



The Consumption Dilemma

Leverage Points for Accelerating Sustainable Growth

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with Deloitte Touche Tohmatsu and the World Economic Forum

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Preface/Project Background

The World Economic Forum's work on sustainable consumption has gained momentum over the last three years. The issue has moved up the agenda of governments and businesses while acceptance of the need for "sustainable consumption" has become more widespread. Following a strong commitment to sustainable consumption from CEOs at the World Economic Forum Annual Meeting 2010 in Davos-Klosters, this year's work has moved beyond asking what the issue is and why it is important to exploring how it can be addressed.

There are plenty of examples of individual success stories on sustainability. These should be celebrated. But, in aggregate, these still do not add up to the change we need. Globally, the pace of change remains too slow to step up the escalating use of natural resources and the rising tide of environmental degradation. In the future, we need strategies which deliver transformative change at the systemic level, with speed and at scale.

This report identifies some of the leverage points which offer the greatest opportunities to tip the economy as a whole towards sustainable consumption. It considers the levers available to businesses, governments and the wider global community. It also sets the stage for a new phase of the World Economic Forum's work on sustainability: a platform for policy innovation.

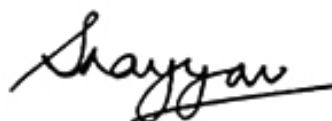
The World Economic Forum's sustainability initiative has drawn on a wide network of partners and experts over the last twelve months. Some 250 individuals have attended meetings – both virtual and live workshops in Amsterdam, Brussels, London, Sydney, Tianjin, New York and Dubai – to discuss the sustainability challenge, share ideas and build partnerships to meet the challenge. This report has been produced with the support of Deloitte, project advisers for this initiative.

The following companies have been closely involved in the World Economic Forum's sustainability work through its project board of Industry Partners, contributing their expertise and support: Aegis Media, Agility, Alcoa, Best Buy, Edelman, Kraft, Maersk, Marks and Spencer, Nestle, Nike, Novozymes, PepsiCo, Publicis, S.C. Johnson, SAB Miller, SAP, SAS Institute, Sealed Air, Unilever, Wal-Mart, Wipro and WPP. We owe particular thanks to these companies which have supported our three working groups on sustainable consumption in 2010 and to the experts serving on the Global Agenda Council on Consumer Industries. Collectively, their insights have been invaluable.

Going forward, we hope that a shift in focus from defining the case for sustainable consumption to identifying the tools and policies needed to achieve it will drive the change that is required. This shift towards public-private innovation will catalyse the transformation needed, with scale and at speed.



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1 Introduction

1.1 The Contextual Challenge

By almost any measure, human prosperity is greater now than at any previous time in world history. In the last 30 years, absolute poverty has fallen at an unprecedented rate – even as global population has increased from 4 billion to nearly 7 billion. A transformation is taking place now, as hundreds of millions of people move from a subsistence existence to one based on their integration in global webs of production and consumption. Even as economic disparities between countries and within countries increase, and even as the bottom billion risks being left behind, globalization has created new markets and new consumers.

Sustaining and extending this prosperity, however, depends on decoupling global consumption from both its use of natural resources and its broader environmental impacts. Current trends are not promising. A combination of increasing scarcity of some natural resources, climate change and growth in global population to 9 billion by 2050 are creating the conditions for a “perfect storm”.¹ As it stands, humanity’s ecological footprint is 50% greater than earth’s capacity to support it. Unchecked, humanity’s ecological footprint could rise by a further third by 2030.²

Without more sustainable consumption, stresses on the natural environment will increase, the politics of equitable development will become acute and the dream of generalized global prosperity will become even more unattainable. Instead of the widening opportunity of the last 50 years, humanity will face more unstable and uncertain prospects.

Sustainable consumption is, therefore, imperative. It requires a fundamentally transformed system of production and consumption. Even where immediate, partial solutions may be local – in coping with water scarcity for example – sustainable consumption ultimately cuts across the global economy as a whole. And while sustainable consumption starts with the citizen – as the central actor in the global economy, as consumer, as investor, as voter and as employee – it does not end there. Sustainable consumption is not only about how much we consume, but also about what we consume, how we consume and who consumes. It is only achievable with the integration of sustainability into business models, production and design. This is not about incremental improvements in the efficient use of particular inputs – conserving water, reducing carbon emissions or saving energy. It is about redefining value.³

Achieving sustainable consumption will be disruptive. It implies a transformation of the global economy as all encompassing as the globalization of production and consumption that has made it necessary. It will create winners and it will create losers. Some companies will adapt better than others: discovering new opportunities, engaging new consumers, innovating new products and making new markets. Some countries will fare better than others: positioning their economies to be hubs of sustainability and securing a new form of competitive advantage. Companies and countries that become part of the transformation of the global economy are far more likely to prosper than those who do not.

Systemic change will not occur by itself – either on the scale necessary or in the time frame available. This report, the third to be published as part of the Sustainability Initiative of the World Economic Forum, is about identifying leverage points in the global economy which can tip the system as a whole, and highlighting the role that innovation can play at all levels of the economy.⁴

What is sustainable consumption?

Sustainable development was defined in 1987 by the United Nations’ World Commission on the Environment – the Brundtland Commission – as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” We define sustainable consumption in these terms: as consumption which meets the needs of the present without compromising the ability of future generations to meet their own needs.

Two principles are the core of these concepts. First, development – qualitative improvements in people’s lives – is more important than narrow definitions of growth – quantitative increases in the size of an economy or in the scale of its throughputs. Second, our economic imperative should be to meet consumers’ needs rather than create wants. Sufficiency trumps efficiency. As an African elder at the Rio+10 Conference phrased it, sustainable development is “enough, for all, for ever.”

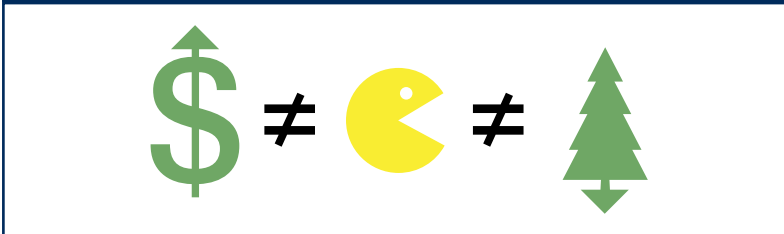
1.2 Rethinking Growth

For several decades, growth in the Gross Domestic Product (GDP) has been the primary goal of economic and development policy. The appropriateness of rising GDP as a measure of success (a task for which it was not designed⁵) is now seriously in question. The systemic transformation of the global economy implied by sustainable consumption forces us to rethink what we mean by growth. To decouple consumption from natural resource use and environmental degradation, we need to purposefully decouple narrow concepts of GDP growth from broader qualitative objectives: prosperity and well-being. This is not to suggest that there necessarily are “limits to growth” in a pessimistic perspective, but there is a trend towards qualitative growth.⁶ The implications for capitalism are yet to be seen.

“The growth economy is failing. In other words, the quantitative expansion of the economic subsystem increases environmental and social costs faster than production benefits, making us poorer not richer.”

– Herman Daly, Senior Economist, World Bank (1988-1994)

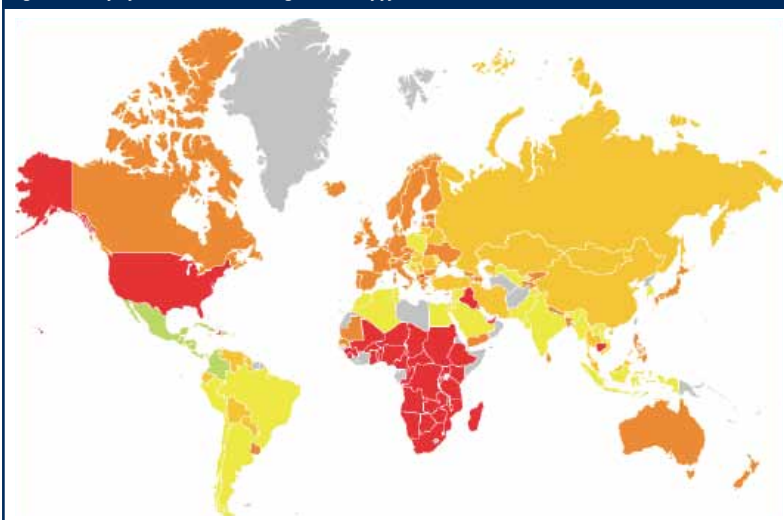
Figure 1: Consumption needs to be decoupled from quantitative GDP growth as well as from environmental degradation



The main criticism of GDP, as a measure, is that it focuses on throughput of materials, capital and labour rather than the outcome of improved lives. Targeting GDP growth tends to encourage greater resource use; but this use may not translate into improved well-being, particularly in the developed world.

Above a certain level, quantitative increases in GDP no longer signify greater human prosperity. The returns of GDP growth – and its associated resource use – to well-being may fall, or even become negative. As the map below shows, countries in the developed world are often worse at delivering long, happy lives in terms of the planetary inputs that they use than some developing countries.⁷

Figure 2: Map of the world according to the Happy Planet Index⁸



Key

All 3 components good	Dark Green
2 components good, 1 middling	Light Green
1 component good, 2 middling	Yellow
3 components middling	Orange
Any with 1 component poor	Dark Orange
2 components poor, or 'blood red' footprint	Red

This map shows the overall scores given to each country based on a traffic light score on each of the three components of the Index (life expectancy, life satisfaction and ecological footprint)

1 Introduction

The Genuine Progress Indicator (GPI) is an alternative metric to GDP, an attempt to measure whether a country's growth, increased production of goods and expanding services have actually resulted in the improvement of the welfare of the people in the country. While GDP is a measure of current income, GPI is designed to measure the sustainability of that income through economic, social and environmental indicators. GPI uses the same personal consumption data as GDP but makes deductions to account for income inequality and costs of crime, environmental degradation, loss of leisure and additions to account for the services from consumer durables and public infrastructure, as well as the benefits of volunteering and housework.

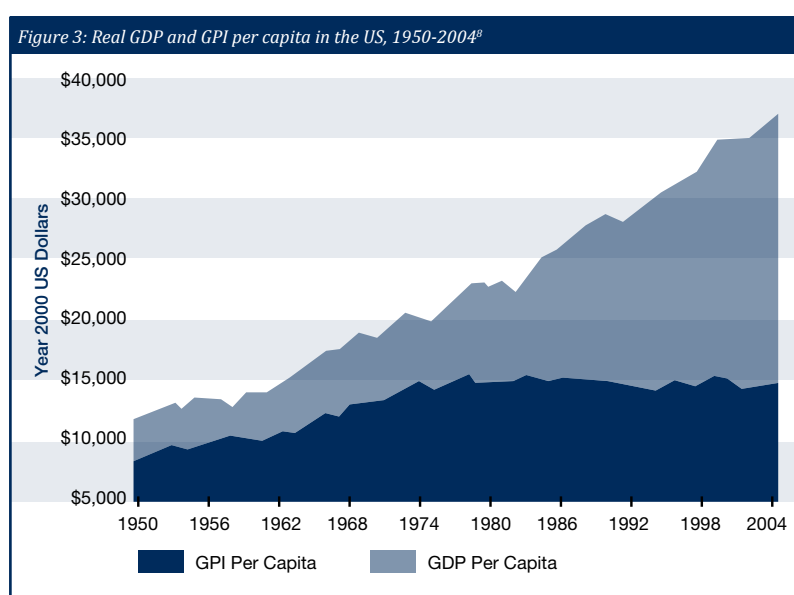


Figure 3 shows that despite steady growth in GDP, the US economy, measured by GPI, has actually stagnated since the late 1970s. Addressing both is difficult but not impossible: shifting away from GDP growth and towards a concept of “dynamic equilibrium” – maximizing units of well-being delivered per unit planet input – will make decoupling prosperity from natural resource use easier⁹.

The need to move away from a narrow focus on GDP, price externalities much better and shift development objectives from quantitative growth to qualitative improvements in life outcomes has resulted in a number of high-level initiatives in recent years.¹⁰ Recently, the use of wellbeing and GPI as benchmarks of progress have been supported by the OECD.¹¹ Some G20 governments have indicated their intention to broaden the sets of data that guide policy. In the United Kingdom, the Office of National Statistics will start collecting data on “happiness” in 2011. In the developed world, we need a new definition of development; in the developing world, we need a new trajectory for achieving it.

Gross National Happiness

In an attempt to define an indicator that measures quality of life or social progress in more holistic and psychological terms than GDP, the term Gross National Happiness (GNH) was coined in 1972 by Bhutan's former King Jigme Singye Wangchuck, who opened Bhutan to the age of modernization.

In 2008, a GNH Commission was founded at the same time as Bhutan transformed itself from an absolute monarchy to a multi-party democracy. Since then, the Centre for Bhutan Studies, developed a sophisticated survey instrument to measure the population's general level of well-being.¹² GNH, like the Genuine Progress Indicator, refers to the concept of a quantitative measurement of well-being and happiness. Based on solid empirical research, the survey uses 72 weighted indicators within nine dimensions, including time use, community vitality and environmental diversity. Another version of the survey instrument, based on the same body of work, is being applied in Canada.

1.3 Decoupling GDP Growth from Resource Use

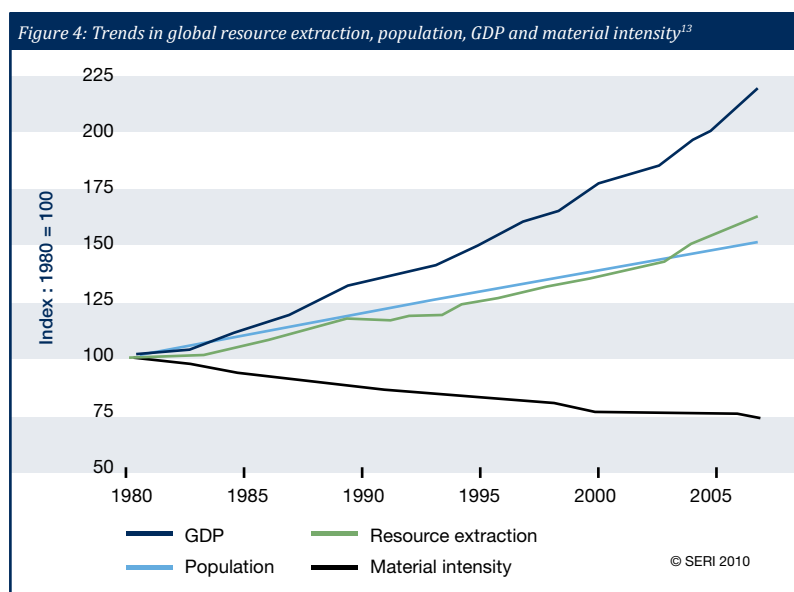
For a variety of reasons, GDP growth has implied higher levels of extraction, processing and use of materials which, in turn, has led to increasing levels of environment degradation. Reducing this negative impact requires decoupling GDP growth and consumption from the cycle of resource extraction, use and disposal.

Historically, even as the material intensity of GDP has fallen, the rate of increase in GDP has undermined any potential aggregate reductions in material use. In some cases, increases in the efficiency of use of particular resources has not resulted in them being used less, but being used more (also known as Jevons' paradox). In short, decoupling GDP growth from the rate of resource extraction via efficiency gains has not worked to the degree economists and environmentalists have been counting on.

Figure 4 illustrates this point. In 2007, 26% less natural resources were necessary to produce one dollar of economic output than in 1980. However, because material intensity decreased to a lower extent than economic growth, no absolute decoupling was achieved and resource extraction continues to grow in absolute terms.

“As a CEO, if you want to plan for success, you need to decouple your growth strategy from your environmental impact.”

– Paul Polman, CEO, Unilever



Between 1990 and 2007 global energy intensity per dollar of output fell by only 0.7% per annum.¹⁴ Under current economic growth rates, global carbon intensity (defined as unit of CO₂ equivalent per unit of GDP) needs to fall by 11% per annum between now and 2050 if we are to achieve the 450 ppm level of atmospheric carbon accepted as the upper limit to keep global warming to 2°C. Recently, many scientists suggested that atmospheric carbon should be lowered to 350 ppm to prevent climate spiralling out of control.¹⁵

The consequences of this are stark: a need to radically shift away from throughput-based measures of growth (which promote continued growth in consumption without regard to well-being) and the need to change business models at unprecedented speed and on unprecedented scale.

1.4 From Incrementalism to Transformation: Speed and Scale

Businesses are experimenting with new business models; some governments have undertaken radical policy measures. Both are being pulled and pushed by a growing niche of consumers demanding more sustainable products. Technological improvements are reducing the intensity of resource use. These are important steps in the right direction. Yet, they are not happening with sufficient speed or at sufficient scale. They do not add up to the transformation we need.

“We must make the aspirational attainable, the attainable sustainable, and the sustainable affordable.”

*– Lars Olofsson, CEO,
Carrefour*

Consumption in transition

Consumption is a fundamental human cultural expression, whether of hospitality, wealth, celebration or success. Yet, if the trend of growing consumption continues without any fundamental changes in the way we think and how we consume, we face a very challenging future.

We have two choices – reconsider what consumption means in a proactive way and start designing a transition now, or wait until we are forced to react and adapt.

Changing the systems of “stuff” is a good place to start – designing for modularity or reuse, advocating life cycle ownership of products by manufacturers, creating policy that supports better material decisions and closing recycling loops, prototyping new business and accounting models, etc.

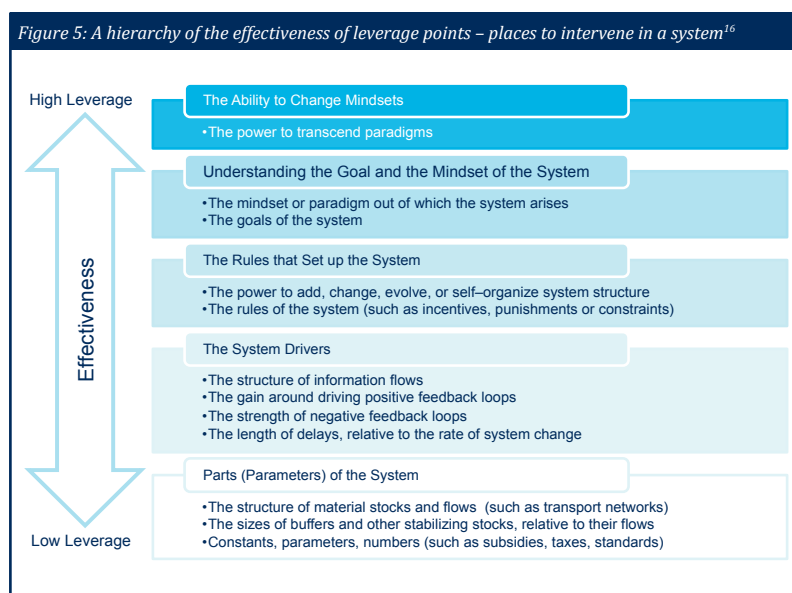
We may be missing a critical opportunity though. We intuitively know that, after a certain level of need is met, the acquisition of more stuff creates a happiness that is very transactional. New research demonstrates that our desire for stuff actually makes us less satisfied and happy. But if we are consuming experiences, we are happier – material purchases bring more concern and less happiness than experiential ones, according to a study from Cornell University, published in the Journal of Personality and Social Psychology.

There are examples, of course – services like Netflix or Pandora turned media into a use rather than an ownership model. Car-sharing services eliminate the hassle of ownership. Software services in the cloud can provide better performance while reducing the carbon footprint of IT by up to 90%. Disruptions have emerged when consumers can get better value from the service rather than ownership.

But how might we start with designing for experience rather than transitioning as the value proposition appears? If we are to fundamentally alter how we consume, let us begin with designing for experience rather than acquisition.

1 Introduction

Many barriers retard economic transformation or prevent it: perverse incentives, poor policies and pricing of natural resources without reference to externalised costs. Removing these barriers would help – providing immediate competitive advantages to those engaging in sustainable practices. But there are more positive leverage points that can help tip the whole system towards sustainable consumption. In the view of the World Economic Forum Partners, identifying these leverage points – interventions where small changes can produce broad, system-wide results – is the only answer to the scale of the challenge, its systemic character and the speed needed to address it.



This report focuses on three sets of stakeholders, and the leverage points pertaining to each – separately and together:

- Consumers are key shapers of the global economy not only through their product choices but also through their engagement as members of their social networks and communities, and as global citizens.
- Businesses are the builders of a sustainable consumption economy through their investments and innovation. The strategic use of life cycle thinking offers an opportunity to re-engineering business models and value chains.
- Governments are the enablers of sustainability. Public policy innovation can drive markets and mobilize stakeholders leading to actions and outcomes at scale.

The report will explore the roles for each of these stakeholders, and potential points of leverage for them to act now.

The role of open innovation

Systemic change requires more open innovation: allowing businesses to co-innovate new business models, share expertise and ensure that innovative ideas and processes currently locked within a single organization – and possibly unused by it – become agents of transformation. Open Innovation should not replace competition; it should complement it.

For example in 1998 Nike began researching environmentally preferred rubber and developing formulations that could be applied to footwear. In FY2009, 76% of Nike shoes contained environmentally preferred rubber, while incurring cost savings. While it makes perfect sense to keep this intellectual property out of the hands of competitors, many of the same rubber compounds are used in the tire industry, an industry that uses 75% of the rubber produced in the world¹⁷. Using the platform of the GreenXchange, Nike's patent for "Rubber Compositions with Non-Petroleum Oils" can be licensed for other applications, reducing R&D for a licensee and generating licensing revenue for Nike.

While new technologies have enabled accelerated information exchange between consumers and companies, many companies have not yet engaged in open innovation processes with other businesses across the value chain, or fully explored the benefits of co-generating business ideas with their consumers. The potential upside is underrated – static cost-benefit analysis suggests companies have more to lose than to gain. Too often, sharing is seen as uncompetitive.

Yet, successful knowledge cultures are frequently those that are most interactive. In an increasingly fast-moving world – where disruptive technologies and trends are a part of the business and social landscape – predicting future needs is highly complex. The ability to learn – in real time – from customers or business partners through open innovation, often facilitated by social networking can confer a radical advantage – and it can speed up the systemic shift towards sustainable consumption.

This requires shifts in two directions: first, from the generation of proprietary knowledge to shared and collaborative knowledge and, eventually, open or mutual knowledge; second, a shift from mutual dependency between consumers and businesses centred on products to a more empowering relationship based on servicing human needs.

Consumers

Changing the Terms
of Engagement

2 Consumers: Changing the Terms of Engagement

2.1 Why Engage Consumers?

Consumer choices are key determinants of what the global economy produces, and how it does so. Fundamentally, while all consumer choices are individual, their aggregate effect makes markets and drives businesses. Understanding how consumers choose is the prerequisite to harnessing their choices in transformative change.

Recently, leadership opinion has pointed to the need for a new approach: a need to shift from an era of “super consumption” – in which consumption of ever-greater numbers of quickly obsolescent goods is viewed and marketed as an end in itself – to a “new normal” of consumption emphasizing value above “stuff”¹⁸. Engaging consumers, and “nudging” their choices towards sustainable consumption, is essential to creating a more sustainable global economy.¹⁹

However as it stands, consumer engagement is not shifting the global economy towards sustainable consumption with enough speed or at scale. A minority of consumers are proactive in creating a sustainable economy – fostering markets for sustainable products and driving better consumer and corporate awareness. Their numbers are too small, however, to tip the economy as a whole towards sustainable consumption. Many consumers remain confused about claims to sustainability of particular products and services, and doubtful as to their ability to affect the workings of the economy as a whole through their individual purchases.

The issue may be as much about where consumers are engaged as how they are engaged and who they are. An understanding of how consumers choose and interact has been growing with advances in technology and data collection over the past 10 years, offering an opportunity for businesses to engage more genuinely with their consumers. It also suggests that some of the most powerful leverage points for consumer engagement in sustainable consumption may not lie in traditional marketing, but in the broader social context. The challenge is that the sophistication of modern marketing needs to be applied to new models of consumption rather than promotion of super consumption.

“In the public mind, marketing and communications skills are naturally most associated with the encouragement of consumer consumption. But they’ve also proved their worth many times over in the promotion of public services: in Government health campaigns, recruitment and the raising of money for charities, for example. As the need for our planet to graduate from super consumption to sustainable consumption becomes ever more urgent, marketing skills will be key in persuading the world of the resulting benefits - to both individuals and society as a whole.”

– Sir Martin Sorrell, CEO, WPP, United Kingdom

2 Consumers: Changing the Terms of Engagement

How consumers choose

Consumer choices are shaped by a wide variety of factors, both before purchase and in-store. Which factors predominate in consumer choices vary by product category, level of consumer awareness, the nature and extent of regulatory intervention as well as by geography, culture and income level.

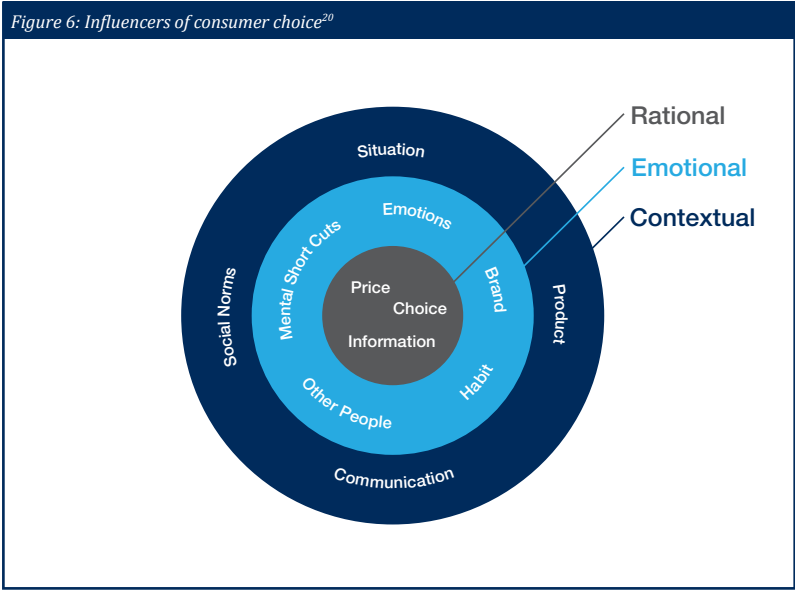
Choosing is a complex act, influenced by social context, cultural attitudes and education as well as the availability of product information, the range of choice and how goods and services are marketed.

Ultimately, consumer decision-making operates at three levels:

- **Rational:** conscious decisions based on information about the price, attributes and performance of products and services – some of which may relate to utility to an individual, some of which may be more social. Though price is the single greatest factor in consumer decision-making, purely rational decisions are rare. Most of the information presented to consumers is confusing.
- **Emotional:** beliefs, emotions, brand image, established habits, social influences and heuristics – mental short cuts – all play a role here. A large part of consumer decision-making depends on emotion, intuition or habit. Some 70% of items purchased every week are repeat purchases, with little or no conscious consideration of alternatives. Behaviour breakers tend to relate to price and promotions.
- **Contextual:** choice is also influenced by the environment in which a consumer makes a decision, both the immediate physical environment and the broader social and cultural context. Social norms matter, particularly when the choice of a particular product or service is visible to others. Personal recommendations can be highly influential.

2.2 Rethinking How to Engage

Consumer engagement strategies need to reflect the complexity of the ways in which consumers choose, spanning the three levels of consumer decision-making: rational, emotional and contextual. This, in turn, has implications on how consumers are engaged in sustainability, and which leverage points may produce transformative change.



Case study: recycling incentives

RecycleBank uses a carrot rather than a stick approach to motivate consumers and communities to take positive environmental actions that lead to a more sustainable future. Through its kerbside recycling programme and digital platform, RecycleBank incentivizes environmentally preferable behaviours with points that can be redeemed for discounts and rewards from participating local and national business partners.²¹

2 Consumers: Changing the Terms of Engagement

Below are a few lessons that have come from interviews conducted as part of the research for the Consumer Engagement workstream.

Lessons/Guidelines ²²	Implication
<p>Choices are about identity: the purchase of a wide range of products is as much about identity and lifestyle of the purchaser or the intended recipient, as about the qualities of the product.</p>	<p>Relating sustainability to a range of products and services, and to a broader lifestyle or values choice may be an effective means of effecting consumer behaviour. Providing the empowerment and tangible actions to support a purpose or value set will be vital.</p>
<p>Establishing social norms is key: nearly all consumption choices are subject to some kind of social influence – either personal recommendations, ideas of social acceptability, awareness of others’ purchasing habits or visibility of one’s own.</p>	<p>Dialogue and engagement on sustainability, social norm setting and leveraging of social networks of consumer practice are likely to drive changes in consumer behaviour in the long term. Key to this will be messaging on what sustainability means and how it relates to the consumer’s role in the wider world.</p>
<p>More information is not necessarily good: consumers rarely balance the costs and benefits of each purchase. Habit, emotion and intuition are more important as information – increasing the value of brands and easily recognizable and trusted labels.</p>	<p>More detailed and complex information will not necessarily lead to a change in consumer choices. Credible, simple and trusted information may be more effective. Social labels, which describe the impact of purchase on another set of stakeholders, may be key.</p>
<p>Consumers have short time horizons: consumers tend to focus on upfront benefits of products rather than long-term costs. Relative efficiency of products rarely outweighs relative initial outlay in affecting decision-making.</p>	<p>Encouraging purchases of more sustainable goods may require that upfront costs more adequately reflect long-term costs, or that long-term costs are more explicitly displayed. Engagement strategies that pay back quickly – such as RecycleBank (see box) – are likely to be more effective.</p>
<p>Greater choice tends to lead to quicker, less reflective decisions: consumers take less time considering their purchase when faced with an extensive range of choices than when faced with a more limited range.²³</p>	<p>Choice-editing at the level of the retailer (or policy-maker) rather than at the level of the consumer, may be necessary to exclude some products. Research suggests this may be expected or even welcomed by consumers.²⁴ Unilateral retailer choice-editing (such as Marks and Spencer’s “Plan A”) may help build an environmentally positive brand image.</p>

2 Consumers: Changing the Terms of Engagement

2.3 From Behaviours to Values

Traditionally, the focus of efforts to change consumer behaviour has been at the point of purchase and pre-purchase, with mixed results. A deeper upstream shift in consumer values may be a more effective long-term approach²⁵ – and suggest a more authentic way of engaging with consumers, in a pre-competitive environment.

Consumer behaviours in-store tend to be highly transactional and heavily influenced by price. But values, if sufficiently deeply embedded, can alter the consumer calculus decisively (e.g. fair-trade bananas vs cheap bananas). However, values are relatively hard to create or change: they are often instilled in childhood, through families and early education systems. So while transforming consumer choice through changing consumer values may offer the greatest long-term leverage, it implies a long-term shift involving media, businesses, public policy and education.²⁶

Women as ambassadors of the cultural imperative

Women are known to wield significant influence in consumer decision-making: In the US, studies show that women are responsible for buying 80% of household goods, and the Consumer Electronics Association (CEA) reports that women are the primary consumers when it comes to wireless gadgets and gizmos. According to CEA officials, women are outspending men in electronics purchases US\$55 billion to US\$41 billion. The trade organization also reports that women influence 90 percent of consumer electronics purchases.

Among the poor, women are usually responsible for collecting water, firewood and feeding their families. On the ground, they see the impacts of consumption on rivers, forests and croplands. Grassroots activism, such as Wangari Maathai's Green Belt Movement is empowering women to plant trees and take a stand for their local environment. Gender gaps in education, employment, health and political representation are narrowing. At the same time, laws and social norms that have discriminated against women are shifting in some countries.

Together, these factors are giving women greater influence and decision-making power within households and markets. Empowered women can become a secret weapon in a shift to sustainable consumption.

There is some evidence from different fields (behavioural economics, finance, psychology) that women are more risk-averse than men, display web-thinking rather than linear thinking, are more likely to think of long-term interests rather than short-term compensation and tend to take more inclusive decisions. These traits are precisely those which sustainability leaders have argued for in business and government – planning for implications, systems thinking, long termism, and informed decisionmaking – all of which are necessary for a shift to sustainable consumption.

To capitalise on this potential will require moving beyond focus groups to include women and gender in the design, marketing, advertising and delivery of the experiences of the future based on sustainable, healthy products and services. By leveraging women as citizens and ambassadors of the cultural imperative, the shift to sustainable consumption can be accelerated and the long-desired “consumer pull” for sustainability could see increased traction.

2.4 From Consumers to Citizens

The shift from behaviours to values suggests a new way of engaging with consumers – as citizens and as members of broader communities.²⁷

Companies and governments spend considerable sums to influence consumers. But research indicates that the strongest influence on consumer behaviour and values comes from the broader social community. Trust is central.²⁸

The re-conceptualization of the consumer as citizen is not radical in itself, but actually changing the interaction that institutions have with the consumer is fundamentally more challenging. The essence of marketing over several decades has been the disaggregation of individual consumers from society as a whole, in a process of continuous market segmentation.

Engaging consumers as citizens is the reverse. It will involve:

- Recognizing the broad societal networks which provide meaning to and influence the values of consumers and citizens: families, friends, places of worship and schools;
- Capitalising on renewed impetus of communities and networks – virtual or otherwise, driven by communications technologies;
- Understanding and acting upon a cultural shift from “me” to “we”;
- Engaging the consumer through shared responsibilities to society and the co-creation of products and services.

One recent example is the “10:10” campaign that the British government initiated to reduce carbon emissions by 10% by the end of 2010. The campaign has caught the public’s imagination and engaged individuals and communities in hundreds of thousands of activities.

Collaborative consumption

A concrete example of active community building is through collaborative or collective consumption²⁹. Through this collaborative consumption a community gets together through organized sharing, swapping, bartering, etc. to get the same pleasure of ownership with reduced personal cost and burden, and lower environmental impact. These exchanges happen mostly on a local or neighbourhood level.

Collaborative consumption is not a niche trend, and it is not a reactionary blip to the recession. It is a socio-economic groundswell that will transform the way companies think about their value propositions and the way people fulfil their needs. One example in the form of fractional ownership, is the renting of cars being executed by Zipcar, which owns cars and allows individuals to rent them by the hour, and Whipcar, which is a platform which lowers the transaction costs for individuals to rent out their own cars to friends or neighbours. Both Hertz and Mercedes are now exploring fractional ownership models.

The collaborative consumer is also an engaged citizen, one who both owns and spreads messages and values. As the business models start to change, so too must the mental models of how consumers and citizens are influenced. This will most clearly be seen through deeper two-way engagement and the emergence of a more active consumer.

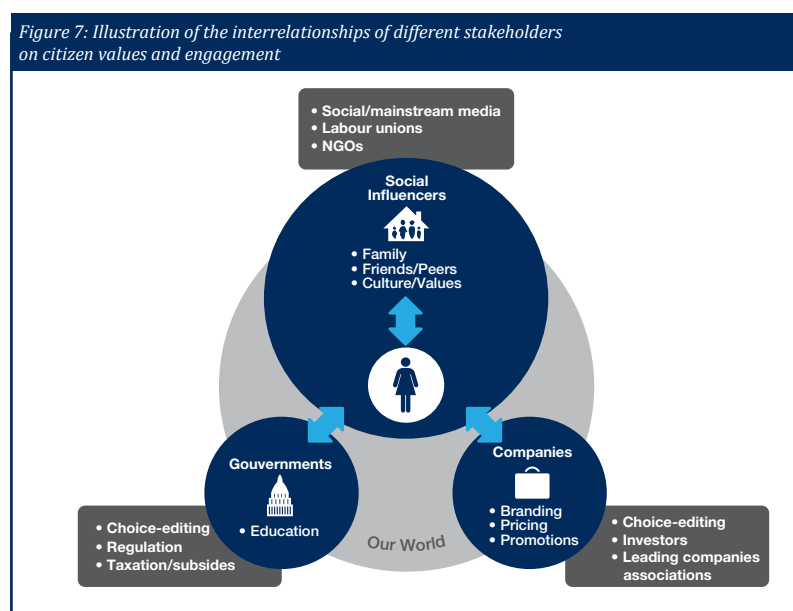
“We are sensing a return to citizen, rather than consumer, values – proof positive that it is citizenship, not consumerism, that is the more enduring ethos. In short, we are sensing a citizen renaissance.”

– Robert Phillips, President & CEO, Edelman, EMEA

2 Consumers: Changing the Terms of Engagement

However, there remains a strong tension, almost a schizophrenia, in the role of governments. While there are many programs run by departments of environment promoting sustainable consumption, they are consistently out-resourced by the mandate for growth and jobs. Until these perverse imbalances are reconciled and governments make a transparent shift in their priorities, the mixed signals will continue to undermine trust by consumers and business.

Above all, change will involve recognizing that while the applicability of specific leverage points may vary from culture to culture, the greatest long-term leverage points for consumer engagement are always likely to lie at the social and cultural level. The following graphic takes a snapshot of the emerging drivers that influence actions and enact behaviour shifts.



2.5 A New World of Consumer Engagement

The real potential of consumer engagement – to shift business models, to transform consumption and to offer new opportunities for businesses – is only now being recognized. The scope for innovation is huge.

Unlocking consumer engagement offers opportunities for new kinds of relationship and a different form of competitive advantage. Trust, co-creation and authentic consumer engagement will complement price and logistics as the characteristics of successful businesses in this new world of consumer engagement.

One radical form of consumer engagement is co-creation of goods and services enabled by new communications technologies. For example Threadless, an online start-up, allows users to submit T-shirt designs which are then voted on through the Internet, with winning designs going into production. There are limits to how widely this can be applied, depending on the type of product and services and the availability of the supply side of consumer innovation.

2 Consumers: Changing the Terms of Engagement

Even where co-creation is not possible, consumer engagement can become far more collaborative and more socially driven, building far stronger brands in the process. The Pepsi Refresh project is shifting up to one-third of PepsiCo's overall marketing budget to interactive and social media.³⁰

Sustainability has a strong role to play in the new world of consumer engagement – building social values of sustainability and businesses' trust with consumers around those values.

Signals from the next generation

Nike has conducted in-depth qualitative research on attitudes towards sustainability among young people aged between 17 and 25 in the United States, Brazil, the United Kingdom and China³¹. Five messages emerge from this research:

1. Young people are acutely aware of global social and environmental issues. An entire generation senses itself to be living on "orange alert" – with a constant feeling of uncertainty.
2. For many of them the word "sustainability" has negative connotations. More optimistic, positive, forward-looking language may be needed to promote engagement.
3. Changing young people's behaviour is most likely if it can be connected to or inspired by particular social leverage points: sport, music, art, film, fashion, etc.
4. While cynical about brands in some respects, young people recognize that governments do not have all the answers, and brands have a role to play in changing the world.
5. For young people, business transparency and honesty is the prerequisite for trust.

Case study: the power of networks (I)

Crowd sourcing initiatives may be a next step in engaging consumers who look to their values when making purchasing decisions. New information communities, such as GoodGuide.com, will play a crucial role by leveraging new data (such as life cycle metrics and health hazard assessment) and new technologies (smart phones and social networks) to enact changes in consumer demands and awareness. "Fellow citizens" can find products that match their values, share these products with their social network, switch between products and send signals in the marketplace about what they want from companies.

2 Consumers: Changing the Terms of Engagement

2.6 Engaging for Change

From the above, it is easy to conclude that engaging consumers is unpredictable. However, this also provides an opportunity while consumers are currently looking at new options and questioning their values. Engaging consumers and citizens on sustainable choice through the social context of their decision-making will be a generational investment. There are positive signs, however, that a broad generational shift in values is not only possible, but that the foundations for it are already there.

The implications are powerful: better sustainability narratives, if backed by high levels of trust, can tip the next generation of citizens towards a world where more sustainable models of consumption become accepted as a global social norm.

Governments and businesses have key roles to play:

- Governments – through education, regulation of markets and other public policy measures – can create an environment in which sustainable choices are supported. They can be instrumental in creating new social norms and values that influence consumer behaviour both long before purchase and long after it. At the same time, active citizens provide the support that policy-makers need to commit to sustainable policies.
- Companies can have an opportunity to lead rather than follow consumer awareness of sustainability: through upstream education programmes reflecting the social dimensions of consumption; through collaboration along value chains; and by communicating sustainable value propositions, products and services to their customers. Crucially, this depends on businesses doing what they do best: creating and capturing value. Transparency in marketing will be key to building trust, and standards such as the International Chamber of Commerce (ICC) Framework for Responsible Environmental Marketing Communications will provide much-needed guidelines accessible to all companies.³²
- Both governments and companies have a role to play in choice-editing for consumers based on sustainability.³³ This editing of consumer choices can be actioned by manufacturers or retailers as an expression of their corporate values, i.e. by not offering certain products or ingredients to consumers, such as blue fin tuna; or by governments, by regulating or phasing out certain products, such as incandescent light bulbs.

Transformational change cannot happen without broad collaboration between stakeholders, a focus on the pre-competitive contextual level of consumer values rather than competitive in-store decision-making and open innovation to create the learning systems that enable a seismic shift in values. This cannot happen without re-conceptualising the consumer as citizen.

The leverage points for tipping the global economy towards sustainable consumption are increasingly clear. The challenge now is to activate them purposefully. Below is a summary of leverage points explored through discussions over the past year.

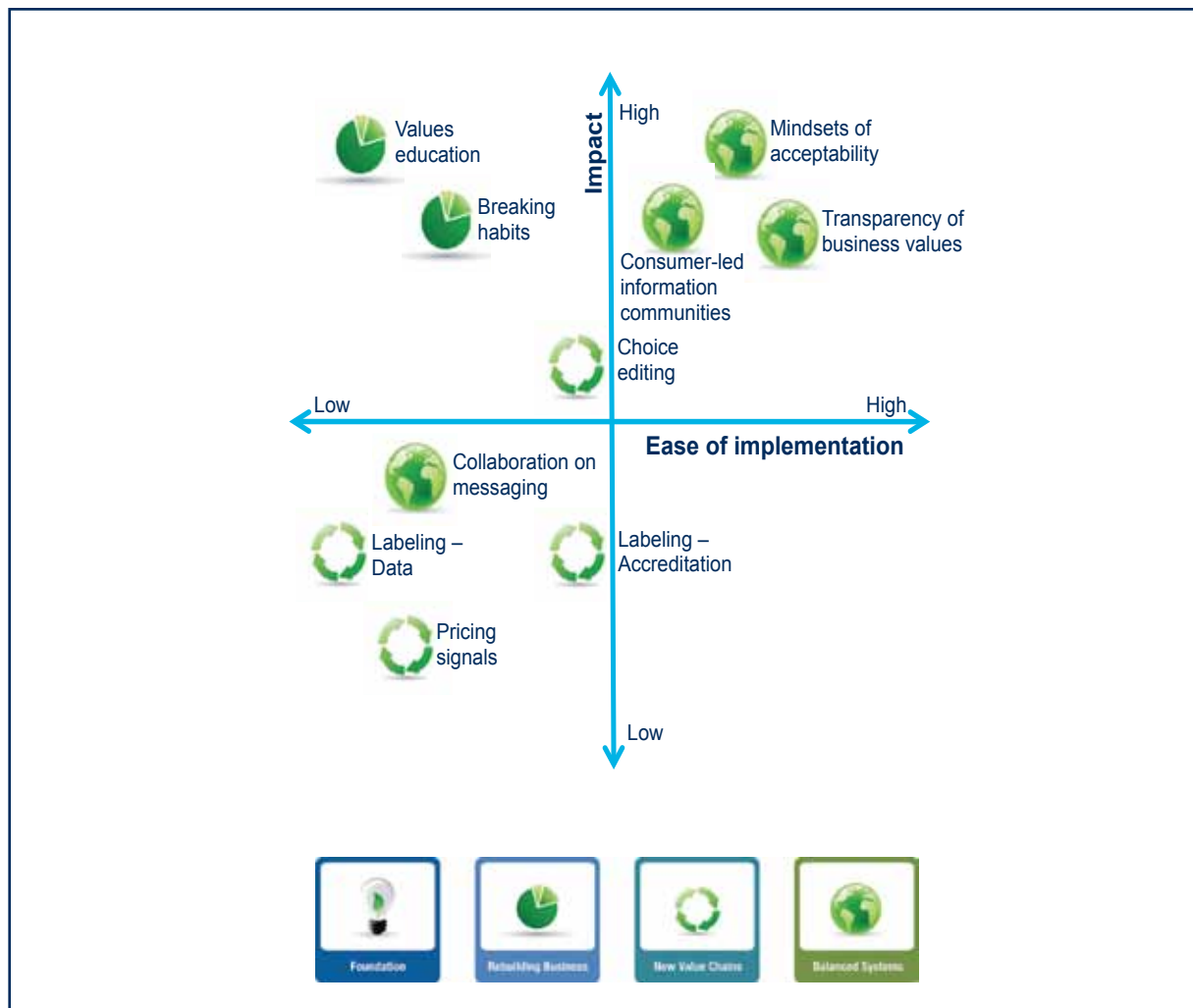
The following table is intended to serve as a qualitative dashboard to highlight the points of highest leverage, based on the insights of this chapter. Some of these may challenge conventional thinking, which was indeed the purpose of the workshops and interviews through which they were collected.

2 Consumers: Changing the Terms of Engagement



This key explains the qualitative rating system used for leverage points on the table opposite and graph below:

	High	Medium	Low
Impact	Can trigger a fundamental shift in the way the system operates	Can reinforce positive behaviours or can break down barriers for progress	Important steps to take but doesn't enable a fundamental change in the system
Ease of implementation	Change can happen fast with incremental costs and few political barriers	Change desired but only on a longer time horizon due to inherent political and economic barriers	Requires disruptive shifts in organisational systems due to divisive or polarised mindsets
Replicability	Easy to copy and non-exclusive. Can be emulated in various geographies globally	Needs better regulatory and business environment to gain momentum across geographies	Difficult to replicate or implement beyond regional or national context
Scalability	Can be easily scaled between municipal, national, regional and global levels	Accessible by large entities but difficult to enact on a regional or global scale	Costly to scale requiring large investments in order to grow beyond local pilot phase



The icons from the 2010 Redesigning Business Value report, are used to classify the various types of leverage points found in the graph.

Mobilizing Business Opportunities

Life Cycle Thinking

3 Mobilizing Business Opportunities: Life Cycle Thinking

3.1 From Compliance to Competitive Strategy

Until relatively recently, business attitudes towards sustainability tended to be reactive and focused on compliance. Companies' principal focus was on mitigating risk, addressing concerns raised by NGOs and attempting to avoid or influence government regulation.

The context for business has begun to change. Awareness of environmental sustainability issues has increased among consumers, governments and businesses, heralding an increased role for accurate data and information on environmental impacts. Consumer demands for transparent and sustainable sourcing have grown. Investors are increasingly holding companies to account and looking to sustainability as a possible source of future higher shareholder return. Increasing resource scarcity and related costs have increased the costs of raw materials and energy. Governments are becoming aware of the need to move beyond GDP growth as the definition of economic development. Tighter regulatory frameworks have emerged, supporting incremental change but not yet enabling the transformative shift to sustainable consumption that we need.

As the context has changed, so have business attitudes. Chief executive officers are increasingly recognizing the importance of sustainability to the future of their businesses. According to one report, over 90% of CEOs see sustainability as important for their company's future success.³⁵

Sustainability is also increasingly being elevated from an issue of operational management to one that influences product design and corporate strategy. For example the Sustainability Board of METRO Group, chaired by the CEO, recommends binding targets, guidelines, standards and measures to the management board and, in this manner, continues to further develop the corporate sustainability strategy.³⁶

This section of the report argues that life cycle thinking and the metrics that inform it may have a powerful role to play in accelerating this shift from compliance to strategy and in opening possibilities for innovation within businesses and across value chains.

Life cycle metrics (LCMs) – data which track resource use and environmental impacts of goods and services from resource extraction and production through to how goods are used and disposed of – are already providing companies with a much better understanding of key resource inputs along the entire value chain. This can be a powerful tool, both at the operational and the strategic level. Nestlé's Environmental Management System has explored indirect and direct water use along the value chain and has been able to reduce the company's risks and input costs by doing so.³⁷

But LCMs and associated life cycle thinking have even greater potential – as a leverage point for businesses, value chains, industries and the global economy as a whole. Scaling up sustainability with speed means helping more and more firms to raise life cycle thinking from the shop floor to the boardroom, using it to drive corporate research, development and innovation, and in building broader sustainable business ecosystems. Fully exploited, life cycle thinking has the ability to mobilize disruptive, transformative change with both speed and scale in the board room and along the value chain.

“To realise sustainable consumption, it is crucial to leverage lifecycle thinking at a strategic level as a driver of business and policy innovation.”

– Steen Riisgaard, CEO, Novozymes

3.2 Current Drivers of Sustainability for Businesses

Corporate approaches to sustainability are being driven by a number of factors – consumer behaviour, government procurement and regulation, and decisions made by market leaders and market makers as well as investor behaviour:

- **Consumer Engagement:** increasing social awareness of sustainability issues, coupled with the growing importance of civil society and consumer empowerment through technology has led to baseline demands for transparency about the environmental and social impact of goods and services. Companies unwilling or unable to provide this are at risk of losing brand equity and market share.
- **Employee Engagement:** engaging employees in a company's sustainability journey is not only critical for the integration of new values into the DNA of a company, but also for attracting and retaining talent in an increasingly competitive market. In addition, as part of the shift from consumers to citizens, employees can serve as a testing ground for new products, services and strategies.
- **Government Procurement:** a rising trend towards the introduction of sustainability criteria in government procurement is driving companies to consider their own processes from a life cycle perspective. The European Union has introduced a target that half of the public tendering processes must be “green” by 2011. In the United Kingdom alone, this is estimated to have the potential to create an annual £110 billion market for sustainable goods and services, through changes in Government Buying Standards to come into effect in 2011.³⁸ In the United States, both the federal government and state governments have adopted measures that use the purchasing power of the state to create new market incentives. A new Executive Order requires agencies of the federal government to report their GHG emissions and to reduce them over time.³⁹ Tipping the government market towards green procurement will help drive down the price of sustainable products as their manufacture is scaled up.
- **Regulation:** the trend to sustainable procurement is complemented by changes in regulation. In different ways, regulations such as the European Union's Waste Electrical and Electronic Equipment (WEEE) directive and Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) are changing the way in which companies design and manufacture their products and how they consider disposal, driving research and development budgets towards more sustainable alternatives. Extended producer responsibility (EPR) – or product stewardship – encourages manufacturers to design environmentally friendly products by holding them liable for costs at the end of the product's life.

Case study: the power of networks (II)

GoodGuide uses life cycle metrics to identify what matters most in a product's supply chain – essentially the scientific “hot spots” – and what matters most to consumers – the “hot button” issues. GoodGuide delivers information to consumers on the life cycle impacts of products and supply chains, including environmental, social and health impacts – right at the moment a consumer is making a decision about a product in a store or online. This information community enables positive feedback loops for sustainable products and services, and incentivizes much greater transparency from companies.

3 Mobilizing Business Opportunities: Life Cycle Thinking

- **Market Leaders and Market Makers:** some purchasers of goods and services, particularly large retailers, are using their scale in the marketplace to influence practices within their supply chain and triggering shifts in the economy as a whole. In some cases, purchasing scale is the key factor. Wal-Mart has been a market maker by engaging across the supply chain to decrease the environmental impact of its products, reducing inputs and creating a cascading incentive for suppliers to explore their own environmental (and other) impacts. In others, the power of example is enough. Marks and Spencer and Tesco have been market leaders through “Plan A” and carbon labelling, respectively. A combination of GE’s scale and innovation, coupled with government regulation, has made a new market for LED lighting that barely existed a few years ago.
- **Sustainable Investors:** an increasing number of investors integrate long-term environmental, social and governance (ESG) criteria in their investment and ownership decision-making processes with the objective of generating superior risk-adjusted financial returns. These extra-financial criteria are used alongside traditional financial criteria such as cash flow and price-to-earnings ratios. As large institutional investors become more focused on sustainability issues from a risk-adjusted financial return perspective, this will further accelerate the transition towards sustainable business practices. The trend towards sustainable investing is also driven by the increasing demand of asset owners (as universal owners) and international initiatives such as the UN-backed Principles for Responsible Investment.
- **Resource Scarcity:** increasing constraints on the supply of natural resources relative to demand is driving businesses to better manage their resource inputs or even to exit resource-intensive sectors where uncertainties about future availability are too high. Increasing resource scarcity implies the potential for rising costs and dislocations. However, it can also be a driver of innovation and a driver of future value and markets (e.g. from waste materials). Above all, it can help decouple global prosperity from resource use.⁴⁰
- **Minimizing externality risks:** sustainability matters to business because it reduces exposure to the risk of increased scarcity of resources and to the risk that these (carbon, water, waste) are radically repriced in the future. Embracing models of sustainable consumption across the value chain will provide stronger resilience against external shocks.⁴¹

These drivers have been and will continue to be effective in helping to build sustainability into the DNA of individual companies, markets and the economy as a whole.

Thinking strategically: identifying leverage for sourcing

The WWF – World Wide Fund for Nature identified 35 places on earth richest in biodiversity and most important from an ecosystem perspective – and then highlighted 15 commodities that posed the greatest threat to these places. It turned out that 300-500 companies controlled 70% of the trade in these commodities. Just 100 companies controlled one-quarter of trade in these commodities, a powerful leverage point. Rapidly, WWF’s focus was able to move from an almost impossibly complex challenge – global biodiversity – to a more manageable issue – how to persuade 100 companies to adopt more sustainable practices for 15 commodities. The key message is that large market players can be tremendously important points of leverage in value chains and in transforming the dynamics of global markets.

3.3 Leveraging Life Cycle Metrics

The context and drivers described above have created powerful incentives for businesses to gain a much better understanding of their own resource use and of resource use and environmental impacts along the value chain. Life cycle metrics have become an integral tool of business. In a Global Reporting Initiative survey, 86% of respondents rated “the ability of businesses to trace products through their entire life cycle” as “important” or “very important.”⁴²

Life cycle metrics can and will be used more.⁴³ More extensive and more detailed data can be collected and collated, and the data can be made more rigorous. But LCMs can also be used differently – with far greater scope and at a far higher level in companies. Leveraging LCMs means moving from a purely technical analysis of past environmental impacts to making them useful as a driver of strategic decision-making and innovation. It means moving the tool from the shop floor to the boardroom.

However, the full potential of LCMs to leverage change will only be realized if the metrics are applied beyond the corporate entity and across the value chain. As the Walkers’ case study demonstrates, exploring the value chain can reveal and release enormous business value, as well as reducing resource use and aggregate environmental impacts. LCMs need to be easier to use in this way: more legible and more interoperable. Producing best practice scorecards against which to measure relative success and failure may be one way of exploiting this potential.

A standardised *life cycle mark-up language* (LCML) could facilitate sharing among stakeholders along the supply chain by making it easier for firms to collect and share data useful to all. Leveraging LCMs across the value chain cannot only unlock further value incrementally but also help transform product design, the structure of the value chain and the way in which companies design and sell products and services.

Case study: Walkers Crisps

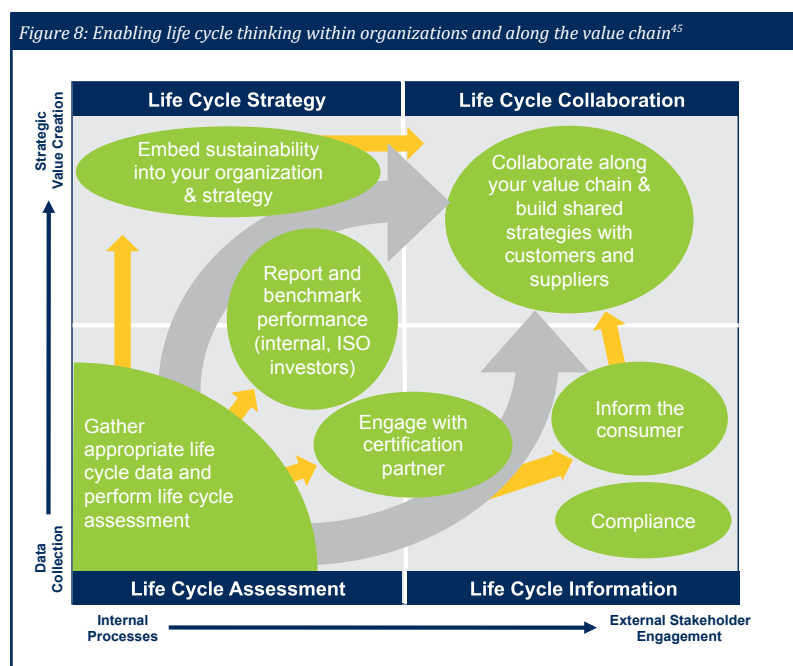
With the help of the Carbon Trust, Walkers Crisps (a PepsiCo brand) set out to measure the carbon footprint of a bag of crisps. The original intent of the exercise was for a product carbon label targeted at the consumer; however it emerged that the benefits went far deeper into the supply chain. The study found that the most energy-intensive part of the process of making crisps was involved in drying raw potatoes – which had been soaked with water by farmers to increase their revenue due to a price structure based on weight of potatoes.

Both farmers and Walkers won by aligning incentives in the form of a new price structure based on volume. Energy efficiency was improved. Energy use per kilogram (kg) of crisps produced has fallen almost 33%, from 4.6 kWh/kg to 3.1 kWh/kg 2000-2007, achieved through improved shutdown and start-up processes, optimized lighting systems and a range of investments in new technologies⁴⁴. PepsiCo UK reduced its overall carbon intensity (CO₂e per kg of production) by 5.9% during 2007.

Engagement between Walkers and its suppliers was enhanced through better communication and by working to find varieties of potatoes which required less water. By looking at the supply chain of all commodities and unit processes, new business value was uncovered and aggregate resource inputs were reduced.

3.4 From Life Cycle Assessment to Life Cycle Collaboration

Understanding the different ways in which LCMs can create value can be usefully represented along two axes. On one axis, the use of life cycle metrics can be classified as passive or active, with active use of LCMs implying their application to business models and strategic value creation. On a second axis, the use of life cycle metrics can be classified as principally for internal use, or also for the purposes of external collaboration along the value chain.

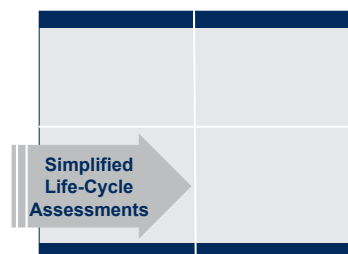


In the first quadrant – life cycle assessment – the core challenge is to scale up data collection and to make it cheaper and more focused. In the second quadrant – life cycle information – data is transformed into information for communication with consumers and stakeholders, meeting their demands for transparency, mitigating reputational risk and creating new opportunities for engagement. In the third quadrant – life cycle strategy – LCM data becomes a tool for strategic decision-making, allowing sustainability to be a driver of innovation through new strategies, business models, products and services. In the final quadrant – life cycle collaboration – those strategic conversations are extended across the value chain including, ideally, the involvement of value chains, consumers and competitors.

The practical measures below represent a pathway, with many intermediary steps, from individual company-level life cycle assessment to life cycle collaboration across an industry or an entire product life cycle. Each step represents part of the evolution laid out in the matrix above: 1) Simplified Life Cycle Assessments; 2) Information to Communication; 3) Information to Corporate Strategy; 4) Corporate Strategy to Life Cycle Collaboration.

Each measure, by itself, offers incremental improvement in the application of LCMs. Taken together, these measures constitute a potentially transformative set of tools.

3.4.1 Simplified Life Cycle Assessments



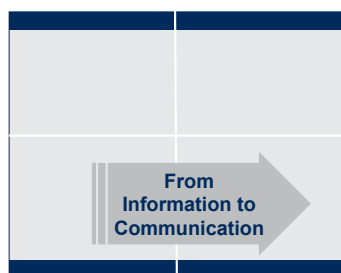
Traditional life cycle assessments have tended to be highly technical and either designed for internal use relating to a single product or set of products, or as a means to complying with external reporting requirements. Some companies have outsourced LCMs – others, such as Unilever and Nike have developed their own techniques internally. Some standardization has emerged – with an ISO guideline

emerging as a favourite way forward for many – but the processes tend to remain expensive and complex, limiting their applicability.

This could change. Simplified life cycle assessments – such as those now being undertaken by Levis, Patagonia or Timberland – create rules of thumb and aim to capture relative sustainability rather than comprehensive impacts. The availability of clear, simple information can help drive design within the business, as through Nike’s Considered Index which highlights environmentally preferred materials. At the same time, the availability of such information will enable more companies to take step changes in their processes instead of individual products.

While not a substitute for the rigour of full LCA, they are complementary and could broaden the use of life cycle analysis within the company through the identification of “hot spots” across entire product ranges. Policy-makers can play a role in helping to identify potential target areas.⁴⁶

3.4.2 From Data to Information



By itself LCM-based assessments produces no direct change on business models and little change of products or processes. The data must be communicated to and interpreted into information by consumers and other stakeholders in a way that can easily be understood and acted on. In order for data to be used to drive changes in behaviour, the information and its implications need to be fed

back to improve information flows. Broader information communities and open source systems, coupled with greater standardization in LCM-driven labelling will help by creating new information flows for greater sustainability. The Ahold retail chain’s “Puur & Eerlijk” products (Pure & Honest) were launched in 2010. The clear labels across goods’ categories have made it easier for customers to choose products produced, grown and sourced sustainably.⁴⁷

Case study: Earthster

Wal-Mart engaged suppliers of seven products in a project to identify, and capitalize on, sustainable innovation opportunities across their products’ life cycles. The suppliers, working with Wal-Mart and the Environmental Defense Fund (EDF), used the open source Earthster tool (earthster.org) to generate a graphical and numeric portrait of the environmental and social hot spots in product supply chains, using basic information from inputs to final production. They then identified opportunities for innovations that would reduce impacts as well as costs.

The assessments generated some surprising results. For example for canned tomato sauce, Earthster and its underlying life cycle inventory data showed steel can be a source of greater environmental impact overall than the tomato sauce itself. In short, the biggest opportunities for Wal-Mart to change the environmental footprint of the product lay several steps back along the value chain. Earthster enables suppliers across the supply chain to collaborate in generating and sharing information about innovation opportunities and to report on their success at capitalizing on them.

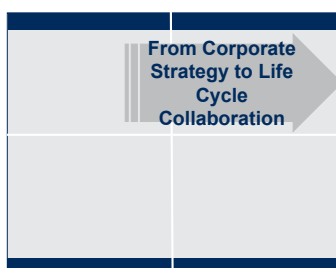
3.4.3 From Information to Corporate Strategy



Life cycle metrics have generally been used as measures of risk exposure, but they can also be a spur to innovating products and business practices. If LCMs are as visible as costs across an organization they will change corporate culture, becoming integral to core business models and signposts to new growth opportunities.

Upon recognizing that the greatest environmental impact of all product ranges is consumer use of washing powders at high temperatures, both Unilever and Procter and Gamble have created new lines of detergent targeted to reduce life cycle impact through cold water washing. This is also being encouraged on a national level in countries such as Denmark, which has set up a knowledge centre to assist public and private companies gain competitive advantage through better understanding and integration of life cycle metrics.⁴⁸ Sustainability cannot only help lower costs, it can also increase volumes of sales and increase margins based on higher quality products. DSM, a Dutch chemicals company, contributes to solutions that help to improve fuel efficiency, such as low weight plastics to replace heavier metallic components in a car, and second generation biofuels based on cellulosic raw materials that are not used for food or feed.⁴⁹

3.4.4 From Corporate Strategy to Life Cycle Collaboration



Life cycle metrics can also help create change across the broader value chain, where 80-90% of most products' environmental impacts occur. Extending collaboration across the value chain can be difficult, bringing into play concerns about competition and disclosure. Traceability of some goods can also be difficult. Small and medium size enterprises (SMEs) may not have the financial

capacity to undertake their own life cycle assessments. However, rewards and opportunities are potentially significant, as demonstrated by the Carbon Trust's new certification standard for SMEs⁵⁰. Scorecards allowing retailers to monitor progress on environmental and social measures on behalf of their suppliers may be one tool to enhancing value chain visibility and collaboration. Wal-Mart has surveyed suppliers on environmental practices and performance since 2009, with the use of a relatively simple set of questions relating to sustainability. It created the Sustainability Consortium (TSC) to develop industry standard metrics for conducting life cycle analyses of products and publicly announced it will create a Sustainability Index.⁵¹ The retailer now also requires full formulation disclosure for chemical-based products.

Ultimately, however, the objective is to create a business ecosystem joined by a common understanding of LCMs. Such an ecosystem would have far greater awareness of both individual and aggregate impacts on both the environment and social systems, but, crucially, would also possess the tools to share information and collectively improve mechanisms that ensure such impacts are contributing to sustainable prosperity. Industrial symbiosis projects could be a model for entire value chains on a global scale. The challenge is that, to be of most use to business, standardization should be done once, done right and done globally.

3.5 Accelerating Business Innovation through Collaboration

Shifting life cycle metrics from operations to strategy within the company, and then to collaboration along and across value chains, involves harnessing breakthrough innovation. It is not about greening existing business models but accelerating the creation of entirely new models. The imperatives of scale and speed cannot be met without disruption. Again, they demand a much broader model of open innovation.

The starting point for open innovation is enhanced sharing of existing know-how and technologies, with mutual benefits and overall improvements in sustainability. Organizations should make far greater use of external ideas and innovations in their own practices, while making their own unused and underused ideas and technologies more widely available. Individual organizations are often wasteful of the knowledge they possess. Barely one in 10 German patents is currently used by the patent holder, with the other 9 remaining unused.⁵²

Beyond sharing existing knowledge, ideas and processes, open innovation implies the co-creation of new technologies – along value chains, between companies and consumers and, under certain circumstances, even with competitors.

This is not about undercutting the principle of protection for intellectual property (IP). It is about recognizing that co-generation and systemic sharing will often create far more value than individual programmes of research. This is particularly the case for sustainability, where so much potential value is locked in the structure and processes of the value chain. Open innovation is not about making oneself uncompetitive, it is about adapting to a new knowledge environment to make oneself more competitive and responsive to change. In the end, it is about making business smarter, as well as about making business more sustainable.

Valuable ideas do not have to come from internal research and development programmes – they can also come from outside. Open innovation places external ideas and pathways to market on the same level of importance as internal ideas and market pathways. At the same time, much know-how – which companies themselves may not view as IP – could be usefully made available elsewhere, potentially creating new streams of income and bringing collective benefits. Principles of open innovation allow ideas rather than structures to predominate.

3 Mobilizing Business Opportunities: Life Cycle Thinking

Open innovation – where do the ideas come from?

To engage in the sharing part of open innovation, companies will need to analyse and understand their IP better than many do today. They need to conduct a “knowledge audit”, placing potential IP into one of three categories:

1. Intellectual property to be guarded closely as a core competitive advantage (currently the category in which most IP is implicitly placed).
2. To be shared or licensed on a case-by-case basis, perhaps in different industries or geographies which do not compete. In some cases, reducing license fees for patents will unlock income streams which make licensing more cost effective than attempting to prevent abuse.
3. In other cases, pre-competitive open innovation may be necessary for an idea to reach the scale necessary for it to be a marketable opportunity. In this case IP should be placed in the global commons for all to use, possibly to be leveraged to shift a market towards a certain technology through which all can benefit through scale or standardization or the creation of a new market.

In addition to traditional IP, there are increasing amounts of data becoming available that are often being thrown away by companies. As technologies such as radio-frequency identification (RFID) evolve and become ubiquitous, the capacity to collect data will continue to grow. That data is not intellectual property, and is not really intellectual capital or know-how. It is also only worth something if processed and analysed. While it is hard to see how a consumer products company might sell such life cycle data, if it can be placed in the commons, it will definitely be an asset to someone else.

3.6 Exploiting Leverage, Enacting Change

Businesses are the builders of the sustainable consumption economy. That economy is currently under construction, but there are powerful and potentially transformative leverage points, which could accelerate the process – emphasizing innovation, collaboration, scale and speed.

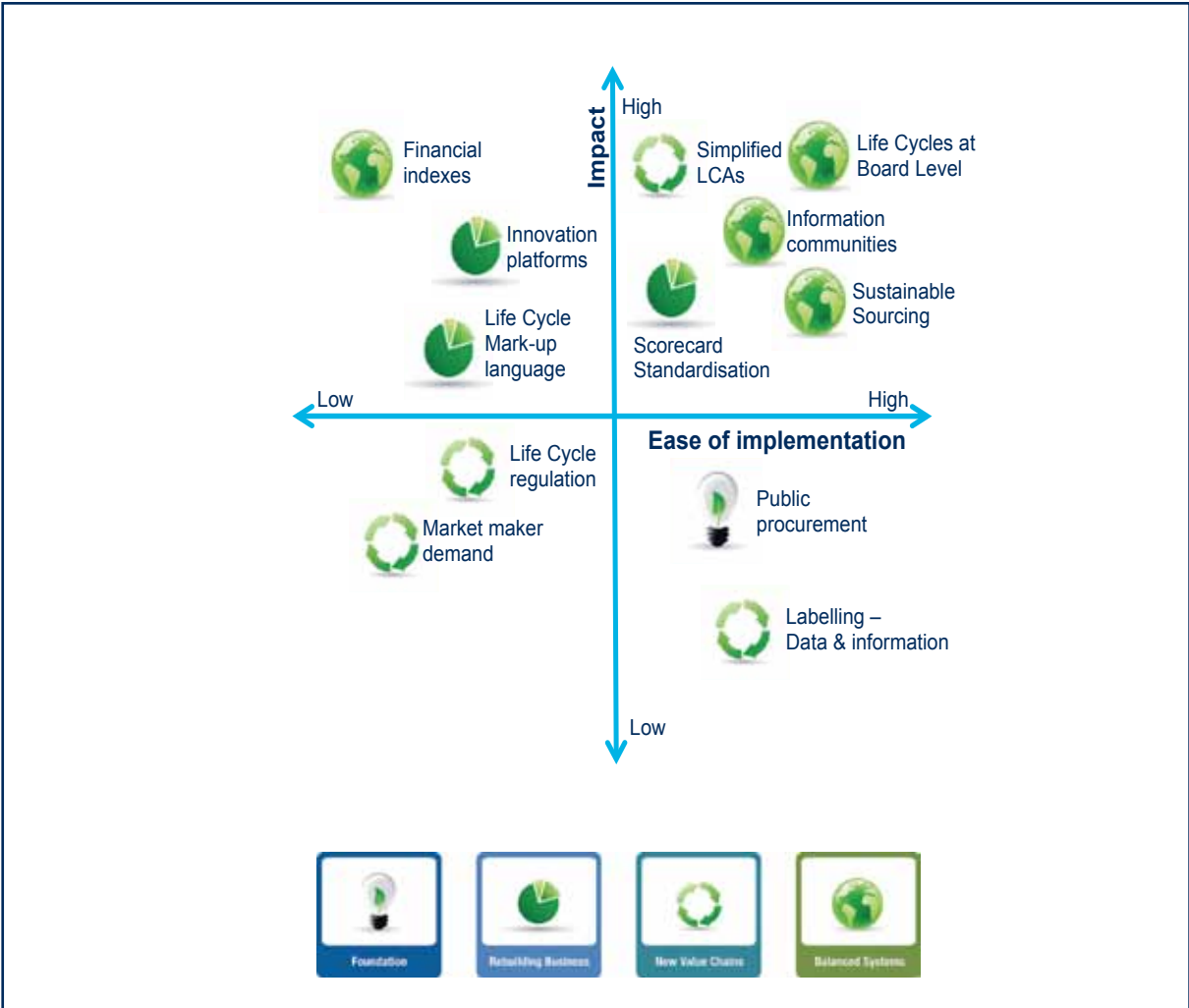
3 Mobilizing Business Opportunities: Life Cycle Thinking



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Ease of implementation	Change can happen fast with incremental costs and few political barriers	Change desired but only on a longer time horizon due to inherent political and economic barriers	Requires disruptive shifts in organisational systems due to divisive or polarised mindsets
Replicability	Easy to copy and non-exclusive. Can be emulated in various geographies globally	Needs better regulatory and business environment to gain momentum across geographies	Difficult to replicate or implement beyond regional or national context
Scalability	Can be easily scaled between municipal, national, regional and global levels	Accessible by large entities but difficult to enact on a regional or global scale	Costly to scale requiring large investments in order to grow beyond local pilot phase



The icons from the 2010 Redesigning Business Value report, are used to classify the various types of leverage points found in the graph.

Enabling Transformation

Innovation in
Public Policy

4 Enabling Transformation: Innovation in Public Policy

4.1 Why Public Policy Innovation?

As this report has made clear, getting public policy right is essential to building the sustainable economy we need. Good public policy can create markets, incentivize businesses and transform consumer behaviour in support of sustainable consumption. Bad policy can help entrench perverse incentives, destroy opportunities for sustainable value creation and discourage innovation.

The different roles of government – as enablers of markets, as incentive providers and as enforcers of compliance with regulation – are critically important to unlocking business innovation and to guiding markets' allocation of scarce capital. Changes to policy can help build better alignment between private returns and sustainability objectives. Policy frameworks can make markets work in the private and the public interest.

In short, policy and politics matter.

As previously mentioned, public education on environmental issues can help guide citizens in their consumption choices. In the Kyrgyz Republic, the concept of sustainable environmental education has been developed by environmental experts from universities, the relevant government ministries and non-governmental organizations, seeking to incorporate sustainability into education from preschool through to those in the workplace.⁵³ Political elections are increasingly becoming opportunities for public awareness raising and debate on the environment, as in Brazil's 2010 presidential elections.

Public policy can also establish the right price signals for sustainable goods and services, and level the playing field for businesses by setting standardized requirements for sustainable practices. Governments' support for social and environmental standards and labelling has grown rapidly in recent decades, from the European Union's extensive and technically focused disclosure requirements on chemicals (REACH) through to more recent US legislation requiring companies to report on the origins of selected mineral components from conflict countries and a number of consumer-facing fair trade labels.

Open innovation applies to policy-making as much as it does to collaborative business innovation. Effective public policies can and should learn from examples from communities, civil society and businesses – as well as from policy innovations elsewhere. While not a government policy, the development of ISO SR 26000 by the International Organization for Standardization has brought together governments, businesses, NGOs and international organizations in shaping the world's first truly international standard to encourage environmentally and socially sustainable activities.

Such policy innovations are important. Without them sustainable consumption will either remain a niche market or become the market paradigm too slowly to mitigate the environmental and resource risks facing the world and the associated economic, social and political disruption which they may bring.

Exploring Policy Innovation

Policy innovations are those policy levers needed to catalyse increased profitability of business through sustainable consumption strategies and practices.

Understanding the potential for public innovation, barriers to realizing such potential and how best to overcome these barriers was a critical element of the work of the initiative during 2010.

Two specific questions were addressed at this early stage:

- What policy innovations would enable businesses to profitably advance closed loop practices?
- How best might collaborative action advance such policy innovations?

4.2 Areas for Innovation

Progressive governments are increasingly recognizing the role of sustainability in their national economies. In some countries this is principally a matter of securing future competitive advantage – in Brazil's vision of a bioeconomy for example, or in China's drive to develop its international position in clean tech, or in Morocco's decision to attempt to become a clean energy hub for North Africa and Europe. For others the focus is more basic – in some cases it is a matter of survival, such as in Jordan's drive to secure affordable energy as a means to overcoming extreme water shortages and associated food security challenges.

The range of policy instruments available to governments is wide and varied. Most, directly or indirectly, seek to reshape businesses and the economy as a whole towards closed loop strategies that optimize natural resource use and secure environmental stewardship:

- **Public Procurement Criteria:** the decision to incorporate sustainability criteria into government procurement – whether at the national or the local level – can instantly create significant markets for sustainable products and services, helping tip the economy as a whole towards sustainability. Having originated in Europe and North America the idea is now global. The Green Purchasing Network India for example is an association of professionals supported by the Japanese-founded International Green Purchasing Network, developing green procurement strategies and practices, especially across the public sector.⁵⁴
- **Publicly-Funded Research:** government support for research in sustainable consumption pathways is key. China has recently completed an initial investigation into how it can progress its “sustainable trade” strategy by accelerating the development of its service sector and encouraging inward investment in ‘green growth’ sectors. Governments in every major economy are funding research into the development and diffusion of environmental technologies.
- **Public Awareness Campaigns:** campaigns in support of environmentally friendly behaviour, either directly sponsored by governments or by other public bodies, have become increasingly commonplace. The Brazilian government's public awareness campaign on the negative environmental effects of plastic bags has reduced use to 800 million units in one year. On behalf of US non-profit organizations and government agencies, the Ad Council conducted campaigns on recycling. The amount of total waste recycled in the US increased by 24.4% from 1995 to 2000 after the launch of the campaign, proposed by the NGO Environmental Defense⁵⁵.

4 Enabling Transformation: Innovation in Public Policy

- **Setting, Implementing and Enforcing Standards:** whether set by governments or by industry associations, standards – covering everything from sustainable forestry to labour friendly production to energy efficiency ratings – have become a powerful tool in driving transformative change. Though promoted by industry associations rather than specific public policy, sales of certified sustainable coffee rose by a factor of five between 2004 and 2009.⁵⁶
- **Regulation:** environmental objectives, and sustainability objectives more broadly, are increasingly reflected in a broad range of regulatory frameworks:
 - **Incentives and Market Mechanisms:** in some cases these regulations are indirect in effect: through carbon pricing or taxes for example. At times, policy reversals are also required, such as the end to incentives that, in effect, reward unsustainable businesses relative to their more sustainable counterparts. Despite the 2009 G20 commitment to phase out fossil fuel subsidies over the medium term, the International Energy Agency estimates energy subsidies to be running at over US\$ 550 billion per annum worldwide.
 - **Prescriptive regulations:** in other cases, the regulations are embedded: in corporate governance, reporting and stock-exchange listing requirements. The US's Securities Exchange Commission has recently mandated corporate disclosure of carbon emissions, arguing its relevance from an investor risk management perspective irrespective, technically, of the science. Since 2002, larger French companies have been required to publish annual sustainability reports, just as the China's State-owned Assets Supervision and Administration Commission now requires all central state-owned enterprises to report on their CSR performance.
- **Global Collaborative Visioning:** this has become a far more significant aspect of change-making in recent years, with initiatives, such as UN Secretary-General Ban Ki-moon's High Level Panel on Global Sustainability, co-chaired by the presidents of South Africa and Finland, providing directional focus for governments and businesses and helping to catalyse the dynamic for action on the ground.

Getting the selection and application of policy instruments right is not straightforward. Single policy instruments and measures rarely suffice, even for relatively simple environmental impacts, businesses or markets. Interventions at multiple levels – local, national and international – are often needed.

It is also important to explore which policies have not been effective, or have not been transferable or scalable. Over-simplistic, heavy-handed interventions can prove ineffective or even counter-productive, raising domestic costs, confusing consumers, advantaging businesses that can evade measures, incentivizing substitution into equally problematic but unregulated areas or unintentionally generating widespread compliance failure.

4.3 The Shifting Geography of Innovation

Beyond the boundaries of any single state, governments have a role to play in shaping the international rules of the game. In some cases, the sheer size of a sub-sovereign (California), national (United States, China) or regional economy (the European Union) means that internal decisions on regulation or procurement can have global market impacts. More broadly, local, regional and national governments, and their international counterparts, can and must play a central role in establishing international frameworks that will allow tomorrow's eco-sensitive businesses, markets and international political economy to flourish.

Policy leadership on environmental and social issues is most often associated with Northern Europe – notably the Nordic countries, Netherlands and Germany – and to some extent North America. Waste recycling rates in Switzerland, Germany and Norway are among the highest in the world at 52%, 48% and 40% respectively. Recycling targets, take-back legislation and eco-labelling exemplify what were once extraordinary policy innovations when they were first introduced, and illustrate the potential scaled impacts that such innovations can have if they are implemented effectively and are well understood across governments and nations.

But patterns of policy leadership and innovation are changing. China has taken a leading role in investing in the development of the critical battery technology required to advance electric vehicles, with private sector leaders such as BYD and has driven down the global price of solar panels through volume effects on costs. South Korea has perhaps most visibly positioned green growth as its national strategic framework going forward, while countries such as India and South Africa are progressing ambitious renewables initiatives, with India's Solar Mission initiative involving the development of 20 GW of solar generating capacity by 2022. Meanwhile, new cities in the Middle East and across Asia are establishing new benchmarks in urban design for sustainable living. Japan's "Top Runner" programme⁵⁷ for example is a ratcheting energy efficient label, with best practice by product category defining the bar for those wanting to achieve visible success under the programme.

The shift in policy innovation is accentuated by the political difficulties in establishing significant policy innovations in Europe and North America during a period of extended economic vulnerability and acute concern about what the economic outlook means for citizens, families and communities.

Importantly, however, the shift in the geography of policy innovations is complemented by a shift in the geography of policy impacts. Policy leadership in small European nations is likely to produce less leverage for global policy innovation now than in the past and will have a less substantial aggregate effect on the global environment than in the past. The impacts of policy innovation in major emerging nations – both in terms of environmental impacts and in terms of global markets – are far greater than before.

4 Enabling Transformation: Innovation in Public Policy

Emerging economies have expressed growing concerns over many existing sustainability-related standards, especially private voluntary standards with international scope but developed principally by Western businesses and civil society organizations, often with support from their respective governments. In some instances, concerns are focused on the specifics of the standards themselves, especially where they relate to labour and broader human rights issues. More often, however, the underlying concern is perceived biases in how they were developed, who governs them and whom they benefit over others. Western businesses and civil society organizations, in turn, express concern over both the unwillingness of emerging nations' businesses to comply with such standards, and yet often have inadequate capabilities to engage in domestic, emerging nations' standards development processes.

4.4 Barriers to Public-Private Innovation

Policy innovation is a considerable challenge. There are understandable concerns that forcing the pace will disadvantage some domestic business in international markets and slow down the rate of growth. Lobbying by those with interests in a business-as-usual approach can serve to prevent or even reverse much-needed policy developments. Governments too often do not have the expertise – or the adequate connections between their many policy-making functions – to know which blend of policies will catalyse the desired business innovation to beneficial national effect. Reaching out to external expertise comes with its own challenges, with politicians and officials stretched to judge which advisers have which biases or support what interests.

Of course governments can and do interact with and learn from each other. However, the dynamism and complexity of the sustainable consumption space makes traditional learning models redundant. These typically focus on specific policy levers – such as how to legislate for take-back. But the challenge ahead is much broader: to create a broader policy ecology with many moving parts.

Such an ecology, involving diverse and interrelated policies, will generally require a spectrum of policy instruments with emphasis on convening, mobilization, procurement, incentives and standards, as well as more conventional regulatory responses.

Understanding what it takes to stimulate the business innovation required to scale up sustainability at speed is key. Yet, most officials are deeply uncomfortable engaging directly with business. This discomfort and lack of confidence is all the greater where disruptive business models and associated technologies are involved – in fact precisely in those areas where the potential for rapid, scaled change is greatest.

4.5 Collaborative Sharing of Leading Policies

Policy innovations are needed to enable innovation and smart investment of businesses to drive forward profitable strategies aligned to sustainable consumption. However, the textbook separation of business strategy and public policy is less relevant today given the complexities and dynamics of intensely competitive global markets. Co-design and collaboration in implementation are increasingly essential to securing smart policies that do the job rather than reinforce old problems.

Two examples of collaboration can be cited. The European Food Roundtable on Sustainable Consumption and Production was created to raise awareness and advance co-designed voluntary and statutory action along the global food value chain. Involving the farming community, food retailers and non-profit organizations, the roundtable is co-chaired by the European Commission and Nestle, and has been effective in influencing a range of European policies and is active in promoting life cycle analysis and other standards. The Sustainability Consortium, similarly, has focused on comparable range of issues but has a lower involvement of public institutions as core members.

Co-design is increasingly the international norm in the analysis of public policy options aligned to sustainable consumption. The China Council for International Cooperation for Environment and Development (CCICED) is made up of Chinese and international experts from business, governments, research institutions and international agencies. Established to advise the State Council on public policy options to advance sound environmental practices, it has over 18 years covered a wide range of key areas, currently including low-carbon economics and trade, investment and the environment. Similarly, since the end of apartheid, South Africa has established many public-private forums mandated to advise on policy developments across many spheres.

Sustainability standards, including consumer-facing labels, are commonly not only developed collaboratively but are governed and promoted through public-private partnerships. The Forest Stewardship Council for example has business, government and non-profit members from many countries, as do other initiatives designed to promote sustainable consumption practices.

4.6 Policy Innovation for Sustainable Consumption

Policy innovation is a prerequisite to the rapid scaling of business practices, consumer behaviours and market conditions aligned to sustainable consumption. Exemplary progress has been made in specific policy areas in particular countries. The barriers to leveraging these leadership cases are, however, considerable. Without overcoming them, little further progress can be made and, indeed, some sources of inertia, such as competitive fears, could actually reverse positive achievements.

Distrust between business and policy-makers, combined with lack of knowledge and often capabilities on both sides, makes progress difficult. Weak knowledge transfers between governments creates further problems, not least because of a lack of integrated approaches within governments. And the historic shift in leadership towards emerging nations, while ultimately opening new opportunities, creates further frictions in the short term, especially given the generally embryonic stage of development of intergovernmental collaboration and, even more so, public-private collaboration. Across the following page are potential leverage points which came out of recent conversations.

“Our greatest potential will come from embracing sustainable consumption as an opportunity to collaborate on solutions that will leap frog us into the future.”

– Mark Parker, CEO, Nike

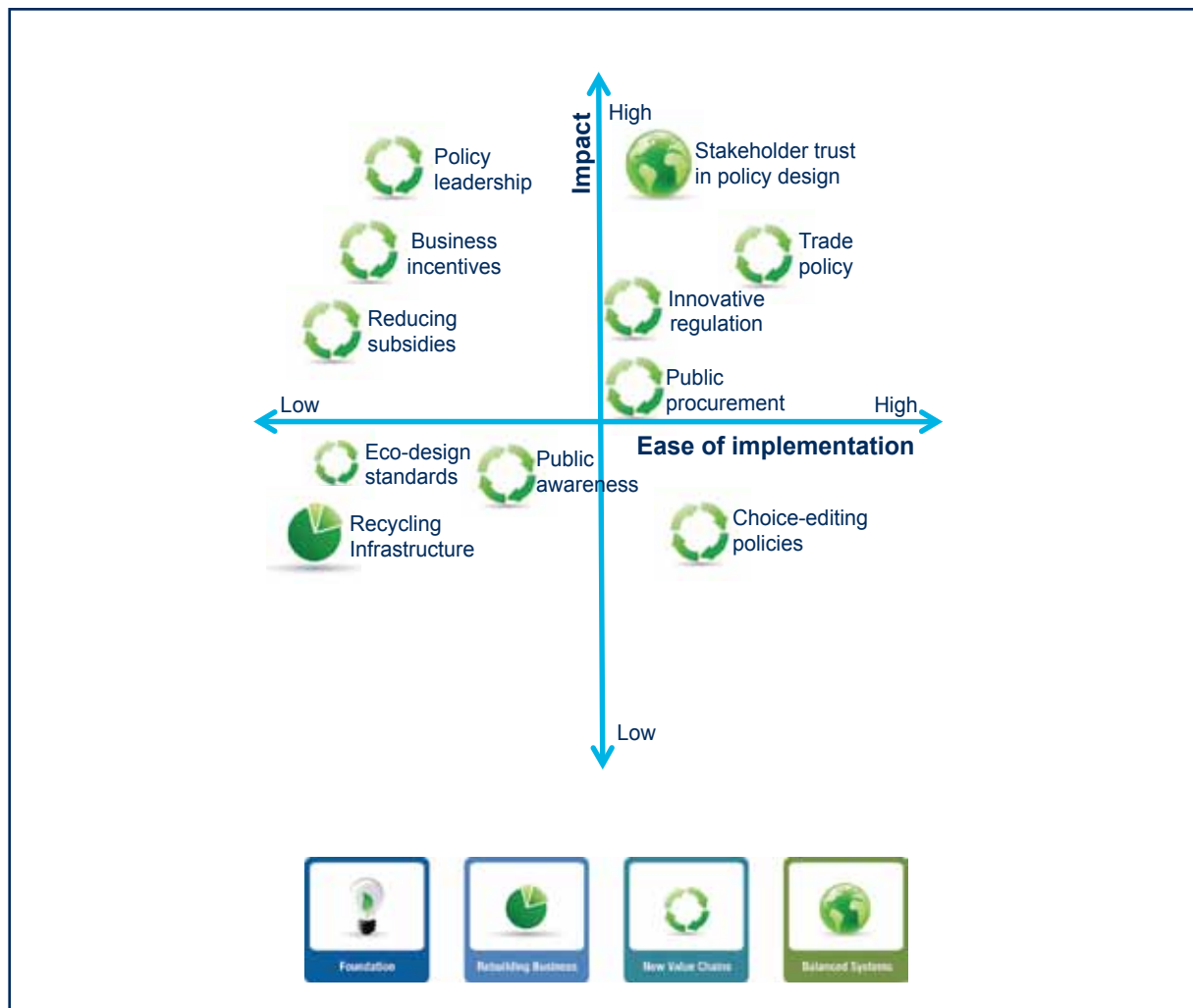
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This key explains the qualitative rating system used for leverage points on the table opposite and graph below:

	High	Medium	Low
Impact	Can trigger a fundamental shift in the way the system operates	Can reinforce positive behaviours or can break down barriers for progress	Important steps to take but doesn't enable a fundamental change in the system
Ease of implementation	Change can happen fast with incremental costs and few political barriers	Change desired but only on a longer time horizon due to inherent political and economic barriers	Requires disruptive shifts in organisational systems due to divisive or polarised mindsets
Replicability	Easy to copy and non-exclusive. Can be emulated in various geographies globally	Needs better regulatory and business environment to gain momentum across geographies	Difficult to replicate or implement beyond regional or national context
Scalability	Can be easily scaled between municipal, national, regional and global levels	Accessible by large entities but difficult to enact on a regional or global scale	Costly to scale requiring large investments in order to grow beyond local pilot phase



The icons from the 2010 Redesigning Business Value report, are used to classify the various types of leverage points found in the graph.

Moving ahead

5 Moving ahead

5.1 Areas for Action

In each of the sections of this report, we have looked at key leverage points which can be used to tip the system. In addition to evaluating the potential impact, the scale and the speed of each of these, it is also important to consider what the practical next steps for each of these might be.

Broadly, the points of highest leverage are those that transcend the physical systems in value chains – the values of citizens, the strategies of business and the policies of governments. With the obvious disclaimer that each of these leverage points will require different stakeholders, this section attempts to identify which of these might be actioned by different stakeholders and stakeholder groups.

5.2 Leverage Points Requiring Business Innovation

As sustainability trends increasingly shape the competitive landscape, businesses are grappling with the simultaneous need to de-risk their operations and find new models for value creation. This future constellation of business interactions demands new business models across the value chain and a simultaneous shift to decouple value generation from resource use. As concluded, this requires more than just a new set of metrics; it also requires the mindsets to understand the implications and implement the strategies.

Through board level strategies on authentic citizen engagement and life cycle thinking, companies will be better prepared to take up the challenge of sustainability. This will require a positive future vision to enable a common direction for all employees, consumers and business partners, embracing closed loop systems and zero waste as long-term objectives.

5 Moving ahead

It is important to note that there is still much that can be done today through business leadership. The business innovation to achieve this can be triggered on three levels: company-specific, industry-wide and along value chains.

At a company level, CEOs can adopt simplified life cycle assessment at the executive and board level as a tool for identifying key risks and opportunities by product or product category. This will also aid strategic decision-making and communication with stakeholders across the value chain. This life cycle assessment may integrate both environmental and financial information, and include scenario analyses that incorporate future constraints on resources and market signals such as a carbon price.

- **Transparency and authenticity of business values**
Sustainability embedded in the core value proposition of a company needs not only to be reflected through products but also through the way the company is organized, behaves, communicates, etc. Transparency and resulting consumer perception of the degree of sustainability of an organization will be key in engaging them on sustainability.
- **Life Cycle Thinking at the board level of the company**
Incentive systems and performance evaluations need to be designed to reward life cycle thinking. These need to go right to the top – the accountability of the board and CEOs needs to be broadened to incorporate sustainability measures with demonstrable linkage to the short- and long-term interests of the company.
- **Strategic use of simplified and more accessible LCAs**
Simplified life cycle assessments (LCAs) and product category rules of thumb will enable more informed decisions. Coupled with scenario analysis and strategic risk / opportunity assessment, simplified LCAs will allow companies to evolve their business models as they reorganize, especially in the design phase.
- **Sustainability criteria integrated into sourcing decisions**
The impact of sourcing and procurement criteria is multiplied downstream - retailers on manufacturing companies and those manufacturers on their suppliers. Governments also play a leading role through their procurement power – up to 15% of GDP in some economies.
- **Choice-editing: making only more sustainable choices available**
Choice-editing can be done by the industry (including retailers) by removing unsustainable or less sustainable products. Governments can introduce roadmaps for elimination of unsustainable products and can intervene and ban certain less sustainable products from the market (e.g. China is phasing out incandescent light bulbs).

Across an industry, actions such as providing a common measurement standard for Greenhouse Gas Emissions, standards for environmental product labelling, and improved data sharing along value chains require high-level collaboration between manufacturers and retailers. These can - among other activities - be effectively driven through such leading institutions as the Consumer Goods Forum.

- **Standardisation of sustainability scorecards**
There remains a need for an agreed set of standards for sustainability scorecards, as several retailers are pushing independent sets of criteria up their respective supply chains. Ideally, collaboration would take place at an industry level to create a global set of criteria that would set the rules of the game.
- **Business association collaboration on messaging**
Business associations have the power to act as a platform and to engage with their members and influence them in taking specific actions when it comes to sustainability. This can happen through standardization of messaging, defining performance requirements, sustainability certification, environmental performance reporting and community engagement standards.
- **Labelling: accreditation and certification**
Instead of confusing the consumer with more data, it is often more effective to target the values of a consumer through a label of environmental or social assurance (e.g. P&G with their future friendly label, Body Shop and animal testing, or the Fair-trade label). Use of such labels can help to create a trust relationship between the consumer and the company or sector.

Along the value chain, leading companies representing many sectors will need to work together, for which effective communication is critical. Companies can create value chain “visualizations” – visual, dynamic representations of the value chain (supported by rigorous supply chain data) where suppliers can see the impacts of their design decisions and test changes in behaviour or design to examine benefits shared by companies across the value chain. Through company-specific, industry-wide and cross-industry strategies, the private sector can continue to act on the following:

- **Support of consumer-led information communities**
New and strengthened interactions with consumer-based information communities (e.g. GoodGuide) will allow new collaborations to take place and evolve. Such interactions will allow for better brand management, increased stakeholder value and the improvement of data in the sharing of collective resources.
- **Mainstreaming of sustainability in financial indexes**
Investor and holding company accountability on measures broader than shareholder return is in its infancy. With greater transparency in sustainability performance and increases in popularity of the likes of the Dow Jones Sustainability Index or FTSE4Good, will lead to a greater responsibility for companies to change.
- **Creation of a ‘Life Cycle Mark-up Language’**
A life cycle markup language could be used to share outcomes of life cycle analyses along a value chain, and would allow organizations to publish the life cycle analyses of their products in a machine-readable format, leading to system-to-system communication.

“In an increasingly connected world, we have a responsibility to lead our industry by bringing various stakeholders together to develop sustainable solutions that benefit consumers around the globe.”

*‘Brian J. Dunn, CEO,
Best Buy Co., Inc.’*

5.3 Leverage Points Requiring Policy Innovation

Understanding what it takes for governments to stimulate the business innovation required is key; yet, most officials are deeply uncomfortable engaging directly with business in a coherent, neutral and transparent way. This lack of confidence is all the greater where disruptive business models and associated technologies are involved, exactly where the potential for rapid, scaled change is most possible. These areas are precisely where the World Economic Forum is best placed to act.

Drawing from the tables in each of the chapters, potential leverage points for the Forum to advance include the following:

- **Multistakeholder policy design and implementation**
Governments that can evolve and enable multiple stakeholders to collaborate and take part in the design will be essential in securing smart policies. The European Food Roundtable on Sustainable Consumption is an ideal example of a multistakeholder collaboration that is successful in influencing a broad range of EU policies.
- **Policy leadership by key countries of influence**
Large emerging economies that have greater leverage for global policy innovation have a growing sphere of influence (and responsibility) to provide solutions within their own borders but also in sharing best practices for advancing policies globally.
- **Trade policy aligned to sustainable consumption**
National carbon trading and taxation schemes have elevated the debate on trade and the role of the WTO in regard to national environmental measures and their compatibility with international trade law. Advancing a coordinated approach on setting international norms will allow for an acceleration of policy innovation.
- **Targeted green public procurement**
When governments actively source more sustainable products and services by changing procurement policies, this creates a market signal for suppliers who engage with the government. Once the new business model is in place to cater to these new criteria, it will have a ripple effect within the industry.

To make substantive progress, each of these will require unprecedented levels of collaboration. One way to explore this deeper is by taking open innovation as an accelerator and laying it across business and policy boundaries – open public-private innovation. This will require a blend of competencies, influencing pathways and the highest levels of trust.

Through all this, citizens will continue to be the currency of change. The Forum can help catalyse this change on the operational elements of business strategy and policy innovation.

5.4 Proposed Policy Innovation Platform

The creation of a “Policy Innovation Platform” would supply reliable and unbiased guidance to advance public policies in a high-trust environment that effectively catalyse transformative business practices and citizen behaviours aligned to sustainable consumption.

The intent of the proposed platform would be to shake up the system of policy-making to enable a more transformative shift in green business friendly policies. Initiated, incubated and facilitated by the World Economic Forum, such a platform would be expected to have a finite lifespan of two years. There would be every hope and expectation that such a policy innovation platform, if helpful in policy formation, would cascade and over time establish self-sufficiency requiring diminishing input from the World Economic Forum.

Such a platform would focus on a small number of policy ecologies, which might for example include how best to raise citizens’ awareness about sustainable consumption, encourage investment in reduced footprint materials, or how best to create downstream take-back and recycling.

In each area, the aim would be for governments to advance their own policies in the area alongside businesses and civil organizations, with practical advice to offer based on their own experience on the ground. At the same time, governments would develop their internal competencies and a support network of trusted organizations.

Key to the success of such a proposal will be getting the right people involved, both in terms of position and propensity. The World Economic Forum looks forward to catalysing this challenge with CEOs from a range of companies as well as heads of state and ministers from progressive governments. This topic will be central to discussions in the Annual Meeting 2011 in Davos and throughout 2011.

Conclusion

6 Conclusion

This report contains a wide range of suggestions for taking the issue of sustainable consumption from a business imperative and vision to a tangible set of actions.

Building trust with consumers and engaging them as citizens in the context of sustainable values is one important step in this process. There are also myriad opportunities for individual firms and industry associations to take steps to shift mindsets and embed life cycle thinking in the “DNA” of organizations and entire industries. Achieving these will require the support of innovative policy environments that make use of progressive and well-designed market mechanisms, regulation, incentives and education programmes.

However, as many experts have emphasized, implementing these ideas is neither straightforward nor costless. The way forward involves far greater collaboration to share the best insights and policies as well as sharing the cost of transforming systems to be truly sustainable. While this project has succeeded in bringing together a subset of stakeholders from multiple industries, geographic regions and expert perspectives, the challenge of sustainable consumption requires collaboration between consumer voices, businesses and policy-makers from around the world on a far larger scale.

The proposed Policy Innovation Platform will be an important step in this process. The Forum’s regional events will provide the physical and intellectual basis for this to be developed over the coming year. Through its Sustainability Initiative and ongoing work, the Forum continues to be committed to realizing the promise of sustainable consumption.

7 Annex

A. Inventory of Life Cycle Tools

The strategic use of life cycle assessments (LCAs) can be instrumental for the long-term success of an organization; however there are a multitude of softwares, labels and platforms that exist for companies and individuals to use. This inventory aims to illustrate some common and emerging product specific tools for life cycle metrics and highlights how they can be used and differentiated (other tools that focus more on organizations have been omitted, such as the Carbon Disclosure Project).

As in Chapter 3, the set of life cycle metrics initiatives can be classified along two dimensions. On one axis, the use of life cycle metrics can be classified as passive or active, with active use of LCMs implying their application to business models as a whole. On a second axis, the use of life cycle metrics can be classified as principally for internal use, or also for the purposes of external collaboration along the value chain.

Those two dimensions define four quadrants, as demonstrated on page 29:

- **Life Cycle Assessment:** Tools (and software) to perform life cycle assessments
- **Life Cycle Information:** Certification partners and labels
- **Life Cycle Strategy:** Life cycle tools and standards that enable reporting, benchmarking and collaboration
- **Life Cycle Collaboration:** Life cycle initiatives on strategic engagement with consumers

Life Cycle Assessment: Tools to Perform Life Cycle Assessments

This selection includes Earthster, an innovative open source tool that enables life cycle assessments (LCA) across supply chains, SimaPro and GaBi, which are common softwares to perform LCA, and the Ecoinvent Centre that is the world's leading database of life cycle inventory data.

<p>The Ecoinvent Centre www.ecoinvent.ch</p> <ul style="list-style-type: none"> • Non-profit organisation • Multi-impact assessment 	<p>The world's leading database with consistent and transparent, up-to-date life cycle inventory (LCI) data, containing more than 4.000 LCI datasets covering several business areas. The LCI datasets are based on industrial data and have been compiled by internationally renowned research institutes and LCA consultants. The data is compatible with all major LCA and eco-design software tools.</p>
<p>SimaPro 7 www.pre.nl/simapro</p> <ul style="list-style-type: none"> • Private software supplier • Multi-impact assessment 	<p>SimaPro is a professional LCA software tool that contains several impact assessment methods and several inventory databases (including Ecoinvent), which can be edited and expanded without limitation. It can compare and analyse complex products with complex life cycles. SimaPro and GABI are the most commonly used software and approximately share the market.</p>
<p>GaBi 4 www.gabi-software.com</p> <ul style="list-style-type: none"> • Private software supplier • Multi-impact assessment 	<p>An all-in-one software tool for modelling products and systems from a life cycle perspective. It contains databases with worldwide coverage as well as the Ecoinvent database. Different versions are available, ranging from an educational to a professional use of life cycle analysis that can evaluate life cycle environmental, cost and social profiles of products, processes and technologies. SimaPro and GABI are the most commonly used software and approximately share the market.</p>
<p>Earthster www.earthster.org</p> <ul style="list-style-type: none"> • Non-profit organization • Multi-impact assessment • Open source platform 	<p>Web-based tool for tracking environmental and social data, for turning them into life cycle assessments and for sharing this information across supply chains. Earthster will build an open data commons for sustainability information that will provide an easy LCA entry for small and medium size companies It is being piloted by Wal-Mart, Seventh Generation and Tetra Pak.</p>

7 Annex, Inventory of Life Cycle Tools

Life Cycle Information: Certification Partners and Labels

Currently, more than 360 eco-labels have been identified globally; therefore this is a sample selection of certification partners and the labels they offer. At the moment, several labels are being developed at a country level, while some are appearing at regional levels, such as Energy Star and the European Union Eco-label. New labels range from either quantifying a single attribute (e.g. carbon emissions) to having a more global life cycle view where both the environmental and the social impacts of a product are taken into consideration⁵⁹.

<p>Carbon Label www.carbon-label.com</p> <ul style="list-style-type: none"> • Non-profit organisation • Single-attribute label 	<p>The Carbon Reduction Label helps educate the consumer as to which products are working on reducing their carbon footprints. Brands that want to “wear” the label are required to calculate the exact footprint of their product in accordance to the PAS 2050 standard. This standard was developed in 2007 by the Carbon Trust in partnership with the United Kingdom Department for Environment, Food and Rural Affairs (DEFRA) and BSI British Standards.</p>
<p>Energy Star www.energystar.gov</p> <ul style="list-style-type: none"> • Government supported • Single-attribute label 	<p>Energy Star is a labelling program designed to identify and promote energy efficient products to reduce greenhouse gas emissions. Energy Star provides a trustworthy label on over 60 products for the home and office. These products deliver the same or better performance as comparable models while using less energy and saving money. Joint programme of the US Environmental Protection Agency and the US Department of Energy.</p>
<p>People 4 Earth www.people4earth.org</p> <ul style="list-style-type: none"> • Non-profit organization • Multi-attribute label 	<p>The People 4 Earth Sustainability Index is a visual representation of how well a product meets the standards’ criteria which may be used on the product itself as a label, on the company website or anywhere the product is depicted. The standard behind the sustainability index is built on four pillars of sustainability that fall into two broad headings: PEOPLE and EARTH. The four pillars are: PURE, FAIR, LIFE and RENEW. Remains to reach adequate scale for high impact.</p>
<p>USDA Organic Label www.ams.usda.gov/AMSV1.0/nop</p> <ul style="list-style-type: none"> • Government Supported • Single-attribute label 	<p>Accreditation for private businesses, organizations and state agencies to certify producers and handlers of agricultural products according to the National Organic Program regulations. Products labelled as “100% organic” must contain only organically produced ingredients and processing aids (excluding water and salt). Products labelled “organic” must consist of at least 95% organically produced ingredients (excluding water and salt).</p>
<p>European Union Eco-label www.ecolabel.eu</p> <ul style="list-style-type: none"> • Government Supported • Multi-attribute label 	<p>A voluntary scheme by the European Environment Commission to encourage businesses to market products and services that are kinder to the environment. The Eco-label criteria is based on studies that analyse the impact of the product or service on the environment throughout its life cycle, starting from raw material extraction in the pre-production stage, through production, distribution and disposal.</p>
<p>Cradle to Cradle® www.mbdcc.com</p> <ul style="list-style-type: none"> • Proprietary methodology • Private consulting structure • Multi-attribute label 	<p>Cradle to Cradle models a holistic economic, industrial and social framework that seeks to create systems that are not just efficient but essentially waste-free. Concerns have been raised by experts and LCA practitioners in regard to the practicability of the concept, the technical implementation and the claims around recycling that need to be further reviewed. One should consider its use in tandem with more quantitative and more adapted tools regarding product types.</p>

7 Annex, Inventory of Life Cycle Tools

Life Cycle Strategy: Life Cycle Tools and Standards that enable Reporting, Benchmarking and Collaboration

In this quadrant, we can find initiatives meant for developing standards for reporting, such as ISO, and those can most of the time be used as a way of benchmarking the environmental performance of companies. Ultimately, new initiatives are being developed that will allow different players in the supply chain to share their life cycle information and engage in innovation and collaborative thinking.

<p>International Organization for Standardization (ISO) www.iso.org</p> <ul style="list-style-type: none"> • Network of nat'l standards institutes • Proprietary 	<p>International standard-setting body composed of representatives from various national standards organizations. ISO has recently launched the ISO 26000, a new guidance standard on social responsibility. ISO 14040:2006 describes the principles and framework for life cycle assessments, while ISO 14044:2006 specifies requirements and provides guidelines for LCAs.</p>
<p>The Greenhouse Gas Protocol www.ghgprotocol.org</p> <ul style="list-style-type: none"> • Non-profit support • Single-attribute standard 	<p>The GHG Protocol is the international accounting tool, created by the World Resources Institute and the World Business Council for Sustainable Development, designed to understand, quantify and manage greenhouse gas emissions. In November 2010, WRI and WBCSD released the second draft of the new GHG Protocol standard for Product Accounting and Reporting. "The primary goal of this standard is to support companies to reduce these emissions by making informed choices about the products they design, manufacture, sell, purchase or use."</p>
<p>European Food Sustainable Consumption www.food-scp.eu</p> <ul style="list-style-type: none"> • Government support 	<p>Co-chaired by the European Commission, Food SCP aims to establish the food chain as a major contributor towards sustainable consumption and production in Europe. Their key objectives are the identification of scientifically reliable and uniform environmental assessment methodologies for food and drink products, the identification of suitable communication tools to consumers and other stakeholders, and the promotion of and reporting on continuous environmental improvement.</p>
<p>String Together www.stringtogether.com</p> <ul style="list-style-type: none"> • Multi-impact assessment 	<p>An online traceability service which allows companies within a supply chain to receive and send complete and accurate traceability information, file attachments and custom datasets (including certificates, specifications, images, video, etc.) relating to any type of product. Designed and developed by Historic Futures Limited.</p>
<p>The Sustainability Consortium www.sustainabilityconsortium.org</p> <ul style="list-style-type: none"> • Non-profit • Multi-attribute tools 	<p>An independent organization of diverse global participants (universities, NGOs, manufacturers, retailers) contributing to a more sustainable world through better products, consumption and supply chains. They are developing and promoting science and integrated tools that improve informed decision-making for product sustainability.</p>
<p>Global Packaging Project globalpackaging.mycgforum.com</p> <ul style="list-style-type: none"> • Industry Association support • Collaboration packaging industry 	<p>This project, part of the Consumer Goods Forum sustainability pillar, addresses the need in the packaging industry for a common language to enable intelligent and informed discussion on sustainable packaging. The team working on the project includes experts and practitioners across the entire packaging chain: retailers, manufacturers, converters and associations.</p>

7 Annex, Inventory of Life Cycle Tools

Life Cycle Collaboration: initiatives on strategic engagement with consumers

Consumers are getting engaged in new communities to support and enable change, which then get mobilized by looking for and demanding more transparent information. The inevitable growth of crowd-sourcing projects and a growing market segment of consumers focused on health and the environment will be a game changer for enterprises.

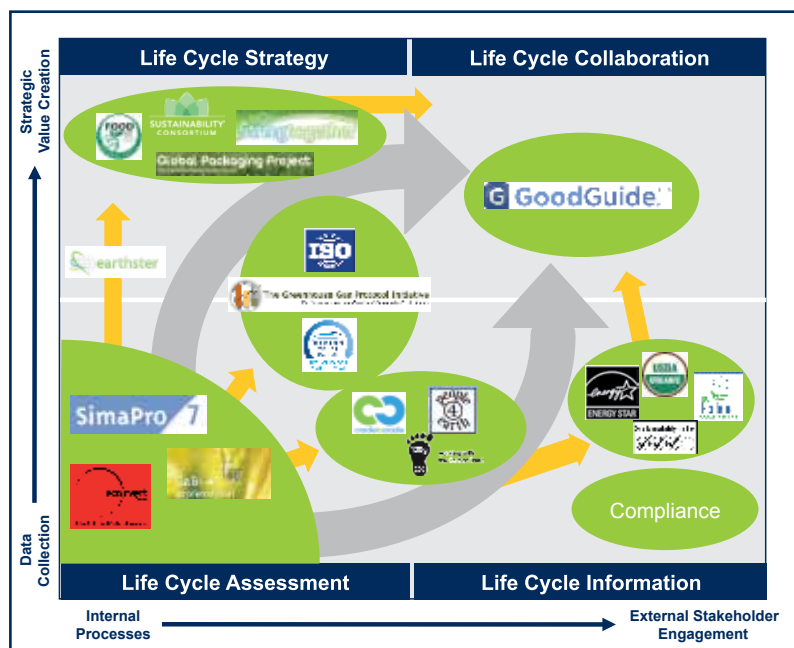
GoodGuide is currently the best case example of a game changing solution that provides information which allows both consumers and businesses to better understand products that they respectively consume and produce. This understanding thereby enables them to change their behaviours and practices.

GoodGuide

www.goodguide.com

- 'For benefit' organization

GoodGuide provides authoritative information about the health, environmental and social performance of products (personal care, food, household chemicals and toys) and companies. Their mission is to help consumers make purchasing decisions that reflect their preferences and values. Companies that engage with GoodGuide will get a better understanding of their products and consumer base. Funded by several prominent venture capital funds.



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C. References and Endnotes

- ¹See speech of Professor Sir John Beddington, Sustainable Development UK Conference, March 2009.
- ²Figures are taken from Living Planet Report 2010: Biodiversity, Biocapacity and Development, WWF, 2010.
- ³See Redesigning Business Value: A Roadmap for Sustainable Consumption, World Economic Forum, January 2010, Page 15.
- ⁴See John Grant, Co-Opportunity, 2010.
- ⁵See Peter Victor, "Questioning Economic Growth" in Nature 2010.
- ⁶See Hazel Henderson and Fritjof Capra, Qualitative Growth, 2009.
- ⁷See The Happy Planet Index 2.0, New Economics Foundation, 2009.
- ⁸Talberth, Cobb et al, 2007, World Resources Institute, <http://www.oecd.org/dataoecd/29/6/42613423.pdf>.
- ⁹Robert Phillips, Jules Peck. See www.citizenrenaissance.com and see also Tim Jackson, Prosperity without Growth – Economics for a Finite Planet. London: Earthscan. 2009.
- ¹⁰See Report by the Commission on the Measurement of Economic Performance and Social Progress, 2009, available at www.stiglitz-sen-fitoussi.fr.
- ¹¹2010 Roundtable on the Measurement and Use of Data on Social Progress and People's Well-Being, Remarks by Angel Gurría, OECD Secretary-General
- ¹²See www.grossnationalhappiness.com
- ¹³SERI (Sustainable Europe Research Institute) www.materialflows.net.
- ¹⁴See www.citizenrenaissance.com.
- ¹⁵<http://www.happyplanetindex.org/public-data/files/happy-planet-index-2-0.pdf>.
- ¹⁶Leverage points concepts by Donella Meadows.
- ¹⁷<http://www.industrialrubbergoods.com/automobile-industry.html>
- ¹⁸The idea of the "new normal" is defined in detail in Redesigning Business Value: A Roadmap for Sustainable Consumption, World Economic Forum, January 2010, p 17.
- ¹⁹Richard Thaler, Cass Sunstein, Nudge: Improving Decisions about Health, Wealth and Happiness, 2008.
- ²⁰Source: Deloitte Analysis
- ²¹<http://www.recyclebank.com>.
- ²²Source: Deloitte research
- ²³See Barry Schwartz, "Designing Policy to Influence Consumers" in The Paradox of Choice: Why More is Less, 2004, p.17.
- ²⁴See www.publications.parliament.uk/pa/cm200809/cmselect/cmenvaud/243/24305.htm.
- ²⁵See John Gerzema and Michael D'Antonio, "Spend Shift: How the Post-Crisis Values Revolution Is Changing the Way We Buy, Sell, and Live", 2010
- ²⁶See Common Cause: The Case for Working with Our Cultural Values, WWF, 2010 and Weathercocks and Signposts: The Environmental Movement at a Crossroads, WWF, 2008.
- ²⁷See www.citizenrenaissance.com.
- ²⁸See Edelman Trust Barometer 2010.
- ²⁹See Rachel Botsman and Roo Rogers, What's Mine Is Yours: The Rise of Collaborative Consumption, 2010.

7 Annex, References and Endnotes

- ³⁰The experimental project involves investing the brand in community-building projects nominated externally and then supported by PepsiCo.
- ³¹Study conducted by Wieden + Kennedy for Nike, *Innovating for a Better World : Global Consumer Voices and Implications*, 2010
- ³²See ICC Framework for Responsible Environmental Marketing Communications, 2010
- ³³See Michael Maniates and John M. Meyer, Eds., *The Environmental Politics of Sacrifice*, 2010.
- ³⁴Corporate Sustainability Initiative, *An Overview of Eco-labels and Sustainability Certifications in the Global Marketplace*, October 2010/*Consumentenonderzoek 2010 (Consumer Research 2010)*, Deloitte Netherlands
- ³⁵See *A New Era of Sustainability*, Accenture/United Nations Global Compact, June 2010.
- ³⁶http://www.metrogroup.de/servlet/PB/menu/1227560_l2/index.html.
- ³⁷See for example www.nestle-waters.com/environment/nestle-waters-impact/global-footprint.html.
- ³⁸See ww2.defra.gov.uk/environment/economy/purchasing/
- ³⁹Implementation of Executive Order 13514 signed by President Obama on 5 October 2009.
- ⁴⁰See James Bradfield Moody, *The Sixth Wave*, 2010. Sixthwave.org.
- ⁴¹See *Redesigning Business Value*, World Economic Forum, 2010, p12.
- ⁴²See *The Transparent Economy: Six Tigers Stalk the Global Economy and How to Tame Them*, Global Reporting Initiative/Volans, 2010.
- ⁴³See www.interfaceglobal.com/sustainability.
- ⁴⁴See <http://business.carbon-label.com/casestudies/Walkers.pd>.
- ⁴⁵See Annex 1 for Inventory of Life Cycle Initiatives
- ⁴⁶See the Center for Sustainable Consumption and Production's Sustainability Hot Spot Toolbox, *Supporting Policies for Business Strategies towards Sustainable Consumption*, 2010.
- ⁴⁷See www.ahold.com/node/3260.
- ⁴⁸<http://www.lca-center.dk/cms/site.aspx?p=378>.
- ⁴⁹See http://www.dsm.com/en_US/downloads/sustainability/triple_p_2009_en.pdf.
- ⁵⁰See www.carbontruststandard.com/pages/sme.
- ⁵¹The Sustainability Consortium, see <http://www.sustainabilityconsortium.org/>
- ⁵²See Henry Chesbrough, *Open Innovation: The New Imperative for Creating and Profiting from Technology*, 2003.
- ⁵³For more information, see UNEP case study, *Sustainable Environmental Education in the Kyrgyz Republic*.
- ⁵⁴See gpnindia.org
- ⁵⁵www.adcouncil.org.
- ⁵⁶See Jason Potts, Jessica van der Meer, Jaclyn Daitchman, *State of Sustainability Initiatives Review 2010: Sustainability and Transparency*, IISD, 2010.
- ⁵⁷See http://www.asiaeec-col.eccj.or.jp/top_runner/index.html.
- ⁵⁸Directive 2009/125/EC of the European Parliament and the Council of 21 October 2009, establishes a framework for the setting of eco-design requirements for energy-using products.
- ⁵⁹More information can be found at www.ecolabelling.com.



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