

This information corresponds to the findings of my research. Despite the trials and tribulations they all face, a strong sense of commitment and determination exists within the leading public and private organisations I examined because members feel they are part of a precedent-setting mission to transform their industry, community and even the planet. The leaders have established a clear purpose that excites and motivates employees and stakeholders to work together to achieve

something they see as very significant. They say to employees and stakeholders: 'We are going to change the world; do you want to join us?' The vision of becoming a sustainable enterprise provides the reason why people should be passionate about their work and excited about their membership in the organisation. Employees at Interface clearly feel this way, as do many at Norm Thompson Outfitters, Herman Miller, Scandic Hotels, Patagonia, Henkel, IKEA, the State of Oregon, the Dutch Ministry of the Environment, staff at the City of Santa Monica, CA, and Burlington, VT, many of the partners involved with the US Forest Service large-scale watershed programme and many others.

Even if it does not seem feasible to generate a feeling that your organisation is involved in a mission to save the world, every organisation—large or small, public or private—can establish a motivating sense of identity, cohesion and empowerment among employees and stakeholders. Clarity of vision and purpose is the first, and most important step, in this process.

Good visions are easy to identify

Most organisations spend far too little time crafting clear visions. Usually, this is the result of a poor understanding of what vision is. It's not a 'mission statement' or the hodgepodge of objectives, strategies and value statements I often observe when reviewing organisations. None of this clarifies the future direction or decision-making process of the enterprise.

It has been my experience that the most effective sustainability visions are not majestic. Some of the best are short and straightforward. They don't use high-minded words or employ fancy prose. Effective visions don't even necessarily need to be written down, although a public record is usually a good idea. Compelling visions are felt in the heart and understood in the mind. People may not articulate the vision exactly as the boss does or describe it as the next person would. But an effective vision exists when people 'get it' in their gut. They intellectually and emotionally grasp what the organisation is striving to achieve and why this is important.

It is not hard to know when an organisation has constructed an effective vision. Simply ask employees or stakeholders what they know about the organisation's sustainability effort. When people can describe in one minute or less what they are working toward and why this is important, it is safe to assume that an effective vision has been crafted. If team members can't articulate a vision that roughly approximates the overall intent, it's likely that confusion reigns.

On my walk-through of Interface's manufacturing facilities in LaGrange, GA, I asked employees to describe the intent of the company's sustainability initiative. Line workers promptly gave a variety of responses that clearly indicated that they understood it. One person said it was about eliminating all of their environmental problems. Another said it was about using less and less material to produce the same-quality products. These comments were a sure sign of success.

By contrast, while driving in a van down a windy forest road in north-east Oregon, I once asked US Forest Service employees about the intent of their agency's national large-scale watershed restoration programme. One deputy regional forester responded that she thought I could find a vision statement on their website.

Two field staff members said that the watershed programme was intended to complete backlogged projects with the extra funding provided. These comments were a sure sign of trouble ahead. The manager and staff did not grasp the purpose or desired outcomes of the initiative.

Think backwards to develop visions

One of the most effective ways to develop sustainability visions is to choose a time-period in the future and describe the *ideal* way you would like the organisation (or unit, product, service, built environment, community) to look and operate at that time if it were completely sustainable. The ideal condition of sustainability is your vision. Once the ideal condition is described, look backwards from that point to your current condition to identify the most direct route toward the ideal.

To describe the ideal state of sustainability, ask questions such as:

- What would our organisation look like in a completely sustainable condition 5, 10 or 25 years in the future?
- How would our production systems look and function as circular (cradle-to-cradle) systems?
- What type or products or services would be on offer?
- What would our materials, production, buildings, transportation, energy and waste management systems look like and how would they function?
- What would employees say about our organisation?
- What would stakeholders say?
- If a newspaper wrote a feature article in 20 years describing how we as a sustainable entity operated, how would they depict us?

Once the desired ideal future state is described, a vision can be articulated that depicts the intent of the organisation to achieve this state. Vision statements usually begin with words such as, 'We will be . . .' or 'Our goal is to . . .' or 'We commit to . . .' Describing the ideal provides a motivating mental image that everyone associated with the organisation can focus on achieving.

Starting with the ideal and then moving backward to the current state is counter-intuitive to most managers. People usually have two perspectives about vision and strategy development. The first involves looking to the past to try to recreate what is thought to be good times gone by. This can be considered a 'reactive' form of visioning. Reactive visioning focuses mostly on recreating the past. It rarely works. Conditions continually change. People move on. Despite our most sincere desires, it's rarely possible to recreate 'the good old days' (which were usually not that great anyway) (Ackoff 1999: 46-56).

The second approach involves trying to predict the future and then implementing steps to move the organisation forward from its existing state to one that can respond better to that expected future. This can be called 'forecasting'. Forecasting has major limitations. First, it is impossible to predict the future. Because you are

trying to respond to some undefined future condition, forecasting efforts usually end up fuzzy and misaligned. Second, all of the barriers are usually uncovered when you plan a change effort by looking forward from the existing to a future state of affairs. The attention to obstacles allows the most resistive people within the organisation to point out all of the reasons why the strategy won't work. It gives ammunition to those who want to kill the effort (Ackoff 1999: 46-56). Figure 8.1 describes the traditional approaches to vision development.

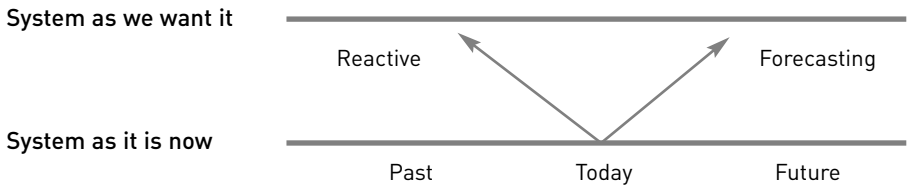


Figure 8.1 **Traditional vision and planning methods (reactive and forecasting models)**

Source: Ackoff 1999

An alternative approach to vision development used by many of the leading sustainability organisations is to identify the ideal design or condition for your organisation and move backwards from there to your current conditions. This is called 'ends planning' (The Natural Step calls it 'backcasting'). Rather than starting where you are and looking forward, begin where you want to be and look backwards. Think backwards, not forward. Figure 8.2 depicts the ends-planning approach to visioning

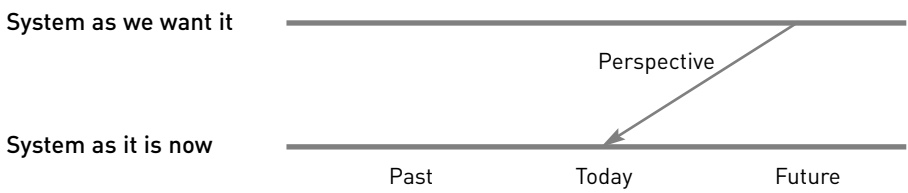


Figure 8.2 **Ends planning ('backward thinking')**

Looking backwards from the ideal gets your mind out of the muck you are stuck in and allows you to see some obvious steps that can be taken toward the ideal. Solving problems backwards is easier and usually much more effective than forecasting—although it is paradoxical to many managers.

Ends planning does not ignore incremental improvement. My research found that most organisations start their sustainability efforts by using forecasting

methods to make slow, modest improvements. Over time, as better information becomes more widely available and decision-making and authority becomes more distributed, people come to realise that ends planning may provide the broader vision needed to take major leaps forward. Thus, both forecasting and ends planning are used for a while. As further progress is made, more and more visioning and planning is done by thinking backwards and less and less through forecasting.

The key point is that, when it comes time to decide the purpose of a sustainability initiative, the most effective approach is usually ends planning. This is because ends planning *helps you eliminate false paths*. When people start to think first about the ideal, their beliefs and perceptions and those of the organisation as a whole will become aligned around that future vision of sustainability. Dead ends that cannot get you to the vision will become evident.

Ends planning also *helps you avoid getting trapped by decision-making tools that favour the status quo*. These tools often are variations of cost–benefit analysis, which come into play when private and public organisations compare alternative paths of action. In its most common form this tool estimates the expected benefits and costs for an alternative, and then subtracts the costs from the benefits to estimate the net benefits. All else equal, the alternative with the highest expected net benefits is economically superior. Although extremely powerful and useful in some settings, this tool can trap an organisation into favouring only small, marginal changes to its operations, where the benefits are more easily quantified and the costs more easily controlled, and derail consideration of more fundamental changes that accompany sustainability initiatives.

When senior executives at General Motors decided that they needed to respond to the potential effect that environmental domination could pose to the company, they did not simply use forecasting to look for ways to slightly improve their existing vehicles. GM started by picturing the ideal and moving backwards. GM used backward thinking. The ideal vehicle of the future would generate no emissions and be environmentally benign. In fact, some people in the car industry have a vision that vehicles could eventually be designed to be ecologically restorative. (I once had a conversation with managers at Johnson Controls and Ford Motors in Detroit, Michigan, who talked about designing vehicles so that they were completely recyclable with much of the non-electrical equipment made from plant-based materials such as flax, jute or hemp. One designer said 'our image is that, once the auto had no further use, you would recycle the metals and other recyclables and then throw the rest on your compost pile where it will decompose and become fertiliser for other uses.')

Although vehicles that would meet the criteria of the ideal cannot be made today, a close approximation to the ideal—hydrogen-fuel-cell-powered vehicles—can be produced in a relatively short time-period. For this reason, GM decided to make a major investment in fuel-cell-powered cars. Forecasting would never have led to this decision. Backward thinking was required.

Norm Thompson Outfitters has developed an ends-planning tool it calls the 'sustainability scorecard'. The scorecard is a user-friendly guide to reducing the impacts of the materials and products that are provided by its buyers. Company staff developed criteria to measure what they believe would constitute an ideally sustainable product and gave it a ranking of +3. A hierarchy of criteria was then

developed that ranks products from the ideal downward to neutral, which is given a score of zero, to completely unsustainable, which is given a score of –3. Products delivered by buyers are then ranked using the +3 to –3 system.[2] This tool gives buyers a clear sense of the ideal type of product Norm Thompson seeks.

'We did not use the term "backcasting" when we first started, but I guess it is what we did,' says Jan Peter Bergkvist, director of environmental affairs, security and communications at Scandic Hotels. Scandic is the largest hotel chain in Scandinavia and also operates hotels in Germany and Belgium. It was one of the first European companies to adopt sustainability as part of its core business model. 'We used The Natural Steps systems conditions as our guiding principles and then asked questions such as "In a sustainable hotel would we choose this napkin or that napkin, this material or that material?" We tried to envision ourselves in a sustainable world and then to figure out what we should do if we lived in it.'[3] Although they did not use the term, this is a great example of backward thinking.

The backward-thinking approach is applicable to the public sector as well. The Dutch government, for example, used a version of end planning to develop *Concern for Tomorrow*, its first national environmental assessment. Conditions of environmental health were established. Two scenarios were then examined. One assumed current policies would continue as is. The second assumed that all best available technologies would be employed (i.e. that the regulatory system would be applied at higher rates of efficiency). Both scenarios started with the goal of achieving a healthy sustainable environment within 25 years (with 1985 being the base year) and then moved backwards from that point to examine the types of changes that were necessary to achieve that goal (RIVM 1989).

The work of Russell Ackoff and Robert Fritz provide excellent discussions of end planning (see Ackoff 1999; Fritz 1999).

Choosing principles

As discussed in Chapter 3, organisations can choose from a variety of sustainability principles to guide their sustainability efforts. A growing number of organisations in the West have adopted The Natural Step, eco-effectiveness or one of the other sets of principles discussed in Chapter 3. Many programmes in developing nations are using the ZERI principles. A number of sustainability efforts develop their own principles, which are usually modifications of existing principles. No matter what approach is chosen, the key to adopting effective guiding principles is to ensure that members fully understand and can visualise how to operationalise them. This usually means that the principles must be thoroughly thrashed about and vetted by transition teams before they are finalised.

2 Personal communication with Derek Smith, 21 October 2002.
3 Personal communication with Jan Peter Bergkvist, 19 October 2002.

Example of good visions and principles

The vision of Interface is 'to become a leader in industrial ecology by first becoming a sustainable corporation and eventually a restorative enterprise'. The company goes on to explain what this means:

> What is sustainability? It's more than environmentalism. It's about living and working in ways that don't jeopardize our social, economic and natural resources. In business, sustainability means managing human and natural capital with the same vigor we apply to the management of financial capital. It means widening the scope of our awareness so that we can understand fully the 'true cost' of every choice we make.[4]

Interface uses The Natural Step 'system conditions' as the principles to guide its sustainability efforts.

Herman Miller's vision is 'To become a sustainable business: manufacturing products without reducing the capacity of the environment to provide for future generations.' The company uses a combination of eco-efficiency and The Natural Step principles as the guiding framework for its sustainability initiative. Herman Miller's 'blueprint for corporate community' underscores its vision and guiding principles by describing these five core values:

1. Make a meaningful contribution to our customers.
2. Cultivate community, participation and people development.
3. Create economic value for shareholders and employee-owners.
4. Respond to change through design and innovation.
5. Live with integrity and respect for the environment.

Stena Metall AB, the European industrial recycling, trading and shipping company, is developing a vision to 'be the leader in helping industry in Europe become deposit-free'. By this it means helping industry design products and implement systems to achieve zero waste. The ultimate idea is to devise systems so that customers will lease rather than purchase metals and other materials from Stena Metall, which the company will take back and put back into the industrial system when the customer is done with them. The company adopted The Natural Step principles to guide decision-making toward that vision.[5]

Responding to customer concerns and a belief that 'producer responsibility' regulations would become increasingly common, in the early 1990s, the Xerox Corporation developed a vision for the next generation of environmentally friendly products. The vision was to design, in waste-free offices, a digital platform for a new category of products, to manufacture them in waste-free factories and to ensure that none of their parts ends up in landfill. The vision was turned into

4 Interface Corp. website, www.ifsia.com/us/Company (accessed 17 February 2003), and personal communication with Ray Anderson, 9 October and 9 November 2001.

5 Personal communication with Peter Domini, head of business development, 7 October 2002.

reality through an initiative code named the 'Lakes' product development process, and many other efforts aimed at achieving zero waste. The result was significant cost savings as well as 'dramatic improvements in our factories' environmental programmes', said Anne Stocum, manager, environmental health and safety market support.

Scandic Hotels has adopted a vision of achieving environmental sustainability by 'moving from resource wasting to resource caring'. This vision generated a major conceptual breakthrough that led the company to realise that ecological sustainability is not a cost but a source of profits and competitive advantage.[6]

Whistler Blackcomb resort in British Columbia, Canada, began its effort to develop its environmental management system in 1992. Since that time, 'Operation Green Up' has generated a $1.5 million investment in improvements to the local watershed. The resort's 'energy quest' initiative seeks to reduce the consumption of fuel and electricity by 15–20%. Roughly $110,000 has been saved annually through waste reduction efforts.[7] The Natural Step principles were adopted in 1999 to provide clarity on its vision of sustainability and a means to guide decision-making.

Some organisations rely on their mission statements to depict their vision of sustainability. 'We decided to talk only about the five elements of our mission statement, not about sustainability or The Natural Step,' said Nancy Hirschberg, vice-president for natural resources at Stonyfield Farm. 'We felt our mission is a vision of sustainability. People want to own it and our people own our mission.' The five key tenets of Stonyfield Farm's mission include:

1. To provide the very highest-quality, best-tasting, all-natural and certified organic products
2. To educate consumers and producers about the value of protecting the environment and of supporting family farmers and sustainable farming methods
3. To serve as a model that environmentally—and socially—responsible businesses can also be profitable
4. To provide a healthful, productive and enjoyable workplace for all employees, with opportunities to gain new skills and advance personal career goals
5. To recognise our obligations to stockholders and lenders by providing excellent return on their investment[8]

Burlington, VT, a community of about 40,000 perched on the east bank of Lake Champlain, used a version of ends planning to initiate its sustainability initiative, which it calls the 'Legacy' project. In May 1999, people from throughout the community were engaged in an extensive year-long process to develop a clear vision and action plan aimed at becoming a sustainable community. City leaders

6 Personal communication with Jan Peter Bergkvist, 8 October 2002.
7 Personal communication, 17 October 2002.
8 Stonyfield Farm website, www.stonyfield.com.

chose the year 2030 as the target date for achieving sustainability. The goal was to 'encourage our whole community to think systematically about our future and to bring all sectors of the community together to develop a vision for Burlington in the year 2030'. The outcome was this vision:

> By planning ahead to the year 2030, the city is saying that we want to choose both good jobs and a clean environment. We want to preserve the neighborhoods that make the city a home and accommodate new growth. We want all of our citizens to play a critical role in decision-making about our future. This is the essence of becoming a sustainable city—meeting our current needs without compromising our values, or the lives and health of future generations (City of Burlington, VT, 2000).

Burlington adopted six public policy principles in the 1980s that they decided to use to guide their 'legacy' sustainability initiative as well:

1. Encourage economic self-sufficiency through local ownership and the maximum use of local resources.
2. Equalise the benefits and burdens of growth.
3. Leverage and recycle scarce public funds.
4. Protect and preserve fragile environmental resources.
5. Ensure full participation by populations normally excluded from the political and economic mainstream.
6. Nurture a robust 'third sector' of private, non-profit organisations capable of working in concert with government to deliver essential services.

As previously discussed, the vision of the Dutch government's initial National Environmental Policy Plan (NEPP) is:

> In principle, every generation must leave behind good environmental quality. This means that existing environmental problems must be resolved within the span of a generation (20–25 years) while the creation of new problems must be prevented. For the current generation, the environmental legacy from the past must also be reduced to acceptable proportions (VROM 1989 and numerous updates).

The NEPP expanded upon this vision by offering three principles and then adding quantitative targets at a later date (de Jongh and Captain 1999: 138):

1. *Integrated life-cycle management.* Conserve raw materials by tens of per cents by the year 2010 through better use of waste substances (e.g. recycling) and using raw materials more sparingly.
2. *Energy extensification.* Utilise all possibilities to improve efficiency by tens of per cents.
3. *Quality improvements.* By the year 2010, double the time that raw materials, capital goods and products remain in the production and consump-

> tion cycle. Make today's products in such as way that they can be easily recycled as raw materials for future products.

Subsequent versions of the NEPP have added new goals and principles.

The vision described in former Oregon governor John Kitzhaber's sustainability initiative is to '. . . develop and promote policies and programs to meet a goal of sustainability within one generation—by 2025'. This vision was further expanded:

> Sustainability means using, developing, and protecting resources at a rate and in a manner that enables people to meet their current needs and also provides that future generations can meet their own needs. Sustainability requires simultaneously meeting environmental, economic, and community needs.[9]

Even though, as described throughout this book, the State of Oregon's initiative often stumbled as it sought to get on track, many state agencies have reduced their environmental footprint. Just as importantly, the combination of the compelling case and vision of sustainability provided by the former governor focused the public's attention on sustainability. As a result, numerous private-sector and local-government sustainability efforts either expanded or were launched as a result of the governor's Executive Order.

Application of vision and principles: the Patagonia example

Even though Patagonia does not formally use the term 'sustainability', this leading producer of outdoor clothing and equipment provides a good example of how a core vision and guiding principles can set future direction and guide decision-making. Prior to starting the company, Yvon Chouinard, the firm's founder, was a blacksmith by trade and a rock climber by avocation. In his early climbing days, Chouinard could not find the type of high-quality gear he wanted. So he be began to make his own. As his climbing buddies and their friends began to hear about his equipment, a mail-order company was born.

At an early stage, Chouinard decided that his firm would be committed to the environment. The initial product line of the company, however, was wholly dependent on pitons and other equipment that were pounded into the rocks of climbing areas. Chouinard soon realised that his products were damaging the environment. This awareness led him to change 70% of his products to chocks, which can be slipped in and out of cracks in rocks without causing damage. At the time, chocks were a new approach to climbing. They therefore represented a major risk that could have destroyed his fledgling firm. But Chouinard was not dissuaded. In fact, he went further. Chouinard printed an article on 'clean climbing' in his catalogue that urged climbers to care for the environment. These actions solidified the core value of environmental protection at Patagonia.

Patagonia's vision and principles are embedded in its statement of purpose and four core values. This ideology was clarified and expanded in 1996–97 through a dynamic series of discussions with company employees worldwide. The core

9 Office of the Governor, State of Oregon, *Executive Order No. EO-00-07,* May 2000.

purpose is 'to use business to inspire and implement solutions to the environmental crisis'. The core values are quality, integrity, environmentalism and not being bound by convention.[10]

The company relies on its core ideology for guidance. This is not just idle talk. Strategic business decisions are constantly reviewed to ensure that they are consistent with the firm's vision. This process sometimes leads to painful discoveries and tough decisions. In 1991, for example, Patagonia was donating money to organisations that were working to reduce the use of pesticides. At the same time, the company developed a life-cycle analysis (LCA) to understand its own use of pesticides. To everyone's surprise, the LCA found that the firm was using wool and cotton that were produced with heavy doses of pesticides. They were conspirators in the very activities that they were funding others to stop. This discovery sparked some serious soul-searching. Using pesticide-free feedstock would require a major shift in business strategy and necessitate a significant effort to identify new suppliers. Patagonia's purpose and guiding principles, however, provided the conduit to arrive at the proper decision.

The company decided not to be just 'less bad' by reducing their use of cotton produced with pesticides. Instead, they chose in 1994 to be 100% 'good' by using only organically grown cotton. In 1996 Patagonia converted all of its products to organics. The company also decided to 'never go back'. This means that no matter how difficult it may be from a business perspective, if organic cotton is not available, the company will use alternative materials rather than shift back to cotton produced with pesticides.[11]

Take-away lesson for organisational leaders and team members

The key message of this chapter is that the most important steps that leaders can take to transform their organisations into more sustainable enterprises are not technical in nature, but consist of the development of new purposes and intents. Numerous policy and methodological changes can be pursued to achieve sustainability. But specific actions will add up to success only if a new frame of reference—a new context—is developed which shifts the fundamental thinking and perspectives of people. Leaders and transition teams must devote the time to craft clear visions and adopt steadfast principles of sustainability before they zero in on technical tools or policy instruments.

10 Personal communication with Jil Zilligen, 29 July 2002.
11 Personal communication with Jil Zilligen, 3 July 2002.

Analysing your organisation's vision and principles of sustainability

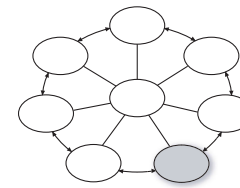
An easy way to tell if employees or stakeholders understand your organisation's sustainability vision and principles is to ask questions such as these:

- Can you describe the purpose of the organisation's sustainability initiative?
- What will be different in 5, 10 and 25 years as a result of the effort?
- Do you think that the sustainability initiative is generating a new vision or business model for the organisation or do you think it is really about business-as-usual?
- Do you feel confident that you have sufficient guidance to make decisions that can help your organisation make progress toward the desired vision?
- Do you think achieving these new outcomes is important? Can you see ways in which they will benefit you (or your key stakeholders or constituents)?
- Do you feel committed to participating in efforts to attain the new ends? Can you see a role for yourself, your unit or your organisation (for stakeholders) in the work that will be involved?

If people can quickly describe what your sustainability initiative is seeking to achieve, and how this differs from previous goals, an effective vision exists. If members are confident in their ability to choose the right path, functional principles are present. On the other hand, if people don't know what they are striving for, don't seem sure of their decision-making abilities, or don't see why they should participate, further work is needed to clarify or communicate the sustainability vision and principles.

9

Restructure the rules of engagement of the system by adopting source-based strategies



Twice, the managers at American Electric Power, the largest utility in the United States, thought their problems were solved. Acid rain problems led to a major $161 million renovation in the mid-1990s at its gigantic Gen. James M. Gavin power plant in Cheshire, Ohio. They installed scrubbers to reduce carbon monoxide, and the single 1,100-foot-high smokestack was replaced with two 830-foot stacks. These changes allowed the plant to burn high-sulphur coal, which is dirtier but cheaper than low-sulphur coal, and to reduce the acid rain that was falling on the Northeast.

Unfortunately, the new scrubbers and stacks did not solve the problems. The plant still generated harmful discharges and, instead of falling on distant areas, nitrogen oxide emissions soon began to fall on the local community.

In 2001 the company installed a $195 million pollution control system in a second attempt to reduce its emissions problems. This resulted in a blue plume mushrooming above the community, causing residents to complain of raspy throats, burning eyes, sore lips, mouth blisters and grime everywhere.

After two failed attempts and years of criticism from locals, American Electric Power finally decided to buy out the entire town of Cheshire for $20 million. The 90 homeowners were to get cheques for three times the value of their homes, and all 221 residents were to pack up and leave. Company spokesman Pat Hemlepp acknowledged that the use of end-of-pipe technologies had ultimately not solved the problems, stating: 'The scrubbers meant no more acid rain. It was applauded in the Northeast. It was a great success story. But, unfortunately, the people next door have to move' (*Register Guard* 2002a: 1).

The American Electric Power story demonstrates the bankruptcy of attempting to control environmental effects rather than designing them out before they wreak havoc. Compliance-based technologies and practices rarely provide real 'solu-

tions'. They simply shift damage to other venues or delay their impact and create the false impression that problems are under control.

That is not to say that laws and regulations are unimportant. To the contrary, they are indispensable. The US corporate financial abuse and accounting scandals of 2002 vividly underscore the damage that can occur when organisations pursue their ambitions without government (acting for the public) oversight and regulation. However, it is imperative not to confuse following the law with striving toward sustainability. Compliance is a necessary but by no means sufficient step on the road toward sustainability because it primarily seeks to mitigate and control structurally unsound take–make–waste production systems. The only way to achieve sustainability is to adopt borrow–use–return circular economic models that eliminate environmental and socioeconomic impacts *at their source*.

Once people have accepted the need for change, transition teams have been formed and people are clear about what they are striving toward, the next key leverage point for change toward sustainability is to alter the rules that determine how the work gets done. This involves the development of new strategies, tactics and implementation plans.

Recall that the interactions among the parts of a system are shaped by rules that define how they interrelate. Changing the operational strategies of an organisation alters the way the units and people work together to achieve their purpose. Transforming the way information is gathered and shared, decisions are made, and resources and wealth are distributed to support the new workflow will change power and authority relationships. Thus, the adoption of new sustainability-focused strategies can change the rules of engagement of the organisation and lead to very different types of decisions and outcomes.

Linking incremental change with major innovation

Incremental change is nothing new to compliance-based organisations. They do this routinely in response to changing market conditions, technological advancements and shifting regulations. Small, slow improvements require adjustments in only one or two aspects of the organisation, such as a management practice.

The transformation to sustainability—becoming thoroughly responsible for environmental and socioeconomic effects—on the other hand, generally requires concurrent changes in multiple levels of an organisation: in people, culture, leadership styles, management skills, problem-solving approaches, structures, systems, technologies, materials, energy sources, products and practices. Jim Quinn, former CEO of The Collins Companies, the US-based forest products firm, said the changes his organisation underwent as it adopted sustainability measures were profound:

> We learned that the learning curve was very high. We had to get more and better information. We had to become more sophisticated managers. We had to learn so much more about our forests and facilities. We had to do things in different ways to become more efficient.[1]

1 Personal communication, 5 April 2002.

Change strategies focused on operations alone will not achieve this type of broad-based transformation. Two different change strategies are needed: one focused on people and another on operations. I call these governance (because changes in governance are required for people to think and behave differently) and operational-change strategies. These two strategies must be closely aligned for either to achieve success. Both must skilfully link incremental improvements with major innovations.

Implement governance-change strategies early, not after the fact

Changes in operations aimed at becoming more sustainable often require new forms of data and feedback. New information flows will lead to new understandings about potential environmental and socioeconomic impacts. New awareness may lead to different types of decisions. Changes in decision-making will alter power and authority relationships. In short, the introduction of strategies to achieve sustainability will often require the development of whole new systems of governance.

In this precious interlude between the old and the new, the thinking and perspectives of employees and stakeholders may be temporarily unfrozen. People will be more open to new ways of thinking and behaving. For this reason, the best time to redesign the way an organisation is governed is when shifting from one way of operating to another. Instituting change in governance during these critical transitional periods ensures that the organisation will not simply modify its products or services while leaving the old systems and culture in place. A dramatic shift in governance will also impart an unmistakable symbol that things are now different.

Effective operational and governance-change strategies are developed in similar ways. They both start with a vision of the ideal. They then work backwards by first identifying the closest available approximation to the ideal, and next establishing a strategy to close the gaps between it and current conditions.

Strategy before tactics

In Chapter 11, the advantages of pursuing short-term victories are discussed. In the start-up stage of a sustainability initiative, it makes sense to build momentum by taking advantage of easy and obvious opportunities—the so-called low-hanging fruit—that may appear. However, few things are so permanent as a short-term solution. Far too often I find that sustainability efforts remain eternally anchored in opportunistic projects pursued without the benefit of a guiding strategic framework. This is sure to fail.

Strategy concerns the large-scale marshalling of forces and allocation of resources. It answers the question of *how* a team (or unit) will accomplish its work—the framework within which the organisation pursues its vision of sustainability.

Requiring that all raw materials and management practices have the industry's highest environmental ratings may be part of an operational-change strategy adopted by a private firm to become the preferred supplier for European building

contractors. Developing sustainability action plans through whole economic sectors so that small and large firms work on a level playing field may be an operational-change strategy adopted by a public agency.

Tactics are specific, local, immediate and usually short-term actions. They answer the question of *which* actions the organisation will take to implement its strategy.

The use of third-party certification to verify that materials meet the highest environmental standards might be one of the tactics used by the private firm in the example above to implement its operational strategy.

Tactics employed by the public agency to implement its strategy may include technical assistance programmes and permitting flexibility for firms that develop sustainability plans through their trade associations.

Strategies and tactics come together in *implementation plans.* Implementation plans detail the specific sequence of steps, time-frames, lines of responsibility, accountability mechanisms, fiscal and human resources, and monitoring and evaluation protocols that will be employed to implement all of the tactics consistent with the strategy.

To understand how governance-change strategies can be linked with those focused on operations, let's continue with the previous examples.

The private firm may seek to ensure the success of its operational strategy by changing its governance system to make the environment a primary screen through which every employee makes decisions. Tactics used to implement this strategy may include giving employees the authority to stop production or openly voice concern any time they see activities that may produce poor environmental outcomes. The installation of information technologies that provide timely data to all workers about the environmental effects of processes, products and services may be another useful tactic.

The public agency may seek to ensure the success of its operational strategy of working through whole sectors by changing its governance system to shift the authority of employees from a traditional focus on approving permits to working collaboratively with private firms to craft and implement sustainability plans. Tactics used to implement this strategy may include training employees in negotiations and giving them authority to develop legally binding agreements with private firms.

If a clear vision of what the organisation wants to achieve has not been developed and embraced by team members, there is no common basis for strategy development. Rather than going back to clarify the fundamental building block that is vision and principles, when teams struggle to develop a sound strategy they often jump ahead to tactics.

Agreements on tactics are easier to achieve than those related to purpose and strategy. Tactical planning allows people to engage in lots of activity. Teams feel good that they are doing something. However, agreements on tactics are 'thin' accords. Tactics implemented without the benefit of a broader strategic context usually indicates lack of agreement over purpose, vision and strategy. This suggests trouble ahead.

When a strategy is absent, people have no way of knowing how their activities will add up to achieve the vision of sustainability. Worse, people begin to feel

satisfied that actions have been taken and their interest in more fundamental change begins to fade. A fixation on tactics over strategy usually leads to wasted resources and misrepresentations of the success or failure of projects because teams have failed to build the underlying foundation for measuring success.

Our review of the US Forest Service's large-scale watershed restoration initiative found that almost every one of its 15 programmes continued to operate in an opportunistic tactical manner three years into the effort. Hundreds of small projects were implemented, such as sediment reduction and tree-planting projects. However, few of the watershed programmes had adopted an umbrella strategy that carefully outlined how the underlying ecological problems would be resolved and therefore how the many individual projects would combine to produce success. As a result, it was impossible to determine what had been accomplished with the $60 million or so that had been invested in the initiative (Doppelt *et al.* 2002b).

Framework for strategy development

To devise source-oriented strategies, transition teams should answer three questions: How will we achieve our goals? Which actions will we take? And, when, where and why should the actions take place? These questions address strategy, tactics and implementation. Both operational and governance issues should be addressed when answering them.

To answer the three strategic questions, four subsequent questions must be answered:

1. How sustainable are we now?
2. How sustainable do we want to be in the future?
3. How do we get there?
4. How do we measure progress?

How sustainable are we now?

Assess your environmental and socioeconomic footprints

Correct diagnosis is as vital in sustainability as it is in medicine. Therefore, the first step in strategy development is to answer the question: 'How sustainable are we now?' This question seeks to determine current environmental and socioeconomic effects. The most effective methods begin by mapping the entire workflow of the organisation. The materials, energy and human resource inputs and outputs involved with each step of the organisation's workflow must then be identified. Once the workflow is mapped and raw inputs and outputs are identified, their quantities and costs can be calculated. This process provides the basis for assessing the impacts generated throughout an organisation's entire value chain, from the

raw materials purchased or consumed, to the way products and services are produced, delivered and used throughout their lifetime, to the final disposal of the products and waste materials.

The 'upstream' focus of the analysis may examine all environmental and socioeconomic impacts associated with the way raw materials and energy are extracted from nature and delivered to the organisation. This type of review often requires extensive research of the entire supply chain all the way up to the original source of the materials.

The 'midstream' focus of the assessment looks at the full range of environmental and socioeconomic impacts associated with product and process design, manufacturing, transport, service delivery and other internal operational systems. This is where most footprint assessments begin.

On the 'downstream' end, the environmental and socioeconomic effects of product and service delivery, product use and disposal, and all forms of waste (solid, hazardous, molecular) are examined.

Besides providing the basis for assessing the environmental and socioeconomic impacts generated throughout an organisation's entire value chain, the mapping process serves two other important purposes. First, mapping the entire workflow crystallises for employees the linear nature of their current production system. Second, initial opportunities can be discovered for reducing inputs and recirculating outputs (by-products and waste) into the same or other processes or products. Thus, the mapping process enhances both cultural and operational change toward sustainability.

Henkel is a producer of industrial, commercial and consumer chemical products that 'make people's lives easier, better and more beautiful'. The Henkel Group operates in three strategic business areas—home care, personal care, and adhesives, sealants and surface treatment products and services. The company, with a home base in Germany, is represented in over 75 countries and has 48,638 employees worldwide. While the chemical industry as a whole has a tremendous impact on the environment, Henkel seeks to differentiate itself by manufacturing environmentally safe products. To understand how the company impacts the environment, assessments are completed at the facility, division and international levels. This comprehensive process identifies areas needing corrective action as well as those where people have excelled.[2]

Swisscom, the telecommunications company from Switzerland, completed extensive audits in the areas of energy and materials consumption and emissions released. The company also began using life-cycle analysis in 1998 to determine the environmental impacts of new products, including telephones and fax machines. Swisscom has also conducted ecological assessments of its suppliers.

While value-chain-wide assessments are preferable, teams need to decide where such an analysis will begin and how extensive it will be. For example, the Bear Creek Corporation of Medford, Oregon, which produces *Harry and David's* line of gourmet food and gifts and *Jackson Perkins* flowers, decided to start by assessing the environmental footprint of one internal gift basket production line called 'Barrel

2 Personal communication, Dr Michael Bahn, director of corporate sustainability management, 20 August 2002.

Five'. The results of this assessment were used to determine how far upstream and downstream the company would eventually venture with its sustainability efforts.

Input–output analysis, material flow assessments, ecological footprint analysis, life-cycle analysis, state of the environment reports and other methods can be used to determine an organisation's footprint. Information about these tools is available in numerous books and websites.

Assess existing patterns of governance

As with operations, accurate analysis is important in developing a governance-change strategy. The first question that must be answered is 'How do we govern now?' As previously discussed, most governance systems are designed to mirror and control the linear take–make–waste production model utilised by most public and private organisations today. A patriarchal, excessively hierarchical governance model is usually employed for these purposes. An easy way to get an initial glimpse of your organisation or unit's current patterns of governance is to ask the members of your team to fill out the 'governance assessment matrix' provided in Appendix B. I have used this instrument with numerous public and private organisations over the years. It offers important, yet basic and straightforward information about the current strengths and weaknesses of the information, decision-making and resource allocation mechanisms inherent in the governance system employed by an organisation or unit.

To answer the question of 'How do we govern now?' in greater depth, however, team members must examine the way the organisation or unit currently handles the following six factors (Blake *et al*. 1990: 77).

1. The first key issue that a team or unit must explore is how power and authority are exercised. Issues of power and authority are usually the most dominant barriers to organisational effectiveness. Some ways of exercising authority throttle or prevent meaningful employee and stakeholder involvement, and others foster participation. Key questions to explore include: Where is the real power located? How is power and authority used? What people or units do not have power and how do they handle this? How does the organisation's current use of power and authority affect its environmental and socioeconomic performance? How does it affect overall performance?

2. A second factor relates to the values and norms that influence how members of the organisation or unit interact with each other. Prevailing norms may lead people to discount environmental and social welfare issues or they may encourage full responsibility. Norms may encourage conformity or they may encourage risk-taking and innovation. Key questions to explore include: What are the dominant beliefs and attitudes of members regarding the environment and social welfare? How do these norms affect performance regarding environmental and social welfare? Are the prevailing norms and values likely to encourage or prohibit movement toward sustainability?

3. The third issue is the level of cohesion that exists within the organisation. When people feel they are valued and part of the team, morale will be high and employees will feel empowered. When people feel isolated or left out, morale is usually low. Key questions to explore include: To what extent do employees feel committed to the organisation? Do people feel valued? Is morale high or low? Is morale or the sense of team influenced by the way the organisation distributes power and authority? How do current values and norms affect environmental and socioeconomic performance?

4. A fourth key factor is the way feedback is gathered, shared and incorporated. Timely, credible performance feedback allows people to learn from their experiences and adjust their thinking and behaviour as needed. Insufficient feedback or delays or flaws in feedback mechanisms limit awareness and constrain learning and adaptive management. When information is concentrated in a few hands, distrust grows. When information is widely distributed, people feel empowered. Key questions to ask include: Is the organisation gathering the right type of information to understand how it affects the environment, workers and socioeconomic conditions? Is the information available to anyone who needs or wants to see it? Do people hoard information or block efforts to generate it? Is feedback effectively incorporated into policies and programmes?

5. A fifth key factor is the way an organisation is structured (i.e. arranged). Rigid structures may limit communication and teamwork while more flexible structures may spur participation and innovation. Control and efficiency tend to be the goals of organisations with rigid formal hierarchical structures and procedures. Involvement, commitment and innovation tend to be the goals of organisations that employ flatter and more informal structures. Key questions to ask include: Do existing organisational structures facilitate teamwork and good communication or inhibit them? How do existing structures influence performance regarding environmental and social welfare issues? How do existing structures influence overall performance of the organisation?

6. A final key governance factor that influences organisational effectiveness is the distribution of resources among internal units and distribution of wealth to executives, stockholders, communities and other external stakeholders. Equitable distribution of resources (financial, capital equipment, time, human) builds feelings of commitment while distribution unfairly skewed to certain people or units builds resentment and distrust. Key questions to ask include: How are resources distributed? Who makes the decisions? Who or which entity gets more and which get less resources and wealth? How do resource allocations affect the organisation's environmental and socioeconomic performance? How do the allocations affect overall performance?

By diagnosing how these factors play out within the organisation or unit, teams can craft a profile of the existing patterns of governance. Qualitative approaches

can be used for this purpose. For example, written surveys or focus groups can be used to gather hard data regarding how employees and stakeholders view the current approach to governance.

It is not necessary, however, to use a qualitative approach. Transition teams, or another group of individuals who have a good perspective of the overall organisation, can generate a profile of current governance patterns using a simple process. To begin, each team member should write down how they perceive the organisation's patterns of governance, addressing the six factors described above. The governance assessment form provided in Appendix B can be used as a starting point for this discussion. The group should then meet, share views and form a consensus view of how the organisation is currently governed.

Listen closely to each perspective during this exercise. Do not ignore views that seem out of step with others. They often shed light on important issues. The group discussion that is used to generate the overall governance profile is perhaps the most valuable part of the exercise. Team members should continually ask why others view things as they do. Ask 'What specific organisational or management factors led you to those conclusions?'

Once the discussions are complete, a profile should be prepared that outlines how employees believe the organisation or unit is currently governed. This profile serves as the baseline data needed to develop effective governance-change strategies. I have used this process many times in my work with public and private organisations with great success.

How sustainable do we want to be in the future?

Once a baseline is established regarding your current environmental and socio-economic footprints and patterns of governance, the next question to answer is 'How sustainable do we want to be in the future?' Answering this question involves establishing performance goals and measurable targets aimed initially at achieving the closest available approximation to your ideal vision of sustainability. Strategy development then focuses on closing the gap between the closest approximation to the ideal and current conditions. After the closest approximation has been achieved, goals and targets can be established to close the remaining gap between it and the ideal vision of sustainability.

Identify operational performance gaps

Backward thinking should be used to identify the closest approximation to the ideal vision of sustainability.

When senior executives at General Motors decided to invest in the development of hydrogen-fuel-cell-powered cars, they explicitly decided not to put all their eggs in the basket of incremental improvements. GM did not start by simply looking for ways to reduce emissions in existing vehicles by 5% or 10%. Instead, the company moved backwards from its vision of the environmentally sustainable car of the future and identified what it thought was the closest rapidly available approximation to that ideal—the hydrogen-fuel-cell-powered car.

Fuel-cell-powered vehicles may not eliminate all the environmental effects of the car, but they are a huge advance and possible to achieve in the near future. The technology is available today. The major impediments to widespread roll-out are costs (despite dramatic reductions in the past few years, fuel-cell vehicles are still more expensive to manufacture than gas-powered cars) and the need to build the infrastructure to support the new mode of transportation (refuelling systems, etc). However, GM believes that by 2010 or earlier those issues can be resolved and fuel-cell-powered vehicles will be the norm.

Once the fuel-cell-powered car was identified as the closest approximation to the ideal, General Motors set goals and targets and developed strategies to bring it to market. GM unveiled its new prototype fuel-cell vehicle, called the AUTOnomy, at the January 2002 North American International Auto Show in Detroit. A refinement of the AUTOnomy called the Hy-Wire was unveiled at the Paris car show in the fall of 2002. While auto-makers such as Toyota, Honda and Ford are working on post-fossil-fuel vehicles, only GM has rethought the car from the ground up. Not only is it powered by hydrogen fuel cells, the steering and braking are fully electronic, the steering wheel has been replaced by two handgrips and a small colour screen, and the rearview mirror has been replaced by a camera that projects the road just travelled as well as driving data such as speed and hydrogen fuel levels.

Not coincidentally, the same week that General Motors unveiled the Hy-Wire, the US Department of Energy announced that it was abandoning its $1.5 billion project with GM, Ford and DaimlerChrysler to develop better-mileage gas-fuelled vehicles in favour of a major new effort, called the 'Freedom Car' programme, intended to help pave the way for hydrogen-fuel-cell-powered vehicles.

While GM's progress is not the only reason for this abrupt turnaround, and while questions persist about its true motivation, the fact that the Bush administration made the change speaks to the powerful forces that can be unleashed when strategy development is aimed at achieving the closest approximation to the ideal rather than small incremental improvements alone.

The ideal vision of sustainability adopted by the organisation is thus the basic building block for identifying performance goals. Teams should use the end-planning model to describe the closest approximation to their ideal vision of sustainability that can be attained in a comparatively short time-period. Once the closest approximation to the ideal is identified, it can be compared against your existing footprints to identify the performance gaps that must be closed.

For example, organisational performance gaps can be identified by:

- Comparing the quantities and types of toxic materials and substances that are purchased and used in all phases of operations with the vision of becoming toxin-free
- Comparing the quantities and types of non-certified wood purchased and consumed with the vision of using only sustainably certified wood products
- Comparing the quantities and types of waste generated with the vision of becoming waste-free

Establish operational performance goals and measurable targets

Once the team understands the organisation's performance gaps that exist between the current status and the closest approximation to the ideal, specific goals and measurable targets can be established. *Goals* represent the specific issues or topics the organisation will focus on to achieve the vision. *Targets* are explicit milestones to be achieved on the path toward meeting the goals. Setting goals and targets can temper the chaotic and often ambiguous nature of sustainability-change processes. Such direction helps to focus attention, determine priorities, manage resources and ensure that the activities of numerous people and units work in the same direction.

Santa Monica CA's 'Sustainable City' plan includes four goal areas: resource conservation, transportation, pollution prevention and public health, and community and economic development. The plan defines clear targets and indicators in each area. Progress toward each target is reviewed regularly.

Due to the clarity of its approach, Santa Monica has achieved some impressive results. Since 1990, waste diverted from landfills increased by 62% through 2002, city-wide water use decreased 6.3%, and greenhouse gas emissions decreased by 5.2%. A full 100% of the city's energy is now purchased from renewable sources, annual journeys on the city's transit system increased by 17%, untreated, dry-weather urban run-off entering Santa Monica Bay from city outfalls decreased by about 95% and the total amount of open space in the city increased by 10%.[3]

Goal- and target-setting are common within most private firms and many public agencies. What stands out about the leading sustainability organisations is their willingness to set challenging goals. High standards inspire team members, stimulate innovation and generate momentum.

Ambitious labour relations and environmental goals have furthered the sustainability efforts of Chiquita, the global fruit company. Tired of criticism over its environmental and labour practices, in the 1990s the company decided to change its mode of operations. While many problems remain, the company is making substantial progress toward its sustainability goals. 'The Rainforest Alliance's Better Banana Project showed the company that high standards are really good for the business,' said Jeff Zalla, the firm's corporate responsibility officer and vice-president of corporate communications. 'Most companies are fearful of taking on goals like meeting the SA 8000 labour standards.' Developed by the non-profit group Social Accountability International, these standards are currently the most credible and verifiable accountability standard for labour rights. Zalla says, 'It is a very high standard. But our experience is that we perform better when we set high standards.'[4]

Setting high standards also helped Chiquita improve its environmental practices, actions that also led to substantial cost savings. For example, the company reduced the use of pesticides and saved $4.8 million in 2002 compared to 1997.

Some organisations fear setting ambitious operational goals and targets. This seems particularly true within government where risk aversion is often high.

3 City of Santa Monica website, santa-monica.org/environmental/policy, accessed 17 February 2003.

4 Personal communication, 1 August 2002.

Dean Kubani, Sustainable City programme co-ordinator with the City of Santa Monica, CA, sees it differently. Kubani says that target-setting has worked very well for his programme. 'Setting targets has been a key part of our success. The targets that the City Council adopted led to significant action on policies and budget.'[5]

A dramatic increase in bus travel is a prime example of the effectiveness of Santa Monica's target-setting. In the early 1990s, the city council set a target of increasing passengers by 10% on the city's 'Big Blue Bus Line' by the year 2000. When transportation staff told the council in 1996 that passengers had actually *decreased* during the previous five years, council instructed the department to develop a plan to reverse the trend and get passengers up to the target levels. This triggered an extensive 'services improvement programme'. After gathering information on how passengers viewed the bus line, a multifaceted strategy was implemented in 1997 to correct problems and improve service. It was an outstanding success. By 1999 passengers had increased by 17%—well above the original 10% target—and the bus line won a number of awards.

'Just establishing indicators and reporting on them does not necessarily lead to action,' says Kubani. 'Setting targets says we want to be here on this certain date. Targets compel staff to establish strategies to achieve them.'[6]

The Santa Monica example underscores that targets are simply a way to focus attention and to measure process toward goals. Meeting the targets should not be construed as the sole purpose of the unit or organisation. Focusing exclusively on achieving targets can skew operational processes such that other important financial, environmental and social issues become ignored. Targets can become toxic if the focus becomes the outcome and not the process. Further, the more that targets emerge from the employees involved with planning and decision-making processes, rather than from executives from the top down, the greater the likelihood that workers will embrace and actively engage in the process. Top-down-driven targets are likely to be given short shrift or ignored.[7]

Governance-oriented goals and targets

Although many organisations do not set specific goals and targets when changing their patterns of governance, this should be easy to accomplish. A team process can be employed that is similar to the one used to understand the current patterns of governance. Once operational goals and targets have been established, discussion should focus on identifying the ideal type of governance system needed to accomplish the new set of operational tasks required to become more sustainable.

In order to visualise the ideal governance system, team members should answer questions such as:

- How should power and authority be distributed in the future if we are to successfully achieve the goals and targets of the operational plan?

5 Personal communication, 8 August 2002.
6 *Ibid.*
7 For more information on the risks of externally driven targets, see Johnson and Broms 2000.

- Do we need to encourage more learning and innovation or more uniformity and consistency to succeed?
- What level of teamwork and interdependency is needed?
- How should the units of the organisation be structured to achieve success?
- What type of information systems and feedback mechanisms are needed?
- How should decisions about resource allocations be made?
- In short, if we are to achieve our ideal vision of sustainability, how do we need to be governed?

As before, to start the process, group members should develop their own answers to these questions. A discussion should then ensue to develop a consensus picture of the ideal system. Make sure that people provide a rationale for their conclusions. Don't conduct the dialogue as a pie-in-the-sky exercise. Ground the discussion in credible data and real-world needs. Again, the discourse is likely to be the most fruitful aspect of the process.

Form a consensus on the preferred governance patterns through this discourse. Document the preferred systems, then move backwards from the ideal to outline the gaps between it and the current approach to governance. Finally, goals and specific measurable targets can be identified aimed at achieving the most readily available equivalent to the closest approximation to the ideal form of governance.

How do we get there?

Operational strategies should focus on eliminating the source of problems

Once goals and targets are established, specific actions can be identified and a priority system adopted to achieve them. This answers the question: 'Which actions will we take?' Credible action planning requires an understanding of cause-and-effect relationships. The problems identified in your environmental and socioeconomic footprint assessments must be traced back to their root causes so that appropriate steps can be identified to remedy them. This is an area where many compliance-based organisations fall short. They manage the effects of their environmental and socioeconomic problems and fail to understand and treat their root causes.

The identification of cause-and-effect relationships begins by letting go of preconceptions that you already know the problems and their causes. You must suspend judgement for a while. An 'ask why five times' exercise can be helpful at this stage. Each time a performance gap is identified, ask why it exists, at least five times. Every answer should peel back another layer of the problem until you reach the core. This type of persistent questioning can be a very powerful tool.

The 'fishbone' diagram outlined in Figure 9.1 provides a way to graphically trace the root causes of a problem, using toxic emissions as an example. Place the 'effect' (or symptom) you want to investigate on the far right on a piece of paper. Then, move backwards and brainstorm all of the key factors that may contribute to the

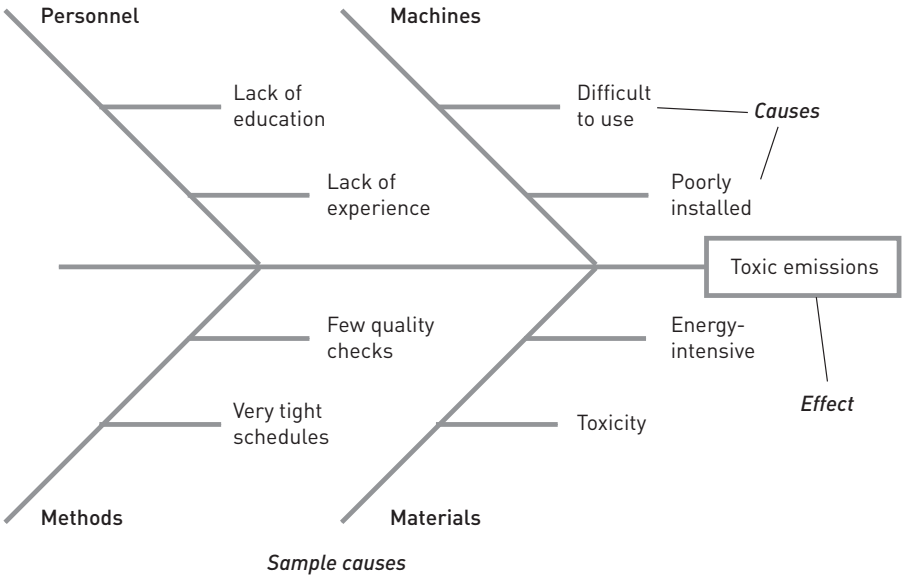


Figure 9.1 Fishbone cause-and-effect diagnosis diagram

problem. In the example in Figure 9.1, inadequate machinery, personnel, production methods and materials may combine to produce toxic emissions. Once the key factors are identified, tease out the specific reasons why these factors may exist. In the example below, machinery may contribute to toxic emissions because they are difficult for workers to use and thus run inefficiently and because they were poorly installed. Use the fishbone diagnosis to drill down to the deepest causes of your organisation's unsustainable activities.

Select source-oriented solutions

Once an organisation understands the roots of its problems, it can choose appropriate actions to ameliorate them. Four types of interventions are available. Although all may be needed in the near term, the long-term emphasis should be on the last two—repair- and source-based solutions—for an organisation to shift from being less harmful to becoming a thoroughly sustainable entity.

Control-oriented interventions seek to manage emissions and discharges and prevent the most egregious of them from harming the environment. End-of-pipe pollution control technologies exemplify this approach. As mentioned, although control measures can be essential during the transition toward sustainability, they do not eliminate or prevent problems. They simply maintain business-as-usual. However, if and when control measures are used to capture and sequester toxic substances for re-use and recycling in technical cycles for industry, they can be useful as transition tools

Volume-oriented interventions seek to reduce the amount of harm generated. Caps on the total acreage of a forest that can be harvested or carbon taxes to reduce the use of fossil fuels are examples. Although volume measures can reduce environmental impacts, used in isolation they often just delay damage. Limiting harvest levels alone, for example, does not address the ecological or socioeconomic effects of poor timber harvest practices.

Repair-oriented interventions seek to fix environmental damage after it has occurred. Cleaning up toxic-waste sites or restoring degraded streams and biodiversity, for example, are essential to repair damage done in the past. Because society has done considerable harm to the stocks and flows of nature already, repair-oriented interventions will be needed for many years to come.

Source-oriented interventions fundamentally transform the way products, processes and services are designed, produced, delivered and disposed of so that environmental and socioeconomic impacts are eliminated throughout the entire value chain. The most effective source-oriented solutions follow the circular borrow–use–return production model. Extracting resources without harm to environmental or socioeconomic wellbeing, the development of closed-loop systems, the shift to services rather than the production of physical goods, and the use of renewable energy and naturally occurring non-toxic materials and substances are examples of source-oriented solutions.

Because they design out problems before they occur, source-oriented interventions should be the primary focus of sustainability-change plans. This is the only approach that leads to structural changes in the design and operations of organisations.

The more that source-oriented interventions can be linked with repair measures, the greater the progress that will be made toward sustainability. Interface, for example, envisions a time when its spent carpets made of natural materials can be composted and used as fertiliser.

Svenska Cellulosa AB (SCA), the global paper products company headquartered in Sweden and a world leader in sustainable forestry, always seeks source-oriented strategies. The company's approach to chlorine problems at its pulp plant outside Sundsvall, Sweden, offers a good example. The facility needed to lower COD (chemical oxygen demand) and AOX (chlorine-bound organic substances) emissions. Many of the environmental problems generated by older paper pulp plants relate to chlorine emissions. The local environmental regulatory agency wanted SCA to build a treatment plant—a classic effects-based end-of-pipe strategy. SCA instead decided to make a $500 million investment to eliminate chlorine from their production process. A chlorine-free bleaching process was installed. 'We wanted to be emissions-free rather than to continue to manage emissions,' said Björn Lyngfelt, vice-president of communications for SCA Forest Products AB.[8]

Swisscom has focused on working with its suppliers to design out environmental impacts at their source. For example, PVC (polyvinyl chloride) is no longer used in the manufacture of telephones or faxes. Metal phone booths are made from 100% recycled materials. Telephone directories are printed on 70% recycled and recyclable paper and 85% of the phone books are recycled.

8 Personal communication, 20 August 2002.

Like Swisscom, IKEA has made a concerted effort to work with its suppliers and contractors to help them eliminate environmental and social impacts (see Box 9.1). 'In December 1999, we adopted a code-of-conduct package and sent it to our suppliers. It addresses social, environmental and labour conditions. We have since done thousands of audits and corrected 12,000–15,000 problems that the audits identified. More and more of our suppliers are fulfilling their requirements', says Thomas Bergmark, social responsibility manager.[9]

As discussed in Chapter 4, a growing stream of research suggests that, especially when applied early in the design phase, source-oriented interventions can be cost-effective. Mary Tkach, executive director of environmental sustainability at Aveda, agrees. Aveda is a global leader in the production of environmental lifestyle products for individuals and professionals. They manufacture and sell plant-based hair- and skin-care and aromatherapy products. From its inception, the company

Legal requirements

Suppliers must comply with national laws and regulations and with international conventions concerning the protection of the environment, social and working conditions and regarding child labour.

Social and working conditions

IKEA expects its suppliers to respect fundamental human rights, and to treat their workforces fairly and with respect.

Suppliers must:

- Provide a healthy and safe working environment
- Pay the legal minimum wage or the local industry standard and compensate for overtime
- If housing facilities are provided, ensure reasonable privacy, quietness and personal hygiene

Suppliers must not:

- Make use of child labour
- Make use of forced or bonded labour
- Discriminate
- Use illegal overtime
- Prevent workers from associating freely with any workers' association or group of their choosing or collective bargaining
- Accept any form of mental or physical disciplinary action, including harassment

Box 9.1 Social and working condition requirements for producing for IKEA

Source: IKEA code of conduct

9 Personal communication, 26 November 2002.

has had a strong commitment to the environment. 'The upfront design takes a little longer, but it does not cost more if it is done right.'[10]

SCA sees definite economic advantages to its source-based approach. Investments in reforestation, eliminating emissions, and other activities made years ago are now paying off for the firm and providing competitive advantage over competitors that have been forced to make similar investments today. 'We gained time and money by making these investments early,' said Björn Lyngfelt.[11]

Senior executives at IKEA agree with SCA. Thomas Bergmark says:

> The early stages in the process are where you can influence the process the most. In nine out of ten cases when we redesign our products from a quality and environmental point of view, we end up with lower costs and lower prices. If you look back at the last five to seven years, we have reduced our retail prices by approximately 2% a year, yet we have improved our environmental performance. Sustainability is about creating better order with your workflows. It produces better products and happier workers. All of this leads to lower costs and improved products. We can't see a conflict. There is definitely no conflict with improving our environmental performance and costs.[12]

Once the specific actions to be taken are identified, they should be prioritised. Transition teams should develop agreement on a set of criteria for prioritising action items and then apply the criteria to each potential action and assign an overall ranking. Actions may be prioritised based on criteria such as:

- Need to reduce environmental, public health or socioeconomic risks
- Resource availability (money, personnel, equipment)
- Relationship to external mandates
- Level of community support or demand
- Changes occurring in the marketplace
- Threshold for return on investment
- Degree to which the action can help galvanise support for additional actions

Identify actions to achieve the needed patterns of governance

The leading sustainability organisations identify specific actions upfront to transform their patterns of governance. Now that team members have a shared understanding of how the organisation or unit is currently governed, how it should ideally be governed, and what the goals and targets should be to achieve the most readily available closest approximation to the ideal form of governance, they can identify specific actions to improve the governance system.

10 Personal communication, 22 July 2002.
11 Personal communication, 20 August 2002.
12 Personal communication, 26 November 2002.

The teams that participated in the first phases of the governance-change assessment should now turn their attention to the following questions:

- What things should be stopped?
- What new steps should be taken?
- What governance processes or systems require just incremental improvements?
- Which governance processes must be completely revamped?
- Where should we begin?
- How fast should we proceed?
- What resources are needed?

There is no one-size-fits-all set of actions available for improving governance systems. Each organisation must adopt steps that are tailored to its needs and circumstances. The following examples are offered simply to stimulate conversation among team members.

- If power and authority are seen to be overly concentrated in one person or department, steps could be taken to reduce the sign-offs needed for decisions.
- If upper management second-guesses decisions made by staff, the executives could be asked to participate in the early stages of planning processes.
- If departments do not share information with each other, each unit's responsibilities in a plan for developing integrated information systems can be explicitly outlined.
- If units are isolated and do not work well together, the performance goals for each unit can be merged with the performance goals of the entire department so that no single unit or person can shine unless the entire organisation excels.
- If communication is poor or it is difficult to work in cross-functional units, eliminating walls and creating an open floor plan can foster constant interaction.
- If conformity and a lack of risk-taking are problems, rewards and incentives can be adopted to encourage innovative behaviour.
- If rigid 'siloing' prevents integration, all functions and departments can be engaged from the start when new processes or products are being discussed. Include key stakeholders (customers, suppliers, community groups) as well.
- If lack of timely feedback on progress toward the sustainability goals is a stumbling block, audits could be completed to determine if measurement

and accounting systems are focused on the new rather than old goals and targets.

Each team member should develop a list of proposed actions. A discussion should then ensue to develop a consensus on needed actions. Once the team generates a complete list, it should prioritise the actions. Identify those that are needed immediately and those that will require more time to adopt. Finally, pare down the list and develop an action plan that outlines how to phase in the steps over time.

The US forest products firm, The Collins Companies, used the shift to sustainability to handle a change in ownership and management style at its Klamath Falls, Oregon, processing plant. Collins acquired the facility from another company that had employed a patriarchal approach to governance that limited employee involvement and consequently stifled innovation. After some analysis, Collins decided that the only way to increase employee commitment and involvement was to fundamentally change the governance system. Lee Jimerson of The Collins Companies says:

> The previous firm had a top-down management style. We wanted to empower our employees so they could think and affect areas of the company beyond their own job description—to help bring them out of their shells and bloom. To accomplish this, we realised we needed to push decision-making down in the organisation, so that decisions were made where there was the greatest level of knowledge. We organised a number of teams, including water, energy and product evaluation, and said it was their job to address these issues. When they saw problems like this before, the employees did nothing about it because it was not their job. Now, people were encouraged to become involved with whatever they wanted—on energy, water or other issues. This empowered them . . . Sustainability really allowed us to change the whole style of management there.[13]

The development of a sustainability strategy at Stena Metall, the northern European recycling, trading and shipping company, also fundamentally altered the firm's decision-making process. Peter Domini, head of business development, says

> Decision-making was changed to include the environmental impacts of decisions. Before, for example, transportation did not include environmental impacts in decision-making. Now, if there are others ways to transport goods with less environmental impacts, we choose it. Rail travel has increased, for example, because we think it is more environmentally friendly than trucks.[14]

13 Personal communication, 14 October 2002.
14 Personal communication, 7 October 2002.

How do we measure progress?

Adopt operational measurement systems

In order to understand the effectiveness of your strategy and learn how to improve performance, feedback systems are needed. Many organisations skip this step or put it off to another time, usually with disastrous results. Recall the critical importance of feedback to systems. Feedback is needed to help people learn what works and what does not. Without credible and consistent feedback, all manner of false paths can be taken leading to major loses of time, money and goodwill.

Good data also helps to demonstrate the benefits of an operational-change strategy. 'We get no argument from employees on issues related to compliance,' said Heidi McCloskey, global environmental director for apparel at Nike. 'With "beyond compliance" we need metrics to show the benefits to the company.'[15]

The ideal vision of sustainability is again important at this stage. It is impossible to measure the success of a strategy unless you are very clear about what you are striving to attain. If your ideal vision is clear, monitoring and evaluation systems can be adopted that measure progress toward or away from that goal.

Both quantitative and qualitative feedback systems can be used. Quantitative systems use hard data to measure progress. It is important to carefully select qualitative indicators that provide a credible *overall* evaluation of progress in achieving your vision, goals and targets. It is always better to use a small number rather than numerous indicators because of the effort and costs involved with gathering huge amounts of data. The key to effective measurement is to clearly define what you want to measure and to collect and store detailed, accurate records.

Many organisations have begun to measure changes in resource consumption such as the amount of energy or water used, emissions and discharges, toxicity in products and waste generated. A growing number of organisations have also begun to measure social issues such as employee satisfaction and stakeholder support for sustainability efforts. The European affiliates of Interface, for example, have begun to measure the degree to which employees understand sustainability as well as stakeholder satisfaction with the company.[16]

When hard data is not possible to obtain, qualitative measurement systems can be used. These generally involve the use of 'decision records'. Decision records document the 'who, why and hows' of decision-making. The goal is to provide a detailed written track record that explains the assumptions and thinking behind every decision that is made in pursuit of sustainability strategies. Make sure these records are rigorously detailed and available for anyone to see.

More information about information systems and indicators is provided in Chapter 11. Many books, websites and organisations are also available to help guide indicator development.

Once the indicators are established, mechanisms should be adopted to continually gather data, interpret, and share the conclusions. Sufficient staff, resources

15 Personal communication, 10 July 2001.
16 www.ifsia.com/us/Company, accessed 17 February 2003.

and time should be dedicated to these tasks. Monitoring periods must be explicitly designed into the work plans so that people have time to determine if the decisions and actions led to success and to make adjustments when they did not.

Every organisation should establish repositories where qualitative and quantitative data related to sustainability efforts can be stored. Summaries of performance should be published regularly. These reports should be shared with employees, regulators and stakeholders to stimulate discussion and to foster continual improvement.

Governance measurement systems

Two strategies are available to measure the progress of new systems of governance. The first is a qualitative approach. Written surveys, focus groups and other tools can be used to gather hard data from employees and stakeholders to measure the results of your governance strategy. This approach can require the help of consultants.

However, consultants are not needed. A quantitative model can also be used. This process relies on methods previously discussed. The team that helped to form the original governance-change strategy can periodically meet to evaluate its progress. Because opinions about the effectiveness of governance systems depend heavily on the underlying values and assumptions of employees, in-depth qualitative reviews often work best. Team members can review stories, case studies and other information to assess the strengths and weaknesses of the changes in governance that are instituted.

No matter what approach a team uses, continued evaluation of the degree to which proposed changes in governance have occurred and the effectiveness of those interventions is vital to ensure continued learning and improvement.

Develop implementation plans

After members of the team address the previous questions, implementation plans can be crafted. This is the time to answer the question: 'When, where and why should the actions take place?' Detailed work plans, timetables, personnel assignments and sufficient resources should be allocated to ensure that both the operational and governance-change strategies are effectively and efficiently implemented and monitored.

Implementation is often where organisations fall short. Lots of good ideas are generated. But poor follow-through sandbags implementation. Continued attention and support from senior executives is one key to effective execution. Leaders must make clear that the sustainability plans are top priorities through their statements, walking the talk and demanding accountability via actions such as requiring regular status reports. As will be discussed in Chapter 11, fostering continued learning and innovation and generating short-term wins are also keys to ensuring effective implementation.

Examples of sustainability strategies

Although the following organisations may not have followed the process described above precisely as described, they have adopted sustainability strategies that embody many, if not all, of the key elements and principles.

Henkel

Henkel, the international producer of home care, personal care, adhesives, sealant and surface treatment products and services, adopted a strategy to differentiate itself from its competitors based on its ecological and social performance. Henkel believes it can generate competitive advantage through sustainable products.

To implement its strategy, the company adopted globally uniform standards for all Henkel affiliates that address the entire life-cycle of products, from raw materials through the development and production phases to final disposal. Each specific feedstock must receive approval before it can be used. Approval is based on environmental, worker and consumer safety standards.

The standards helped Henkel take numerous steps to reduce its environmental impacts such as shifting to plant-based feedstocks as well as recycled materials whenever possible. Vegetable-based detergents, for example, have been found to reduce environmental impacts associated with the use of fossil-fuel-based products and also save time and energy in the production process because they are simpler to use. The company also expanded programmes to retain control over its products by providing services rather than selling substances. The goal is to reduce the use of chemicals and increase recycling.

To make the shift to this new strategy, Henkel made a decision to empower its employees to assume responsibility for company actions and performance. It seeks to develop 'a culture of trust, mutual respect and open-mindedness'. To achieve this end, guidelines, principles and objectives have been adopted to guide decision-making. The company has also made a concerted effort to flatten its hierarchy, decentralise decision-making and continually improve employee skills and understandings.

The three levels of audits performed by Henkel lead to environmental performance targets for each division and facility. Financial bonuses are now linked with performance in meeting these targets.

A code of conduct has been adopted, which is binding for all employees. It addresses environmental and social responsibility issues. Detailed social standards, aligned to the expectations of its customers and stakeholders, are in the development process. Henkel makes a concerted effort to obtain feedback from stakeholders because it says that 'this is the only way to harmonise the needs of business and society in the long term'.

Employee education and training programmes are continually offered to expand understanding and build skills, which includes topics such as 'mankind and the environment'. Specific actions are taken to facilitate idea sharing between product designers, engineers, safety staff, human resources, and health and environment staff.

Senior executives at Henkel believe that moving toward sustainability requires a systems approach. 'You need to look at the company and products from a holistic

perspective, not one piece at a time,' says Dr Michel Bahn, director of corporate sustainability management at Henkel.[17]

Herman Miller

Herman Miller has adopted a vision of becoming a sustainable business. To achieve its vision, Herman Miller adopted a strategy of reducing and eliminating environmental impacts throughout the entire company. Goals and targets were set in seven areas. Box 9.2 describes the goals and targets for 1999–2001.

- Energy conservation: 3% reduction in sum of BTUs plus watts per $1,000 of sales (enough energy savings to operate six fast-food restaurants for one year)
- Product design: complete a life-cycle analysis (LCA) on 100% of all new products
- Hazardous waste emissions reductions: 10% reductions in total pounds per $1,000 of sales (enough to fill 630 55-gallon drums)
- Transportation impacts: 5% reductions in gallons of fuel used per $1,000 of sales (enough to keep eight trucks on the road for a year)
- Environmental education: develop and promote environmental education
- Solid waste reduction: 8% reduction in total pounds per $1,000 of sales (enough for one football field of waste filed 45 feet high, based on level of sales over a one-year period)
- Green buildings: incorporate sustainable construction practices in new and existing buildings relative to US Green Building Council LEED programme standards
- Air emissions reductions: 3% reductions in total pounds per $1,000 of sales (the amount of VOCs in 33 cans of spray paint

Box 9.2 **Herman Miller goals and targets 1999–2001**

An iterative process is used to understand the environmental footprint of the company. Teams continually dig deeper and deeper to identify potential environmental impacts of materials and products.

The 'design for the environment' (DfE) product development team, for example, started the process by coming up with their own specifications, such as 'don't glue things together if you can use screws'. Version two of the process made the initial specifications into a standard checklist for product development. The checklist was also expanded to include material content, meaning that teams 'not only look at the difference between aluminium and steel but also what's in the aluminium and steel'. The checklist is provided to suppliers so that the company can identify the materials in the feedstocks it purchases. The goal is to identify problem areas and incorporate environmentally friendly materials and manufacturing processes into new product designs. 'If there is any material harmful for the environment, we keep trying to find other ways to do it,' says Paul Murray, environmental manager at Herman Miller.[18]

17 Case study based on personal communications with Dr Michael Bahn, 20 August 2002, and the Henkel website, www.she.henkel.com.

18 Personal communication, 28 April 2001.

The results of this operational strategy are impressive. For example, the company switched from solvent- to water-based stains on all standard veneers, a process that has yielded greater colour consistency and fewer VOCs (volatile organic compounds). A new state-of-the-art metal-finishing system in Georgia uses autodeposition to apply a high-quality finish on metal components. This process has fewer stages, requires less equipment, uses less energy, has minimised solid waste and yields very low or no VOCs compared to the former system. The company's 'Reaction', 'Aside', and 'Limerick' chairs are now 100% recyclable, as is the 'Ethospace' frame. The 'Q System' frame is 99% recyclable. Herman Miller purchases only sustainably certified wood products. Staff members are sent to logging sites to verify that harvesting practices are environmentally sustainable. Many other improvements have been achieved.[19]

To implement this strategy, Herman Miller adjusted its governance system to further empower employees to take responsibility for the environment. The company has always valued the environment. It also was an early pioneer in participatory management. When Mike Volkema took over as CEO in the mid-1990s, he expanded the core values of the company and made sustainability one of the five top principles. The company then set out to make sure that every employee was engaged in the process.

The extensive team structure developed by Herman Miller involves employees throughout the company in designing new ways to approach environmental issues. Decision-making is decentralised to the lowest level possible. People are rewarded when they produce better-quality products with reduced environmental impacts. Paul Murray says that:

> At Herman Miller, leadership ends up as governance and vice versa. If we do this correctly, we will have dynamite products that will sell better. If our products sell better, our business will go up. If the business goes up, employees and stakeholders benefit. Because we share the benefits, every employee benefits from increased sales and reduced costs due to less energy use and packaging and other savings our environmental programmes produce . . . Total environmental savings on energy and packaging alone is conservatively estimated to be in the millions of dollars.[20]

Starbucks Coffee Company

Starbucks Coffee Company has taken a number of steps to improve its environmental and social performance. The company's operation-change strategy is to reduce its environmental footprint throughout its entire supply chain 'from coffee bean to coffee cup'. An assessment of the entire supply chain was completed using The Natural Step framework. Ben Packard, Starbucks director of environmental affairs in the corporate social responsibility department, says that the goal was to 'map all major material flows and operations, assess the relative impacts of the

19 Personal communication with Paul Murray, 28 April 2001, and Herman Miller website, www.hermanmiller.com.

20 Personal communication, 28 April 2002.

various operations, and establish forward-looking performance measures and goals for each part of the enterprise.'[21]

Four goal areas were initially established: (1) coffee, tea and paper sourcing; (2) transportation impacts of people and goods; (3) electricity, gas and water use; (4) store design and operations. Starbucks identified ways to measure performance and developed specific initiatives to reduce its footprint in each area. (The latter two goals were eventually combined due to their interrelationship.)[22]

For example, Starbucks company-owned stores offer a line of Commitment to Origins™ coffees, which include certified shade, organic and fair-trade offerings as well as coffees made available through direct relationships with farms and co-operatives. Additionally, the company introduced coffee sourcing guidelines, a programme that rewards suppliers who meet important environmental, social, economic and quality standards.[23]

To support its operational strategy, Starbucks made a concerted effort to educate its employees, who are called partners, about environmental and social issues. The company has developed performance metrics based on The Natural Step's 'system conditions' which it uses to provide feedback to employees about the progress of its sustainability efforts. The educational programmes and metrics help employees understand what they can do in their job positions to support the company's sustainability efforts.

To help ensure that all partners/employees view the environment and social welfare as part of their job responsibilities, Starbucks has developed a governance system that equitably distributes power and authority. Partners/employees are encouraged to call the company to task for any action they believe is not consistent with the firm's guiding principles and to let one another know when they feel they are doing something good. The 'mission review' programme applies to every aspect of company operations, not just environmental and social issues. Two partners/employees staff the 'mission review' programme and partners/employees are guaranteed a response from management within one month after they submit a mission review. The ability to celebrate success and speak out about inconsistencies generates a feeling of empowerment among the members of the organisation.[24]

Chiquita

In the late 1990s, Chiquita, one of the world's largest fruit companies, embarked on a path toward enhanced corporate environmental and social responsibility. One key aspect of the firm's strategy was to ensure that stakeholders gained confidence in the company. To achieve this, Chiquita decided to use independent third-party verification of its environmental and labour practices.

The process began with an assessment of the environmental and social impacts of Chiquita's banana operations. After an eight-year $20 million initiative, all Chiquita-owned banana farms in Latin America achieved certification in 2000 by

21 Personal communication, 31 July 2002.
22 See Starbucks *Corporate Social Responsibility Annual Report* 2001.
23 Personal communication, 20 January 2003.
24 *Ibid.*

the Rainforest Alliance, an international non-governmental organisation, as meeting high environmental standards. The Rainforest Alliance now conducts annual independent audits of each farm in collaboration with the Sustainable Agriculture Network, a network of Latin American non-profit environmental groups.

Chiquita also adopted Social Accountability 8000 as its core labour standard. The firm includes NGO observers in the internal social assessments of its banana production divisions, and is pursuing certification to SA 8000 by accredited third-party auditors. While the journey to sustainability is just beginning at Chiquita and problems still exist, important progress has been made.[25]

Xerox Corporation

The adoption of the 'waste-free' vision in the early 1990s catalysed profound changes in operations, decision-making and culture at Xerox. Within operations, the adoption of the new vision 'caused implications all the way back to the initial design' of products and manufacturing processes. Eventually, product design changes were made in *all* products including design for energy efficiency, for remanufacturing of equipment and supplies, reduced machine emissions and reduced use of hazardous materials. To achieve these changes, employees were 'empowered to go look for dual benefits in their work—cost savings and environmental improvement', according to Anne Stocum, manager of environmental health and safety market support.[26] The 'Lakes' product development programme, for example, 'went to extensive lengths to get people to change their thinking' about how to design and produce products with little waste or pollution.

The shift in operations and thinking eventually made it necessary to change the culture surrounding the design process. Product and material design guidelines and standards as well as business processes were re-engineered to incorporate this new vision, numerous teams were formed, suppliers were brought into the process to understand and become involved with implementation, including the waste-free factory goals. The Lakes programme also developed a new environmental database to track every part with the new environmental standards.

The waste-free factory initiative resulted in significant cost savings as well as dramatic improvements in all environmental areas. It also further decentralised decision-making and increased employee morale. Says Stocum:

> Waste-free thinking is now pervasive throughout the company. Many employees began to feel good about their jobs because they were empowered to care for the environment and find ways to help the company. I did not go looking for this result; I just found it to be true when talking with a variety of employees from the factory floor to supervisors and managers. People feel proud of how our environmental efforts support our corporate values.[27]

To understand the business case for the environmental programmes, 'there was a heavy focus on documenting the savings associated with these initiatives . . .

25 Personal communication with Jeff Zalla, 1 August 2002.
26 Personal communication, 30 January 2003.
27 *Ibid.*

often reduced waste meant reduced costs,' says Stocum.[28] By the end of 2001, the initiative had produced 'several billion dollars of costs saved or avoided . . . The waste-free initiatives also led to the equivalent of 1.8 million printers and copiers being re-used or recycled.' In addition to the money saved from remanufacturing since 1991, a number of environmental outcomes were achieved:

- Xerox has kept 1.2 billion pounds of electronic waste out of landfills by re-using and recycling its products, a volume that could fill the Empire State Building three times. The company was able to re-use or recycle more than 90% of the 7 million cartridges and toner containers returned by customers in 2000 alone, preventing 14 million pounds from reaching landfills.
- Xerox's 200 Energy Star®-qualified products generated energy savings in customer locations of more than 800,000 megawatt-hours, enough to light more than 650,000 US homes for a year.
- Xerox eliminated most hazardous materials of concern. The company stopped using brominated flame retardants and mercury-containing switches and relays, and is phasing out all use of mercury and lead.

Xerox acknowledges that it learned many lessons from its efforts to achieve its vision of waste-free factories and products. For example, the new vision required that a new infrastructure be crafted along the firm's entire value chain. Xerox had to work with stakeholders such as suppliers to achieve a common goal. In short, the adoption of a new vision led to fundamental change in company operations, governance and culture.[29]

Analysing your strategies

An easy way to evaluate the clarity and effectiveness of your operational and governance-change strategies is to ask employees and stakeholders questions such as:

- Can you describe the types of environmental and socioeconomic problems the organisation generates?
- Can you describe the specific goals and targets it seeks to achieve to resolve the problems and attain its desired future condition of sustainability?
- Can you describe the ways in which the organisation has changed or is proposing to change its operations as a result of these new goals? How does this approach differ from the traditional strategies?

28 *Ibid.*

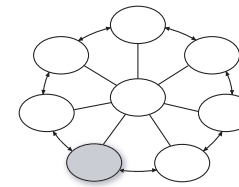
29 E. DeJone *et al.*, *Turning Vision Into Reality*, paper summarising the Lakes process written by seven Xerox employees; and personal communication with Anne Stocum, manager, environmental health and safety market support, 26 October 2001.

- Can you describe how the organisation has changed the way information is gathered and shared, decisions are made and resources are distributed in support of the new operational strategy? How does this approach differ from the traditional methods?
- What role does your unit, department or organisation play in the strategies? What is your personal role in implementing the strategies?

If employees and stakeholders describe, in their own words, that the new focus of the organisation is to design closed-loop production systems that phase out environmental and socioeconomic impacts, an effective operational-change strategy probably exists. If they describe new information flows, decision-making processes, power and authority relationships, and new ways that people relate to each other to transition to the new circular production model, an effective governance-change strategy exists. If people don't see major differences between the old and the new, however, continued strategy development is probably needed.

10

Shift the information flows of the system by tirelessly communicating the need, vision and strategies for achieving sustainability



Ben was intrigued about the new programme he had heard about. A task force had been organised to look at how the company managed environmental and labour issues. It was about time, thought Ben. The issues had caused problems for years. Pollution controls were costing millions of dollars and labour strife constantly slowed production. As a senior manager in the marketing department of a major US electronics manufacturing company, he also knew that customers were asking about the firm's environmental practices.

The task force announced its new programme with major fanfare. Employees were given time off late in the afternoon to attend a special kick-off event. The company CEO gave a rousing speech and the vice-president of manufacturing described the programme. A glossy brochure was then handed out describing the firm's new sustainability initiative. Ben was sure that big changes were in the works.

Unfortunately, Ben and his colleagues in the marketing department did not hear another word about the initiative for three months. Ben wanted to know what he should tell customers about the effort, but received no answers. After his frustration reached boiling point, Ben asked the manufacturing VP for an update. About a week later he was sent a memo outlining the project. This felt like a rebuff and convinced Ben that the sustainability initiative was not going anywhere. He went back to his department and told his fellow-workers to forget the programme. They needed to decide on their own how to respond to customer inquiries. Two months later, when he got another memo about the sustainability effort, he threw it away without much thought.

Inadequate information is one of the most dominant flaws I see in sustainability initiatives. Even when all other interventions have been successful, progress will

stall without the effective and consistent exchange of sustainability-focused information. Therefore, after transition teams have devised their initial strategies, the next key leverage point for change is to modify the information flows of the organisation. This requires a constant exchange of information about the sustainability initiative's need, purpose, strategies and benefits. Relentless communication is vital in developing broad understanding and buy-in among employees and stakeholders.

My experience is that most people believe they are effective communicators. In practice, however, I find that few actually grasp what sound communication involves.

In our modern world, people receive hundreds of information inputs each day. Today's edition of your local newspaper probably has more information than people living in the 17th century saw in their entire lifetime (NRC 1997: 13). It is just not humanly possible to respond to each input. Instead, people screen out the vast majority of the information blitzkrieg. Only those messages that are consistently heard and clearly important to daily life break through the clutter. The others go in one ear and out the other.

Unfortunately, sustainability practitioners often fail to understand that communication involves persuasion, and persuasion is possible only when you have captured attention. Without attention, people will not understand the need, vision and strategies of a sustainability initiative. Senior executives make proclamations, a few meetings occur, documents are distributed and a special event is held. These vehicles alone, however, are more often than not wholly inadequate to capture attention and instil a common understanding among employees and stakeholders.

Traditional communication techniques are insufficient to achieve these purposes because they are usually *passive* in nature. This is the most common communication style—and dominant mistake—of sustainability initiatives. Passive communication sends information one way. Messages are sent *from* senior managers or transition teams *to* or *at* others. People are *told* about the new sustainability vision, goals and strategies. They are not actively engaged in a way that involves them emotionally in the information. Passively conveyed messages are also difficult to understand. People often hear one thing even when the original intent of the message was something altogether different.

Effective communication, on the other hand, goes two ways. It *actively* engages people at an emotional level. Active communication personally involves the sender and receiver as information flows in a circular pattern from one to the other. The result is that sustainability visions and strategies become internalised as people ponder what these changes will mean to them personally. Stakeholders also become engaged because active communication is transparent. It opens the door to honest understanding and sharing.

Barriers to effective information exchange

A number of barriers stand in the way of an effective flow of information. Some of the obstacles include:

Technical issues. Poor information flows are sometimes the result of technical problems. Inadequate access to information, for example, may leave people out of the loop. If these problems are primarily related to a lack of technical access to information, they can be easily resolved by getting people plugged in to the Internet, internal intranet systems and other new information technology systems.

Inconsistency. More often than not, poor information flows are the result of more than technical problems. Inconsistent words and actions by senior executives, for example, are serious causes of confusion. When the CEO, governor or department director says that sustainability is a top priority but then hires a key senior executive who is unsupportive, the best-constructed change efforts will be placed at risk. Even if more information is shared, employees and stakeholders will become cynical of their sincerity. The most committed followers soon hesitate to stick their necks out and the old culture quickly coalesces to resist change.

To avoid this type of backlash, senior managers must work diligently to walk the talk and consistently reinforce their words with actions. When inconsistencies occur, they must explain them immediately and make a public vow to do better in the future.

Lack of interaction. Insufficient involvement is another prime cause of poor information flows. When people have little or no opportunity to discuss a new concept or a problem, things can fall apart quickly. Similar trouble occurs when stakeholders don't have the opportunity for interaction about a sustainability effort. Information gets misconstrued, small misunderstandings grow into major rifts, and suspicions and hostility grow. As resentments swell, people become less and less interested in working together.

Explicit steps must be taken to avoid the destructive pattern of escalating misunderstandings. Steer clear of fuzzy, ambiguous language. Openly share assumptions. Continually ask what transition team members need in order to do their work more effectively. Engage stakeholders in meaningful dialogue. Utilise the art of paraphrasing: listeners share a summary of what they thought a speaker said to ensure they accurately understand the intent and content of the message. Paraphrasing is a form of active listening that builds goodwill and trust.

Secrecy or fear. While technical gaps, inconsistent signals and lack of interaction are problematic, they are usually easy to spot. When poor information flows are the result of secrecy or fear, the problems are hard to detect and more difficult to resolve. Often, organisations fail to gather or share information for fear that the results will prove to be unfavourable. The unwillingness to gather key data, selective dissemination of information, or the spread of half-truths can lead to persistent rumours, mistrust and perceptions that the organisation is engaging in nefarious activities. When this occurs, normally straight-shooting employees may clam up due to concerns about the potential negative consequences of talking freely. Thus, communication stops. Stakeholders may decide to attack the organisation in public, even if they don't have data to back up their claims. Sustainability initiatives suffer when mistrust persists.

To prevent unneeded suspicions from growing, explicit plans must be developed early on to inform employees and stakeholders about the purpose, vision and strategies of the sustainability initiative, about how the organisation will change and how the changes will affect them. The communication plan must address issues such as how information will be gathered and distributed, how decisions will be made and how scrutiny and feedback from employees and stakeholders will be handled. These issues must be relentlessly discussed so that people remain clear and problems are avoided.

> It's never easy. No one is born knowing this stuff. There are always people who never get it or never spend the time to grasp what we are doing. You can never get everyone, but you need to make a big effort,

said Ray Anderson, chairman and former CEO of Interface.[1]

Keys to good information

Understand your audience. The starting point for improving the flow of information is clarity about the culture of the your organisation and the stakeholders you want to communicate with. Gather as much information as possible about the existing attitudes, beliefs and behaviour of your audience. Surveys and focus groups can be used for this purpose. The purpose is to assess the receptivity of people to sustainability, to uncover the types of information that will break through the clutter, and to craft messages that will elicit the greatest support.

Your messages must slightly expand the overall beliefs, attitudes and experiences of your audience. If the words and images you utilise are too far outside the experience of the audience, they are likely to be ignored or rejected. The information you share should slightly move the attitudes, beliefs and behaviour of your audience beyond their current state. This is the only way to generate change. Information that slightly exceeds the traditional mind-set of the audience has a high likelihood of success. Dumbing down your information to make sustainability sound similar to existing activities (that is, business-as-usual), or, contrarily, making it sound like an enormous immediate change will likely cause it to fall flat.

Keep in mind that you will undoubtedly need to exchange information with many different audiences. Each unit of the organisation and each stakeholder group may have a different culture and therefore require different forms of information (McKenzie-Mohr and Smith 1999: 87-88). People concerned about finances, for example, will respond to hard numbers. Talking about changes in chemical compositions may cause an accountant to quickly tune out the discussion.

Frame your messages carefully. Following from the above, the way a message is framed determines its impact. As discussed in Chapter 6, both the threat that losses will occur without a constructive response and an empowering message that by working together the problems can be resolved are needed to elicit a positive response (McKenzie-Mohr and Smith 1999: 91-92).

1 Personal communication, 9 October 2001.

Keep it simple. Sustainability is a difficult concept for many to grasp. It becomes even harder when complicated scientific terms or technical jargon are used. To help people understand and embrace the change initiative, keep information straightforward and easy to understand. Avoid the use of heavy scientific and technical terms. Specific, simple descriptions of problems, coupled with action that can be taken to resolve them, are more easily understood than multi-level information.

Make it important and memorable. Beliefs and thought patterns that are inconsistent with sustainability have become embedded in organisational culture through continued reinforcement over time. Changing culture therefore requires that people adopt new beliefs, attitudes and behaviour, and give up others. This requires that people remember your message and believe that it is important. The ability to account for the role that memory plays is critical to successful information-exchange efforts. Unless you make it simple for people to remember what they should do, why they should do it and when it should be done, your information is not likely to succeed (McKenzie-Mohr and Smith 1999: 94-95). Putting sustainability first on the agenda at staff meetings, ensuring that it is a key element of every speech given by senior executives, and many other actions, can make sustainability important and memorable to employees and stakeholders.

Employ catchy tags, slogans and logos. One way to make information memorable is to use short straplines, catchy tags and slogans. These tools can translate complex concepts into easily understood terms. Phrases such as 'waste free' or 'zero waste' provide graphic visual images. Anne Stocum, manager of environmental health and safety market support at Xerox, says: 'You need to have something to get people thinking the same way. Concepts like "zero waste to landfills" and "waste-free factories" resonate with our workers.'[2] Even if your sustainability effort goes beyond traditional concepts of solid waste, terms such as these help people begin to think and act in new ways. Slogans such as *Journey to Sustainability* that The Collins Companies uses to describe its sustainability initiative and logos that accompany the slogans also help to highlight a sustainability-change initiative and make it memorable.

Figure 10.1 The Collins Companies 'Journey to Sustainability' logo

Be relentless. Another way to make information memorable is to exchange it relentlessly. Start early and make sure that every aspect of the sustainability-change initiative is continually shared with everyone in the organisation as well as appropriate stakeholders. Keep repeating the message long after you think you should stop. A one- or two-time shot never works. People need to hear the details of the sustainability initiative over and over again through multiple channels. Lack of total and continued communication will leave some people unhappy and others in the dark. For example, learning about the elements of a major change initiative from colleagues or outsiders (such as the media or suppliers), rather than

2 Personal communication, 21 October 2001.

from leadership, will immediately raise hackles and suspicions. My experience is that most sustainability efforts vastly under-communicate their efforts.

The quantity and frequency of information about sustainability has substantially increased at Stena Metall. Peter Domini, head of business development, says that:

> Sustainability is not a project. It's a process that will go on for years. There will be no end to it. There is no month that our people don't get information about our changes. They are also beginning to get lots of questions from customers and others about our efforts. So, the information we produce has risen about 100%.[3]

Be transparent. Selecting the information that people will receive based on what you think they 'need' to know about a sustainability effort usually creates negative consequences. People become suspicious of why they know or don't know things that others have learned. Employees will fail to understand how their tasks fit into the broader strategy. Without broad understanding, people will not feel committed to the overall initiative. Stakeholders will question the sincerity and honesty of the organisation. If people clearly understand the reasons for the change, how the vision and strategies have been produced, what the outcomes will be and what their role will be in the new structure, they are much more likely to involve themselves enthusiastically.

Be interactive, not didactive. Employees and stakeholders have a much greater chance of grasping the meaning and focus of a sustainability initiative through interaction rather than through one-way information flows. The continual use of hands-on training sessions, study and planning meetings, open houses and interactive special events will help people intellectually and emotionally understand the change programme.

Highlight successes. As discussed in the next chapter, sharing successes—especially those that demonstrate the economic, social and environmental benefits of sustainability—reinforces the understanding and importance of the initiative. At each semi-annual all-staff meeting, Nancy Hirschberg, vice-president of natural resources at Stonyfield Farm, provides information showing how revenues and thus employee profit-sharing have increased due to reduced energy use and waste generation.

Keep it fresh. People expect things to change over time in an organisation. Employees and stakeholders observe changes that occur. When transitions are not acknowledged in a timely manner, people conclude that the sustainability initiative is no longer a high priority. During my research the number of websites that had not been updated for months or even years continually surprised me. To avoid the perception that progress has stalled, keep information fresh and timely.

Use symbols, heroes and stories. As previously noted, communication is often most powerful when it is symbolic. Symbols paint a metaphorical picture of change. Ceremonial events, changing personnel titles, promotions and demotions, rearranging the physical layout of facilities and even altering the name of the organisation or department can be compelling gestures. Telling stories about the success

3 Personal communication, 7 October 2002.

of others and creating heroes out of early sustainability pioneers or current employees can inspire people. When Xerox changed its strapline from a copier company to 'the document company', for example, it signalled a fundamental shift in its vision and strategy. Aveda, the personal wellness firm, made a strong statement about its commitment to sustainability by opening organic restaurants, called Organica®, at its corporate headquarters and Minneapolis Institute.

The use of symbolic communication is usually free. Leaders must keep a constant eye open, however, for opportunities. Openings usually come along unexpectedly and they must be quickly jumped on before they disappear.

Be a straight shooter. People want to hear the truth. Don't oversell or undersell the initiative. Share good news and don't gloss over problem areas. Give people the facts about bad news as soon as possible and thoroughly explain why it occurred. Explain how the problems will be remedied.

Have fun. Last, but not least, make your information fun. It is a well-known fact that laughter actually has a physiological affect on the body. Laughter releases endorphins that relax the body and make people more open. In stressful times, our usual response is to tighten up. This is exactly the wrong response when clear thinking is required. People need to become more relaxed. Laughter is essential to create these conditions. The more fun that you build into your information-exchange methods, the more likely people are to relax and engage emotionally. Play games, laugh and find enjoyable ways to tell your story.

Larger organisations may benefit from the help of the marketing department when crafting information and communication strategies. Smaller organisations without access to internal marketing resources can ask local universities or non-profit organisations for inexpensive help.

Altering information flows

Sustainability information flows can be improved through a number of vehicles. Choose your methods and timing carefully. Personal interaction is always preferable to written documents. Ideally, a combination of the methods discussed below should be pursued.

Leaders must lead. Senior executives, department directors and other change sponsors and agents must take an active role in sharing information about the sustainability initiative. The visible involvement of those with primary responsibility is essential to show that the effort is a priority for the organisation. Leaders must continually highlight the initiative in speeches, informal interactions with staff, written statements and at special events. Ray Anderson, chairman and former CEO of Interface, saw great importance to giving a series of speeches to employees and stakeholders about the company's need to achieve sustainability. As soon as people believe that senior executives have gone silent on the issue, progress is likely to stop.

Department, unit and transition team meetings. Ongoing discussions with employees are vital for explaining the initiative, airing problems, and brainstorming ideas

and solutions. 'We talk about our purpose and our four core values a lot,' said Jil Zilligen, vice-president of environmental initiatives at Patagonia. 'We hold information sessions for all employees about every two months. The senior management team keeps people up to date on what's going on. We also hold ongoing discussions about our core values with employees across the globe.'[4]

Stakeholder transition team meetings. Constant meetings and discussions with stakeholders are often critical to the success of a sustainability initiative. Share hard data, openly discuss successes and failures, and seek and give candid feedback. As discussed at the close of this chapter, Chiquita made open and honest communication with stakeholders a key part of its plans.

Media. Media coverage can be a powerful communication tool. Articles in magazines and local newspapers alert the public to change and make it real for employees. Pieces in internal newsletters and on organisational websites, specialised videos and other vehicles also can signal and explain the change initiative. Herman Miller sends every employee monthly videos on different issues, and environmental topics are always included. The Collins Companies started a monthly corporate newsletter, *Journey to Sustainability,* which includes updates on the firm's sustainability efforts.[5] SCA, the forestry and paper products company based in Sweden, produces four magazines for customers, one for suppliers, and a number of internal magazines that explain the hows, whys and benefits of its sustainability efforts.[6]

Newsletters and annual reports. Corporate responsibility reports, environmental summaries and other semi-annual or annual reports are good sources of information. Starbucks, IKEA, as well as many other firms, produce annual corporate responsibility reports. The Dutch government widely distributes semi-annual updates on the progress of its National Environmental Policy Plan, as do many other government programmes. The Global Reporting Initiative (GRI) developed by the non-profit Coalition for Environmentally Responsible Economies (CERES) in partnership with the United Nations Environment Programme, provides a comprehensive model for reporting on 'the triple bottom line' of sustainability: economic, environmental and social issues. IKEA's information systems, discussed in more depth at the end of this chapter, include an intranet system that distributes information and offers online training about sustainability. In addition, IKEA produces an internal newspaper called *Read Me* which carries information about sustainability. During the summer of 2002 a special edition was published called *Save Me* which highlighted and explained the company's environmental, labour and social efforts.

Signs and postings. Expectations can be reinforced through posters, signs, slogans and other postings that continually remind employees of desirable thinking and behaviour. This method is widely used by the leading public and private sustainability organisations.

Training seminars. Because sustainability is so new to many people, educational and training workshops are important vehicles of communication. Seminars and

4 Personal communication, Jil Zilligen, 3 July 2002.
5 Personal communication, Jim Quinn, April 2001.
6 Personal communication with Björn Lyngfelt, SCA vice-president of communications, 20 August 2002.

workshops in The Natural Step, biomimicry and eco-effectiveness (and sustainability-change management!) help people grasp the vision and strategies at an intellectual level. The Collins Companies hired a Natural Step trainer to spend a week educating employees about sustainability at its Klamath Falls, Oregon, manufacturing facility. This experience was critical to launching the sustainability efforts at the plant.

E-mail and other IT vehicles. Weekly updates, reminders and a continued stream of tidbits of interesting information can keep the issues on the front burner for employees and stakeholders alike. The City of Santa Monica, CA, has an internal 'E-desk' intranet system for employees, where regular updates about the sustainable community programme are posted.

Celebrity speakers. Speaker series involving well-known authors, CEOs, elected officials or public administrators, non-profit activists and others with expertise in or a unique take on sustainability can be educational and inspiring. Stonyfield Farm invited a farmer to speak to employees. He brought his financial statements to the meeting to show everyone how tough it was for him to make a living in farming. 'People really got it and are now committed to helping the family farmer,' said Nancy Hirschberg, vice-president for natural resources.[7]

Special events. A regular schedule of events such as award ceremonies, open houses and tours to outstanding sustainability programmes helps to reinforce the message. These programmes also re-energise people. The Santa Monica, CA, Sustainable City programme incorporated sustainability into the annual Santa Monica community festival. One of the reasons for this change was that the event took place around Earth Day.

Interface's approach to changing the flow of information

When Ray Anderson of Interface launched his firm's efforts, he placed a major emphasis on changing the information flows to highlight sustainability. Anderson reinforced his message of environmental responsibility at almost every staff meeting with the message that 'Interface must take the lead in leading business toward sustainability.' Anderson and his staff published numerous articles and books and distributed them to internal staff and the public.

Interface instituted an annual executive communications programme where Anderson spends a full day with senior managers talking about issues such as their shared values. The executives then spend a day with their staff discussing the issues, who spend a day with their staff. The process continues until employees at all levels of the organisation discuss the issues and their values. The top ten shared values identified throughout the company are then dispersed company-wide. The values always have sustainability at their core. Anderson says that, 'Sustainability has become the language of the company.'

Anderson also made a major commitment to sharing the Interface story with the public:

7 Personal communication, 5 July 2002.

> My public speaking is perhaps more effective than the internal speaking. As the public began to learn about our commitment to sustainability, our image began to lift. Our customers have gradually learned that one of the best ways for them to reduce their environmental footprint is to purchase from companies that have reduced their footprint.[8]

By changing the external flows of information, Anderson helped save the firm money, make money and develop a customer base that can help in tough economic times.

> We know this helped to increase sales by many millions of dollars, although we can't tell you exactly how much because so many other factors are involved. Our sales people tell us they get business from customers who like our environmental programmes. As a result, the sales staff became even more committed to sustainability. A commitment to sustainability does not make a company immune to the business cycle. But the thing that will pull us through tough times is our customer loyalty, and much of this is due to our commitment to sustainability.[9]

Information exchange at IKEA

Executives from IKEA admit that the exchange of sustainability information has been one of their weaker areas. 'We have been very low-key. Too low-key in fact, because may of our workers are not trained yet. But, we wanted to be careful before we went too far to know what we wanted to share,' says Thomas Bergmark, IKEA's social responsibility manager. However, the company is now making a concerted effort to enhance its information flows. 'We are now upgrading our communication efforts. So far, communication has been basic trainings for local environmental co-ordinators. We have trained the trainers. We are now having the different units do their own trainings, focused on their own needs,' says Bergmark.[10]

Transparency and communication at Chiquita

The value of changing the flows of information can be understood through Chiquita's efforts to adopt a sustainable path. As it developed its sustainability strategy, the firm made two key decisions that had profound impacts. Chiquita decided to adopt verifiable standards that were good for labour and the environment as well as the firm. In addition, the company decided to communicate in an open and honest manner. While both decisions were important, the latter was perhaps the more critical.

8 Personal communication with Ray Anderson, 9 October 2001.
9 *Ibid.*
10 Personal communication, 26 November 2002.

Said Jeff Zalla, Chiquita's corporate responsibility officer and vice-president of corporate communications:

> Much of our improvement comes as a result of this decision. It meant the firm would become transparent. The decision to be open and honest also meant that the company would talk with critics on a regular basis to hear and respond to concerns . . . When critics appear, instead of just dismissing them and their point of view, you need to hear them out, rigorously examine your performance, and make improvements.[11]

Chiquita now publishes an annual *Corporate Responsibility Report* that includes candid information about the strengths and weaknesses of its efforts. A bi-monthly corporate responsibility newsletter began publication in 2000 with information about company operations across the globe. Zalla said, 'Any stakeholder interested in our social or environmental performance can now regularly read about our progress.'

The July 2002 issue of the newsletter, for example, discussed many of the projects Chiquita is involved with. It also included an article about an April 2002 report issued by Human Rights Watch (HRW) criticising five banana companies, including Chiquita, for the poor labour practices of their suppliers in Ecuador. The newsletter included a statement from the president of Business for Social Responsibility, urging Chiquita to heed the advice of HRW and do more on labour issues.

Chiquita was the only banana company to provide a complete and fully transparent response to HRW's questions (noting in part that its primary supplier is also certified to the Better Banana Project standards), it initiated a dialogue with HRW and the firm made a public commitment to address the issues.

Chiquita's new approach to communication did not immediately fix all of its problems. It has, however, significantly reduced the number of complaints the company receives about its labour practices. In addition, when problems do appear, such as those that occurred in Ecuador, they are much more likely to be worked out collaboratively. 'If you know the goals you aspire to and know what your targets are and are open to being measured by independent third parties, then why not meet and communicate openly with people,' concluded Zalla.

Analysing your organisation's information flows

An easy way to assess the effectiveness of your efforts to change the flow of information about sustainability is to ask employees and stakeholders questions such as:

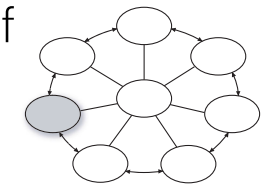
11 Personal communication, 1 April 1 2002.

- In your own words, can you explain the vision, goals and strategy of the sustainability initiative?
- How often do you hear about the sustainability effort?
- In what forums or media do you hear about it?
- Do you believe the CEO, senior management and the transition teams are serious about achieving sustainability? Can you say why you feel this way?

If people respond to these questions with statements such as 'I heard something about it a while back, but not recently', it's a good bet that your efforts are plagued by insufficient communication. If stakeholders respond by saying things such as, 'It is just a bunch of words. They say they are going to do better but then keep emitting tons of pollution and squeezing the last dime out of workers', your effort has not been effective. When these types of problems exist, revamp your plan of attack so that the clear, relentless exchange of information becomes the norm.

11

Correct the feedback loops of the system by encouraging and rewarding learning and innovation



Ficus trees were once a major problem for the public works department in Santa Monica, CA. Rainwater congregates under sidewalks and the large roots of the trees migrate to these moist locations, breaking up the concrete. As a result, the department traditionally worked year-round digging up broken sidewalks, carting the cement off to landfills and pouring new pavement. Not only was this costly, it generated tons of waste.

However, *Ficus* trees are no longer a major headache. An employee in the street maintenance department came up with the innovative idea of covering sites that had been cracked by tree roots with two-inch-thick recycled rubber mats. One person can put the mats in place, compared to the five or more that were needed to jackhammer, remove and replace cement. Less concrete is needed and much less waste is generated, all of which has saved the city time and money and reduced its environmental impacts.

Years ago, ideas such as this would never have surfaced. Many public agencies are risk-averse. The director of the public works department, however, encouraged his employees to be innovative. The director stood by his words. He made it safe for employees to try new things, even if some end in failure.

Accolades were heaped on the worker who solved the *Ficus* root problem. The public works director publicly thanked him. A piece about the employee was written in *Wave Lengths*, the City's employee newsletter. A newspaper article was even published in the *Los Angeles Times*. People who do innovative things clearly get support and recognition in this department.[1]

The public works director's approach vividly describes some of the critical elements involved with overcoming barriers and attaining continued progress toward sustainability. Once operational and governance-change strategies have been

1 Personal communication with Dean Kubani, 8 August 2002.

developed and implementation begins, even with enhanced information flows, barriers will surface. To overcome obstacles, the organisation's feedback and learning mechanisms must be altered so that the skills, knowledge and understanding of employees and stakeholders continually expand. As understanding grows, people will find ways to overcome the barriers.

The adoption of new learning mechanisms is the sixth-greatest leverage point for change in a social system because it alters the traditional feedback systems that are oriented toward maintaining the status quo. The leverage point answers the question: 'From what means will we learn?'

New feedback and learning mechanisms help overcome the barriers to sustainability

Before discussing learning mechanisms, it may be helpful to highlight some of the common obstacles sustainability initiatives seem to encounter. My research found that the most universally shared obstacles are financial, data, staffing and policy issues.

Financial barriers

Many people believe that it costs more to manufacture products and deliver services in an environmentally and socially sound manner. While it is true that upfront investments are often required, I found that cost is not as big a barrier as commonly thought. That's not to say that financial challenges don't exist. But the constraints are similar to those associated with the development of any new product or service. The issues are not particularly unique to sustainability. Further, as discussed in Chapter 4, a growing stream of evidence indicates that the right mix of policies and actions, if deftly implemented, can not only reduce the costs of achieving sustainability but can frequently produce a net economic benefit.

Research and development cost money. Organisations understand that R&D is an investment made today in the hopes that a major pay-off awaits down the road. Much of the investment may not be recouped at all, and certainly not until a product or service is found that captures significant market share. This is common in all fields.

When new products or services are finally offered in the market, costs are generally higher than existing goods. This is usually a function of limited supply and a desire to recapture the costs of R&D. As more is produced and economies of scale are found, costs come down.

Similarly, any new approach requires an investment of time and energy. People must learn new skills, new suppliers and distributors must be found, and new plans must be crafted. Organisations will pass these costs on to their customers when possible. But the excess costs are usually short-lived.

I found this to be the case when completing a study of 'green building' in the Pacific Northwest. Because architects engaged in sustainable construction had to learn new design principles, they charged more for their services. Building contractors had to learn how to install new technologies (such as energy-efficient motors, lighting and windows). Additional time was also required to identify suppliers from which to purchase new products. Contractors consequently tacked on an additional 10–15% to their fees. Once the new skills and information were incorporated into everyday operations, the costs came down.

Dividing up scarce resources is a challenge for every organisation. There is never enough money available to pay for everything people want to do. Tough decisions must be made. Tasks must be prioritised.

None of these issues is unique to sustainability. Just as in any other field, to overcome the financial barriers that appear in the shift to sustainability, a stepped approach is needed. The normal investment process within public and private organisations requires this. Some investments are made today to produce quick results and others are aimed more at the long term. These principles apply to every challenge, not just those related to sustainability.

'One of the most frequent barriers we run up against is the lack of financial resources,' says Jil Zilligen, vice-president of environmental initiatives at Patagonia. 'We don't have unlimited resources. We decide what can be done immediately and then tier other actions to this because each action requires different resources. Our strategy is always stair-stepped.'[2] Xerox approaches the issues in a similar way: 'Some projects do not need a major capital investment so you can move forward quickly. But, if there is a significant capital investment, you need a tiered approach,' said Anne Stocum, manager of environmental health and safety market support at Xerox.[3]

Organisations that heed the words of Patagonia and Xerox will overcome the financial burdens to sustainability.

Data barriers

One of the most consistent barriers to sustainability I see is poor data. Reams of data exist within most organisations. However, mechanisms are often absent to turn the data into information that allows for the extraction of knowledge, understanding and wisdom.

Information is power. Without credible information, people cannot make good decisions. Those who have access to good information hold much of the power. Those without good information are powerless to respond effectively to problems or opportunities. Good data provides the foundation for credible information. Trustworthy information provides the basis for understanding. By generating good data and turning it into useful information, improvements can be tracked and understood and people can brag a bit about their progress or make adjustments when needed.

2 Personal communication, 3 July 2002.
3 Personal communication, 26 October 2001.

Generating the right kind of data is one key to resolving the information problem. Said Nancy Hirschberg, vice-president for natural resources at Stonyfield Farm:

> People at Stonyfield have access to all the information. The real problem is that we have too much data. We have to learn how to put the data into better formats. The people in operations are measured on quality and efficiency every day. Their bonuses are based on their performance. They understand this data. What they don't have good data on is how to improve their environmental performance.[4]

The lack of good data also plagues the public sector. The success of the Dutch government's National Environmental Policy Plan was made possible only because of the extensive data gathering and analysis completed by the Dutch National Institute of Public Health and the Environment (RIVM). RIVM's research led to the publication of *Concern for Tomorrow,* the first national environmental assessment. Prior to the release of the RIVM report, the Ministry of the Environment had little understanding of the status, trends or risks to the Dutch environment. RIVM's comprehensive analysis provided the critical baseline data needed to establish clear goals and targets and the policies needed to attain them.

The State of Oregon faced similar challenges in the late 1990s. Before Oregon governor Kitzhaber signed his Executive Order launching the state's sustainability effort, data about the conditions of the environment was fragmented by resource (water, air, waste) and agency (each department kept its own data). No credible comprehensive, integrated assessment existed to help decision-makers understand the status of the environment.

To provide the baseline data needed to set goals and targets for the governor's sustainability initiative, in 1997 a stakeholder group proposed that the state produce an integrated assessment of the conditions, trends and risks to the environment. I co-managed the project for the state. After more than two years of work, in 2000 the first *Oregon State of the Environment Report* was published. The assessment concluded that, if the State of Oregon wanted to accurately measure the sustainability of its environment, indicators and data-gathering mechanisms had to be dramatically improved. Completion of the environmental report led to an intensive follow-up effort to restructure data management and establish clear state-level goals and targets. Plans call for the report to be updated every two years (Risser *et al.* 2000).

One type of data that is particularly difficult to obtain is credible information about the environmental and social impacts generated by specific goods and services. The City of Santa Monica, CA, is urging its staff to purchase sustainable products. Most employees have now agreed to do so, but then ask: 'Where do we get them from?' Not many credible third-party evaluation mechanisms of sustainable products are available. It is therefore very tough to find the products they need. The city consequently decided to develop criteria on their own for sustainable products. This is not something the city wanted to do, as it is a very time-consuming process. However, staff members felt they had no choice.

4 Personal communication, 5 July 2002.

Small firms in particular, such as the Neil Kelly Company (the Portland, Oregon, home renovator), have a difficult time getting good information on the environmental and socioeconomic qualities of products. Julia Spence of Neil Kelly says that:

> We've had an ongoing search for products and distributors, for processes, and on and on. We have suppliers attend our regular staff meetings and present new materials with an 'environmental story'. We want to know the contents, the process, where they came from, who makes them, etc. We have gotten much better at 'grilling' those who would like us to use a particular material. We ask for and get information from places like Environmental Building Supplies, we attend trade shows, we read *Natural Home* magazine and lots of other trade and shelter magazines, we search the web all the time. This has been a big challenge and learning curve for us.'[5]

The Neil Kelly Company is doing an excellent job, for a small firm with limited staff, to generate credible data.

Improving sustainability data systems

Most efforts to improve data start with tactical questions: 'What databases do we need?' This approach usually fails to meet core needs and often leads to wasted resources. A more effective approach is to start by asking: 'What are we seeking to achieve and what do we need to know to measure our progress toward sustainability?' Once these questions are clarified, a strategy can be developed to put a system in place that gathers the right type of data in the right way.

The first step, therefore, in developing better sustainability data is to clarify strategic issues such as: What does the organisation want to learn from the data it gathers? How will the data be used and who will use it? How will it be organised and shared with the employees, decision-makers and the public? How will the system be supported and operate over time?

Clarity on these issues helps to ensure that data is used for practical purposes and is not just collected because somebody thought it might be useful. This will help identify the 'parameters' or objects that should be measured to assess environmental, social and economic trends over time. Parameters are usually called 'indicators'. The idea is to select the indicators that best describe progress toward or away from the sustainability vision and goals that have been established.

A number of points should be considered when developing indicators. First, both 'lag' and 'lead' indicators are needed. Lag indicators measure the effects of *past* human activities on the environment and socioeconomic conditions. For example, water and air quality data measure the effects of pollutants emitted in the past that have built up in the environment. Lead indicators measure activities occurring in society *today* that may eventually affect the environment or socioeconomic welfare in the future. For example, the amount of fossil fuel used today will influence the amount of greenhouses gases in coming years. Most organisations use only lag indicators. However, a mix of lead and lag indicators is needed.

5 Personal communication, 9 October 2002.

Once the strategic model has been developed, an operational framework can be developed to clarify the roles, responsibilities and relationships between different departments and personnel so that the data that is gathered meets everyone's goals. The way data should be gathered, secured and distributed, and the way various units of the organisation co-operate with other each other and external organisations must be clearly spelled out. The most important step is to develop clear guidelines and procedures to ensure that similar concepts, methods and indicators are applied and used within all levels of the organisation.

Once the organisational framework is clarified, the hardware and technical aspects of the system can be identified. Developing sustainability-focused databases is a complicated process. Clarity must be achieved on how the data will be gathered, how the databases will be managed, and how they will be integrated with other data and displayed.

The next step is to determine the exact contents of the system. To be useful, the contents must help inform the overall strategic model and meet the needs of the organisation as a whole. This is not as simple as it might seem. Focusing on 'products' when developing databases (defining the desired outputs in the form of reports or map-based presentations) is a way to make sure that data is used for practical purposes. Focusing on a few high-quality indicators and data sets is generally more useful than large quantities of less important data. Consideration should also be given to developing a hierarchy of data. Data should be gathered at different levels to make it easier to combine data and make better use of the existing data. An organisation-wide computer-based catalogue of databases can also be helpful.

Finally, once the key aspects of sustainability-based information systems are clarified, it will be possible to determine the human and financial resources needed to operate them. There must be enough dedicated personnel with the knowledge, expertise, experience and software tools at hand to do the job. Inventories of each of the databases should be accessible to all staff members.[6]

The Neil Kelly Company believes that good metrics are its 'biggest gap'. Julia Spence says:

> Since we work on hundreds of remodelling projects each year—in individual teams—done by 30 different designers and 8 project managers and 40 carpenters—and we do not have central purchasing because of the custom nature of our work, it is very difficult to track specifics overall. We have numbers in our related cabinet company about wheatboard use and the number of projects done with certified hardwoods, etc. We've talked about this repeatedly, and have attended some workshops on how to think it through for us, but we haven't determined how we really need to do it to get useful information.[7]

The investigative process used by the Neil Kelly Company underscores that the solution to the problem of poor information is to think carefully about how to design information systems that generate data relevant to sustainability. Managers

6 For more information on environmental data strategies, see DEPA 1997; RIVM 1996; IRM 1994.

6 Personal communication, 9 October 2002.

at Interface understand this point. 'We are changing our measurement systems. We are re-evaluating to make sure we are measuring the important things. The key is to count what counts,' said Claude Ouimet of Interface.[8]

The Swedish-based paper company SCA agrees that the key is to measure the most important issues. 'Our parameters are selected as a result of SCA's emissions and production. We choose to put our efforts where it has the best environmental effect,' says Bo Sandqvist, SCA's vice-president of public and environmental affairs.[9]

The US-based forest products firm, The Collins Companies, offers a good example of how to develop an effective data system. In 1998, the firm introduced The Natural Step to the 600 employees at its plant at Klamath Falls, Oregon. Its 'Journey to Sustainability' (JTS) initiative led to the development of teams focused on six areas: air, water, recycling, energy, adopt a highway, and employee/community awareness. The JTS core team, which oversees all of the teams, completed input– output assessments of their manufacturing processes and then developed eco-indicators for the water, recycling, energy and waste areas as well as a complex benchmark system divided into different levels. Figure 11.1 illustrates the process.

After much work, the JTS team decided to develop a less complicated standard. The result was a group of eight eco-indicators that cover most of the JTS team's key areas. Indicators were also developed to measure units of production. The indicators allow Collins to estimate the environmental improvements as well as cost savings in water, energy and waste since the beginning of the JTS initiative. Table 11.1 contains the refined set of indicators.

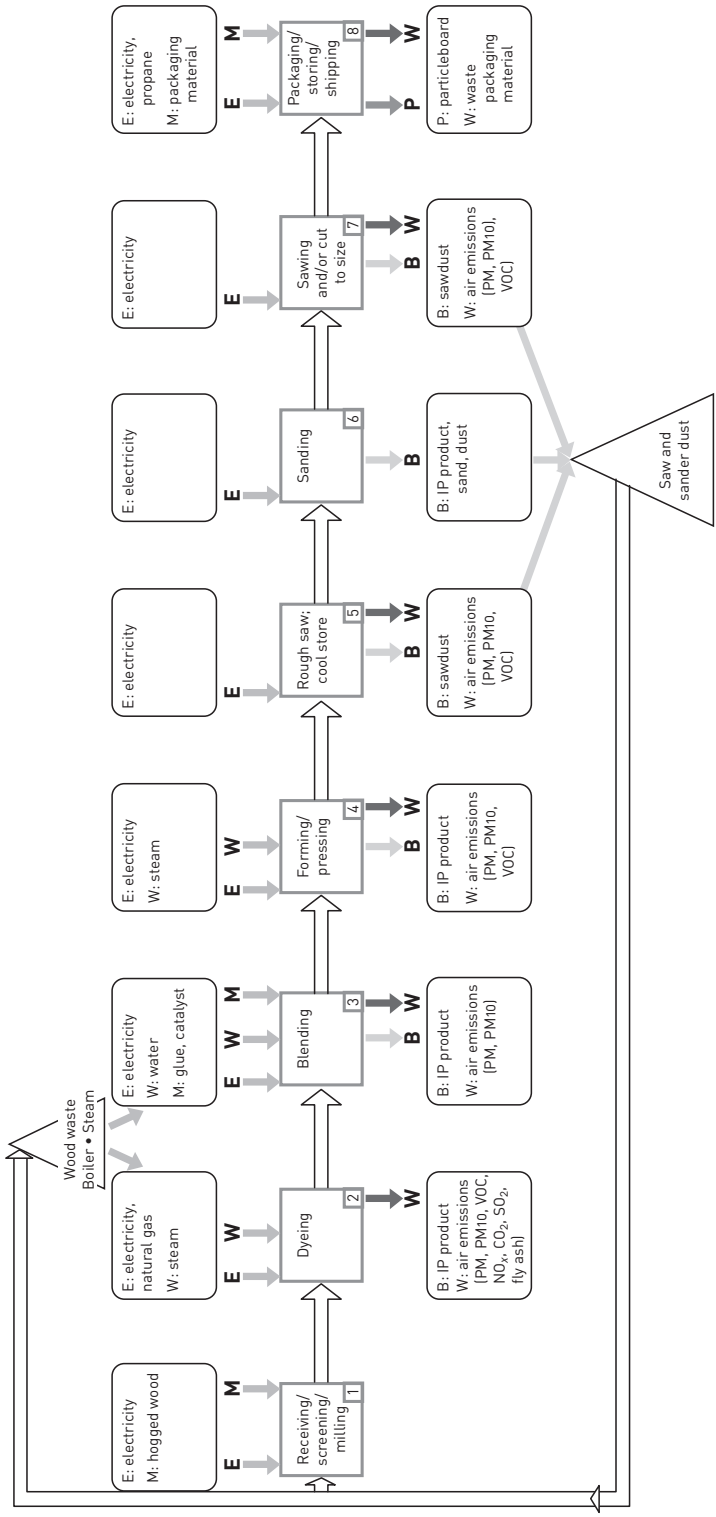
Staffing barriers

Poorly educated and trained staff and resistant managers are two common personnel issues that plague sustainability initiatives. Organisational effectiveness is heavily influenced by who its members are, how they are nurtured and how they respond to change. The top-performing sustainability organisations make it a priority to hire the right people and give them the education, training and opportunities needed to develop their full potential. They also rapidly cull out those who fail to make the grade.

Insufficient employee education and training can cause significant problems. Sustainability presents a new mental model for decision-making. Without sufficient education, people use flawed understandings and old perspectives that may be inconsistent with sustainability. This is equivalent to asking people to compete in today's high-speed environment armed solely with manual typewriters rather than computers. If ongoing education is provided, employees will be armed with state-of-the-art information and know-how.

Neil Kelly Company, the home renovation firm in Portland, realised that its staff needed extensive education and training. The first step the firm took was to send senior managers to a half-day Natural Step workshop. 'Our controller came back

8 Personal communication, 9 November 2001.
9 Personal communication, 8 November 2002.



B = by-products; CO_2 = carbon dioxide; E = energy; IP = in process; M = materials; PM = particulate matter; PM10 = particulate matter less than 10μ in diameter; SO_2 = sulphur dioxide; VOC = volatile organic compound; W = waste

Figure 11.1 **Initial particleboard manufacturing process input–output mapping and eco-indicators**

Aspects	Impacts	TNS system condition no.	Goals/targets	Eco-indicators	Metrics	Estimated value
Air	Air emissions increased risk; increased regulatory requirements; health effects	1, 4	Comply with healthy air quality	No eco-indicators in this area; Collins tracks some 10 HAPs including CO_2	Normalised to EPA reporting	N/A
Water	Potential impact on streams and increased regulatory requirements; habitat impacts	3, 4	Zero discharge to the river	• Industrial waste-water • Potable water • Sanitary water	Gallons of water from each industrial, potable and sanitary by month	Cumulative savings: $241,300
Waste	Zero particleboard (PB) and hardboard (HB) waste to landfills; garbage to county landfills	3	Maintain 0% industrial waste to landfills	• PB and HB waste to landfills • Waste to county landfill	Cubic yards	Cumulative savings: $2,759,891
Energy	Global warming through CO_2 emission; increased energy costs; use of renewable/non-renewable resources; water as steam used for production	1, 2, 4	• Reduce 15% CO_2 emissions by 2009 • Reduce 10% kWh per unit produced by 2010	• CO_2 emissions/plant and consolidated • Steam used/unit produced • kWh used/unit produced	Gallons, kWh, CO_2 tons	Cumulative savings: $798,366
Land use	Impact of operations on habitat, neighbours, community; impact of harvesting of raw materials on habitat	3, 4	Improve sustainable production of wood in all forestland	Monitoring and verification for the FSC certification involves different indicators	Wood inventory per acre	N/A
Awareness	Less environmental awareness of all employees translates into increased risk and reduced environmental performance	4	Reach more employees company-wide to use and collaborate with the eco-indicators	None	Community involvement	N/A

CO_2 = carbon dioxide; EPA = Environmental Protection Agency; FSC = Forest Stewardship Council; HAP = hazardous air pollutant; N/A = not applicable; TNS = The Natural Step

Table 11.1 Refined set of eight eco-indicators developed by the Collins Company, 'journey to sustainability' initiative

excited. He is our "token Republican" and he came back convinced that there was money to be saved [from sustainability],' says Julia Spence of Neil Kelly.

After the workshop, a 'green team' was formed that included the managers who had attended it. Team members were asked what they needed to become engaged in sustainability. They said they needed more training. Spence decided to attend a week-long TNS workshop herself so that she could personally offer training to staff.

Upon Spence's return she put together a two-hour training workshop for employees. These sessions helped people get comfortable with the terms and principles of sustainability. At its annual employee meeting, a consultant gave another TNS workshop. As other Natural Step workshops were offered, staff were sent and asked to bring back more information to the company.

The extensive education and training generated 30–50 employees who served as 'early adopters'. These people quickly began to find innovative ways to reduce the company's environmental footprint. Other employees eventually join in. Very few people were negative.

It is important to note that, while education is important, it is rarely sufficient by itself to generate long-term change. During my research I found many organisations that rely almost exclusively on Natural Step training programmes and other sustainability-focused educational programmes to expand awareness and establish new behaviour. These efforts usually make some progress right after an educational event, but then stall. This is not unexpected. The research shows that by itself education has little to no long-term effect on behaviour (McKenzie-Mohr and Smith 1999: 9-11). The forces of culture of an organisation (such as the pressure to conform to existing norms and values) and numerous practical factors (such as convenience) will overwhelm most of the behaviour changes that education alone may generate. For attitudes and behaviour to change, educational efforts must be embedded in a broad suite of actions such as those outlined in this book.

Resistant managers can also be a major deterrent to success. Managers can undermine success in many ways. Information can be withheld, key resources can be diverted to other activities, decisions can be blocked or second-guessed, and personnel with poor skills or attitudes can be assigned to sustainability efforts.

The Santa Monica, CA, Sustainable City programme has struggled with some senior management staff that don't buy into its sustainability vision or strategy. These people have blocked progress or given sustainability short shrift. Staff have often attempted to work around these managers. Occasionally they have taken their case directly to the manager's supervisor. More often than not, the Sustainable City programme staff have simply focused their efforts on departments that have supportive managers under the belief that the resistant executives will change their ways after observing progress made elsewhere.

Poor managers are a difficult problem in an organisation. Leaving bad managers in place can be particularly fatal to sustainability efforts. Often, sustainability programmes try to steer around resistant managers. This usually fails. The most effective approach is always direct honest discussion. Good leadership is important here. Effective leaders take note of managers who block progress and act to resolve the issues. Sometimes the problems can be resolved through the employee performance review process. Other times, reassignments may be needed.

The Dutch Ministry of the Environment adopted an innovative approach to staffing issues. The shift from its long-standing compliance-based approach to the sustainability model embodied in its National Environmental Policy Plan required that line staff and managers alike learn new skills and behave differently. Rather than rigidly following internal bureaucratic procedures and issuing edicts to the private sector, Ministry staff had to work collaboratively with trade associations and the public to design strategies and achieve measurable outcomes.

Many of the Ministry's employees struggled to make this shift. Ministry leaders took a number of steps to address the problems. They broadened the top executive ranks from two to four people, all of which had a substantial role in shaping the NEPP. Second, they focused on getting 'others' to manage the environment, with the Ministry's role being to assist private, non-profit and other public organisations and institutions in taking on those responsibilities. This was a major shift in the mind-set of the people in the environmental ministry, as most of them wanted to work there to create a better environment themselves. In that context, it became necessary to work on negotiation skills. For that reason, after a few years, the Ministry established a training programme in sustainability and consensus building. Dr Larry Susskind from Harvard was hired to direct the programme. The training helped some Ministry staff realise that they were not comfortable with the new approach. These people left the agency. Others became very skilled in working co-operatively with the public. The training was so successful that the Ministry decided to open it to people outside the agency. The programme was eventually spun off and became a free-standing organisation called the International Programme on the Management of Sustainability. This author had the opportunity to participate in the programme in 1997 and can attest that it was an excellent introduction to sustainability and consensus building.[10]

It should be noted that the Dutch government's approach to sustainable development was perhaps the leading public-sector effort in the world through the mid to late 1990s. However, in the view of some internal and external experts, political changes that started in 1994 with the advent of new leadership seem to have reduced the innovation and strategic thinking that previously occurred. Nevertheless, the Dutch experience in promoting sustainable development provides many valuable lessons for other public efforts.

Policy barriers

Numerous public policies must be changed if organisations are to successfully achieve sustainability. Most policies in Western societies have been established under the command-and-control paradigm, which is intended to mitigate the negative effects of the linear take–make–waste production model. However, when organisations leapfrog over the old paradigm to a circular borrow–use–return economic model focused on sustainability, the existing regulatory framework often serves as a constraint, not an incentive.

10 Personal communication with Paul de Jongh, policy advisor for sustainable development for the Dutch government, 23 June 2003.

The policy barriers faced by Epson Portland when it attempted to reduce its waste is a classic example of the challenges to come. The firm is located in Hillsboro, Oregon. Over the years it has produced printers and print cartridges, performed circuit board assembly, and has been involved with other aspects of electronics manufacturing. The parent company, Seiko Epson Corporation of Japan, sets high environmental standards for all of its affiliates. When Portland Epson's primary focus was on manufacturing printers, it responded to its parent company's environmental challenges by instituting a comprehensive strategy to reduce waste. It succeeded in re-using and recirculating the vast majority of the by-products and materials from its production processes and, as a result, reduced waste to landfills by 90%. The remaining 10% of the waste was incinerated for energy production.

However, METRO, the Portland area regional government with responsibility for waste management, could not adjust to the notion that a major company would no longer produce waste. METRO required Epson to get a non-systems licence and to pay $6 a ton for *not* using the landfill. 'It took six months just to get the licence because METRO did not believe we could do it . . . Having to pay for not doing something was a major deterrent to working toward zero waste,' said George Lundberg, Epson Portland's environmental and safety engineer.[11]

Government will need to work closely with the business community and non-profit organisations to adjust existing policies and develop new policies as more organisations adopt a sustainability focus. Policy changes will not come easily. Over the past 20 years a great deal of my time and effort has focused on working with government. These experiences reinforce my conviction that each of the seven key leverage points for change discussed in this book must be sufficiently executed for effective new policies to be enacted. That is, unless legislators, agency personnel and stakeholders clearly feel that existing policies are broken and new ones are better, people with fresh ideas and all of the key power brokers are involved, clarity of purpose and strategy are achieved, etc., policy development will either be stymied or produce policies that are no better, and possibly worse, than before.

Are these barriers unique to sustainability?

One has to wonder how different these barriers are from those routinely faced by organisations. Most of the obstacles don't seem that much different from those that any organisation confronts whenever major shifts occur in markets or technologies. For example, both the public and private sectors faced major economic, data, personnel and policy obstacles when computers supplanted typewriters and calculators and the Internet began to displace the mail system and faxes. The biggest obstacles, of course, were in the hearts and minds of those invested in the old technologies and practices. Shrewd leadership and the application of an effective change-management strategy are needed to overcome the barriers.

Paul Murray, sustainability manager at Herman Miller, does not see unique barriers to sustainability in his firm.

11 Personal communication, 24 October 2001.

> In most cases we are still looking for the barriers. That's a strange thing to say. But we have had remarkable success with top management supporting our programme. When there is a challenge, it is usually a result of communication problems. So, we step up the communication that it is the right thing to do. We also keep our focus on the customer. Our customers want a focus on the environment.[12]

Changing the feedback loops through continual learning overcomes barriers

My research found that the organisations making the most rapid progress toward sustainability overcome barriers through continual learning. The more skilfully that knowledge creation mechanisms are employed, the greater the likelihood that solutions to barriers emerge.

Continual learning

Constant learning is a building block for long-term success on the path toward sustainability. Increased knowledge and understanding lead to changes in behaviour and actions. Learning involves cognitive, emotional and physical dimensions (Marquardt 2002: 36). It differs from training, which entails the acquisition of specific skills.

Through decades of research, learning specialists have discovered that people learn best when motivated to achieve something rather than just to obtain new information. Learning is also more effective when the whole person is involved—mind, emotions and values—not just the intellect. This suggests that learning can be more successful when it is directly tied to producing specific tangible outcomes than when it is purely theoretical in nature. This type of learning involves a cyclical process of planning, implementing and reflecting.

To achieve the greatest value from the cyclical learning process, people need time to think about the outcomes of their actions. This means that time and space for reflection must be built into the workday to enhance the learning process (Marquardt 2002: 36).

Research has also shown that people are usually more open to learning when they have played a role in creating the circumstances under which it occurs. Those involved with the learning process will also understand the lessons they acquire much better than anyone else. This information suggests that the more that employees and stakeholders are actively involved in the learning process, the greater the understanding and support for sustainability.

12 Personal communication, 28 April 2002.

Levels of learning

Three levels of learning occur within organisations: individual, team and organisational.[13] Learning at each level is important for continual progress toward sustainability.

All learning starts at the individual level (Box 11.1). Only when individuals increase their understanding can the team or organisation learn. When employees and stakeholders commit to learning, the organisation must respond by providing the tools and atmosphere needed to help them succeed.

- Self-managed learning
- Learning from co-workers
- Computer-assisted learning
- Daily work experiences
- Special assignments on projects
- On-the-job coaching
- Classroom training linked to specific activities

Box 11.1 **Individual learning opportunities**

To achieve sustainability, managers and employees must view continual learning as a core focus of the organisation, not as a special event. Constant encouragement, support and rewards for individual learning are essential for these purposes. People will know that learning is important when an organisation tangibly rewards it. Scandic Hotels has made learning about sustainability a core element of the training programmes at the Scandic 'internal business school'. 'Environmental training has a part in all of the different courses we offer. This makes it hard to pass through the Scandic system without an interest and understanding of sustainability,' says Jan Peter Bergkvist, director of environmental affairs, security and communication.[14]

Individuals learn best through applied experiences. When individuals consciously note and share the lessons they learn from their experiences with members of their transition team and the organisation as a whole, knowledge and understanding can grow. Team learning, however, requires more than one-to-one sharing. Successful group learning involves the free exchange of ideas, continual sharing of good and bad experiences as well as new insights, and a spirited pursuit of intellectual growth among members.

Oregon-based Neil Kelly Company places a major emphasis on team and organisational learning. Julia Spence says that:

> We distribute information through meetings, on our intranet site, by e-mail, in written and catalogue form, through classes and seminars,

13 For more information on organisational learning, see Marquardt 2002; Kim 2001; Di Bella 2001.

14 Personal communication, 8 October 2002.

> etc. We ask our people what they need in planning meetings, in staff meetings, through the intranet. The management team members and others bring information to the rest of the group—if it's useful to one it will probably be useful to others. Our internal teams share information learned on one project with other teams.[15]

Team learning (Box 11.2) occurs through a combination of practice and reflection. Groups must set aside time to honestly and openly reflect on the results of their activities and increase their understanding of what is necessary to achieve sustainability. Through this process, members develop trust. As trust grows, people feel more open to sharing their thoughts and feelings. Deeper sharing improves the quality of thinking. Better thinking leads to better planning, which leads to improved projects and superior outcomes. Thus, successful team learning creates a positive feedback loop that improves the entire organisation.

- Group sharing and reflection
- Group rewards
- Establishing norms and values
- Policies and procedures

Box 11.2 Team and organisational learning opportunities

As with individual learning, team learning occurs more often and rapidly when teams are rewarded for their contributions to the organisation's pursuit of sustainability.

Organisational learning (Box 11.2) includes, but goes beyond, individuals and teams sharing what they have learned. System-wide learning also occurs through cultural factors such as those discussed in Chapter 5, including the passing-down of common beliefs, values and assumptions among group members. The systems, structures, policies and procedures of an organisation cause people to learn what is acceptable, expected and rewarded (Marquardt 2002: 43).

Types of learning

Three types of learning (Box 11.3) help organisations improve: adaptive, anticipatory and action (Marquardt 2002: 43).

- Adaptive
- Anticipatory
- Action

Box 11.3 Types of learning

Adaptive learning is a reactive, coping form of learning. It usually involves the search for direct solutions to immediate problems. For example, the search for

15 Personal communication, 9 October 2002.

ways to address groundwater pollution, soil contamination and high tipping fees associated with excessive toxic wastes may take the form of active learning if the primarily focus is on improved waste management practices. When knowledge creation is focused on resolving immediate issues, it can be considered 'single-loop' learning. Because single-loop learning usually focuses only on the present problem, it does not resolve the more basic problem of why the problem exists in the first place. Thus, it focuses on symptoms, not underlying causes. 'Double-loop' adaptive learning, on the other hand, focuses on immediate problems *and* on delving deeply into the structure of the system to identify their root causes. For example, rather than simply improving waste management practices, a double-loop learning process would test ways to eliminate toxicity and reduce the amount of waste being generated.

Compliance-based organisations almost exclusively use single-loop learning. They focus only on the issues before them (e.g. emissions, discharges, habitat impacts). Thus, they remain riveted on problem indicators, not on their source. Crisis often remains the norm. The leading sustainability organisations don't get fooled into thinking that symptoms are the real problems. They employ double-loop learning to continually dig deeper to identify and root out the true source of their environmental and socioeconomic problems.

Double-loop learning generally follows a five-step approach:

1. Fully acknowledge and characterise the situation (success or failure).
2. Identify all of the causes of the successes or failures so you can learn from them.
3. Ask every participant what they believe can be done to build on the success or resolve the failure.
4. Take concrete steps to implement, clean up or complete the tasks identified.
5. Analyse and learn from the experiences gained through the process.

Anticipatory learning focuses on avoiding future problems by identifying potential events and searching for the best ways to prepare for them. The scenario-planning mechanisms used by Royal Dutch/Shell and the Dutch government are examples of anticipatory learning. Both sought to look into the future, anticipate potential happenings, and devise strategies to respond if the identified problems came to fruition. Anticipatory learning is a much more creative process than adaptive learning. People feel energised by proactively taking steps to control their own future.

Action learning involves turning real problems or tasks into a learning laboratory. A problem of great importance is selected for the attention of one or more teams or the whole organisation. A process then ensues with two equally important goals: teams seek to simultaneously resolve the problems *and* learn from their experiences. Teams take action, evaluate results and spend time on reflection. Group and organisational learning occurs and the process is repeated. Many of the leading sustainability organisations utilise this approach to learning.

Bear in mind that, no matter what the level of learning, harsh criticism of flawed views or decisions and past mistakes will generate resistance. People resist learning that threatens their self-image. For this reason, it is important to create a non-judgemental atmosphere regarding past choices that may have led to damage to the environment or social welfare. The emphasis should be on beginning anew: using today's information and understandings to make better choices now and in the future.

Learning and short-term victories

My research found that the leading sustainability organisations seem to intuitively grasp the principles of effective learning. The tenets are woven into a system of learning that is tied to the production of tangible outcomes. The production of a continual series of successes (or failures) is viewed as critical to expanding the knowledge and understanding required for the long journey to sustainability.

Planning, producing and observing real results from sustainability efforts validate entrepreneurial resolve. People can see the difference between success and failure and that change is possible. Each success further conditions and strengthens the understanding of and commitment to sustainability. Spirits are lifted. Employees and stakeholders learn that through hard work and imagination they can leapfrog barriers. Inspiration grows and the juices start to flow because people want to achieve more. A continued series of focused successes solidifies resolve and generates courage.

Visible wins also cause more people to join the battle because they see momentum building. As more people get involved, more team and organisational learning occurs. The more visible and concrete the successes, the less power sceptics have to undermine the initiative. Increased learning aimed at producing tangible wins deepens understanding of what sustainability means.

A series of small successes was vital to generating momentum among employees at The Collins Companies, the US forest products firm. 'It was absolutely critical to get some success. We did a few projects that resulted in increased yields, cost reductions and more profit. We then heavily promoted them. This reinforced the positive aspects to employees,' says Jim Quinn, former CEO.[16]

The cost savings that were generated by early short-term successes not only helped to build understanding at Scandic Hotels, they also helped to build a robust set of values among employees. Jan Peter Bergkvist, director of environmental affairs, security and communication says:

> We found savings from energy, waste and water reductions . . . But the most important thing was the shared values that grew from this . . . The short-term savings build a strong internal set of values for sustainability. We did not really understand this or expect this when we started.[17]

16 Personal communication, 5 April 2002.
17 Personal communication, 8 October 2002.

Early victories were also a key in Epson Portland's success in reducing waste by 90%. Said George Lundberg:

> It would have been very difficult without short-term successes. Without some visible successes, such as saving $300,000, we would not have gained support from management. After they saw the results, management started to highlight our environmental outcomes above quality objectives. This really turned some heads . . . The cost savings were extra as far as I was concerned, but it is always easier to gain support if you can show that you are saving money and not costing the department money.[18]

Xerox had a similar experience. 'Our cartridge remanufacturing process achieved cost savings, which helped build the case for the equipment remanufacturing process,' said Anne Stocum.[19]

Building understanding and momentum through visible internal successes has been a key component of the sustainability strategy employed by Stena Metall, the northern European recycling, trading and shipping company. According to Peter Domini:

> We decided we needed to show our employees and customers that we were cleaning up our own front door. We made significant investments to clean up our operations by going well beyond local regulations. We took money from our profits and invested them in actions that our employees and customers could see would improve our own sustainability. They were not done for revenue purposes. We decided we needed to show our own people that we could become more sustainable. We then were able to go to our customers and say that we can do the same to their risks. We say that if you hire us we will help you clean up as we did and you will avoid risk and scandal.[20]

Swisscom decided that one of the best ways to motivate people was to highlight success. As a result, the company makes a concerted effort to distribute 'success stories' so that employees see that their work leads to success.[21]

Thus, the leading sustainability organisations tackle barriers much as Olympic athletes approach the next track meet: each event is viewed as an opportunity to learn what's necessary to improve their performance so they can jump to the next level and beat their personal best.

18 Personal communication, 24 October 2001.
19 Personal communication, 26 October 2001.
20 Personal communication, 7 October 2002.
21 Personal communication with Albert Kuhn, head of group environment, 11 October 2002.

Mixing incremental improvements and major innovation enhances learning

Sometimes through the cyclical learning process, or through the effort of units specifically designed for experimentation, people discover entirely new ways of perceiving a problem. These breakthroughs lead to major product or service innovations. The new advancements soon become standard procedure and the cyclical learning process begins again. The skilful linking of the learning that occurs through incremental improvements and major innovation thus becomes the means to overcome barriers.

Incremental improvements alone are not likely to lead organisations to sustainability. Unless sustainability-based visions, principles, strategies and ambitious targets have been adopted, management systems such as the ISO 14000 series tend to focus more on incremental improvements to existing linear take–make–waste systems and products than on major change. In most organisations, however, particularly those with a compliance mentality, movement toward sustainability requires whole new ways of thinking and operating. Marginal improvements to business-as-usual cradle-to-grave systems cannot achieve these types of breakthroughs.

Henkel, the international producer of home care, personal care, adhesives, sealant and surface treatment products and services, focuses on incremental improvements and major innovation. 'For some things it's small improvements. In others, you need whole new ways.' For example, Henkel has made continuous reductions in detergent dosage and has made major leaps through innovative detergent concepts (e.g. Persil Megaperls, Persil Tabs, Persil Liquits).[22]

Patagonia also pursues a mix of incremental and major improvements. Jil Zilligen, vice-president of environmental initiatives, says:

> Generally, we pursue both types of actions, understanding that we can't 'throw the baby out with the bath water', so to speak. At times they are linked along a conscious continuum (such as organic cotton and lower-impact dyes). In other cases, incremental changes serve to evolve our thinking toward more major innovation.[23]

Scandic Hotels has used short-term wins as a springboard for innovation. Jan Peter Bergkvist says that:

> Scandic tries to be at the cutting edge while keeping high profitability. It is important to focus on the low-hanging fruit to start with. You get cost savings, which provides momentum and allows us to continue our efforts. But at the same time we have tried to stay at the cutting edge. You must be a little bit brave. This is a very conservative industry. People all over the world have been doing the same thing in this industry for 2,000 years. But we try to link cutting-edge activities, such as our fully environmental rooms, our new organic

22 Personal communication with Michael Bahn, Henkel director of corporate sustainability management, 20 August 2002.

23 Personal communications, 17 October 2002 and 4 November 2002.

> breakfasts and other steps, while making continual small improvements.[24]

The Neil Kelly Company also uses a combination of incremental steps and major innovations to pursue sustainability. Julia Spence says:

> Cabinet-making changes were huge for us—we switched our whole line to wheatboard and new finishes. Most remodelling projects involve hundreds of small choices—and we keep moving the choices along toward sustainability. Our Lake Oswego building is [US Green Building Council] LEED-certified and that was a huge leap. The biggest leaps have encouraged us to take more and more small steps. The small steps have kept us sustained when we didn't have the budget or special projects by which to take a major leap. This is about cultural change. As we've been through significant culture change in the past, we know it takes time. We keep working away—big and little steps—it all moves us forward.[25]

Swisscom, the Swiss telecommunication firm, sees both innovation and incremental improvements as key to its success. Albert Kuhn, head of Swisscom's environment group, says:

> We sell services and products but we don't manufacture products. We try to improve the products we sell by working closely with the manufacturers. For example, we are working closely with Motorola to produce an ecological mobile phone. Sometimes it's best to have small increments and sometimes it's best to have big steps or you cannot get ahead.[26]

Although incremental improvements are important, Joyce LaValle, senior vice-president of human services at Interface, believes that major innovations are the ultimate keys to sustainability.

> Yes, we continue to work on incremental stuff. In La Grange this year we became ISO 14000-certified. But we know that ISO 14000 will not get us to sustainability. It gets us to better quality, it makes us more efficient, and it makes us more money, but it won't get us to sustainability. If you don't know what sustainability is, how can you get there? ISO 14000 is not enough.[27]

LaValle's comments underscore that, while the structure of the ISO 14000 management system can set the stage for sustainability plans, only when an EMS embraces sustainability-based policies, principles and targets can it help an organisation take major leaps forward toward sustainability.

24 Personal communication, 8 October 2002.
25 Personal communication, 9 October 2002.
26 Personal communication, 10 October 2002.
27 Personal communication, 3 October 2002.

Stimulating innovation

Two factors are necessary to foster innovation within organisations: support for risk-taking and tolerance of mistakes. Both features must be present for creativity to blossom. Neither can succeed by itself (Tushman and O'Reilly 2002: 113).

Support for risk-taking

One of the best ways to demonstrate that something is important is to reward it. There are numerous ways to reward innovation. Monetary rewards are often thought to be an excellent tool. Bonuses, higher pay and other forms of financial compensation can motivate people. Interface decided to reward its employees by paying them for achieving results. 'This gives a direct payback to people,' says Interface's Ray Anderson. 'When a factory finds success in waste reduction, the employees feel it in their pocketbooks. Success is the basis for our pay and bonus schemes.'[28]

Financial benefits, however, are not the only way to encourage innovation. Most of the leading sustainability organisations believe that recognition from management, co-workers or the public is equally important. For example, while incremental improvements are important, Henkel believes that 'innovation is the key to sustainability'. To encourage innovation, the company gives out 'Henkel innovation awards' every year to teams of people who successfully introduce new products in the marketplace. The award includes public recognition via press releases and in Henkel's internal and external newspaper which is distributed to employees and their families around the globe. Henkel also keeps a database of successful ideas which is available to employees worldwide.

Because so many of the new ideas that emerge in sustainability efforts result from the work of transition teams or whole units, recognition for the entire team or organisation is often needed, not just a single individual. Innovation is 'very encouraged' at Epson Portland, says George Lundberg, the firm's environmental and safety engineer. 'We have an III program (Implemented Improvement Idea) here and if your idea is environmental you get an extra $5 on top of total compensation.' Team-based acknowledgement and awards are also important motivational tools. Says Lundberg:

> Getting awards really helps. Giving someone recognition always helps and getting recognition from others helps to reinforce our progress with our parent firm. Our facility got two awards from EPA. This helps us drive our message home to top management and to employees.[29]

For rewards to be effective, they must be carefully aligned with the organisation's sustainability vision and strategy. The rewards also must be adapted to place. Staff with the Dutch Ministry of the Environment will respond to very different stimuli than employees with the City of Santa Monica, CA. The key is to devise rewards in a manner that is consistent with the cultural values of the employees.

28 Personal communication, 9 October 2001.
29 Personal communication, 24 October 2001.

Stonyfield Farm devised a very unique incentive to eliminate solid waste. Information sheets were distributed with tips on how to reduce waste. Daily quizzes were then given in a fun and humorous way to help employees learn how to incorporate the information into their daily activities. As a reward for participating in the quiz every day, employees were entered into a raffle. The winner got eight hours of paid vacation. In addition, the two best ideas for waste eliminating got $500 each. These turned out to be major incentives. Over 100 people participated in some way.[30]

Accepting mistakes

The second key to fostering innovation is to tolerate mistakes. People who come up with promising ideas that turn out to be failures must not be punished. On the contrary, innovators must be supported and embraced—win, lose or draw. Otherwise, people will be loath to think differently or try new approaches. Innovation will be stifled if people fear repercussions for trying new things. Jim Quinn, former CEO of The Collins Companies, saw acceptance as a key to engaging his employees in sustainability: 'It was easy to get volunteers involved as long as you did not threaten their lifestyles. You need an atmosphere of tolerance.'[31]

This is a much more difficult task than establishing a reward system. When finances are tight or when stakeholders are exerting pressure for results, it is very difficult to tolerate, let alone embrace, mistakes that cost an organisation significant time or money. Managers often fear that failure in their unit will earn a black mark against them and threaten career opportunities.

Innovation and risk-taking are especially difficult within government. Efforts that appear to 'waste' the public's money are scorned. Constituency groups and legislators may use failed innovation as fodder to pursue their political agendas.

Because tolerance itself is so risky, it is important to clearly define the types of risk-taking and mistakes that are acceptable. Criteria can be established that provides a safety net for those wanting to innovate. For example, agreements can be reached that, if employees follow principles such as giving managers advance warning of experiments, basing efforts on sound data and analysis, not causing major harm, and ensuring that the organisation can learn from the project no matter what the outcome, they can be assured that their efforts will be supported (Tushman and O'Reilly 2002: 115).

The first criterion—advance notice—is key. No one likes to be blindsided. This is especially true if the surprise comes complete with major financial losses or bad publicity. When managers, legislators and stakeholders know the goals and justifications for experimentation, even if the project fails, they are more apt to build on what was learned rather than search for the guilty.

Another key to creating a climate of tolerance is role modelling by senior executives. When managers openly encourage risk-taking and creative thinking rather than emphasise not making mistakes, people will feel free to experiment. A clear

30 Personal communication with Nancy Hirschberg, 5 July 2002.
31 Personal communication, 5 July 2002.

message has been sent when people see executives rewarding co-workers who innovate.

Institutionalising innovation

Innovation requires dedicated time and space. Daily work pressures and the normal tendency of bureaucracies to manage for consistency and control make innovation difficult to pursue. Two approaches are commonly used to structure time and space for innovation: self-managed innovation teams and external innovation units.

Self-managed innovation teams are internal groups that are established with the specific goal of innovation. Often, sustainability transition teams play this role. At other times, transition teams work closely with a group specifically established for innovation. Innovation requires an atmosphere that supports and encourages 'out-of-the-box' thinking. Employees can pursue these ends only when they have been given the responsibility and tools to innovate. Innovation teams require dedicated staff time, separate workspaces, special retreats and other mechanisms that allow people to brainstorm new solutions outside the constraints of the normal bureaucracy. Training in creative thinking and seminars led by specialists in different fields help to stimulate and inspire creativity.

Henkel seeks to differentiate itself from its competitors, based on its environmentally sound products. The foundation of this strategy is the firm's research and development process. Significant investments are continually made to develop products with lower environmental impacts. For example, Henkel recently developed a solvent-free adhesive wrapping system for its clients' use on PVC window profiles. Employees receive numerous rewards for these types of successes.

The creation of special *external innovation units* is an alternative approach many organisations employ when they become convinced that major innovation is not possible within their normal bureaucracy.

David Oakey Designs, for example, is an independent company that serves as the innovation unit for Interface. The company's offices are in close proximity to Interface's facilities in LaGrange, Georgia, and you can reach Oakey by calling Interface. However, the companies are actually separate entities.

The principal, David Oakey, became independent 'by accident'. Before forming his own firm, Oakey worked for a large corporation as the head of innovation and design. In that role he became very frustrated with his inability to pursue and implement new ideas. Oakey left and started his own firm, which ended up working for Interface '99% of the time'. Oakey says that 'the independence of his business helps Interface because they are separate. Our independence allows us to push innovation and not get squelched by the bureaucracy at Interface.'[32]

The drive toward sustainability has been extremely challenging for Oakey. Initially, he thought it was not possible to design floor coverings without synthetic materials such as nylon or fossil fuels. 'When Ray Anderson decided to become sustainable, it was a bombshell to me. I could not figure out what this would look

32 Personal communication, 19 November 2002.

like. I was initially very hesitant and resistant. I felt it could not be done and that this talk was just greenwash. My resistance lasted about a year.'[33]

Eventually, Oakey decided to see if there was any meat on the sustainability bone. His first idea was to focus on reducing waste. His firm searched for ways to 'ensure that every piece of material is treated like gold', which meant not wasting anything. Their efforts paid off handsomely. Oakey's short-term successes in reducing waste 'got us on a treadmill and kept us moving forward'. Oakey now believes that 'The US wastes so much. The war on waste—waste in energy, food, materials—can take us a long way toward sustainability.'[34]

Oakey then read a book called *Biomimicry* which outlines a design framework modelled after nature (Benyus 2002). He realised that nature provides the best designs of how things work. With this new understanding in hand, Oakey and his team set out to determine how nature would design a carpet. 'It's so simple now to us. We discovered that everything in nature is not perfect. It is diversity and organised chaos—nothing is the same. There is diversity in colour and design, but it all works together.'

This awareness led Oakey's team to design carpet tiles that each have slightly different colours and designs. The outcome was a tile called 'Entropy'. It quickly became Interface's best-selling product. 'In just nine months the Entropy tiles shot to the top of our market, something that has never happened before,' according to Joyce LaValle of Interface.[35] The tiles produce significantly less waste in production and on the job site than other tiles. They are repairable and re-usable. This really appeals to customers. Hotels, a market not previously penetrated by Interface, have begun to purchase the tiles because the whole carpet no longer needs to be replaced when a major stain appears. Other new markets are also emerging. 'This one success helped us realised that much more is possible. This is a first step and we now want to go much further and deeper,' says Oakey.

General Motors is another organisation that pursues most innovation through separate units. Says Nick Pudar, director of GM strategic initiatives:

> The day-to-day operational challenges of the existing business makes it very difficult to embrace high-risk innovation programmes. Establishing a separate unit with a single mission challenge, and the necessary allocated resources, enables critical progress to be made. However, it is also important to integrate the new work into existing business units at the appropriate time so that the full resources of the enterprise get aligned.[36]

One of the most important reasons for separate innovation units is the need for freedom from the pressure for quick solutions. Innovation takes time. Ambiguity is certain to reign while the old ways of thinking and problem-solving give way to the new. Living with uncertainty is difficult for most people. It is especially

33 Personal communication, 19 November 2002.
34 *Ibid.*
35 Personal communication, 3 October 2002.
36 Personal communications, 1 October 2002 and 20 January 2003.

difficult for managers who are under the pressure of daily workloads. Separate innovation units provide the space and structure needed to withstand the push for quick and easy answers.

Analysing your efforts to build new feedback loops

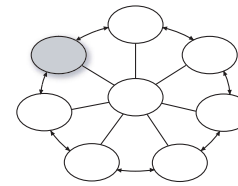
An easy way to assess the effectiveness of your efforts to change the feedback loops of the system by building learning and innovation mechanisms is to ask employees and stakeholders these questions:

- Can you identify ways in which feedback about the organisation's environmental and socioeconomic performance has been enhanced?
- Do you believe that both incremental improvements and major innovation are being pursued?
- Do people feel safe to propose new ideas, even if they may contradict traditional ways of thinking or operating?
- Can you identify some of the rewards that people have received as a result of their innovation efforts?
- Can you identify some of the successes the organisation has produced as a result of its sustainability initiative?
- To what extent do you think that the organisation has make explicit plans to achieve these successes?

If people are unable to give specific examples of how learning and innovation have been enhanced, your efforts to change organisational feedback mechanisms have failed. If people say that learning is now a much bigger focus, can name some recent successes, and can identify people who have been rewarded for innovating, your efforts have succeeded.

12

Adjust the parameters of the system by aligning systems and structures with sustainability



Until recently, Mary loved her work as a biologist. During her youth she dreamed of working outdoors, caring for the rivers and fisheries that were her passion. Getting her first job out of college with the Forest Service was a dream come true. Ten years later, Mary found herself progressing up the ranks of the agency with a chance to move into an executive position soon. Yet she was not convinced this was the right move for her.

In the past few months, Mary had started to look for other job opportunities. She felt that her talents were not being fully realised in the Forest Service. Except for the minute details of fisheries projects, no one sought Mary's ideas for improving the management of watersheds. In addition, Mary sensed that the plug was being pulled on the Forest Service's large-scale watershed programme. After three years of effort, she could see that the programme was beginning to generate a more ecological and collaborative operational style. But the coming change meant that the new perspectives would soon fade as the agency once again switched focus. Mary had also grown frustrated that the chief continued to say that sustainable watershed management was a top priority, while the targets she had to meet on a daily basis forced her to do work that conflicted with that mission. The agency's splintered messages left Mary feeling cynical and reduced her energy for the job.

Mary's feelings about her employer are all too common. When employees do not feel appreciated or fully engaged, efficiency will be poor, morale low and turnover high. The failure to keep pressing until change efforts have been successfully completed leads to wasted resources and cynicism. Allowing structures, systems, policies and procedures that conflict with sustainability to remain in place long after the organisation has set a new direction sends conflicting messages that undermine sustainability-based thinking and behaviour.

Once a change initiative has progressed for a sufficient amount of time to allow appropriate sustainability-based thinking and behaviour to emerge, the new

approach must become embedded within the organisation. This occurs through a process of aligning the critical parameters that shape organisational performance—including systems, structures, policies and procedures—with the new approach to sustainability. 'Adjusting the parameters' is the seventh-greatest leverage for change in a social system. This step answers the question: 'Where will we make the new approach stick?

Many organisations spend substantial time and energy seeking to adjust the parameters of a system. A good deal of time is spent seeking to change pollution reduction or recycling rates by, for example, 5% or 10%. However, if the mental model that created the old system has not been altered, the same people dominate planning and decision-making, and the former goals, strategies, information flows and feedback mechanisms remain unchanged, making slight adjustments to the parameters which will have very little long-term effect on attitudes or behaviour. On the other hand, when this step is linked with the previous six interventions, changing the parameters can help to permanently anchor sustainability in standard operating procedures and culture.

Because internal systems, structures, policies and procedures should not be altered until the right type of thinking and behaviour has been identified, changing the parameters is the last step in the change process. By 'last' I do not mean that the change process actually ends at this stage. Indeed, the process of embedding sustainability in standard operating procedures and culture is just that—a *process*. As new knowledge is generated and employees gain increased understandings and skills, new ways of thinking and acting will need to be embedded. Change toward sustainability is iterative. The 'wheel of change' must continually roll forward.

Alignment helps everyone move in the same direction

Senior executives cannot order employees or stakeholders to adopt sustainability-based thinking and behaviour. The reliance on power and authority to change values and norms usually provokes intense resistance, alienates people, reduces morale and makes it even more difficult to attain the sought-after changes.

For an organisation to embed sustainability in its core fabric without decree, alignment is needed.

Alignment means that all of the key factors that influence organisational performance—leadership, vision, goals, structures, strategies, tactics, communications, learning, rewards, compensation, hiring, promotion, accounting, decision-making, information and employee involvement mechanisms—send the same message. A set of consistent and mutually reinforcing signals must continually bombard employees and stakeholders until they find it impossible to think or behave in unsustainable ways.

Alignment cannot be achieved unless the organisation is governed as a system, not as a collection of separate components. To facilitate systems-based governance

from the top to the bottom—that is, vertically—requires effective integration. One-way information flows, top-down decision-making and biased resource allocations are the norm when organisations are not successfully integrated. To facilitate systems-based governance among the various individual units of the organisation—that is, horizontally—effective co-ordination is needed. Siloing and fragmentation result when organisations are not successfully co-ordinated. Alignment is a key element of resolving problems related to integration and co-ordination.

When a systems perspective is taken and better integration and co-ordination result, decision-making, resource allocations and information flows will consistently support the pursuit of sustainability. Sustainability can, over time, become a central element of the screen through which employees and stakeholders think about and make decisions. When sustainability becomes embedded in this way, it can endure and grow over the long term. Alignment does not mean that the ideal vision of sustainability has been achieved. None of the organisations I reviewed in my study is remotely close to that outcome yet. Rather, alignment means that organisational systems, structures, policies and procedures now embrace and jointly buttress continued progress toward sustainability.

It is important to note that the process of aligning sustainability cannot begin early in the change process. It often takes three to six years of 'muddling around' and testing before organisations can identify the proper type of thinking, perspectives and behaviour needed to drive them toward sustainability. Learning and innovation must be given sufficient time to flourish to allow successful operational methods and governance patterns to be discovered. Once the right set of thought processes and behaviour emerges, however, the process of aligning sustainability throughout the organisation should begin.

Moving beyond early plateaus

My research found that most organisations are fairly good at keeping their initial sustainability vision, goals and strategies aligned, at least for a while. But, after the easier 'low-hanging fruit' has been picked, many efforts plateau. A few units or people may remain committed to the initiative, but it often gets watered down and becomes essentially a 'website sustainability' effort—it looks good on paper, but when you scratch the surface not much is actually happening.

Three primary factors seem to prevent sustainability initiatives from moving past their initial plateaus toward alignment:

1. A lack of commitment and clarity permeates the organisation.
2. The organisation has not sufficiently navigated through all of the key phases of the sustainability-change process.
3. The architecture that influences organisational performance sends mixed directions.

Alignment through commitment and clarity

Surprisingly, my research found that many of the most advanced organisations do not spend much time worrying about how to achieve alignment. That's not to say that the leaders don't take steps to alter their systems, structures, policies or procedures. They do. But alignment occurs more as a natural outcome of a combination of rock-solid commitment to achieving sustainability and unmistakable clarity on what the organisation is striving to achieve than through formal mechanisms.

Sustainability at Interface, Herman Miller, Scandic Hotels, Norm Thompson Outfitters, Patagonia and many other leading private companies has become a core element of who they are and what they do. These firms have developed clear visions of what they want to achieve and effective principles to guide decision-making. They are utterly committed to attaining their goals. The leaders believe that the more they generate products or services with enhanced environmental and social attributes, the more embedded sustainability will become. In short, they are sophisticated business zealots for sustainability.

The public sustainability efforts of the Dutch government, Burlington VT and others approach alignment in much the same way. They are fully committed to the path, work extremely hard to be clear about their purpose and believe the more that quality of life, jobs, and environmental and social benefits are generated and the more that resources and money are saved, the greater the likelihood that sustainability will become embedded in government and community operations and culture.

Because of the explicit choices they make, those leading the way believe that an unshakable commitment, unambiguous clarity and the continued production of results will spin the 'wheel of change' toward sustainability faster and faster. The faster they go, the more people will jump on board and help push the wheel forward. The faster the wheel rolls—the more momentum that builds—the more that sustainability will become embedded. 'Companies that take on these responsibilities in a serious way will be the big winners in the future', is the view held by IKEA, according to Thomas Bergmark, the firm's social responsibility manager.[1]

I also learned, however, that big differences separate the leading organisations from those that struggle to get off the launch pad or move beyond their initial plateaus. A vast majority of organisations—including many that tout their sustainability efforts on websites and in annual reports—do not have the total commitment, laser-beam focus or ability to generate the continued positive results as the leaders do. Organisations will always struggle to embed sustainability in their policies and procedures when they suffer from these flaws.

When plateaus have been hit and progress stalls, one of the first steps leaders should take is to re-examine their commitment to sustainability and their clarity of purpose.

1 Personal communication, 26 November 2002.

Alignment through completion of the change process

Another common problem I have observed in organisations that struggle to move beyond the low-hanging fruit is that they skip or fail to sufficiently complete each of the key phases of the wheel of change. Completion of the change process involves both backward and forward motion.

Often, organisations get part of the way through the change process and become drunk with success due to cost savings or other benefits they produce. They then declare victory and stop. Sometimes leaders think that the process will run on its own after senior managers have developed a vision and instructed subordinates to develop a strategy to achieve it. Other times organisations skip or move too quickly through tough steps such as developing a clear vision or an effective strategy. Instead, they spend their time busily engaged in an array of projects (tactics). In each case, the sustainability effort plateaus because one or more of the basic building blocks of success is missing or incomplete.

Recall that the 'wheel of change toward sustainability' links each of the seven key interventions into a continuous self-reinforcing system of change. One of the best ways to diagnose why your sustainability initiative has plateaued is to move *backwards* along the wheel from where you think you are today. Unfortunately, rather than moving backwards when they get stuck, most organisations move forward to the next phase, thinking it will be easier. Moving forward rather than backwards when stuck is usually counterproductive.

To move backwards, ask whether the foundation you need to succeed in your current phase was sufficiently constructed in the previous phase of the change process. If the foundation was not sufficiently built in the previous phase, move backwards again to determine if the reason for this failure is that weaknesses exist in the preceding phase. Keep drilling down until you identify the phase that is the weakest link. Spend time shoring up the problem area and then move forward again, step by step, reclarifying purpose, team structure, vision, strategy, communication and so on.

For example, let's say that your effort gets bogged down after completing a number of energy- and waste-reduction projects. Money was saved, those involved got recognition and the achievements were touted throughout the organisation. But, since those projects were completed, employees have had a hard time identifying additional actions to pursue. Energy- and waste-reduction projects are *tactics*. To determine why efforts may have plateaued, step back and ask if sound operational and governance-change *strategies* exist that employ energy- and waste-reduction tactics to achieve results, or if the tactics themselves have become the de facto strategy. That is, determine if the rules that determine *how* the parts of the organisation will interact to achieve its vision have been sufficiently altered. If your assessment determines that the strategies are fuzzy, re-clarify them.

If the discussion about strategies makes it evident that they are imprecise because people are unsure about *what* they are striving to achieve, move backwards again to the goal and vision phase on the wheel of change. Drill down and spell out the vision in greater depth. For example, does an ideal vision exist of the way products or services will be produced when the organisation has achieved its ideal state of sustainability? Has an ideal vision of governance been crafted to support

the ideal operational vision? Have the closest immediate approximations to the ideal operational and governance visions been identified? Once the near-ideal visions have been clarified, teams can move forward again and develop strategies to achieve them.

Once strategies are sufficiently constructed, appropriate tactics can be identified. At this point it will be possible to determine if energy- and waste-reduction projects should be a primary focus or if they are smaller elements of a more comprehensive strategy that includes, for example, product or process redesigns, changes to the built environment, or new sources of energy. Only by moving backwards can weak links in the wheel of change be identified and shored up.

Teams should not feel embarrassed about moving backwards. Time spent reclarifying previous steps is a sign of strength and maturity, not failure. Revisiting agreements allows your team to delve deeper into the issues and can only make your efforts more efficient and effective in the future. Indeed, period reviews are nothing new to most organisations. For example, the ISO 14000 series management systems require annual assessments and adjustments to goals and targets. However, all too often I find that annual reviews look only at operational issues and fail to assess the degree to which the key foundations for organisation change have been successfully constructed.

Moving backwards, however, is not the only key to success. Organisations must also move *forward* and sufficiently complete each of the steps on the wheel of change if sustainability is to stick over the long run. Stopping short may undermine all the hard work previously undertaken.

For example, let's assume employees feel a compelling need to drop old habits and pursue new ideas, and credible transition teams have been formed that develop clear visions of sustainability and effective operational or governance-change strategies. However, the organisation fails to change its feedback mechanisms by adopting effective learning systems. In this case, employees will not be able to identify and learn from their mistakes. The lack of good feedback and continuous learning will lead to poor decisions. Flawed decisions will lead the organisation down dead ends or cause outright environmental or socioeconomic crisis. These problems are sure to be blamed on the failure of the sustainability initiative to deliver on its promise. In reality, the problems were caused by the failure to complete all of the key phases of the change process.

To jump from a stalled position to the next level and move toward alignment, organisations must run scans backwards and forwards on the wheel of change to ensure that every phase has been sufficiently completed.

Alignment by eliminating structural and systems conflicts

Even when each phase of the wheel of change has been sufficiently completed, sustainability will not become aligned if the key factors that determine organisational success send conflicting messages. Sustainability requires seeing the organisation as a whole system, not just seeing (or maximising) the individual parts. Addressing the whole requires that people from different units and functions work together seamlessly toward common goals. The fragmented structures and systems that permeate so many organisations today, in which authorities, responsibilities,

information, communication and other key drivers are siloed in different units, undermine the development and pursuit of common goals. Misalignment sends differing messages that can make the adoption of sustainability nearly impossible. Conflicting directions seem particularly problematic in two different organisational arenas: structures and systems.

Structural alignment

When sustainability efforts plateau, structural barriers can often be found at the heart of the problem. Structure refers to the framework in which the activities of an organisation are organised and co-ordinated. A key purpose of structure is to focus employee attention on the mission of the unit and the organisation as a whole. Structure does this by defining the people that employees work with and report to and how those people do their work. The structure of an organisation leads people to focus their attention on certain issues and to ignore others. It also influences each unit's power and authority. Structure is therefore a significant factor in the ability of an organisation to achieve its vision of sustainability. Poor structures will delay or mortally wound sustainability efforts.

Our review of the US Forest Service large-scale watershed restoration programme found that the agency's structure makes innovation and multidisciplinary teamwork—which were the goals of the programme—almost impossible to achieve. The Forest Service is divided into nine regions. A regional forester oversees each region. The agency also has 155 national forests, each of which is managed by a forest supervisor. Five or more forest supervisors report to each regional forester. The regional foresters report to the chief. Staff within each national forest are organised by function (fisheries, forests, wildlife) and each function has a manager. Each function also has a jealously guarded separate line item in the agency budget.

This multi-tiered structure essentially hard-wires slow-moving and fragmented management into the agency culture. Rather than managing whole landscapes and producing integrated outcomes, each function focuses on their little piece of the pie. Information is fragmented by function. Issues must go through multiple channels before decisions can be made. One high-level agency executive summarised this problem by stating: 'Thinking out of the box is very tough. People have chains on the top of the box and the goal of the large-scale program has been limited due to the agency structure' (Doppelt *et al.* 2002b).

Effective structures are vision- and strategy-driven. High-performance organisations devise structures that allow them to achieve their ideal visions in the most efficient and effective means possible. Many of the organisations that are leading the way toward sustainability are consequently moving away from traditional hierarchical models toward flatter structures arranged more by process rather than by function.

Both the formal structure (such as seen on an organisational chart) and the informal or unspoken structure must be addressed when considering structural changes. It is critical to understand who reports to whom, how the work actually gets accomplished and where the real power and authority lie.

When determining how a new structure may enhance an organisation's ability to achieve its sustainability vision and strategy, a number of important questions must be answered. For example:

- In what ways will the organisation need to be restructured to align itself with the operational and governance-change strategies?
- What is the most effective structure for getting the work done? As teams? Whole units? Individually?
- What type of structure is best for enhancing individual, team and organisational learning?
- What types of reporting relationships are needed to ensure accountability?
- What type of physical layout of workspaces will best facilitate learning and implementation?
- What type of structure is needed to generate and share the information needed to enhance performance toward the vision and goals?
- What structure is needed to empower employees and stakeholders to participate in planning and decision-making?
- How will power and authority relationships change if the proposed restructuring were to occur?

When making these structural decisions, it is vital to keep your eye on the vision and strategies for achieving sustainability. If working in cross-functional teams is a key part of the operational strategy, the structure must facilitate multidisciplinary collaboration. If continued experimentation and innovation are key elements of the strategy, the structure must be conducive to constant learning.

It is also important to address geographic and cultural considerations when making structural decisions. Structures that work in the US may not work as effectively in Europe. Because many businesses today have subsidiaries around the globe, great care must be taken to weave together appropriate structures to support sustainability.

Types of structures

There are four basic types of structure: functional, divisional, matrix and network. Each focuses the energy of the organisation and distributes power, authority, decision-making and resources in different ways.

The most common structure is a *functional* arrangement. One unit, headed usually by a single individual, focuses on a major organisational activity. In the private sector, a vice-president, for example, heads up the manufacturing department. In the public sector, the director of waste management oversees solid waste. Power and authority are usually concentrated at the top in a functional structure. Information flows up to senior executives and decisions flow down to mid- and junior-level staff. This form can work well in smaller organisations or in those with relatively stable environments where synchronisation across functions is not critical. When large-scale change is needed, such as that often required for sustainability, however, functionally based structures often struggle because it is difficult to work across departmental and functional boundaries.

A *divisional* structure clusters a number of diverse functions beneath one roof based on a product, service, market segment or geography. Each division includes all of the functions required to achieve its goals, such as research, marketing and manufacturing (or, as in the case of the US Forest Service, fisheries, forestry, etc.). Headquarters divides up resources for each division and co-ordinates their activities.

As with the functional approach, power and authority are concentrated at the top of the division and headquarters. Because each division includes all of the needed functions, one of the major advantages of this form is that each unit can react swiftly to changing needs in its market, product or region. The downside of this approach is that it duplicates functions and thus is often more costly. Co-ordination between divisions can also be troublesome. Power struggles often emerge between divisions and headquarters and between the functions of a division as they compete for financial resources and authority.

The *matrix* structure is a hybrid of the functional and divisional approaches. Functional and division managers have equal authority within the organisation and employees often report to both individuals. While this approach can integrate functional expertise with the autonomy that a divisional approach provides, it can also lead to confusion and power struggles over who is in control. For this reason, matrix structures work best when executives have high levels of trust in each other.

The *network* structure has numerous variations. Its common characteristic is that semi-independent groups form to accomplish specific tasks and disband when the tasks are accomplished. New groups then form to take on specific new challenges. Because they tend to be temporary groupings, power and authority are usually based more on resources and expertise than on one's place in the formal hierarchy. The advantage of this approach is that it can respond quickly to changing needs and tends to prevent entrenchment problems related to power and authority. The downside is that they often operate without many bureaucratic controls and therefore can seem chaotic. Many sustainability-oriented organisations utilise the network structure at some point in their journey.

Aligning structures

There is no 'best way' to structure an organisation. Each approach has advantages and disadvantages. The important message for sustainability leaders is to understand that different structures produce different outcomes. Depending on the type of structure used, certain socioeconomic and environmental issues will be easier to resolve and others more difficult. Some units will gain power and others will lose it. Integration will be easier to achieve and innovation easier to foster under some structures and more difficult under others. Understanding your current structure and how it can facilitate or block experimentation and learning can provide the understanding needed to restructure the organisation in a manner that best facilitates success.

Swisscom has always had a relatively flat and decentralised structure. Executives found that, with 20,000 employees, the flat structure is very helpful when pursu-

ing environmental and social issues. Albert Kuhn, head of Swisscom's environmental group, says that:

> Internal communication is easier with a flat decentralised structure. You need decision-making to be close to the areas in which the people work . . . We have corporate environmental and social policies that are obligated. They keep things co-ordinated. But, based on the policies, each facility can implement and tailor their own programmes.[2]

Stena Metall uses a relatively flat structure as well. Peter Domini, head of business development, says that:

> We are a flat, matrix organisation. We have 150 profit centres. All decisions are put down as low as possible. There are a lot of small kings here. This is good because it really gets people committed and involved. It is sometimes bad because people can tend to optimise their own little businesses. We always need to work hard to keep people focused on the vision of the company, not their own vision.[3]

IKEA makes a concerted effort to keep the number of separate functions low in order to promote integration. Thomas Bergmark, social responsibility manager at IKEA, says

> We are always very careful to link the resources close to the business. We have very few separate functions. We have 400 people working on social and environmental issues but they sit in all of our other units. We have only seven people sitting in a separate sustainability unit. Most of our people are very close to the business. Their role is to support integration into each business, not to drive environmental and social issues as a separate business.[4]

Just as with many other sustainability programmes, alignment is a problem for the Santa Monica Sustainable City programme. City government is organised by function and the Sustainable City programme was initially housed in the public works department. Other city departments therefore think of the Sustainable City programme as a public works programme. Rather than viewing sustainability as part of everyone's job, department managers often say, 'Let them do it' or 'Just tell us what to do.'

A number of strategies are being pursued to enhance alignment and integration. A special task force was established to update the city's sustainability goals. Managers from five key agencies were asked to participate. Economic and cultural issues were added to the list of goals to be evaluated to encourage those with responsibility in these areas to participate. The goal-updating process led to better integration among senior managers as they began to see the interrelationships between environmental, social and economic goals.

Other options that were considered included placing the Sustainable City programme in the City Manager's office. This structural change could provide a

2 Personal communication, 11 October 2002.
3 Personal communication, 7 October 2002.
4 Personal communication, 26 November 2002.

large-enough shift in power and authority to allow Sustainable City programme staff to co-ordinate sustainability efforts within all city departments. Ultimately, a decision was made to form an interdepartmental steering committee of city staff that will be operated under the direction of the City Manager's office. This group will be charged with establishing implementation strategies for achieving programme goals.

Interface has also struggled with alignment. Said Claude Ouimet:

> We made some mistakes. We created silos by developing competition between departments. That was not healthy. We changed that by having department managers look at how their actions affected the overall performance of the plant. We included each unit's performance measures in the performance measures of the other departments in the plant. We made all of these units their customers.[5]

Systems alignment

Two of the most important systems on which to focus alignment efforts are internal measurement and human resources.

Internal measurement systems. By definition, a sustainability-change initiative means that an organisation is wandering into the wilderness. No lampposts light the way. To stay on course, people need signs that show they are progressing down the right path. A strong internal measurement system can provide part of this guidance mechanism. My experience indicates that the organisations making the most rapid progress toward sustainability have adopted effective internal measurement systems.

The key to efficient and effective internal measurement is to measure all of the key objectives—financial and non-financial—that create value for the organisation on its march toward sustainability. Quantifiable measures are needed to provide yardsticks for people to manage against. Unfortunately, most organisations just track financial measures. Few measure the non-financial parameters that play a key role determining organisational success. For example, if costs, customer satisfaction, quality and environmental and social effects are the key objectives for value creation, the continued tracking of *each* of these parameters will be powerful measurement tools.

According to Björn Lyngfelt, vice-president for communications at SCA Forest Products AB of Sweden, internal measurement and reporting are very important tools at SCA. The environmental performance of each unit within the company is tracked and measured. Managers do not want to come in low on the company list of company performers. Managers are very competitive. How their units compare with others is widely known. Due to the desire to excel, managers want to be at the top of the list. Because they help drive performance, measurement and reporting have also proven to be helpful to instilling common environmental standards and expectations throughout the company.[6]

5 Personal communication, 9 November 2001.
6 Personal communication, 20 August 2002.

Interface has taken major steps to simplify its internal measurement systems. The new metrics seem rather simple, but they took seven years to develop. The company has developed a set of eco-metrics that have become the measures it governs by. In addition to financial measurements, Interface now measures waste elimination, the source and quantity of energy used, water consumption, use of petroleum-based raw materials, carbon dioxide emissions for purchased electricity and fuel, and other key parameters related to progress in reducing its environmental footprint. The company has also begun to measure its *social* progress because the company believes that it should be 'working diligently to improve quality of life for all our stakeholders: employees (associates), customers, suppliers, local and global communities and shareholders'. For example, the company's European and Asia–Pacific operations now measure the degree to which employees enjoy working at Interface, the degree to which they feel part of the team, their understanding of sustainability and other indicators of progress with stakeholders. When Interface began to change its internal metrics, new opportunities began to emerge and different types of decisions were made.

Scandic Hotels has a long tradition of using internal measurement to improve performance. Jan Peter Bergkvist, director of environmental affairs, security and communication, says that:

> The BINC ['best in class'] programme allows each hotel to compare themselves to others within our system. We have a culture of benchmarking. However, we only do internal benchmarking. We don't do benchmarking with competitors such as is done often in the US. Externally, we focus primarily on identifying what our customers want. Internally, we use benchmarking to encourage better performance by being the best hotel in the system.[7]

Human resources. Human resource (HR) policies and practices are important drivers of employee performance. When organisations are governed as systems, it becomes clear that people are *the* primary resource, not components to be mechanistically added or discarded as needed. Imagine an organisation with no employees. What good would its technologies or capital be then? People are clearly the most important resource of any organisation. When this understanding becomes clear, HR becomes more focused on helping employees maximise their potential by learning and growing than on outlining and enforcing rules. Unfortunately, most HR departments today remain rooted in the traditional focus on rules and control that stems from the need of hierarchical, patriarchal organisations to maintain order and consistency.

To send consistent messages in support of sustainability, HR must focus on empowering employees, helping them find situations in which they excel, and rewarding participation in sustainability-based activities. One of the key levers of change held by HR systems is the organisation's system of rewards. Alignment requires that employee reward systems become consistent with the organisation's sustainability vision, goals and strategies. Too often what is measured and rewarded is not aligned with these factors.

7 Personal communication, 8 August 2002.

As Mary's story at the beginning of this chapter illustrates, our assessment of the US Forest Service's large-scale watershed restoration programme found that the basic intent of the initiative—managing ecologically and collaborating with stakeholders—is often in direct conflict with other agency policies and procedures. Forest Service staff are rewarded for meeting their unit or functional targets. Taking time away from these tasks to work on other issues—even if they are more in line with the mission of the Forest Service and statements from the chief—essentially punishes staff and may put career advancement opportunities at risk.

Compensation packages should reflect, at least in part, the contributions people make toward sustainability. Other reward systems must do the same. For example, if cross-functional teamwork and integrative solutions are essential for accomplishing the tasks of becoming more sustainable, reward systems must measure and reinforce successful collaboration. If innovation to identify and overcome barriers is a stated priority, those who actively engage in these efforts must be rewarded.

At SCA AB, the Swedish-based paper products firm, the environment is part of the general evaluation of employee success. Because the culture of the company says that you need to perform well on environmental issues, those that fail cannot make a career there.

Performance measurement and reward systems at Interface are moving in the right direction. Interface's reward system is based on success in five factors: delivery (getting products out on time), morale (employee attitude), agility (the ability to gather and use new ideas and learn), cost (keeping costs down) and quality (delivering superior products and services). Sustainability is so intertwined with these factors that it is hard to differentiate from other factors. 'Sustainability is what we do', says John Bradford.[8] The only area where sustainability now stands out as a separate issue is in product and technical development. The company is actively 'farming' ideas from academia, the private sector and elsewhere. Performance is measured based on the ability to recruit new ideas.

Employee reward systems should differentiate between high- and low-sustainability performers. If no one or everyone gets rewards, there will be little incentive to excel. When those who shine are rewarded, people can see the benefits of exemplary effort. Although it can be difficult to assess performance when work is done in teams, well-crafted reward systems provide significant incentives for team success in achieving sustainability.

The City of Burlington, VT, is beginning to incorporate criteria related to the goals of its 'legacy' plan into the performance reviews for agency directors.

In the forestry division of SCA Forest Products AB, the responsibility for environmental performance is considered part of the overall business performance of managers. Units with low performance on the environment are handled in the same way that low-performing financial units are handled. A dialogue is held with corporate managers to determine the problems and they are asked to report back at a specified date to discuss improvements.

Measurement and reward systems can be developed for key stakeholders such as suppliers and distributors, not just for employees. The previously mentioned

8 Personal communication, 20 August 2002.

'sustainability scorecard' developed by Norm Thompson Outfitters is a unique performance evaluation and incentive system aimed at rewarding buyers who purchase sustainable products. The scorecard resulted from discussions with buyers regarding the best way to encourage them to purchase sustainable products. After a year of dialogue, the buyers said that Norm Thompson had to 'evaluate us on sustainability because otherwise we think you are just talking'. This led to the development of the new tool.

The scorecard is a user-friendly guide intended to reduce the impacts of each product the company buys. A +3 ranking means that the product meets all of the criteria for sustainability, while a –3 means that it fails to meet the criteria. Norm Thompson trained all of their buyers to use the system and then made the scorecard a component of their performance evaluation. Buyers who purchase higher-rated materials will get higher ratings themselves, with the goal being to improve the scores yearly.[9] The company will slowly increase its purchases from buyers who provide products with higher scores and decrease its purchases from those with lower scores.

The system developed by Norm Thompson Outfitters is just one of many types of reward mechanism. For example, bonuses can be used as a management tool, not just an end-of-the-year gift. This can be achieved by linking bonuses to areas where you want to see improvement—not to areas that are going well. Other awards may include flexible hours, preference in task assignments, letters of thanks and commendation, tickets to special events, time off with pay, and elevated job titles.

Scandic Hotels initiated a programme it called 'Resource Hunt' which rewards employees for improving resource efficiency. The initiative seeks large and small steps that every employee can take to reduce consumption of energy, water and waste. A booklet was prepared for all employees outlining the issues. Local seminars were held in which every Scandic employee participated. Local activity plans were developed that included specific objectives. 'The Resource Hunt became a real incentive. Employees at each hotel got a percentage of the savings that were found. The group was given the savings, not the individuals.' Thirty-five hotels saved over $1.5 million from 1996 to 2001 due to Resource Hunt, a substantial sum in an industry with slim profit margins. 'Scandic Hotels made a $150,000 investment in training to achieve these outcomes, which means they received a tenfold payback', says Jan Peter Bergkvist.[10]

Promotion and career advancement systems are another area that must be aligned with the organisation's sustainability vision and strategies. Employees closely monitor promotional paths. People know who is climbing the ladder and know the type of thinking and behaviour they exhibited to succeed. The promotion of an employee with a poor attitude or track record regarding sustainability sends a clear message that the issue is not important. When people are promoted who have excelled in this arena, a very clear and positive message has been sent.

Performance on sustainability is now built into successional planning for senior executives at IKEA.

9 Personal communication with Derek Smith, 23 October 2002.
10 Personal communication, 8 October 2002.

> No one has been promoted to the senior management level who does not have a strong commitment to these issues. Before we engaged in sustainability there were managers who did not take environmental and social issues to heart. These managers are no longer at IKEA. We take great care to get the right people promoted,

says Thomas Bergmark, social responsibility manager.[11]

Patagonia has made an explicit effort to create a culture that values protection for the environment. Performance in relation to the company's four core values is a key part of every employee's evaluation. Raises, bonuses, promotions and successional planning all depend on the level of contribution employees make toward the firm's core values.

The Neil Kelly Company clarifies that employees are expected to contribute to its sustainability efforts. 'We put a clause in each person's job description about the expectation for them to participate in our company efforts toward sustainability and we do consider their efforts as a part of their overall job performance', says Julia Spence.[12]

If an organisation has declared that achieving sustainability is a top priority but the measurement and reward systems that influence employee behaviour do not reflect this goal, employees are not likely to take the initiative seriously.

Good leadership is the key to success

As with every other aspect of the sustainability-change process, leadership is the key to successful alignment. Anne Stocum, manager of environmental health and safety market support at Xerox, aptly summarised the need for solid leadership:

> Leadership is the key. It gets down to one or two people who must lead the way. The strength of their personalities and their ability to inspire and work with people are the keys. Sometimes it is the CEO, sometimes it's the EH&S staff leader. Someone acting as the catalyst for change is the key.[13]

The Aveda approach to alignment

The Aveda Corporation has taken numerous steps to embed a commitment to the environment and socioeconomic welfare into its corporate culture. The company founder, Horst Rechelbacher, created the firm with the goal of producing environmentally sound products. During the 1960s and 1970s, Horst worked as a hairdresser in a toxic and polluted environment. He decided to find a way to produce hair- and skin-care products that were non-toxic. Horst's mother was a herbalist in

11 Personal communication, 26 November 2002.
12 Personal communication, 9 October 2002.
13 Personal communication, 21 October 2001.

Austria, and from her experience he saw the possibility of manufacturing natural hair- and skin-care products.

When the company was small, Horst could personally ensure that every employee had a commitment to the environment. But, as the company grew—it now employs about 1,700 people—the commitment to the environment needed to become more institutionalised.

An environmental/sustainability director was hired in the early 1990s to focus on the habits and behaviour of the company and to track policy issues such as biodiversity and agriculture. A team developed a company vision: 'Connecting beauty, environment and wellbeing'. The company states:

> Our mission at Aveda is to care for the world we live in, from the products we make to the ways in which we give back to society. At Aveda, we strive to set an example for environmental leadership and responsibility, not just in the world of beauty, but around the world.[14]

Today, the company's hiring processes, employee performance reviews and even promotions incorporate employee commitment to its vision and mission.

The company openly advertises for employees who hold values consistent with those expressed in its vision and mission. In job interviews, potential employees are questioned on their knowledge about, concerns for and commitment to the environment. Aveda seeks to hire people who demonstrate awareness and concern for the issues. When new employees are hired, they go through an orientation focused on the company's vision and mission, the CERES (Coalition for Environmentally Responsible Economies) Principles and other sustainability issues.

Performance reviews have criteria specifically related to the company's mission statement. For example, an employee recently put into her performance review package a proposal to improve the environmental performance of the magazines where Aveda advertises. This individual then developed a four-year plan to educate the people who work for the magazines and to make clear that if they want to be one of Aveda's preferred advertising placements, they must make a commitment to the environment. As she produces on the plan, she will receive bonuses.[15]

Employees are encouraged to be activists and leaders on the environment and social responsibility issues. Aveda has established an internal recognition programme called the Aveda 'Flower Award' which recognises employees who meet the following criteria:

1. Demonstrate Aveda leadership
2. Are mission-oriented
3. Focus on team building
4. Achieve exceeding aggressive targets
5. Go beyond the call of duty

14 www.aveda.com
15 Personal communication, 22 July 2002.

6. Demonstrate innovation
7. Move the human spirit to a higher level

The Aveda story provides a solid example of how to align sustainability with organisational vision and mission.

Achieving alignment

On one level, aligning the structures and systems of an organisation with sustainability is straightforward. Every department and function of the organisation must adjust its written and unwritten policies and procedures to serve the vision of sustainability. Of course, what is simple in concept is often much more difficult in practice. To achieve alignment, start by asking each unit and function of the organisation to answer three questions:

1. Have you completed all of the steps involved in the sustainability change process such as setting a clear vision, adopting guiding principles, establishing performance gaps and strategies to close them, etc.?
2. What will it deliver (this quarter or year) to help the organisation achieve its vision and implement its sustainability strategies?
3. What does it need and expect from other units of the organisation in order to produce its promised deliverables?

The deliverables each unit agrees to produce toward the vision of sustainability should include clear and measurable outcomes along with accountability mechanisms. The promised deliverables, along with the needs or expectations each unit has of other units, should then be shared with all other units. An iterative process of learning and exchange should ensue. The goal is to help each unit understand what others are doing and what others need of them to produce their deliverables.

Each unit should engage in a dialogue with the other units so that gaps, conflicts, overlaps and other forms of misalignment are resolved. The dialogue should continue until each unit's deliverables and expectations fit with and support the work of the other units. A seamless strategy should result that aligns all of the units and functions of the organisation in the direction of achieving the organisational vision of sustainability. The alignment strategy should be regularly evaluated and updated. Figure 12.1 describes the alignment process.

Analysing your level of alignment

An easy way to assess the degree to which the 'parameters' used by the organisation have been successfully modified such that systems, structures, policies and pro-

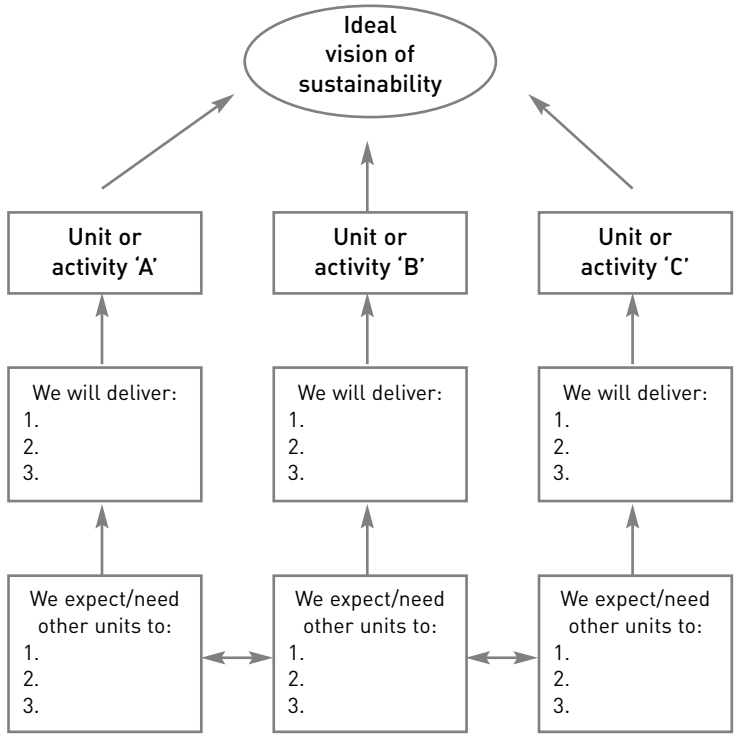


Figure 12.1 Alignment process

grammes are aligned with sustainability is to ask employees and stakeholders these questions:

- Does your organisation have a laser-beam commitment to achieving sustainability?
- Do people know what is expected of them in terms of working toward sustainability?
- Is the structure of your organisation conducive for working together to reduce environmental and related socioeconomic problems?
- Does your organisation have fair and clear criteria of employee performance related to sustainability?
- Do employees get regular feedback about their performance related to sustainability?
- Are rewards and compensation mechanisms clearly linked to sustainability performance measures?

If employees or stakeholders say that the organisation is not fully committed or clear about its goals, some of the key underlying factors that support alignment are missing. If people say that effective measurement and reward systems do not exist or that, if they do, they are based on favouritism, seniority or other issues, and not on performance related in part to sustainability, your alignment efforts are inadequate. If people answer in the affirmative to these questions, your efforts to align the organisation with sustainability are probably on the right track.

If an organisation has successfully progressed through each of the previous six phases of the wheel of change and effectively changed the parameters so that its structures and systems are aligned with sustainability, the chances are high that it can make continued progress. Ironically, this may mean that the organisation needs to spin the wheel of change one more time. Initial success in formally embedding sustainability-based thinking and behaving in an organisation represents a starting point, not an ending. Sustainability is a long-distance race. It is important for organisations to continually revisit their commitment to achieving sustainability to ensure that it remains resolute. Each of the other solutions on the wheel of change should also be occasionally revisited so that progress toward sustainability continually deepens.

Assessing your change strategy

A simple assessment form is provided in Appendix C to help you measure the effectiveness of your existing sustainability change strategy. Ask individuals from within and external to the organisation to complete the assessment. The information that results can tell you how far you have progressed, and how far you need to go, in developing an effective approach to change toward sustainability.

13

Aligning governance with sustainability

After pushing on the wheel of change toward sustainability for a time, a number of the leading public and private organisations came to realise that, to make continued progress, employees and stakeholders must become more meaningfully engaged. To achieve this, these organisations realise they must further enhance their governance systems.

Employee engagement and participation

A study released in August 2002 by the New York-based Conference Board found that American workers were growing unhappier in their jobs. The survey of 5,000 people found that that only 51% were satisfied with their work (*Register Guard* 2002b). Unhappy employees are not likely to be very productive. When half of all workers are not satisfied with their jobs, it should be no surprise that organisations fail to achieve their full potential.

What are the keys to keeping employees happy and productive? Research has shown that financial issues such as pay and benefits are not the most important determinants. This does not mean these issues are unimportant. On the contrary, it means that they are equally important to every employee. Every worker expects decent pay and bonuses. If an organisation pays significantly below the prevailing wage, it may not attract the best employees. But, when pay, bonuses and other benefits are relatively equal, other factors determine the level of employee happiness and productivity (Buckingham and Coffman 1999).

Marcus Buckingham and Curt Coffman, in their book *First, Break All the Rules,* summarised their team's extensive research into the key factors that determine an organisation's ability to attract and retain the most productive employees. Buckingham and Coffman (1999) describe these factors as the following:

1. *The quality of an employee's immediate supervisor*. Employees may join an organisation for the pay or reputation. However, it is their relationship with their immediate supervisors that ultimately determines how pro-

ductive they will be and how long they stay. More often than not, people leave organisations not because of better offers or money concerns but because they have poor managers.

2. *Clearly defined expectations*. Knowing what is expected and having the resources to meet those goals is a prerequisite for happy and productive employees. Employees want to clearly understand what they are expected to produce, the deadlines they must meet, and whether they will have the resources and authorities needed to achieve these goals. Defining the right outcomes rather than the right steps for people frees them to use their unique talents to the maximum extent possible and thus enhances performance.
3. *Ability to cultivate one's natural abilities and strengths*. Each person has unique talents, desires and patterns of behaviour. Employees are happiest and most productive when their natural strengths are maximised. Rather than trying to fix weaknesses, the best way to help people grow and excel is to identify and focus on improving and expanding their natural strengths while managing around their inherent weakness.
4. *Being in the right role*. Following from the principle above, people are happiest when their skills, knowledge and unique talents match the demands of the job. High productivity is the result of finding roles that allow people to do more of what they are naturally good at rather than trying to force them to perform better at roles where they do not excel. People are most productive when they are in jobs that provide the greatest chances of success.
5. *Being meaningfully involved in decision-making*. Employees play a major role in the ability of an organisation to be productive. For example, they can use their time more wisely, reduce their waste (from simple things such as turning off their computers when not in use to more complicated actions such as buying products more efficiently) and propose ways to improve performance. However, employees will take these steps only when they feel valued and when they are fully engaged in decision-making.

Good governance is required to generate these attributes. Unfortunately, few organisations have developed governance systems that provide these critical features for employees. As a consequence, most organisations fail to capture the full energy and commitment of their workers.

This is certainly the case in the sustainability field. Time and again during my research, teaching and consulting, I hear complaints from employees that their supervisors are more interested in themselves than the worker, expectations are fuzzy, roles poorly defined, and workers are not meaningfully involved in decision-making. For example, our assessment of the State of Oregon's sustainability initiative found that two and a half years into the effort less than one-third of the state employees we surveyed had been asked about their ideas for pursuing sustainability, and a majority were unclear about their roles in the initiative (CWCH 2002). It

is impossible for organisations to adopt a permanent path toward sustainability when these patterns exist.

The need for clarity over goals, roles and rules, and meaningful involvement does not just apply to employees. Stakeholders have the same needs. If stakeholders trust that the organisation is honest, listens to them and is committed to their wellbeing, they are likely to support its efforts to achieve sustainability. Even better, if stakeholders are meaningfully involved in the organisation's decision-making processes they will actively help it succeed. If stakeholders do not sense these factors to be present, they may ignore the organisation or, worse, oppose change efforts.

To capture the energy and commitment of employees and stakeholders, a governance system must be crafted that meaningfully involves them in planning and problem-solving and equitably shares the fruits of success.

Governance in a changing world

Even though terms such as *empowerment* are now widely bandied about, most organisations today—including many of those striving for sustainability—still operate essentially as patriarchies. To be sure, they don't consider themselves patriarchies. That would conflict with their self-image. However, even many of the 'kinder and gentler' organisations still operate as patriarchies.

Patriarchal organisations manage from the top down. Those at the top are the authorities. They are in charge of thinking and decision-making. Those at the bottom simply carry out the directives of the executives. Power is exercised through the use of hierarchical management and supervision. Because they view interactions from a purely vertical perspective, patriarchies see organisations as a collection of separate components, not as a whole system. Employees are seen as parts that can be exchanged for others, just as capital equipment may be upgraded, bought or sold. Stakeholders are viewed as thorns in the side or, more often than not, as major threats.

Patriarchal organisations are often confused about what empowerment means. Executives typically believe that employees and stakeholders will be empowered by simply instructing or giving them 'permission' to work on sustainability. Ironically, unless people are also provided with the resources and authority needed for success, this is often simply a subtler, more insidious version of a classic top-down approach. People have been authorised, but are not enabled. Senior executives still control the process by withholding the authority and resources required for real empowerment. Employees and stakeholders often sense that they have been set up and refuse to actively participate in these disingenuous efforts. Thus, a self-fulfilling prophecy has been created. Executives conclude that empowerment efforts have failed and that they must therefore retain full decision-making authority.

The State of Oregon's sustainability efforts were initially constrained due to the confusion over these issues. The governor's staff thought they were promoting grass-roots efforts by encouraging state employees to work on sustainability.

However, because the governor's staff offered little leadership, refused to set clear guidelines or require accountability and provided few resources (such as education or training opportunities), many state employees ended up frustrated by the lack of true empowerment.

In addition to confusion over empowerment, autocratically controlled organisations tend to struggle when employees become better educated or when demands increase due to rapid changes in the external environment.

Employees today in Western societies are better educated than at any time in human history. The more educated that people become, the less willing they are to bend to the will of their bosses. Educated people want the freedom and authority to learn and make their own decisions. They realise they have a choice and will not react mechanistically to orders they receive. Patriarchal governance does not work very well in the face of these demands. This is why political autocracies and feudal states usually seek to block widespread educational efforts. Educated people want a say in decision-making (Ackoff 1999).

The rapid changes occurring in society due to growing environmental and socio-economic pressures and technological advancements also pose difficult challenges for patriarchal organisations. No single person or unit on their own can solve the problems found on the path to sustainability. Many of the problems must be resolved in units other than those where they are first spotted. For example, emission and discharge problems are best resolved by those focused on product and process design and materials selection, not by the EH&S department. However, patriarchal organisations assign problems to specific departments such as EH&S and expect these units to solve them. Time after time, this siloed, fragmented approach fails because the place to fix the problem is not where its symptoms appear. Teams of people from throughout the organisation with multiple skills and perspectives must work together seamlessly to address these types of complicated, counter-intuitive problems.

Even if initial progress has been made, if governance systems tend toward the patriarchal, continued progress toward sustainability will be difficult to achieve. Eventually, the lack of alignment between the prevailing approach to governance and that needed to achieve sustainability will constrain or block further advancement. When this occurs, the organisation should adopt the principles of sustainable governance.

Principles of sustainable governance

For organisations to successfully make the transition toward sustainability, they must move from a mechanistic, patriarchal system of governance to one that is systems-based.

In the mechanistic model of governance, the organisation is seen as a collection of disconnected units. To manage these separate, directionless parts, executives believe that they must do the thinking while the bottom does the acting. Further, the norms and values of most organisations—particularly US-based enterprises—

are shaped by the belief that profit-making is their sole reason for being. This view leads to the natural conclusion that employees are primary motivated by money.

These beliefs focus the attention of executives and employees on the symptoms, not the real sources, of organisational health. As with any management process focused on symptoms rather than root causes, the mechanistic, patriarchal view of governance is unsustainable. What may appear as success in the short term usually turns into environmental, social and economic crisis and failure over the middle and long run.

As discussed throughout this book, the true drivers of organisational wellbeing are clarity over goals, roles and rules, the unity of purpose people feel when engaged in a mission greater than themselves, the capacity to learn and innovate, and the ability to adapt to change. These traits are derived from organisational norms and values that honour diversity, mutual trust and the sharing of power and authority. As Arie de Geus, former executive with Royal Dutch/Shell, and others have so accurately said, profitability is just a symptom of the existence of these factors within an organisation, not a predictor or determinant of success (de Geus 1997).

The natural environment is composed of an untold number of ecological systems and elements that interact in ways that lead to the continual replenishment of the stocks and flows of nature. That is, the way in which the components interact makes the whole greater than the sum of its parts. Similarly, by skilfully engaging and distributing power and authority among all those involved, sustainable governance systems create a positive reinforcing mechanism that continually pushes the organisation toward the higher purpose of providing for socioeconomic wellbeing while conserving the environment. Profitability is just one of the many positive outcomes of this type of system.

My research found that the organisations leading the way toward sustainability view all of the people that are affected by their operations—internal members as well as external stakeholders—as important parts of an interdependent system. The leaders understand that every component of the system must be fully engaged and must function effectively for the whole to succeed. High-performance sustainability organisations realise that, once a basic threshold for money is met, employees are more interested in maximising their internal potentials and skills and in being part of something important than they are with just getting more pay. Because all parts of the organisation's social systems must feel valued and be meaningfully engaged for these higher goals to be achieved, power and authority are skilfully distributed among employees and stakeholders through new information, decision-making and resource-allocation mechanisms.

This model of governance is much more sustainable over time because, as a natural output of the process, the commitment and involvement of employees and stakeholders remains high and, with the proper purpose, vision and guiding principles, environmental and socioeconomic crisis is avoided.

As seen from the examples of the leading organisations described in this book, my research found that sustainable governance systems have five dominant characteristics:

1. *They follow a vision and an inviolate set of principles focused on conserving the environment and enhancing socioeconomic wellbeing.* Recall that every system has a purpose that defines it as a distinct entity. This purpose is the property of the whole and not of any particular part. One of the core purposes of sustainable governance is the conservation and restoration of the environment and the enhancement of socioeconomic wellbeing. This purpose has equal or greater footing than the goals of profitability or shareholder value.

2. *They continually produce and widely distribute information necessary for expanding the knowledge-base and measuring progress toward the core purposes.* A system has feedback mechanisms that provide information about how it is doing relative to its desired purpose. Sustainable governance systems produce and widely disseminate timely and credible environmental, social and financial information to provide the feedback needed for continued learning and improvement.

3. *They engage all those affected by the activities of the organisation.* Systems must have *all their parts* present to achieve their purpose. Leaving out core pieces will cause the system to operate below its potential or even fail. Sustainable governance systems involve all those affected by the organisation in planning and decision-making, including individuals and groups normally excluded from the process such as stakeholders, because they are key parts of the system.

4. *They equitably share the resources and wealth generated by the organisation.* The way all parts of a system are *arranged* matters a great deal. Even if all the parts are present, if some are not fully functional or engaged, the system will not work at its optimal level. Sustainable governance systems equitably share the resources and wealth generated by the organisation because equity is a prerequisite for full engagement and support.

5. *They provide people with the freedom and authority to act within an agreed-upon framework.* Systems do not act randomly. They have *rules* that define how the parts interact. Sustainable governance systems have clearly defined, mutually agreed-upon rules, roles and responsibilities. Clarity over goals, roles and rules is depicted in strategies, implementation plans, policies and procedures. Within the boundaries of that system, power and authority are decentralised and people have both the freedom and the responsibility to act.

Each of the leading sustainability organisations I reviewed has adopted most, if not all, of these principles of governance. Each describes and applies the principles in its own unique way. No matter how they are articulated or employed, the principles form a charter or constitution that guides the organisation toward sustainability. The use of this system generates a positive self-reinforcing loop that over time produces better and better outcomes. In short, these principles provide the governance mechanisms necessary for the long journey to sustainability.

1. Follow a vision and inviolate set of principles focused on conserving the environment and enhancing socioeconomic wellbeing
2. Continually produce and widely distribute information necessary for expanding the knowledge-base and measuring progress toward the vision
3. Engage all those affected by the activities of the organisation
4. Skilfully distribute the resources and equitably share the wealth generated by the organisation
5. Provide people with the freedom and authority to act within an agreed-upon framework

Box 13.1 **Sustainable governance systems: five dominant characteristics**

A number of private firms such as Herman Miller, Patagonia, Stonyfield Farm, SCA AB, Stena Metall and others have employed many of these principles of governance for a number of years. What's new for these companies is often the adoption of a vision of sustainability, clear principles and strategies or more meaningful engagement with stakeholders. Others, such as Interface and Chiquita, are for the first time developing governance systems that follow these principles.

Similarly, some governments have a track record of employing many of the principles of sustainable governance. The State of Oregon, Burlington, VT, and the Dutch government have long valued collaboration between the public and private sectors and meaningful citizen involvement. As with the leading private firms, the primary changes that sustainable governance requires of these organisations are the adoption of sustainability visions, principles and strategies, and expanded decentralised decision-making.

Improvement in any of the five areas of sustainable governance may help an organisation substantially enhance its performance. While a number of private and public organisations have reached this conclusion, the changes made by Interface Corporation and the City of Burlington, VT, offer especially keen examples of this shift.

The Burlington approach to sustainable governance

On 19 May 1999, Burlington mayor Peter Clavelle announced the appointment of a steering committee for the community's 'Legacy' project, an effort aimed at encouraging the entire community to think systematically about and plan for its long-term future. The committee's members included individuals from the business, low-income, environmental, academic, youth and social service communities. The task of the committee was to oversee the public involvement campaign and prepare an action plan for the project.

A year later, the committee released its action plan. Hundreds of people had been involved in building a common vision for Burlington's future. Numerous tough issues had been tackled such as growth management, the loss of high-quality jobs, environmental degradation and affordable housing. The city used its vision of sustainability and guiding principles to establish priority areas, goals and strategies. Burlington adopted indicators to measure progress. They established roles

Economy

- Create a vibrant urban centre
- Economic security
- Economic self-reliance
- Transportation

Neighbourhoods

- Quality of life
- Housing
- Governance
- Responsible government
- Youth civic participation

Environment

- Air quality
- Lake Champlain water quality
- Energy and resource conservation

Box 13.2 **Burlington's 'Legacy' project: priority areas**

and responsibilities for government, local businesses, the university, hospitals, the chamber of commerce, non-profit organisations and other stakeholders.

The extensive public involvement that led to the plan was distinctive among US cities. Mayor Clavelle had spent many years doing community planning in emerging nations. He was struck by how much more involved people in Eastern Europe were with their communities compared to citizens in the US. After returning to the mayor's office in 1995, he became increasingly convinced of the need to engage the citizens of Burlington in a manner similar to what he had seen in Europe.[1]

Burlington enjoys significant progress since the committee released the action plan. For example, to improve air quality they established a plan to increase the number of alternative-fuel vehicles in the city's fleet. A campaign was launched to reduce local greenhouse gas emissions by 10%. To improve access to safe, decent, affordable housing, the city adopted ordinances to increase enforcement of housing codes and standards. The University of Vermont agreed to build housing for over 400 students on-campus. Many other undertakings have been successfully accomplished as well.

Despite these achievements, community leaders have come to realise that further progress depends on improved forms of governance. Bill Mitchell, assistant to the mayor, told me that:

> Our challenge is to establish effective means of governing (monitoring, evaluation, steering) Legacy efforts, understanding that these efforts are not simply the province of city government, but encompass a wide range of activity on the part of various institutions, non-

1 Personal communication, 22 August 2002.

> profit organizations, businesses and citizens as well. When the Legacy Project itself was under way, when we were facilitating a community-wide conversation and developing a plan, the initiative was governed by a diverse Steering Committee. Subsequent to the plan's adoption by the City Council, we asked the administrations of the university, our regional medical center and various nonprofits to commit themselves to realising aspects of our plan. One year later, we find ourselves moving to reconstitute a Steering Committee made up of key stakeholders in order to ensure that the project's governance is adequate to the comprehensive task involved.[2]

The need for a more effective governance system became evident due to the realisation that all stakeholders must be involved if the Legacy plan is to succeed. The city council, mayor and city staff cannot achieve success on their own.

> We recognise that cracks are going to develop unless we can find a more fundamental way to involve and work with all of our partners. We realise that we need all of the stakeholders at the table on a regular basis and that we need a different, more expansive governance system to address this.[3]

City leaders believe that widespread citizen participation and increased accountability are the keys to enhanced governance. For many years in the past, Burlington had employed a commission form of government. Each department had a citizen commission that acted as the board of trustees for the department. The city council and the mayor together appointed commission members who typically serve three-year terms. The mayor had budget authority over the departments. However, direct accountability was low. When someone had a problem, they had to talk to the commission that oversaw the particular department in question. For example, when citizens had a problem with the sewer system, they had to see the commission that oversaw the department of public works. Talking to the mayor would have limited effect, because a layer of decision-makers sat between the mayor and the agency. The mayor consequently had little direct day-to-day control over the department.

As the Legacy project unfolded, community leaders decided they needed greater accountability. As a result, the city departments were made directly accountable to the mayor. Citizens can now go directly to the mayor with a complaint and the mayor can do something about it. Additionally, the mayor's new authority facilitates improved co-ordination among the departments accountable to him.

Burlington did not stop with the internal changes in governance. The city has enhanced its existing structures for citizen participation to make city government more directly accountable to the public. The city's five 'Neighborhood Planning Assemblies' (NPAs), which had been formed in 1983, were strengthened as direct interaction and decision-making bodies between city departments and neighbourhood residents. Each year various departments now share with each NPA their annual plans for activities in their neighbourhood. The public provides direct feedback to the agencies, which then make decisions based on the feedback they

2 E-mail from Bill Mitchell, assistant to the mayor, 26 August 2002.
3 Personal communication with Bill Mitchell, assistant to the mayor, 26 September 2002.

receive from the neighbourhood groups. Because the mayor now has direct responsibility for city departments, he helps to ensure that they are responsive to the desires of each of the NPAs. This is an excellent example of sustainable governance at work.

Burlington also placed a major emphasis on improving the quality and flow of information. This is a community of active, concerned citizens. People want to know what's going on and be involved. Burlington obtained a US EPA grant for an eco-information project that has produced a new website and other tools to provide timely information about air and water quality and other environmental issues.[4] The city now distributes information related to all aspects of the Legacy plan on public and government access cable television.

The NPAs also serve as a forum through which citizens get timely information. City departments provide monthly updates to the neighbourhood groups about activities in their area. When developers propose to build a project, the city immediately encourages them to talk with the neighbourhood group that may be affected. As a result, projects no longer slide along under the public radar screen until it is too late for local citizens to give meaningful input.

To provide overall accountability for the Legacy project, the city produces an annual report card that describes the progress made in the past year. The first *Legacy Project Annual Report* was released in 2001 as part of the mayor's 'state of the city' speech. Subsequent report cards are included in the city's annual financial report. Not only do the reports summarise the plan's progress, they list the salaries of every city employee and provided a simple accounting of the city's budget. Thus, information about how resources are allocated is easily available for the public. In addition, Burlington holds an annual Legacy town meeting at which progress is reviewed.

These actions help build true direct accountability.

Despite all of these positive steps, city leaders believe that more is needed. They sense a need for a more formal governance process to oversee the Legacy plan. The mayor wants citizens and stakeholder groups more directly involved in decision-making. After the city released the original Legacy plan, the steering committee that oversaw the planning process was disbanded. The community decided to reorganise the committee and enlarge it. City government, neighbourhood and grass-roots groups, United Way, youth representatives, the local university, businesses, the medical centre and many others have been asked to sit on the expanded committee. Its role is to monitor the progress of the Legacy plan, serve as a forum for discussion, set annual priorities and recommend modifications as time goes on.

Time will tell how successful the new steering committee will be in enhancing participative decision-making and accountability. The fact that it has been reconstituted, however, underscores the City of Burlington's commitment to sustainable governance. One can hear the deep sense of obligation to sustainable governance in the mayor's comments. The new committee 'is a work in progress,' says Clavelle. 'But we need to stay true to our commitment to improve accountability and governance.'[5]

4 www.ci.burlington.vt.us

5 Personal communication with mayor Pete Clavelle, 22 August 2002.

The Interface approach to sustainable governance

Leaders at Interface have come to understand that the firm's governance system is key to their ability to make continued progress toward sustainability. After many years of trial and error, senior executives now believe that three prominent drivers will determine success: employees want to be listened to, meaningfully contribute and be part of something bigger than themselves. Interface executives believe that the company's commitment to sustainability is 'something bigger than themselves' that can energise employees. Their key challenge is to build a system that meaningfully engages employees and makes them feel listened to.

Developing this new system requires fundamental changes in the firm's traditional approach to governance. When Ray Anderson, former CEO and now chairman of Interface, first became focused on sustainability, the organisation was governed through a hierarchical command-and-control structure. Anderson set the direction and employees implemented it. A single person was also in charge of each department of the company. Each manager reported to a higher-up in the patriarchal structure that existed.

The company has spent several years pursuing sustainability and during this time bumped into numerous obstacles. Many of the barriers, it turns out, were caused by a lack of alignment between the hierarchical command-and-control governance system and the company's focus on sustainability.

The learning process Interface has engaged in led to the understanding that one person alone cannot possess all the attributes needed of an effective leader. People have different natural orientations and attributes. Some are entrepreneurs, some are team builders, some are competitors, some are commanders, some are safety-oriented and some are creators. Few people excel in all of these areas. The entrepreneur is the antithesis of those who are safety-oriented. The commander is the antithesis of the team builder. While no single person may have all of these attributes, they are all needed for Interface to achieve its potential.

Executives at Interface now believe that the old organisational model of a single department or unit leader, who is often ego-driven, cannot succeed in today's world of increasingly complex issues and rapid change. One individual usually does not realise that they do not possess all of the attributes needed for success. The responsibility of senior executives is to develop teams of people whose natural attributes complement each other so that all of the roles and functions necessary for success are performed well. For example, if a leader is an entrepreneur, a safety person must be close at hand to continually tell the risk-taker when to slow down or back off so as not to overwhelm staff or make a major mistake.

Consequently, Interface has focused more on more on developing team structures than on individual leaders per se. In the functional areas of management, it is developing teams with offsetting qualities. At the departmental level, a manager is now responsible for cost, delivery and scheduling of labour. A different manager is responsibility for 'agility' and quality. Still other people are responsible for additional issues. Ultimately, no single person is responsible for all of the key functions. In short, people with all of the key attributes needed for success are part of the teams. To avoid confusion, the new structure requires clarity about goals, roles and rules.

Interface is also building an internal market economy within the company. In the old model, department managers ran their units as a separate business. This led to siloing and fragmentation, which reduced productivity. Today, a whole new structure is evolving whereby everyone in the organisation has been turned into the 'customers' of others. People are asked to treat others as they would want to be treated if they were customers.

The shift away from the single-authority model and competition between units means that employees are now continually told, 'You work for the company, not for a department manager.' Employees are encouraged to use their talents to make the company, not just their unit, the best it can be. Managers no longer ask employees to be loyal to them but to use their talents to help the firm. Through continual repetition and the development of new structures and systems, employees are beginning to understand what this change means.

One of the biggest challenges has been establishing systems to support and encourage employee involvement and innovation. One step has been to encourage employees to make suggestions about how to improve the firm's operations. Management went to each of the company's 7,000 employees and asked them to participate in the QUEST (waste reduction) process. They now actively seek ideas from employees. When an employee proposes an idea, the individual who offers it is actively involved in implementation.

Interface staff believes it is vital to provide honest feedback when an employee's suggestion is not chosen for implementation. When associates step out of their normal role, the company owes it to them to explain why their ideas were not acted upon. Every time someone puts forth extra effort they need to be acknowledged, responded to openly and honestly, and rewarded.

> Unless you go the full gamut, the suggestions stop coming. Because our work is so enormous to become a sustainable enterprise, we now realise we need to look at any suggestions, because you never know when we will get a gem that will take us to the next level,

says John Bradford, vice-president of manufacturing and operations.[6]

Employees at Interface also have the right to challenge or refute any idea or proposed action. If employees see activities or decisions they feel are not consistent with the company's sustainability vision and principles, they are encouraged to speak up. This message is delivered at every staff meeting. This new form of employee empowerment is a major cultural change for Interface. To make it work, the company has reoriented its structures and system.

Staff from the human resources department initiated many of the changes in governance. Joyce LaValle is in charge of human resources at Interface. LaValle sees her role as enhancing the *services* provided to employees at Interface. For this reason, when she took the job she made sure her title became senior vice-president of human services (not resources). LaValle took the position after many years in sales and marketing. Her exposure to HR in that role associated it with rules and regulations. When something was wrong, HR got involved. This did not feel 'good' or 'fair' to LaValle.

6 Personal communication, 20 August 2002.

Therefore, after she took on the human services job at Interface Americas, LaValle reoriented the department into one that served employees, not controlled or ordered them. One change LaValle insisted on was that human services had to report directly to the company's senior leadership. She felt her department had to be at the table with all of the other senior managers at Interface.

Another change LaValle made was to transform her department from one that wrote and enforced rules into one that helps employees learn, grow and prosper. Her department is now rewriting policies in language that everyone can understand, with a focus on fostering partnerships and building a powerful *team* at Interface. Focusing on the development of a high-performance team is very different from the historic HR focus of rewarding people who maximise their individual performance. When individuals seek to maximise their own performance, they often reduce team performance. To make this shift, LaValle's department changed the traditional focus on fixing the weaknesses or limitations people display to one oriented toward situating people in roles and locations where they can naturally excel. That is, they now evaluate and manage the *relationships* that exist among people, not their actions per se. This fundamental shift has significantly changed the focus and value of the work done by the human services department.

The transformation that LaValle, Ray Anderson and others have initiated has helped the staff understand that to achieve sustainability they must not only learn new ways to manage their interactions with the environment, they must learn whole new ways of managing the interactions between people as well.

One of the changes Interface has made is to make 'agility' a new requirement for managers. Few organisations measure 'agility'. At Interface, agility means embracing suggestions that employees may offer, gaining new ideas through research and product development, or seeking them from outside sources. In short, the company is actively mining ideas. For example, Interface now holds meetings where outsiders who know the company are asked to point out issues that could put the company out of business. Executives want smart people from outside the company to help them identify emerging threats—from new products, competitors, environment or socioeconomic pressures, legislation, or other issues. The firm seeks not only to bring in new ideas but to apply them as well. Gathering new ideas does little good if they are not operationalised.

Interface has applied this new governance system both at the Bentley Prince Street carpet facility in California and in its facilities in Georgia. 'This new structure and approach is what is propelling us into the future at a high rate of speed. We went from shunning new ideas to letting them come in by osmosis to looking for ways to farm ideas,' says John Bradford.[7]

By developing this new form of governance the people of Interface don't just hope they can achieve sustainability; they *know* they can do it. 'There are just a few technical problems that stand in the way, and we are working these out. Cultural change never happens quickly. As we work through these issues and develop the new structures, our culture will change,' said Bradford.[8]

7 Personal communication with John Bradford, Interface vice-president of manufacturing and operations, 20 August 2002.

8 *Ibid.*

Governance challenges of the future

The changes initiated by Interface and the City of Burlington underscore the fact that, in many organisations, new or improved forms of governance will be required to achieve sustainability. Developing these new systems will not be easy. The process will almost certainly play out against a backdrop of intense institutional and cultural bias toward hierarchical, patriarchal systems. Increasing tension related to environmental degradation, political upheaval and global terrorism may also cause people to retreat back to patriarchal forms of governance such as the military model. If, on the other hand, we understand the systemic causes of the much of the environmental, economic and political upheaval, it may be possible to develop sustainable governance systems that can help to ameliorate many of these problems.

In the Western world, the current mantra is 'the era of big government is over'. But, what will replace 'big government' and patriarchal governance systems? The old models of decision-making are clearly not appropriate for the long march toward sustainability that lies ahead. Organisations around the world today face a key question: How can we create a governance system where all of the people and partnerships have power? Those who find answers to this question first will lead the way.

14

Closing thoughts on the change process

It should be obvious by now that organisational change toward sustainability is generally not a neat or tidy process. Although the seven key leverage points for change toward sustainability form a natural progression, there is rarely a sense of closure to the process. Triumphant organisations sufficiently complete each of the phases, but they also continuously circle back and forth through many of the change interventions. Indeed, the leading organisations substantially refine or redefine their visions and thus fundamentally change their teams, strategies, action plans, information, feedback and alignment mechanisms every year or two as new information is generated and new opportunities become evident.

Over the years I have been afforded the opportunity to observe many organisations navigate the change process. As a result, some pertinent early warning signs and indicators of success have become apparent that may prove helpful to your efforts.

Red lights

Change leaders may want to keep an eye out for six common denial mechanisms that usually signal problems of governance or leadership. When you hear yourself or others voice these denials, look deeply to discover the underlying truths that may shape the comments.

'We don't have to do that.' This is the most straightforward—and honest—form of denial. It dismisses the need for sustainability measures out of hand. People who espouse this belief usually have not taken the time to look deeply at the negative effects of their current operations on the environment, workers and communities or at the benefits of sustainability, or don't think their organisation can do much about the problems, or simply don't care. Those who deny that climate change is occurring or that humans play a major role in it, fall into this category. The

boomerang effects on those who deny responsibility for a problem can often be extreme.

'We already do that.' This is just a subtler version of the outright denial above. Many people in the public and private sectors claim that their existing policies and programmes are sustainability-based. In reality, they are not because they remain rooted in the inherently harmful linear take–make–waste production paradigm. By claiming that their organisation already practises sustainability (for example, by being in compliance, recycling, or using pollution-prevention measures), people with this belief can dismiss the need to make substantive changes.

'We tried it but it didn't work.' This is one of the most insidious forms of denial. As with the previous denial, those who hold this position usually make few, if any, real attempts to test out sustainability measures. By claiming that previous attempts failed, however, they can absolve themselves from all future effort.

'The successes are mostly anecdotal so we'll wait for more hard data.' This is an extremely dangerous form of denial. I hear it most often from government employees. Those who think it is safer to follow and not lead usually espouse this view. By the time there is sufficient 'hard data' to convince the laggards of the benefits of sustainability measures, their competitors have usually taken major leaps forward, leaving those in search of more data in the dust once again.

'It's too costly (or time-consuming, complicated, etc.).' This denial takes many forms but is the easiest to deal with. Usually when I hear it, I find that the costs (or efforts) were never actually calculated. People just assume that they are too high. This denial often stems from ignorance about what sustainable development actually involves, or from feeling overwhelmed by daily crises, or out of simple laziness.

'Its [name]'s fault, not ours.' This denial absolves the organisation (unit or person) from responsibility by placing blame for environmental or socioeconomic problems elsewhere (e.g. 'It's the government's fault—they are always raising the standards', or 'It's George's fault in manufacturing. He doesn't care about environmental or social issues', or 'It's the environmentalists' fault. They are never satisfied.'). Blaming usually brings a search for the true sources of environmental and socioeconomic problems to an abrupt halt. Those involved may also become frightened of being punished and refuse to provide valuable information that could help the organisation understand what is really going on.

If these warning signs are present in your organisation, some deep introspection may be in order about the effectiveness of your styles of governance and leadership. Ask yourself: Do we have a clear purpose and meaningful principles for guiding the organisation? Do we fear or feel positive about equitably sharing power and authority? Is making money our only motivation or are enhancing social welfare and caring for the environment of equal or greater importance? Unless you can answer in the affirmative to these questions—unless the core purpose and values of your organisation are to nourish and protect people, planet, as well as profits—it should be no surprise that one or more of the denial mechanisms exist in your organisation and that you struggle to adopt a more sustainable path.

Probing deeply and creating an atmosphere of tolerance for past mistakes is vital to help people move beyond denial. Serious analysis may uncover how your

governance systems and leadership styles may actually generate the conditions that allow environmental and socioeconomic problems to fester. This awareness may open the door to new hope and possibilities.

Green lights

Just as some warning signs point to potential trouble, four traits seem to bode well for sustainability efforts.

Unbinding optimism and curiosity. In my investigations I could visibly see and sense tangible differences in the attitudes of people within organisations that have fully committed to sustainability and those that have not. Employees and stakeholders of committed organisations are upbeat, excited, feel a sense of mission and search intensely for new information and ideas. This feeling was palpable at the Interface corporate headquarters in Atlanta and their manufacturing plants in La Grange, GA. It was also easy to ascertain from employees at Norm Thompson Outfitters, at Scandic Hotels, the Dutch Ministry of the Environment, Burlington, VA, Santa Monica, CA, and even some of the watershed projects I reviewed. Each of these organisations took a significant amount of their valuable time to help me understand their sustainability-change strategies. Many also wanted to pick my brain to see if I had information that would benefit them.

A future orientation. When organisations continually focus on solving the next crisis they become reactive and backward-looking. Continual firefighting often reinforces the tendency to blame, as people search for the cause of the next problem. Reactive crisis management deflects the energy of the organisation away from positive activities that can help prevent problems from occurring. The reaction model is particularly endemic within government, but it is dominant in the private sector as well. When people begin to see the patterns and interrelationships within their whole organisational system, on the other hand, they develop a vision of their entity as they want it to be and begin to work toward that vision. In my investigations, I found that the leading sustainability-oriented organisations always seem to place their emphasis on attaining important goals in the future, not just on avoiding today's problems.

Consistency and doggedness. Opening the door to change is difficult and often leads to unexpected outcomes. People will face numerous obstacles along the way, many of which will seem to relate to technical questions but which, in reality, are related to the challenges of changing personal assumptions, values and thinking, and the organisation's patterns of governance. Those who have chosen to venture down the road of sustainability understand that the process will be messy. They know the path will not be straight. There may be financial as well as personal costs. Nevertheless, they persevere. They don't let failures stop their momentum. The more successful organisations also realise that, once they start down the path, going just part-way, or stopping, could be more harmful than not engaging in the process at all. The leading sustainability-based organisations make a commitment

to organisational change that is complete. Consistency and persistence are the hallmark of their effort.

A whole-systems perspective. As people learn about their organisation and how it relates to its external environment, and as they understand how they fit into the overall system and how to work across functions and departments, they discover new opportunities. Creative energies are unleashed and innovative solutions emerge. My investigation found that the organisations that are achieving the most success are often the ones that are developing the new 'breakthrough' technologies that drive the market. Organisations such as Henkel, Norm Thompson Outfitters and Interface have also developed new business models that were previously unthinkable, as a result of the increased sophistication that developed and the innovation that was unleashed when a whole-systems view was adopted.

If these signs of success are evident in your organisation, the potential exists to accomplish great things. If they are not apparent—if your organisation is reactive and crisis-oriented or does not think about problems or opportunities from a systems perspective—an honest look at your governance systems and style of leadership may be beneficial.

Persistent patterns of environmental and socioeconomic crisis always suggest governance and leadership problems

One of the most important lessons that I hope to have shared in this book is that my investigation found that persistent environmental and socioeconomic problems are symptomatic of deficiencies of governance and leadership within an organisation. Today, when I review an organisation, I start by assessing its performance on environmental, labour and social issues. If a pattern of problems exists, I immediately begin to examine its governance systems and styles of leadership. In short, environmental and social-welfare troubles do not just indicate technical problems—they are clear signs of poor management.

Many organisations believe that simply by producing environmentally sound products, such as organic foods, they can be considered sustainable. While the shift to organics is very positive, sustainability is determined as much by the way an organisation operates as by what it produces. Business models that rely on practices that undermine the health of workers or their ability to make a living wage, destroy local economic systems and cultures or degrade the environment are not sustainable, even if products meet environmental criteria. My research suggests that organisations that fail to understand this suffer from problems of governance and leadership.

Social systems have no predetermined plan for how they operate. The outcomes are determined by the way decisions are made and power and authority are distributed in pursuit of the purpose and goals chosen by the members of the system. Just as a headache or high temperature signals a cold or flu in a human being, persistent environmental and socioeconomic problems are sure indicators of poor leadership, management and governance in an organisation.

The 'wheel of change toward sustainability' applies to small and large, public and private organisations

Although the emphasis of each of the seven interventions on the wheel of change may vary, I found that the overall process of change toward sustainability applies to large and small, public and private organisations. Small and mid-sized business such as the Neil Kelly home renovation company, The Collins Companies forestry firm and Stonyfield Farm used much the same process as larger firms such as Interface, Scandic Hotels and Henkel. Similarly, the municipalities of Burlington, VA, and Santa Monica, CA, followed paths that were conceptually very similar to those used by the Dutch government and the State of Oregon.

Because a family atmosphere may exist and senior executives may be in continual close contact with employees, small firms may place less emphasis on undermining the prevailing mental mind-set and on organising teams. Due to lack of time and the availability of personnel, they may also initially not thoroughly assess their environmental and social footprints or develop new metrics to measure progress. These processes may evolve slowly over time. However, small firms still need to involve all of their key employees and stakeholders in the adoption of a clear vision of what they want to achieve and in selecting principles to guide decision-making. They must craft operational strategies and, if this is not yet the case, meaningfully empower employees to achieve the vision. Small firms also need to ensure that sustainability-focused information readily flows through the organisation and that mechanisms are adopted to support continual learning. Once sufficient time and experience have identified appropriate ways of thinking and behaving, these traits must become embedded in company policies and procedures. This is the only way that sustainability can become anchored in the culture of the organisation.

Government programmes follow similar paths. Although small municipalities may not have the resources to produce a state of the environment report as the Dutch government did to generate a compelling need for change (*Concern for Tomorrow*), some type of action must be taken to jar public employees, elected officials and constituency groups out of their complacency. In addition, public agencies must develop clarity of purpose and vision, meaningfully involve all of the key players, adopt clear strategies, upgrade their communication, information, feedback and learning mechanisms, and ultimately embed sustainability in policies and procedures. I use this model every time I work with government.

In short, although the steps may appear as different forms and colours, the seven key interventions of the wheel of change apply to all organisations seeking to adopt a more sustainable path.

The wheel of change also applies to social and political change

My students often ask if the theory and practices embedded in the 'wheel of change toward sustainability' apply to broad-scale social and political change. The answer is Yes. Proficient social change practitioners and political operatives know that little change occurs unless people come to believe that the status quo is no longer acceptable and a different approach is better, and all of the other key

leverage points of successful change have been triggered. However, just as within organisations, most social or political change advocates invest most of their time in the last intervention. They seek to tweak the parameters of existing laws and regulations, not to change the system as a whole. These efforts usually have marginal effect or fail because changing the parameters by itself has little affect in altering a social system. Meaningful change occurs only when each of the seven interventions of the wheel of change are sufficiently addressed.

With good leadership and governance, you can make a difference

You may not believe that your organisation can make much of a difference in the transition to sustainability. Maybe you feel that producing shock absorbers, running a restaurant, or managing a city public works department cannot generate the clear sense of purpose, higher mission and commitment among workers and stakeholders that many of the leading sustainability organisations have achieved. Nothing could be further from the truth. Every organisation uses energy and raw materials, produces a product or service, and generates by-products or waste. If traditional thinking, policies and practices are the norm, somewhere in your organisation's value chain—locally, nationally or abroad—people may be harmed and the environment tainted.

Continued degradation of natural capital and socioeconomic welfare will only impoverish the rich and the poor alike, today and in the future. This is not our way home. The keys to the long-term transformation toward sustainability are the development of effective governance systems and leadership. Every organisation can do this. In your own way and within your own niche, you and your employees can make a difference.

You don't have to blindly believe me about this. Instead, look carefully at your own experience to see which forms of power, authority, decision-making and leadership have led to more impacts on the environment, labour or community wellbeing and which have led to less. The answer to this question will guide your way home.

Leading change into the future

Since the UN Framework Convention on Climate Change (UNFCCC) was signed in 1992 by 41 nations, including the US, global emissions have risen by 38%.

In the summer of 2009 the Carbon Disclosure Project (CDP), an independent organisation based in London that monitors corporate emissions reductions, released a report stating that the world's largest 100 companies are not cutting emissions sufficiently to meet the 80% reduction level climate scientists say is needed to avoid runaway climate change (Carbon Disclosure Project 2009). The CDP said a primary reason for the lack of progress is that market forces, not scientific requirements, form the basis of the emission reduction targets adopted by the large corporations (Carbon Disclosure Project 2009). These companies fail to realise that there will be little economic stability—and certainly no 'triple bottom line' notions of sustainability—under uncontrollable climate change.

Scientists consider the Arctic to be global warming's canary in the coal mine: the region is extremely sensitive to climate change and consequently most scientists see events in the Arctic as an indicator of things to come. If this is true, the news is not good. Average temperatures in the Arctic are rising twice as fast as they are elsewhere in the world. As a result, the polar ice cap was observed to be melting at a rate of 41 square miles a day in July 2009, according to the US National Snow and Ice Data Center.[1] The contraction of the Arctic ice cap accelerates global warming by removing the reflective capacity of snow and ice. As the Arctic ice retreats, darker surfaces are exposed that absorb more solar radiation and reflect less back into space. A vicious feedback cycle is created whereby less snow and ice produces more warming, which produces less snow and ice, and thus more warming. Rising temperatures are causing forest pest outbreaks and other problems in Alaska and other Arctic territories. Melting glaciers and land-based ice sheets also contribute to rising sea levels. The projected sea level rise of 1 m (3 ft) or more this century expected by scientists will swamp low-lying regions around the globe, including many cities, estuaries and small islands. The US Environmental Protection Agency, for example, in 2001 found that a 1 m sea-level rise would inundate over 22,000

1 Source: nsidc.org/arcticseaicenews.

square miles of land in Louisiana, Texas, Florida and North Carolina, among other localities.[2] Major urban areas around the globe from Shanghai to London would also be affected. In addition to flooding, heightened storm surges produced by rising sea levels will damage coastal property and infrastructure and erode beaches. Freshwater resources will be contaminated by the intrusion of salt water.

As mentioned in the Introduction to the Second Edition on pages 12ff., the International Scientific Congress on Climate Change held in March 2009 concluded that the consequences of rising global temperatures will produce widespread economic, social and ecological calamity in developed and developing nations alike.[3] Most people, however, continue about their daily patterns as if there is little to be concerned about. The costs of this type of thinking and behaviour are immense. *The Stern Review on the Economics of Climate Change*, which was led by Britain's Lord Nicholas Stern, found in 2006 that the costs of climate change would be between 5% and 20% of global GDP (Stern 2006). And the Stern report was based on emission trends that are lower than those observed in 2009.

A subsequent assessment released in autumn 2009 found that, if the current emissions patterns continue to 2030, many locations in the world would lose between 1% and 12% of GDP due to existing climate patterns such as prolonged drought. Less developed, low-income regions could lose even more. If climate patterns worsen over the next 20 years, up to 200% of GDP could be lost in a number of regions as soon as 2030 (Economics of Climate Adaptation Working Group 2009).

Some governments and businesses believe the world can simply adapt to the consequences of climate change. This approach will prove to be exceeding costly as well. Researchers at the International Institute for Environment and Development and the Grantham Institute for Climate Change at Imperial College London released a study in 2009 that found that the US$40–170 billion per year cost estimated by the United Nations Framework Convention on Climate Change in 2007 of adapting to climate change were underestimated by at least a factor of two to three. The more likely cost is US$80–340 to $120–518 billion *annually* for protecting water resources, public health, physical infrastructure, coastal areas, ecosystems and their essential services. When the costs of the damage caused by a business-as-usual approach to global warming are added to the costs of preparing for and adapting to human-induced changes in the Earth's climate, it seems likely that somewhere between 10% and 30% of world GDP will be affected (Parry 2009). An economic hit of this type will make the global recession of 2008–2009 seem almost inconsequential.

Like the sheltered child of well-to-do parents, however, public and private entities alike seem blissfully unaware of the threats that their current thinking and behaviour pose to themselves and others. They also remain in denial about the changes they must make to sustain the planet and thus the quality of their lives now and in the future. Something is deeply amiss. Many people in industrial nations seem to believe we can maintain our present economic and social patterns

2 See www.epa.gov/climatechange/effects/coastal/slrmaps_vulnerable.html, accessed 5 November 2009.

3 See climatecongress.ku.dk, accessed 5 November 2009.

into perpetuity, with perhaps merely a few tweaks to business-as-usual along the way. Public and private organisations, for example, continue to believe that 10% improvements in energy efficiency here, 5% increases in recycling there, or modest efforts to decarbonise, are sufficient to stabilise the climate and move the world toward sustainability. This is patently false. Fiddling at the margins of business-as-usual—becoming a little 'less bad'—will, at best, only slow the advent of global warming. Being a little less unsustainable is not the same as achieving sustainability and preventing runaway climate change.

The difference can be seen by considering the factors that produce healthy humans and healthy ecological systems. Psychologists and physicians do not consider a person healthy just because they are not afflicted by disease. Similarly, ecologists do not consider a plant or animal species to be healthy simply because it lacks signs of distress. On the contrary, healthy humans and healthy ecosystems are defined by robust and resilient feedback, self-maintenance and self-repair mechanisms that allow them to fend off and bounce back from insults and stresses. They have the capacity to adjust to changing conditions. Making our organisations a little less unsustainable does not build resistance and resiliency. On the contrary, this approach usually produces unintended consequence such as leading people to believe they have done their part, all is well, and no more is needed. The continued rapid growth of greenhouse gas emissions shows this to be a road to ruin.

Our current delusionary path leads me to conclude that climate change is not, at its core, an energy or technology problem. On the contrary, it is a colossal failure of thought. Unless we make the cognitive, emotional and behavioural changes required to quickly decarbonise our economy, the consequent physical damage and social and political upheaval will show that climate change is the result of the greatest failure of thought in human history.

The root of the problem is that too many of us, especially those that hold the levers of economic and political power, suffer from 'systems blindness'.[4] We fail to recognise the negative consequences of our 'take–make–waste' mind-set, and the economic and social systems it has spawned, on the ecological systems that all life on Earth depends on. Massive overconsumption of natural resources, accelerating damage to natural systems, huge emissions of greenhouse gases and other types of waste, and rising alienation and social dysfunction result from systems blindness. Is it possible to take off the blinders that prevent us from seeing the consequences of our actions on the world around us? Can people begin to think and act sustainably? Can we alter the cultures and structures of our organisations and rapidly adopt a path toward real sustainability? I believe we can.

The starting point is new thinking anchored in the truth that each person, organisation and society as a whole must live within the physical limits of the natural systems that support all life. Every system has limits. When we overshoot those boundaries, systems become destabilised and may collapse. Strong, verifiable and transparent governance mechanisms, driven by exemplary leaders that speak the truth about needs, conditions and trends, are the keys to preventing overshoot and breakdown. Work hard to raise your awareness of the mind-set—the beliefs, assumptions and thought patterns you hold—that shape your personal

4 For more information see Doppelt 2008.

behaviour. Also become aware of the mind-set that controls how your organisation deals with the world. Does it include the recognition of the need to live within the physical limits of nature? Then, relentlessly pursue the seven key leverage points of successful change described in this book to help your organisation decarbonise and make the shift toward true sustainability.

Remember to keep tension or dissonance high between your organisation's vision of sustainability, including its desire to eliminate carbon emissions, and its current status. This is essential in dislodging the beliefs, assumptions and habitual thought patterns that keep your organisation mired in a state of unsustainability. Unless sufficient tension exists between a desired goal and the current state of affairs, people will feel little motivation to change. No tension, no change. Senior executives can establish tension by constantly talking about the risks that climate change poses for the organisation and its employees and stakeholders. They can also set exceedingly high environmental, social and economic standards for the organisation to achieve. The sustainability transition teams that are organised can also foster tension by continually depicting a carbon-free vision of sustainability for the organisation as a whole or their unit and then comparing that vision to current conditions. The gap between the two can provide the tension. No matter how it is created, senior executives and other change agents must relentlessly communicate the need to close the gap and remove the tension by adopting meaningful sustainability practices and policies, including those that lead to rapid decarbonisation. Constant communication is the only way people will know that sustainability is a top organisational priority.

Keep in mind, however, that tension alone is not enough to achieve successful sustainability-based organisational change. The people involved must also feel a sufficient sense of self-efficacy. Too much tension will cause them to bury their heads in the sand or become paralysed unless they believe they have the skills and capacity to eliminate it.

The teams you organise, and the goals, strategies and tactics they adopt, should be aimed at generating a consistent stream of stair-stepped successes to help build the organisation's sense of self-efficacy. Continual learning must become part of the organisation's fabric. Closely linked with self-efficacy is the need to build the benefits of decarbonisation and other actions that lead toward true sustainability. If the downsides of making the changes appear greater than the upsides, or even if the pros are just slightly more numerous than the cons, people are not likely to fundamentally shift their behaviour.

Throughout your entire sustainability-focused change effort it will be important to document the benefits of the new direction. This means more than just highlighting cost savings or increased profits. Document and widely communicate benefits such as the improved physical and emotional health of employees and the reduced absenteeism it produces, your ability to attract and retain a higher-quality workforce, the enhanced relationships you now have with stakeholders, the increased capacity of the organisation to respond to changing conditions, and many other advantages. Emphasise as well the moral imperative of the organisation not taking more than it gives to the world and of ensuring that future generations have access to the same environmental, social and economic conditions as our current generation does. If you can show senior executives and line staff that

the upsides of adopting a path toward decarbonisation and sustainability outweigh the downsides by a 2 to 1 ratio or better, motivation will skyrocket and your sustainability initiative is likely to achieve great success.

In addition, don't give up after a few setbacks. Use obstacles and disappointments as opportunities to learn and improve rather than seeing them as defeats. Most importantly, remember that decarbonisation and the adoption of sustainability practices and policies is fundamental to the well-being of everyone today and tomorrow, not an altruistic concept that is peripheral to everyday life.

If we are to avoid runaway climate change and surmount today's other ecological, social and economic challenges, we must alter our mind-sets and make sustainable thinking and behaviour the central organising governance principle of the future.

Appendix A

Assessing your organisation's 'sustainability blunders'

1 = Strongly agree	6 = Strongly disagree	D/K = Don't know

1. Executives and workers in my organisation/unit believe we are safe from potential risks and liability because we are in compliance with laws and regulations.	**1**	**2**	**3**	**4**	**5**	**6**	**D/K**
2. Environmental management, labour and stakeholder relations are functionally separated in my organisation from units such as purchasing, R&D, production, distribution, sales and marketing.	**1**	**2**	**3**	**4**	**5**	**6**	**D/K**
3. The majority of people in my organisation/unit believe the purpose of our environmental, labour and community-based policies and programmes is to avoid crisis and stay in compliance with the law.	**1**	**2**	**3**	**4**	**5**	**6**	**D/K**
4. My organisation/unit believes that our air emissions, water and land discharges, waste and other regulated aspects of operations are the primary sources of our environmental problems.	**1**	**2**	**3**	**4**	**5**	**6**	**D/K**
5. Information about our environmental and socioeconomic welfare goals and programmes predominantly comes from annual or semi-annual EH&S training programmes, posters, annual reports and a few other means.	**1**	**2**	**3**	**4**	**5**	**6**	**D/K**
6. The primary management focus in our organisation is on achieving conformance and consistency; learning and innovation are not specifically encouraged or rewarded.	**1**	**2**	**3**	**4**	**5**	**6**	**D/K**
7. Our standard operating procedures and policies do not specifically reward exemplary performance on environmental, labour or community welfare issues, nor do they specifically discourage or sanction thinking and behaviour that are inconsistent with these goals.	**1**	**2**	**3**	**4**	**5**	**6**	**D/K**
Add the totals of each column here:	**_ +**	**_ +**	**_ +**	**_ +**	**_ +**	**_ =**	☐

Assessing your organisation's 'sustainability blunders': scoring

Scoring on individual questions

1–2 If you scored between 1 and 2 on any question, your organisation/unit is making a serious blunder, is extremely unlikely to be able to adopt a more sustainable path, and will require significant effort to rectify the problem.

3–4 If you scored between 3 and 4 on any question, your organisation/unit faces a moderate blunter, will face a difficult time in adopting a more sustainable path, and will require concerted effort to rectify the problem.

5–6 If you scored between 5 and 6 on any question, your organisation/unit probably does not suffer from this blunder and should proceed with all due haste to adopt sustainability policies and practices.

Overall score

7–14 If your overall score is between 7 and 14, your organisation is making many serious blunders in the way it handles environmental, labour and social welfare issues, is extremely unlikely to be able to adopt a more sustainable path, and will require significant effort to rectify the problems.

15–28 If your overall score is between 15 and 28, your organisation/unit is making a moderate set of blunders, will face a difficult time in adopting a more sustainable path, and will require concerted effort to rectify the problems.

29–42 If your overall score is between 29 and 42, your organisation/unit probably does not suffer from many blunders and should proceed with all due haste to adopt sustainability policies and practices.

Appendix B

Assessing your governance system

1 = Strongly agree	6 = Strongly disagree	D/K = Don't know

Section A

1. My organisation/team is explicit and clear about the type of knowledge, understanding and wisdom needed for success.	**1**	**2**	**3**	**4**	**5**	**6**	**D/K**
2. We have taken steps to gather the data we need and to establish mechanisms to turn the data into the required knowledge, understanding and wisdom.	**1**	**2**	**3**	**4**	**5**	**6**	**D/K**
3. We have designed ways to share information with all those affected the by activities of our organisation/unit in a manner that helps them gain knowledge, understanding and wisdom.	**1**	**2**	**3**	**4**	**5**	**6**	**D/K**
4. My organisation/team actively and systematically obtains ideas and input from all those affected by activities in the organisation/unit to learn how to improve our thinking and decisions.	**1**	**2**	**3**	**4**	**5**	**6**	**D/K**
Add the totals of each column here:	**_ + _ + _ + _ + _ + _ =** ☐						

Section B

5. My organisation/team is explicit and clear at all times about the type of decision being made (e.g. type I to IV).	**1**	**2**	**3**	**4**	**5**	**6**	**D/K**
6. We are explicit and clear about the roles that team members will play in each type of decision.	**1**	**2**	**3**	**4**	**5**	**6**	**D/K**
7. We have established clear criteria about if, when and how an external 'approver' can override a team's decision.	**1**	**2**	**3**	**4**	**5**	**6**	**D/K**

8. We have explicit agreements related to how decisions will be enforced and accountability is ensured.	1	2	3	4	5	6	D/K
9. We ensure that authority is decentralised and delegated in proportion to responsibility and capacity.	1	2	3	4	5	6	D/K
Add the totals of each column here:	_ + _ + _ + _ + _ + _ = ☐						

Section C

10. We are explicit and clear about the types of resources we need to achieve our goals.	1	2	3	4	5	6	D/K
11. We have effective mechanisms to decide how much, when and where each resource will be required.	1	2	3	4	5	6	D/K
12. We have adopted mechanisms to assure that resource allocations are based on priorities, not power or authority.	1	2	3	4	5	6	D/K
13. Our decision-making mechanisms provide equitable sharing of resources among key units and stakeholders.	1	2	3	4	5	6	D/K
Add the totals of each column here:	_ + _ + _ + _ + _ + _ = ☐						

Add the total of three sections here: ☐

Assessing your governance system

You can use this matrix to assess the three key elements of your governance system as well as its overall performance.

Scoring by section

Section A: Information, feedback and learning mechanisms

4–9 *Weak*

Substantially improve all aspects of your information, feedback and learning systems before going very far with other steps.

10–19 *Moderate*

Move forward carefully, realising that confusion or concerns may arise related to information flows and feedback. When problems arise, circle back and improve information and learning systems.

20–24 *Strong*

Effective systems. Stay vigilant and revisit agreements when confusion or problems appear.

Section B: Decision-making and accountability mechanisms

5–11 *Weak*

Substantially improve all aspects of your decision-making mechanisms before going further.

12–24 *Moderate*

Move forward carefully, realising that confusion or concerns may arise related to the way decisions are made and accountability is addressed. When problems arise, circle back and improve decision-making and accountability mechanisms.

25–30 *Strong*

Effective systems. Stay vigilant and revisit agreements when confusion or problems appear.

Section C: Resource allocation mechanisms

4–9 *Weak*

Substantially improve all aspects of your resource allocation mechanisms before going further.

10–19 *Moderate*

Move forward carefully, realising that confusion or concerns may arise related to the way resources are allocated. When problems arise, circle back and improve resource allocation.

20–24 *Strong*

Doing all the right things. Keep moving forward. Circle back only when you hit a major plateau.

Overall score

13–29 *Weak governance systems*

Programme is based on weak foundations. Substantially improve all aspects of your governance systems.

30–64 *Moderately strong governance systems*

Move forward carefully, realising that confusion or concerns may arise related to the way information is gathered and shared, decisions are made and enforced, and resources are allocated. When problems arise, identify and improve the weak links in your governance systems.

65–78 *Strong governance system* (You should be teaching organisational governance!)

Very effective systems. Stay vigilant and revisit agreements when confusion or problems arise.

Appendix C

Assessing your sustainability change initiative

1 = Strongly disagree	6 = Strongly agree	D/K = Don't know

Section A

1. The members of my organisation/team feel a compelling need to adopt sustainability practices and thinking.	1	2	3	4	5	6	D/K
2. My team represents all the key interests and includes the right people with the right skills, political power, credibility, new ideas and intelligence.	1	2	3	4	5	6	D/K
3. The members of my organisation/team have a clear shared understanding of what we are striving to create (operationally and culturally).	1	2	3	4	5	6	D/K
Add the totals of each column here:	_	+ _	+ _	+ _	+ _	+ _	= ☐

Section B

4. My organisation/team has adopted effective operational and people-change strategies that directly link to our vision.	1	2	3	4	5	6	D/K
5. My organisation/team relentlessly communicates our vision and strategies using every possible vehicle and role modelling.	1	2	3	4	5	6	D/K
Add the totals of each column here:	_	+ _	+ _	+ _	+ _	+ _	= ☐

Section C

6. My organisation/team has adopted mechanisms to continually encourage and reward learning and innovation to overcome barriers.	1	2	3	4	5	6	D/K

	1	2	3	4	5	6	D/K
7. My organisation/team has taken explicit steps to embed sustainability in standard operating procedures and policies.							
Add the totals of each column here:	_	+ _	+ _	+ _	+ _	+ _	= ☐
Add the total of three sections here:							☐

Assessing your sustainability change initiative

You can use this matrix to assess the three overall modules of your sustainability-change strategy as well as its overall performance.

Scoring by section

Section A: Creating a new organisational mental model and purpose

Note: Score of 3 or less on question 1 = Little chance of success. Return to Go. Reclarify need and commitment.

4–7 *Beginner*

Ensure that steps 1 and 2 are at intermediate levels before going very far with other steps.

8–14 *Intermediate*

Move forward carefully, realising that when you hit a plateau you will need to circle back and shore up weakest building blocks.

15–18 *Advanced*

Keep moving forward, circling back only when hitting a major plateau.

Section B: Designing and testing the new approach

2–5 *Beginner*

Ensure that steps 1–3 are at intermediate levels before going too far with other steps.

6–9 *Intermediate*

Move forward carefully, realising that when you hit a plateau you will need to circle back and shore up weakest building blocks.

10–12 *Advanced*

Keep moving forward, circling back only when you hit a major plateau.

Section C: Making sustainability stick and grow over time

2–5 *Beginner*

Ensure that steps 1 and 2 are at intermediate level before going too far with other steps.

6–9 *Intermediate*

Move forward carefully, realising that when you hit a plateau you will need to circle back and shore up weakest building blocks.

10–12 *High advanced*

Doing all the right things. Keep moving forward. Circle back only when you hit a major plateau.

Overall score

8–17 *Beginner*

Your change initiative is based on weak foundations. Reclarify need, commitment and purpose before going too much further.

18–34 *Intermediate*

Progress is being made but a number of weak building blocks exist. Whenever you hit a plateau, go backwards to identify and shore up weakest link.

35–42 *Advanced* (You should be teaching sustainability change management!)

Doing all the right things. Keep going forward, circling back only when hitting a major plateau.

Bibliography

Ackoff, R.L. (1999) *Recreating the Corporation: A Design of Organizations for the 21st Century* (New York: Oxford University Press).

Adam, D. (2009) 'World will not meet 2C warming target, climate change experts agree', *The Guardian*, 14 April 2009; www.guardian.co.uk/environment/2009/apr/14/global-warming-target-2c, accessed 5 November 2009.

Ahmad, Q.K., *et al.* (2001) *Summary for Policy Makers, Climate Change 2001: Impacts, Adaptation, and Vulnerability. A Report of Working Group II of the Intergovernmental Panel on Climate Change* (Cambridge, UK: University of Cambridge, February 2001).

Albritten, D., *et al.* (2001) *Summary for Policy Makers: Climate Change 2001: A Report of Working Group I of the Intergovernmental Panel on Climate Change* (Cambridge, UK: IPCC).

Anderson, R. (1989) *Mid-course Correction* (White River Junction, VT: Chelsea Green Publishing).

Anderson, V., and L. Johnson (1997) *Systems Thinking Basics: From Concepts to Causal Loops* (Waltham, MA: Pegasus Communications).

Argyris, C., and D. Schon (1978) *Organizational Learning: A Theory of Action Perspective* (Reading, MA: Addison-Wesley).

Beer, M., and N. Nohria (2000) *Breaking the Code of Change* (Boston, MA: Harvard Business School Press).

——, R.A. Eisenstat and B. Spector (1990) *The Critical Path to Corporate Renewal* (Boston, MA: Harvard Business School Press).

Benyus, J. (2002) *Biomimicry* (New York: HarperCollins).

Blake, R.B., J.S. Mouton and A.A. McCanse (1990) *Change by Design* (Reading, MA: Addison-Wesley).

Blank, H., and M. Carty (2002) *The Eco-efficiency Anomaly* (working paper; New York: QED International).

Buckingham, M., and C. Coffman (1999) *First, Break All the Rules* (New York: Simon & Schuster).

Burton, R.M., and B. Obel (1995) *Strategic Organizational Diagnosis and Design: Developing Theory for Application* (Boston, MA: Kluwer Academic Publishers).

Caldwell, B. (1994) 'Missteps, Miscues', *InformationWeek*, 20 June 1994.

Cameron, K.S. (1997) 'Techniques for Making Organizations Effective: Some Popular Approaches', in D. Druckman, J.E. Singer and H. Van Cott (eds.), *Enhancing Organizational Performance* (Washington, DC: National Academy Press).

Carbon Disclosure Project (2009) *The Carbon Chasm* (August 2009; https://www.cdproject.net/CDPResults/65_329_219_CDP-The-Carbon-Chasm-Final.pdf, accessed 12 November 2009).

City of Burlington, VA (2000) *Burlington Legacy Project Action Plan: Becoming a Sustainable Community* (Burlington Legacy Project, Room 32, City Hall, Burlington, VT 05401, USA, www.ci.burlington.us, June 2000).

Cohen, M., S. Fenn and J. Naimon (1995) *Environmental and Financial Performance: Are They Related?* (Washington, DC: Investor Responsibility Research Center).

Collins, J.C. (2001) *Good to Great: Why Some Companies Make the Leap and Others Don't* (New York: HarperCollins).

—— and J.I. Porras (1994) *Built to Last: Successful Habits of Visionary Companies* (New York: Harper Business).

CWCH (Center for Watershed and Community Health) (2002) *Building a Sustainable Oregon from Within: A Formative Review of Oregon State Government Sustainability Initiative* (Eugene, OR: University of Oregon, October 2002).
De Geus, A. (1997) *The Living Company: Growth, Learning and Longevity in Business* (Boston, MA: Harvard Business School Press).
De Jongh, P.E., and S. Captain (1999) *Our Common Journey: A Pioneering Approach to Cooperative Environmental Management* (London: Zed Books).
DEPA (Danish Environmental Protection Agency for the European Environment Agency) (1997) *MIDAS: An Example of an Environmental Data Strategy* (Copenhagen: Danish Environmental Protection Agency for the European Environment Agency, January 1997).
Di Bella, A. (2001) *Learning Practices: Assessment and Action for Organizational Improvement* (Englewood Cliffs, NJ: Prentice Hall).
Doppelt, B. (2008) *The Power of Sustainable Thinking: How to Create a Positive Future for the Climate, The Planet, Your Organization and Your Life* (London: Earthscan Publishing).
—— and L. Watson (2000) *It's Just Plain Good Business: The Economic and Environmental Benefits of Sustainability as Exemplified by 160 Case Examples* (Portland, OR: Portland State University Center for Watershed and Community Health).
——, C. Shinn, and D. John (2002a) *Summary, Analysis, and Recommendations: Review of USDA Forest Service Community-Based Watershed Restoration* (Mark O. Hatfield School of Government, Portland State University, Portland, OR, September 2002).
——, —— and —— (2002b) *Review of USDA Forest Service Community-Based Watershed Restoration Partnerships* (Mark O. Hatfield School of Government, Portland State University, Portland, OR, September 2002).
Doty, H., and W. Glick (1994) 'Topologies as a Unique Form of Theory Building: Toward Improved Understanding and Modeling', *Academy of Management Review* 19.2: 2,230-51.
Dowell, G., S. Hart and B. Yeung (2000) 'Do Corporate Global Environmental Standards Create or Destroy Market Value?', *Management Science* 46.8: 1,059-74.
Economics of Climate Adaptation Working Group (2009) *Report of the Economics of Climate Adaptation Working Group. Shaping Climate-Resilient Development: A Framework for Decision Making* (September 2009; www.gefweb.org/uploadedFiles/Publications/ECA_Shaping_Climate%20Resilent_Development.pdf, accessed 5 November 2009).
Economist (1994) 'CSC Index: State of Engineering Report, North America and Europe', *The Economist*, 6 July 1994.
ECONorthwest for the Portland State University Center for Watershed and Community Health (2001) *Sustainable Practices, Jobs, and Distressed Communities in the Pacific Northwest* (Portland, OR: PSU Center for Watershed and Community Health, December 2001).
—— (2003) *Corporate Environmental Accountability and the Economy: Implications for the Pacific Northwest* (Eugene, OR: Program for Watershed and Community Health, Institute for a Sustainable Environment, University of Oregon).
Fritz, R. (1999) *The Path of Least Resistance: Designing Organizations to Succeed* (San Francisco: Berrett-Koehler).
Goodman, S.B., J. Kron and T. Little (2002) *The Environmental Fiduciary: The Case for Incorporating Environmental Factors into Investment Management Policies* (Oakland, CA: The Rose Foundation for Communities and the Environment).
Goodstein, E. (1999) *Jobs and the Environment: The Myth of a National Trade-off* (Washington, DC: Island Press).
——, B. Doppelt, and K. Sable (1999) *Saving Salmon, Saving Money: Innovative Business Leadership in the Pacific Northwest* (Portland, OR: Center for Watershed and Community Health, Portland State University).
Greider, W. (1997) *One World Ready or Not: The Manic Logic of Global Capitalism* (New York: Touchstone Books).
Gross, T., R. Pascale and A. Athos (1993) 'The Reinvention Roller Coaster: Risking the Present for a Powerful Future', *Harvard Business Review*, November/December 1993.
Hall, G., J. Rosenthal and J. Wade (1993) 'How to Make Reengineering Really Work', *Harvard Business Review*, November/December 1993: 119.
Hart, S., and G. Ahuja (1996) 'Does It Pay to be Green? An Empirical Examination of the Relationship between Emission Reduction and Firm Performance', *Business Strategy and the Environment* 5: 30-37.
Hawken, P. (1993) *The Ecology of Commerce: A Declaration of Sustainability* (New York: Harper Business).

——, A. Lovins and L.H. Lovins (1999) *Natural Capitalism: Creating the Next Industrial Revolution* (New York: Little, Brown).
Innovest Strategic Value Advisors Inc. (2002) *Value at Risk: Climate Change and the Future of Governance. CERES Sustainable Governance Project Report* (Innovest Strategic Value Advisors Inc., CERES Coalition, April 2002).
IRM (Intermediate Remedial Measures; a subcommittee on the NACEPT [National Advisory Council for Environmental Policy and Technology] for the US Environmental Protection Agency) (1994) *Using Information Strategically to Protect Human Health and the Environment* (Washington, DC: US EPA, August 1994).
Jennings, J. (2000) *Less is More: How Great Companies Use Productivity as a Competitive Tool in Business* (Harmondsworth, UK: Penguin Books).
Johnson, T.H., and A. Broms (2000) *Profit beyond Measure* (New York: The Free Press).
Kanter, R.M., B. Sten and T. Jick (1992) *The Challenge of Organizational Change* (New York: The Free Press).
Kim, D. (1995) 'Decision-making: The Empowerment Challenge', *The Systems Thinker* 6.7.
—— (1999) *Introduction to Systems Thinking* (Waltham, MA: Pegasus Communications).
—— (2001) *Organizing for Learning: Strategies for Knowledge Creation and Enduring Change* (Waltham, MA: Pegasus Communications).
—— (2002) 'Foresight and the Power of Choice', in *Foresight as a Central Ethic of Leadership* (Indianapolis, IN: The Greenleaf Center for Servant-Leadership): 15-19.
King, M., and M. Lenox (2000) 'Does it *Really* Pay to Be Green? An Empirical Study of Firm Environmental and Financial Performance', *Journal of Industrial Ecology* 5.1: 105-16.
Kotter, J. (1996) *Leading Change* (Boston, MA: Harvard Business School Press).
—— (1999) *What Leaders Really Do* (Boston, MA: Harvard Business Review Books).
—— and J. Heskett (1992) *Corporate Culture and Performance* (New York: The Free Press).
Lawrence, P. (1993) 'The Contingency Approach to Organizational Design', in R. Golembiewski (ed.), *Handbook of Organizational Behavior* (New York: Derrer Publishing): 9-18.
Luke, J. (1998) *Catalytic Leadership: Strategies for an Interconnected World* (San Francisco: Jossey-Bass).
Marquardt, M. (2002) *Building the Learning Organization* (Palo Alta, CA: Davies-Black Publishing).
McDonough, W., and M. Braungart (2002) *Cradle to Cradle: Remaking the Way we Make Things* (New York: North Point Press).
McKenzie-Mohr, D., and W. Smith (1999) *Fostering Sustainable Behavior: An Introduction to Community-Based Social Marketing* (Gabriola Island, BC, Canada: New Society Publishers).
Meadows, D. (1997) 'Places to Intervene in a System (in Increasing Order of Effectiveness)', *Whole Earth*, Winter 1997: 78-85.
Miles, A., and C. Snow (1978) *Organizational Strategy, Structures and Process* (New York: McGraw–Hill).
NRC (National Research Council), Committee on the Protection and Management of Pacific Northwest Anadromous Salmonids (1996) *Upstream: Salmon and Society in the Pacific Northwest* (Washington, DC: National Science Foundation).
—— (1997) *Enhancing Organizational Performance* (Washington, DC: National Academy Press).
O'Toole, J. (1995) *Leading Change: Overcoming the Ideology of Comfort and the Tyranny of Custom* (San Francisco: Jossey-Bass).
Osborne, D. (1998) 'Foreword: Alliance for Redesigning Government', in M. Popovich (ed.), *Creating High-Performance Government Organizations* (San Francisco: Jossey-Bass).
Oshry, B. (1995) *Seeing Systems: Unlocking the Mysteries of Organizational Life* (San Francisco: Berrett-Koehler).
Parry, M., N. Arnell, P. Berry, D. Dodman, S. Fankhauser, C. Hope, S. Kovats, R. Nicholls, D. Satterthwaite, R. Tiffin and T. Wheeler (2009) *Assessing the Costs of Adapting to Climate Change: A Review of the UNFCCC and other Recent Estimates* (IIED, August 2009; www.iied.org/pubs/pdfs/11501IIED.pdf, accessed 5 November 2009).
Pauli, G. (1998) *UpSizing. The Road to Zero Emissions: More Jobs, More Income and No Pollution* (Sheffield, UK: Greenleaf Publishing).
Pitman, N., and P. Jorgensen (2002) 'Estimating the Size of the World's Threatened Flora', *Science* 298,989.
Popovich, M. (ed.) (1998) *Creating High-Performance Government Organizations* (San Francisco: Jossey-Bass).
Register Guard (2002a) 'Ohio Villagers Sell Out To Escape Power Plant', *The Register Guard*, Eugene, OR, 13 May 2002.

—— (2002b) 'More Americans Growing Unhappy with their Jobs', *The Register Guard*, Eugene, OR, 22 August 2002.
RFCE (Rose Foundation for Communities and Environment) (2002) *The Environmental Fiduciary: The Case for Incorporating Environmental Factors into Investment Management Policies* (Oakland, CA: RFCE).
Risser, P., *et al.* (2000) *Oregon State of the Environment Report 2000* (Oregon Progress Board, www.econ.state.or.us/opb, accessed 17 February 2003).
RIVM (Netherlands National Institute of Public Health and Environmental Protection) (1989) *Concern for Tomorrow* (Bilthoven, Netherlands: RIVM).
—— (1996) *Environmental Information and Planning Model* (Bilthoven, Netherlands: RIVM).
—— (2002) *Concern for Tomorrow* (English translation; Bilthoven, Netherlands: RIVM).
Russo, M., and P. Fouts (1997) 'A Resource-Based Perspective on Corporate Environmental Performance and Profitability', *Academy of Management Journal* 40.3: 534-59.
Said Abdul, S. (ed.) (1978) 'Foreword', in *Human Rights and World Order* (New Brunswick: Transaction Books): vii-viii.
Schein, E. (1987) *Process Consultation*. II. *Lessons for Managers and Consultants* (Reading, MA: Addison-Wesley).
Senge, P. (1990) *The Fifth Discipline: The Art and Practice of the Learning Organization* (New York: Doubleday).
Sokolov, A.P., P.H. Stone, C.E. Forest, R. Prinn, M.C. Sarofim, M. Webster, S. Paltsev, C.A. Schlosser, D. Kicklighter, S. Dutkiewicz, J. Reilly, C. Wang, B. Felzer, J. Melillo and H.D. Jacoby (2009) *Probabilistic Forecast for 21st Century Climate Based on Uncertainties in Emissions (without Policy) and Climate Parameters* (MIT Joint Program on the Science and Policy of Global Change, Report No. 169, January 2009; globalchange.mit.edu/files/document/MITJPSPGC_Rpt169.pdf, accessed 12 November 2009).
Spector, B. (1989) 'From Bogged Down to Fired Up: Inspired Organizational Change', *Sloan Management Review*, Summer 1989: 29-35.
—— and M. Beer (1994) 'Beyond Total Quality Management Programs', *Journal of Organizational Change Management* 7.2: 63-70.
Stern, N. (2006) *Stern Review on the Economics of Climate Change* (HM Treasury/Cabinet Office; www.hm-treasury.gov.uk/sternreview_index.htm, accessed 5 November 2009).
Stone, B.K., J.B. Guerard, Jr, M.N. Gultekin and G. Adams (forthcoming) 'Socially Responsible Investment Screening: Strong Evidence on No Significant Cost for Actively Managed Portfolios', *Journal of Investing*.
Tushman, M., and C. O'Reilly (2002) *Winning through Innovation* (Boston, MA: Harvard Business School Press).
US EPA (Environmental Protection Agency) Office of Air and Radiation (1997) *Introducing Your Company's Newest Profit Center* (EPA-430-R-97-004; Washington, DC: US EPA, January 1997).
VROM (Netherlands Ministry of Housing, Land Use Planning and the Environment) (1989) *National Environmental Policy Plan* (The Hague: SDU Publishers).
Wackernagel, M., and W. Rees (1996) *Our Ecological Footprint: Reducing Human Impact on Earth* (Gabriola Island, BC, Canada: New Society Publishers).
Waldrop, M. (1996) 'The Trillion Dollar Vision of Dee Hawk', *Fast Company*, October/ November 1996: 10-17.
WCED (World Commission on Environment and Development) (1987) *Our Common Future* (The Brundtland Report; New York: Oxford University Press).
Wilkins, A., and W. Ouchi (1983) 'Efficient Cultures: Exploring the Relationship between Culture and Organizational Performance', *Administrative Science Quarterly* 28: 468-81.
Wilson, J.Q. (1989) *Bureaucracy: What Government Agencies Do and Why they Do It* (New York: Basic Books).
ZEW (Centre for European Economic Research) and Bank Sarasin (2002) *Share Performance and Sustainability* (Baset, Germany: Bank Sarasin, September 2002).
ZWNZT (Zero Waste New Zealand Trust) (2002) *Wasted Opportunity: A Closer Look at Landfilling and Incineration* (Auckland, New Zealand: New Zealand Trust).

Abbreviations

AOX	adsorbable organic halogens
BEST	Business for an Environmentally Sustainable Tomorrow (City of Portland, OR)
BINC	best in class (Scandic Hotels)
BMP	best management practice
BOD	biological oxygen demand
BTU	British thermal unit
CDP	Carbon Disclosure Project
CEO	chief executive officer
CERES	Coalition for Environmentally Responsible Economies
CHP	combined heat and power
CO_2	carbon dioxide
COD	chemical oxygen demand
CWCH	Center for Watershed and Community Health, Oregon
DDT	dichlorodiphenyltrichloroethane
DEPA	Danish Environmental Protection Agency
DfE	design for the environment
eeSCO	energy and environmental Services Company
EH&S	environmental health and safety
EMS	environmental management system
EPA	Environmental Protection Agency (USA)
EQAT	Environmental Quality Action Team (Herman Miller)
EU	European Union
FSC	Forest Stewardship Council
GDP	gross domestic product
GM	General Motors
GRI	Global Reporting Initiative
HAP	hazardous air pollutant
HR	human resources
HRW	Human Rights Watch
ICLEI	International Council of Local Environmental Initiatives
III	Implemented Improvement Idea (Epson Portland)
IPCC	Intergovernmental Panel on Climate Change
IRM	Intermediate Remedial Measures (US EPA)
ISCCC	International Scientific Congress on Climate Change
ISO	International Organisation for Standardisation
IT	information technology

JTS	Journey to Sustainability (The Collins Companies)
LCA	life-cycle analysis
LED	light-emitting diode
LEED	Leadership in Energy and Environmental Design certification system of US Green Building Council
NEPP	National Environmental Policy Plan (Netherlands)
NGO	non-governmental organisation
NPA	Neighborhood Planning Assembly (Burlington, VT)
NRC	National Research Council (USA)
PCB	polychlorinated biphenyl
PV	photovoltaic
PVC	polyvinyl chloride
QUEST	quality utilising employee suggestions and teamwork (Interface)
R&D	research and development
RFCE	Rose Foundation for Communities and Environment
RIVM	Rijksinstituut voor Volksgezondheid en Milieu (National Institute of Public Health and the Environment, Netherlands)
SA	Social Accountability
SCA	Svenska Cellulosa AB
SEC	Securities and Exchange Commission (USA)
SEK	Swedish kronor
SH&E	safety, health and environment
SUV	sport utility vehicle
TNS	The Natural Step
TQM	total quality management
UN	United Nations
UNFCCC	UN Framework Convention on Climate Change
UO	University of Oregon
USFS	US Forest Service
VOC	volatile organic compound
VP	vice-president
VROM	Ministerie van Volkshuisvesting, Ruimtelijke Ordening en Milieubehher (Netherlands Ministry of Housing, Land Use Planning and the Environment)
WCED	World Commission on Environment and Development
WTO	World Trade Organisation
ZERI	Zero Emissions Research Initiative
ZEW	Zentrum für Europäische Wirtschaftsforschung (Centre for European Economic Research, Germany)
ZWA	Zero Waste Alliance
ZWNZT	Zero Waste New Zealand Trust

Index

LEADING CHANGE TOWARD SUSTAINABILITY

Since *Leading Change toward Sustainability* was first published in late 2003, many leaders have made significant progress in transforming their organisations into better social and environmental citizens. But many have not. As the world struggles to cope with the growing threat of a global carbon crisis, Bob Doppelt has revised one of the best books ever written about change management, leadership and sustainability to focus on decarbonisation. To significantly slash greenhouse gases and prepare for climate change, organisations of all sizes will need to undergo an enormous shift in their thinking, cultures, practices and policies.

WHAT THEY SAID ABOUT THE FIRST EDITION

• *After reading* **Leading Change toward Sustainability**, *those seeking change can't help but have a more clear understanding of what it means to say: 'Our goal is to become a truly sustaining organisation.' With the help of this useful book, they just might reach that laudable destination.* •

William McDonough, McDonough + Partners

• *This book is packed full of sound experience gleaned from dozens of cases and is a must-read for anyone at all interested in embarking on an organisational change strategy to embrace sustainability in their organisation. One of the most useful books I have read lately. Calling it a Bible for the practitioner is too strong, but it conveys the right idea.* •

Larry Chalfan, Former CEO Oki Semiconductor; Current Director, Zero Waste Alliance

• *Bob Doppelt expands the envelope of knowledge about the realities of reducing the environmental impacts of private and public organisations, giving real-world insights into the substantial economic benefits available to corporations and agencies through the adoption of sustainable practices, as well as practical steps to overcome the formidable institutional barriers involved with implementing these practices successfully.* •

Ernie Niemi, VP, ECONorthwest Economics Research and Consulting, Eugene, Oregon

• *This book is a must-read for anyone who wants to move their business or organisation to the higher ground of sustainability. Whether you are looking for guidance or just need a reminder, Bob Doppelt provides a real-world approach for implementing sustainable business practices.* •

Buddy Hay, VP Sustainable Operations, Interface Research Corporation

• *Bob Doppelt has taken up [the] challenge to learn about experiences in sustainable development; and now he makes us part of his learning process. The result is fascinating and inspiring . . . I sincerely hope this book finds its way into the hands of managers of all kinds of businesses, small and large, to CEOs of the leading multinational enterprises of the world, to directors of government departments in whatever field of public concern they work, to people working for non-governmental organisations, to groups of farmers, to municipalities, to politicians.* •

Paul de Jongh, Policy advisor for sustainable development to the Dutch government; former Deputy Director-General for the Environment, The Netherlands

• *Bob Doppelt's book provides a very practical and concise summary of significant commitments, efforts and processes for leading the change.* •

Jim Quinn, former CEO of The Collins Companies and current partner in Medallion Hawaiian Hardwoods LLC

Greenleaf PUBLISHING

Aizlewood's Mill, Nursery Street,
Sheffield S3 8GG, UK
Tel: +44 (0)114 282 3475
Fax: +44 (0)114 282 3476
sales@greenleaf-publishing.com
www.greenleaf-publishing.com

ISBN 978-1-906093-34-1